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DRAFT REPORT

ON

**LEGAL AND INSTITUTIONAL ANALYSIS OF AIRCRAFT
AND AIRPORT NOISE AND APPORTIONMENT OF
AUTHORITY BETWEEN FEDERAL, STATE,
AND LOCAL GOVERNMENTS**

FOR

**ENVIRONMENTAL PROTECTION AGENCY
AIRCRAFT/AIRPORT NOISE REPORT STUDY**

1 JUNE 1973

TASK GROUP 1

ELIZABETH CUADRA, CHAIRWOMAN



OFFICE OF AIR AND WATER POLLUTION CONTROL

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This report has been approved for general availability. The contents of this report reflect the views of this task force, which is responsible for the facts and the accuracy of the data presented herein, and do not necessarily reflect the official views or policy of EPA. This report does not constitute a standard, specification, or regulation.

PREFACE

The Noise Control Act of 1972 (Public Law 92-574) directs the Environmental Protection Agency (EPA) to study the adequacy of current and planned regulatory action taken by the Federal Aviation Administration (FAA) in the exercise of FAA authority to abate and control aircraft/airport noise. The study is to be conducted in consultation with appropriate Federal, state and local agencies and interested persons. Further, this study is to include consideration of additional Federal and state authorities and measures available to airports and local governments in controlling aircraft noise. The resulting report is to be submitted to Congress on or before July 27, 1973.

The governing provision of the 1972 Act states:

"Sec. 7(a). The Administrator, after consultation with appropriate Federal, state, and local agencies and interested persons, shall conduct a study of the (1) adequacy of Federal Aviation Administration flight and operational noise controls; (2) adequacy of noise emission standards on new and existing aircraft, together with recommendations on the retrofitting and phaseout of existing aircraft; (3) implications of identifying and achieving levels of cumulative noise exposure around airports; and (4) additional measures available to airport operators and local governments to control aircraft noise. He shall report on such study to the Committee on Interstate and Foreign Commerce of the House of Representatives and the Committees on Commerce and Public Works of the Senate within nine months after the date of the enactment of this act."

Under Section 7(c) of the Act, not earlier than the date of submission of the report to Congress, the Environmental Protection Agency is to:

"Submit to the Federal Aviation Administration proposed regulations to provide such control and abatement of aircraft noise and sonic boom (including control and abatement through the exercise of any of the FAA's regulatory authority over air commerce or transportation or over aircraft or airport operations) as EPA determines is necessary to protect the public health and welfare."

The study to develop the Section 7(a) report was carried out through a participatory and consultive process involving a task force. That task force was made up of six task groups. The functions of these six task groups were to:

1. Consider legal and institutional aspects of aircraft and airport noise and the apportionment of authority between Federal, state, and local governments.

2. Consider aircraft and airport operations including monitoring, enforcement, safety, and costs.

3. Consider the characterization of the impact of airport community noise and to develop a cumulative noise exposure measure.

4. Identify noise source abatement technology, including retrofit, and to conduct cost analyses.

5. Review and analyze present and planned FAA noise regulatory actions and their consequences regarding aircraft and airport operations.

6. Consider military aircraft and airport noise and opportunities for reduction of such noise without inhibition of military missions.

The membership of the task force was enlisted by sending letters of invitation to a sampling of organizations intended to constitute a representation of the various sectors of interest. These organizations included other Federal agencies; organizations representing state and local governments, environmental and consumer action groups, professional societies, pilots, air traffic controllers, airport proprietors, airlines, users of general aviation aircraft, and aircraft manufacturers. In addition to the invitation letters, a press release was distributed concerning the study, and additional persons or organizations expressing interest were included into the task force. Written inputs from others, including all citizen noise complaint letters received over the period of the study, were called to the attention of appropriate task group leaders and placed in the public master file for reference.

During the Task Force efforts, from mid-February to mid-June, there were seven full days of meetings of Task Group 1, supplemented by numerous working meetings of writing groups and extensive additional work on the part of many of the task group members.

Methods of participation by task group members included:

1. Presentation of data and position papers and associated discussion during task group meetings.
2. Participation in structuring the scope and outline of the task group report.
3. Authorship of sections of the initial draft of the task group report.
4. Review and comment (both within writing groups and in full task group) upon initial drafts by others.

After completion of a rough initial draft report (except for the recommendations section), the EPA staff made a critical editorial review and revised the draft report, incorporating a new "recommendations" section for the task group review. Prior to preparation of the "recommendations" section, the chairman requested all organizations represented to submit their preliminary recommendations, and those received to date of that draft were considered in drafting the preliminary section on "recommendations" and were circulated with the draft report to all task group members.

At the final meeting of the task group, the draft report and the recommendations were discussed, with emphasis on the recommendations. The chairman had at first believed that the difficult and controversial subjects of the task group assignment would make it nearly impossible to obtain a set of consensus recommendations from the task group. However, during the final task group meeting, by a process of discussion by all members present, some preliminary recommendations were discarded, some modified and new recommendations added. The recommendations presented herein, in Section V, are the resulting consensus recommendations of the group participants, with the following two provisions (agreed upon in the meeting):

1. That not every participant concurs with every recommendation, though consensus existed on each.
2. That the positions of the organizations represented in the task group are those submitted by them and printed herein in Appendix B.

The remaining participation process includes a final meeting of the entire Task Force (all six task groups together). In preparation for this meeting, the reports of all six task groups are now being cross-mailed to all task force members, together with the first draft of EPA executive summary report, for their review prior to this final meeting. That meeting represents the final opportunity for task force members to modify or amend their positions, or to comment upon task group reports or EPA draft summary report, before those reports are finalized.

This task group process has not, of course, succeeded in resolving all the differing opinions held by the various group members. However, there has been a beneficial learning and mutual communication experience in which the development of solution concepts has prospered, and by which many of the members have at least come to understand and respect the various points of view.

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SECTION I-1

INTRODUCTION

Congress in enacting Section 7 of the Noise Control Act of 1972, was basically asking the question, "Why hasn't the aircraft noise problem been solved?" Various estimates of the number of persons dwelling within severely noise-impacted communities around airports range from 7 to 15 million; and whatever the number, it continues to increase. Major difficulties face proponents of new airports, airport expansions or introduction of jet service because of the severe environmental disbenefits which the public has learned to expect along with the economic benefits. In spite of the existence of much available knowledge for making aircraft and airports quieter and for designing and controlling land use patterns, there are no comprehensive plans and implementation programs which will enable all levels of government and all concerned sectors to participate effectively in the solution of the aircraft/airport noise problem. To the extent the present legal/institutional framework for aircraft/airport noise regulation is intended to address and solve this problem, it has not been notably successful to date.

Task Group 1, "Legal/Institutional Analysis," was therefore charged with the following task:

1. Clearly setting forth the existing legal/institutional framework for aircraft/airport noise control, including all levels of government.
2. Identifying constraints and shortcomings of the existing legal/institutional system that may be impeding the implementation of available solutions.
3. Making recommendations for structuring of legal/institutional changes that would facilitate an accelerated and comprehensive solution of the aircraft/airport noise problem, both by actions within existing authorities and through legislative changes.

In the following sections, the existing legal/institutional structure is described, as it relates to the exposure of people to the noise of aircraft. Criteria for the evaluation of legal/institutional arrangements, whether existing or proposed, are then developed.

Using these criteria, an evaluation of the existing legal/institutional system is provided in order to illuminate the major constraints and problem areas which exist. Potential alternatives involving both (a) modifications of some aspects of the existing system and (b) fuller utilization of the existing system are proposed and discussed as to their relative merits. Finally, the consensus recommendations of Task Group 1 are presented for consideration.

Appended to this report are list of the members of the task group (Appendix A), the formal recommendations submitted by member organizations (Appendix B), list of the master file documents collected by the task group efforts and related reports generated by the task force effort (Appendix C), including both the reports of other task groups and reports resulting from contracted studies.

SECTION I-2

THE EXISTING LEGAL/INSTITUTIONAL STRUCTURE

The Noise Control Act of 1972¹ directs the Environmental Protection Agency (EPA) to study, in consultation with appropriate Federal, State and local agencies and interested persons, the adequacy of current and planned regulatory action by the Federal Aviation Administration (FAA) in the exercise of its authority to abate and control aircraft/airport noise. This study is to include consideration of additional Federal and State authorities and measures available to airport and local governments in controlling aircraft noise. The resulting report is to be submitted to Congress on or before July 27, 1973. The governing provision of the 1972 Act² has been quoted in the preface of this report.

The purpose of this section will be to analyze with objectivity the existing legal and institutional authority covering the problem of airport/aircraft noise from the point of view of what now exists and what has been done. On the basis of this analysis, consideration will then be given as to how the legal-institutional framework can be better used or changed so as to provide both short-run improvement and long-run accomplishment of the Congressional charge to abate and control aircraft and airport noise.

CONSTITUTIONAL FRAMEWORK

Under the Constitution Congress has the power to regulate interstate air commerce.³ In theory this power is complete; but in areas where Congress has not completely exercised the power and the States have acted the test becomes more practical; i.e., does the State regulation substantially impede or burden interstate commerce? Here a second Constitutional provision comes into play. This is the Supremacy Clause⁴ which so far as is relevant here, has been interpreted to mean that where

Congress has acted or where it has provided for Federal regulatory action that has been specifically taken, the area covered is said to be "preempted" so as to preclude any State or local government action that conflicts with or denigrates from the Federal action. This matter of "preemption" sounds simple enough to be workable. However in the area of aircraft/airport noise, the case law has added a complication that will be discussed in detail later (ref. p. 1-2-46).

Suffice it here to point out that if a State or local government by use of its police power attempts to protect its citizens by limiting the flight of noisy aircraft, the attempt is invalid as a matter of Federal preemption.⁵ On the other hand, if the airport owner makes the same attempt as its right as a property owner, the resulting control of use of the airport either on the basis of time of day or night or by type of aircraft may well be valid.⁶ As will also be discussed later (ref. p. 77) this result is arguably reasonable because of the fact that the case law also consistently holds that it is the airport owner which is liable for adjacent property destruction caused by the aircraft/airport noise.

FEDERAL AGENCY POWERS AND IMPLEMENTATION

FEDERAL AVIATION ADMINISTRATION AND DEPARTMENT OF TRANSPORTATION

The basic Federal aviation legislation is the Federal Aviation Act of 1958.⁷ For purposes of this discussion and analysis, Titles III and VI of that Act are relevant.

"Expenditure of Federal Funds for Certain Airports, etc.

"Airports for Other Than Military Purposes

"Sec. 302. (a) No Federal funds, other than those expended under this Act, shall be expended, other than for military purposes (whether or not in cooperation with State or other local governmental agencies), for the acquisition, establishment, construction, alteration, repair, maintenance, or operation of any landing area, or for the acquisition, establishment, construction maintenance, or operation of air navigation facilities thereon, except upon written recommendation and certification by the Administrator that such landing area or facility is reasonably necessary for use in air commerce or in the interests of national defense. Any interested person may apply to the

Administrator, under regulations prescribed by him, for such recommendation and certification with respect to any landing area or air navigation facility proposed to be established, constructed, altered, repaired, maintained, or operated by or in the interest of such person. There shall be no exclusive right for the use of any landing area or air navigation facility upon which Federal funds have been expended.

"Location of Airports, Landing Areas, and Missile and Rocket Sites

"(b) In order to assure conformity to plans and policies for allocations of airspace by the Administrator under section 307 of this Act, no military airport or landing area, or missile or rocket site shall be acquired, established, or constructed, or any runway layout substantially altered, unless reasonable prior notice thereof is given the Administrator so that he may advise with the appropriate committees of the Congress and other interested agencies as to the effects of such acquisition, establishment, construction, or alteration on the use of airspace by aircraft. In case of a disagreement between the Administrator and the Department of Defense or the National Aeronautics and Space Administration the matter may be appealed to the President for final determination..."

"Airspace Control and Facilities"

"Use of Airspace

"Sec 307. (a) The Administrator is authorized and directed to develop plans for and formulate policy with respect to the use of the Navigable airspace; and assign by rule, regulation, or order the use of the navigable airspace under such terms, conditions, and limitations as he may deem necessary in order to insure the safety of aircraft and the efficient utilization of such airspace. He may modify or revoke such assignment when required in the public interest.

"Air Navigation Facilities

"(b) The Administrator is authorized within the limits of available appropriations made by the Congress, (1) to acquire, establish, and improve air navigation facilities wherever necessary; (2) to operate and maintain such air navigation facilities; (3) to arrange for publication of aeronautical maps and charts necessary for the safe and efficient movement of aircraft in air navigation utilizing the facilities and assistance of existing agencies of the Government so far as practicable; and (4) to provide necessary facilities and personnel for the regulation and protection of air traffic.

"Air Traffic Rules

"(c) The Administrator is further authorized and directed to prescribe air traffic rules and regulations governing the flight of aircraft, for the navigation, protection, and identification of aircraft, for the protection of persons and property on the ground, and for the efficient utilization of the navigable airspace, including rules as to safe altitudes of flight and rules for the prevention of collision between aircraft, between aircraft and land or water vehicles, and between aircraft and airborne objects. . . .

"Exemptions

"(e) The Administrator from time to time may grant exemptions from the requirements of any rule or regulation prescribed under this title if he finds that such action would be in the public interest.

"Exception for Military Emergencies

"(f) When it is essential to the defense of the United States because of a military emergency or urgent military necessity, and when appropriate military authority so determines, and when prior notice thereof is given to the Administrator, such military authority may authorize deviation by military aircraft of the national defense forces of the United States from air traffic rules issued pursuant to this title. Such prior notice shall be given to the Administrator at the earliest time practicable and, to the extent time and circumstances permit, every reasonable effort shall be made to consult fully with the Administrator and to arrange in advance for the required deviation from the rules on a mutually acceptable basis. . . .

"Other Airports

"Sec. 309. In order to assure conformity to plans and policies for, and allocations of, airspace by the Administrator under section 307 of this Act, no airport or landing area not involving expenditure of Federal funds shall be established, or constructed or any runway layout substantially altered unless reasonably prior notice thereof is given the Administrator, pursuant to regulations prescribed by him, so that he may advise as to the effects of such construction on the use of airspace by aircraft. . . .

"Other Powers and Duties of Administrator

"General

"Sec. 313. (a) The Administrator is empowered to perform such acts, to conduct such investigations, to issue and amend such orders, and to make and amend such general or special rules, regulations, and procedures pursuant to and consistent with the provisions of this Act, as he shall deem necessary to carry out the provisions of, and to exercise and perform his powers and duties under, this Act."

The rules FAA establishes under the 1958 Act are called Federal Aviation Regulations (FARs) and are printed in Parts 1 to 200 of Title 14 of the Code of Federal Regulations. Pursuant to the "direction" in Section 307 (c) "to prescribe air traffic rules and regulations governing the flight of aircraft . . . for the protection of persons and property on the ground . . .," the Federal Aviation Agency (now the Federal Aviation Administration or FAA) issued regulations for noise abatement, requiring preferential runway systems and courses, approaches and altitudes for landings and takeoffs first at specific airports with severe noise problems, including J. F. Kennedy and Washington National⁸ and subsequently at all airports with FAA operated control towers.⁹

To justify this action the FAA has stated that it "considers [its] statutory authority [under Section 307 (c)] adequate to prescribe rules restricting the pollution of the airspace by aircraft engines when that pollution has an adverse effect upon person or property on the ground. . . ."¹⁰

While it is clear that the actions taken by the FAA, as well as the applicable case law, which will be analyzed later in this report, confirm the view that Title III of the 1958 Act authorized and directed aircraft noise abatement under air traffic rule and flight regulation authority, whether or not that authority was fully exercised, it is equally clear that Title VI of the 1958 Act conveyed no such authority until Title VI was amended by the addition of Section 611 in 1968.¹¹

Title VI sets forth the general FAA safety powers and duties. Section 601 sets forth the general safety standards that were to be met in the issuance of certificates that were to be issued by the FAA under the subsequent sections of Title VI. Section

602 provides for "Airman Certificates," Section 603 for "Aircraft Certificates," and Section 604 for "Air Carrier Operating Certificates." Section 606 deals with the certification of an "Air Navigation Facility," which includes airports.¹²

The text of Section 606 is as follows:

"Sec. 606. The Administrator is empowered to inspect, classify, and rate any air navigation facility available for the use of civil aircraft as to its suitability for such use. The Administrator is empowered to issue a certificate for any such air navigation facility."¹³

The 1966 Department of Transportation (DOT) Act,¹⁴ which established the FAA as an agency within DOT, directed the Secretary of Transportation to "promote and undertake research and development relating to transportation, including noise abatement, with particular attention to aircraft noise."¹⁵ Further, the Secretary of DOT and Administrator of the FAA were given the same authority previously vested in the Federal Aviation Agency, and the action of the Secretary and Administrator have the same force and effect as when exercised by their predecessors.¹⁶

Amendments to the 1958 Act

As noted previously, in 1968, Title VI of the 1958 Act was amended by the addition of Section 611 which requires aircraft/airport noise to be added to the criteria that must be taken into account in issuing a Title VI certificate. More specifically, the 1968 addition of the new Section 611 directs and empowers the FAA, after consultation with the DOT, to prescribe

"Standards for the measurement of aircraft noise. . . and prescribe and amend such rules and regulations as [the FAA] may find necessary to provide for the control and abatement of aircraft noise. . . including the application of such standards, rules and regulations in the issuance . . . of any certificate authorized by [Title VI]."

In 1970, the Airport and Airway Development Act (AADA)¹⁷, also by way of an amendment to the 1958 Act¹⁸ required that every airport serving civil air carriers operated under a CAB certificate of public convenience and necessity must obtain an

airport operating certificate under Section 606 from the FAA. The text of the AADA amendment to the 1958 Act, which adds a new Section 612, reads as follows:

"AIRPORT OPERATING CERTIFICATES

"POWER TO ISSUE

"Sec. 612. (a) The Administrator is empowered to issue airport operating certificates to airports serving air carrier certified by the Civil Aeronautics Board and to establish minimum safety standards for the operation of such airports.

"ISSUANCE

"(b) Any person desiring to operate an airport serving air carriers certificated by the Civil Aeronautics Board may file with the Administrator an application for an airport operating certificate. If the Administrator finds, after investigation, that such person is properly and adequately equipped and able to conduct a safe operation in accordance with the requirements of this Act and the rules, regulations, and standards prescribed thereunder, he shall issue an airport operating certificate to such person. Each airport operating certificate shall prescribe such terms, conditions, and limitations as are reasonably necessary to assure safety in air transportation, including but not limited to, terms, conditions, and limitations as are reasonably necessary to assure safety in air transportation, including but not limited to, terms, conditions, and limitations relating to --

"(1) the installation, operation, and maintenance of adequate navigation facilities; and

"(2) the operation and maintenance of adequate safety equipment, including firefighting and rescue equipment capable of rapid access to any portion of the airport used for the landing, takeoff, or surface maneuvering of aircraft."

The most recent amendment to the 1958 Act is the amendment of Section 611 by the 1972 Act.¹⁹ As amended, Section 611 in pertinent part now reads as follows:

"Sec 611 (a) For purposes of this section:

"(1) The term 'FAA' means the Administrator of the Federal Aviation Administration.

"(2) The term 'EPA' means the Administrator of the Environmental Protection Agency.

"(b) (1) In order to afford present and future relief and protection to the public health and welfare from aircraft noise and sonic boom, the FAA, after consultation with the Secretary of Transportation with EPA, shall prescribe and amend standards for the measurement of aircraft noise and sonic boom and shall prescribe and amend such regulations as the FAA may find necessary to provide for the control and abatement of aircraft noise and sonic boom, including the application of such standards and regulations in the issuance, amendment, modification, suspension, or revocation of any certificate authorized by this title. No exemption with respect to any standard or regulation under this section may be granted under any provision of this Act unless the FAA shall have consulted with EPA before such exemption is granted, except that if the FAA determines that safety in air commerce of air transportation requires that such an exemption be granted before EPA can be consulted, the FAA shall consult with EPA as soon as practicable after the exemption is granted.

"(2) The FAA shall not issue an original type certificate under section 603 (a) of this Act for any aircraft for which substantial noise abatement can be achieved by prescribing standards and regulations in accordance with this section, unless he shall have prescribed standards and regulations in accordance with this section which apply to such aircraft and which protect the public from aircraft noise and sonic boom, consistent with the considerations listed in subsection (d) . . .

"(d) In prescribing the amending standards and regulations under this section, the FAA shall - -

(1) consider relevant available data relating to aircraft noise and sonic boom, including the results or research, development, testing, and evaluation activities conducted pursuant to this Act and the Department of Transportation Act;

"(2) consult with such Federal, State and interstate agencies as he deems appropriate;

"(3) consider whether any proposed standard or regulation is consistent with the highest degree of safety in air commerce or air transportation in the public interest;

"(4) consider whether any proposed standard or regulation is economically reasonable, technologically practicable, and appropriate for the particular type of aircraft, aircraft engine, appliance, or certificate to which it will apply;

"(5) consider the extent to which such standard or regulation will contribute to carrying out the purpose of this section.

"(c) If any action to amend, modify, suspend, or revoke a certificate in which violation of aircraft noise or sonic boom standards or regulation is at issue, the certificate holder shall have the same notice and appeal rights as are contained in section 609, and in any appeal to the National Transportation Safety Board, the Board may amend, modify or reverse the order of the FAA if it finds that control or abatement of aircraft noise or sonic boom and the public health and welfare do not require the affirmation of such order, or that such order is not consistent with safety in air commerce or air transportation."

A rule issued pursuant to § 612 prohibiting domestic and flag carriers from operating large fixed wing airplanes into a regular airport in the U.S. after May 20, 1973 unless the airport has been certificated "supports the safety objectives" of FAR 139²⁰, and has no reference to noise considerations.

It would seem clear, however, that by exercising authority under § 611 to apply noise "standards and regulations in the issuance . . . of any certificate. . ." the FAA could include noise standards or regulations in an airport operator's certificate pursuant to § 612. In brief, authority exists for the FAA to certify airports for cumulative noise exposure levels, based upon standards recommended by the EPA for protection of the public health and welfare.

The National Environmental Policy Act of 1969 (NEPA),²¹ imposes environmental requirements on the FAA, as well as on the other agencies. NEPA was enacted to ensure that federal programs and activities, to the extent practicable, will not have consequences inimical to the environment. To make certain that full consideration is given to environmental factors in agency planning, Section 102(2) (c) of the Act²² provides that:

"To the fullest extent possible . . . all agencies of the Federal Government shall . . . include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official . . ."

The Council on Environment Quality (CEQ), a body established under Section 202 of NEPA²³ to review the activities of the federal agencies and in general to aid the President in formulating policy on environmental matters, has, pursuant to its mandate in Executive Order No. 11514,²⁴ issued guidelines for the preparation of impact statements.²⁵ The Department of Transportation has, for its own operating purposes, issued an order entitled "Procedures for Considering Environmental Impacts."²⁶ Paragraph 8 of the order requires that a proposal for agency action be accompanied either by a declaration that the proposed action will not have a significant impact on the environment or by a Section 102(2) (C) Environmental Impact Statement.

Section 12 of the 1970 Airport and Airway Development Act,²⁷ also requires DOT to formulate a "National Airport System Plan," which is designed to aid the development of public airports until at least May 21, 1982. Factors of mandatory consideration in the development of the Plan include "the relationship of each airport to the rest of the transportation system in the particular area, to the forecasted technological developments in aeronautics, and to developments forecasted in other modes of intercity transportation."²⁸ The Act specifically directs the Secretary to consult with the Council on Environmental Quality and the Secretaries of HEW, Agriculture and Interior, and to incorporate their recommendations "with regard to the preservation of environmental quality . . . to the extent . . . feasible . . ."²⁹

The AADA also established the Aviation Advisory Commission to "formulate recommendations concerning the long range needs of aviation. . . surrounding land uses, ground access, airways, air service and aircraft, compatible with (the National Airport System Plan)."³⁰ This Commission has recently submitted to the President and Congress a report on its studies and recommendations.³¹

Encompassing this entire process of application, hearing and approval at all levels for new airport or runway development, or runway extension, is a declaration of national policy that:

"airport development projects authorized pursuant to this subchapter shall provide for the protection and enhancement of the natural resources and the quality of environment of the Nation."³²

The Secretary may not approve an airport development project found to have an adverse environmental impact unless he has issued a written statement that there is "no feasible and prudent alternative"³³ and that "all possible steps have been taken to minimize" the environmental damage.³⁴ Such rejection, however, is on an ad hoc basis, there being no advance Federal guidance for the planning of airport projects.³⁵

Even if a project satisfies the needs of local environmental conditions, it must also meet Federal substantive standards. Section 16(a)³⁶ requires that all proposed development be "in accordance with standards established by the Secretary, including standards for site location [and] airport layout" This allows DOT/FAA to prescribe standards for airport location, layout and improvements based on noise considerations.

Commencing with the Federal Aid to Airports Act of 1946,³⁷ there have been Federal grants-in-aid programs for establishing and developing publicly owned airports. In 1964 Congress amended the 1946 Act to require that any airport receiving Federal funds must have taken "appropriate action, including the adoption of zoning laws, . . . to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations. . . ."³⁸ This language allows the issuance of noise guidelines, for sponsors based in part on noise considerations. The current grant program³⁹ is funded from the Airport and Airway Trust Fund which was created by the Airport and Airway Revenue Act of 1970, the companion Act of AADA.⁴⁰

Section 16(c) of AADA provides:

"(3) No airport development project may be approved by the Secretary unless he is satisfied that fair consideration has been given to the interest of communities in or near which the project may be located.

"(4) It is declared to be national policy that airport development projects authorized pursuant to this part shall provide for the protection and enhancement of the natural resources and the quality of the environment of the nation...⁴¹

While it may be assumed that the grant allocations made thus far are consistent with the directives of the above provisions, it does not appear that aircraft/airport noise abatement has been a prime objective of such grants. However, there is no apparent reason why aircraft/airport noise should not be a prime factor for consideration under each of the ADAP and PGP programs.

Further regulatory actions by Federal Aviation Administration is seen in the promulgation by the FAA of Part 36 of the Federal Aviation Regulations. Part 36 sets standards, as provided for by the 1968 amendment which added Section 611 to the 1958 Act, for type certification of future subsonic transport category aircraft and of turbojet aircraft regardless of category. Part 36 does not require the retrofit of existing aircraft; however, the FAA has stated in the preamble to Part 36 that further noise reduction will be required as technology progresses.

In the Noise Control Act of 1972⁴² Congress declared that "Federal action is essential to deal with major noise sources in commerce, the control of which requires national uniformity of treatment."⁴³ The purpose of the Act is the "effective coordination of Federal research and activity in noise control."⁴⁴ To this end the Act authorizes the establishment of Federal noise emission standards for products distributed in commerce as well as providing information concerning those standards to the public.⁴⁵

While the Noise Control Act requires each Federal agency to consult with the Administrator of the Environmental Protection Agency (EPA) in prescribing standards and regulations respecting noise,⁴⁶ it specifically provides that the 1968 Amendment

to the Federal Aviation Act of 1958, previously cited, applies to the FAA noise reduction programs in lieu of the more general provisions of the Noise Control Act.⁴⁷ A principal provision of the 1972 Amendment requires the FAA, after consultation with the Secretary of Transportation and EPA, to prescribe and amend standards for the measurement of aircraft noise and sonic boom in order to protect the public health and welfare.⁴⁸ The Noise Control Act further amends the 1968 Amendment by requiring the EPA to submit to the FAA proposed regulations to provide for the control and abatement of aircraft noise and sonic boom as EPA determines is necessary to protect the public health and welfare.⁴⁹

The FAA has final authority as between the two agencies on whether to implement the EPA recommendations, after due opportunity for a public hearing has been provided.⁵⁰ If the FAA does not adopt the EPA recommendations and the EPA has reason to believe that the FAA action does not protect the public health and welfare from aircraft noise and sonic boom, EPA may request the FAA to reconsider the original EPA proposal.⁵¹ This request is to be published in the Federal Register. The FAA must thereafter give a detailed report to EPA on its review. This report is to be published in the Federal Register, unless the FAA intends to implement the specific action proposed by EPA.

As mentioned above NEPA was enacted to ensure that Federal programs and activities, to the extent practicable, will not have consequences inimical to the environment. Furthermore CEQ has issued its guidelines for the preparation of impact statements; and DOT has issued its order entitled "Procedures for Considering Environmental Impacts." However, the only FAA order that has been released to date in compliance with the DOT order sets forth the Administration's policy and procedure concerning the abatement of environmental pollutants generated by FAA facilities.⁵² The purpose of the program is to build on existing legislation and efforts to abate air and water pollution at Federal facilities, including environmental pollutants such as noise, radiation and solid waste. The term "facilities" was defined to include aircraft owned by or constructed or manufactured for the purpose of leasing to the Federal government.

The order directed compliance by all FAA owned or leased facilities, and included the requirement that all future owned or leased facilities must be designed, operated, and maintained to conform with specific pollution standards.

In an earlier pronouncement, which set forth its plan for implementation of NEPA with regard to airport construction projects, the FAA declared that an action will be considered significant enough to warrant the preparation of an impact statement if it has effects similar to those outlined in the DOT order.⁵³ The Civil Aeronautics Board has issued a Statement of General Policy under NEPA, effective June 25, 1970.⁵⁴

Note should also be made of subchapter IV of the Intergovernmental Cooperation Act of 1968, which is concerned with development assistance programs.⁵⁵ Under its provisions the President is directed to establish rules and regulations governing the formulation, evaluation and review of Federal programs and projects that have a significant impact on area and community development. The objectives to be considered in formulating the rules and regulations include a balanced transportation system (including air transport), development and conservation of natural resources, and adequate outdoor recreation and open space. The viewpoints of national, regional, state, and local concerns are to be fully considered.

Under Section 307(c) of the Federal Aviation Act, the FAA has been given the power to protect "persons and property on the ground," as well as in the air.⁵⁶ Pursuant to this power, and its power to prescribe rules for the safe and efficient use of the navigable airspace, the FAA, as noted on page I-2-5, had prior to 1968, issued regulations for the purpose of noise abatement, prescribing, among other things, preferential runway systems and courses and altitudes for landings and take-offs, first at several airports including Washington National and Kennedy and later, under a general regulation, at all airports with control towers. The regulations were designed to require the use of approach and departure procedures in order to minimize noise levels to the surrounding community. Within the limitations of existing operating conditions, such as wind velocity, traffic volume and runway length,

the preferential runway system directs the use of the runway that will expose the community to the least noise possible.

Under the later regulation, FAA controllers, by their Air Traffic Control clearances, may bring individual operations within the scope of FAA regulatory power. Violations of FAA regulations or such clearances are subject to penalties prescribed by the Federal Aviation Act and FAA regulations.⁵⁷ Thus through tower clearances the FAA can play a substantial role in implementing the operational noise-abatement system of a particular airport. Of course the FAA controller, on his own or at the pilot's request or insistence, may determine that a preferred procedure should not be followed in a particular operation in the interest of safety.

In 1969 the FAA acted to limit the number of operations by different categories of aircraft, during certain hours, at 5 major airports.⁵⁸ This application of the FAA power over flow control in order to achieve the most efficient use of the navigable airspace was stated to be aimed at relieving air traffic delays, but it could have been exercised to reduce noise levels. These regulations of flow control have not been challenged as an exercise of Title III controls over efficient use of the navigable airspace. Those controls also authorize the protection of persons and property on the ground.

As an example of how these powers could be used to effect a reduction in noise, the FAA could ban flights at night at certain airports or on certain runways; it could direct flights to other less impacted airports; or perhaps order the elimination of flights, subject to the following paragraph.

There is a possibility of concurrent jurisdiction problems between the FAA and CAB. The CAB is authorized to permit discussions and agreements among carriers which affect air transportation.⁵⁹ The carriers have agreed to route-capacity agreements to limit the frequency of operations. The CAB has approved such agreements in certain instances.⁶⁰ At the same time, as explained, the FAA has the authority to change the flow of air carrier operations in order to lessen overall noise levels.

Since the considerations that guide each of the two agencies in allowing or ordering such changes in operations are premised on different bases, their powers could be reconciled.

In the specific instance of Washington National Airport (DCA) and Dulles International Airport (IAD) both of which are considered regional airports for the Washington, D. C. , area (Friendship Airport at Baltimore is considered the third regional airport for the D. C. area), the FAA has published in the Federal Register a notice that it proposes to refine its policy concerning the present and future roles of these two airports in meeting the needs of air transportation in the Washington area.⁶¹ It might be noted that the FAA, besides being the governmental agency empowered to regulate these two airports, is also the proprietor of them. However, the notice indicates that the FAA promulgated the notice in both capacities. The measure is in part directed to the reduction of noise levels at DCA. The FAA proposes that DCA by January 1, 1974, be operated solely as a short-haul airport insofar as air carrier operations are concerned, with the longer-haul flights being shifted to IAD. Air carriers would not be permitted to operate a new aircraft type into DCA unless the new aircraft were quieter and resulted on an average day in less air emissions on a per-passenger-seat basis than the aircraft it replaces and were to be used for service within the range of the short-haul provisions of this policy. On the other hand, there would not be any restriction at DCA on any type of aircraft that was more acceptable in these terms, except as might be dictated by safety considerations or the physical limitations of the airfield.

FAA Rule Making

As just noted, the only regulation promulgated to date by the FAA, pursuant to its authority under the 1968 Amendment "to prescribe and amend such regulations as [it] may find necessary to provide for the control and abatement of aircraft noise and sonic boom"⁶² is Part 36 of the Federal Aviation Regulations.⁶³ This part sets forth the noise-emission limits for type certification of new subsonic jet or propeller powered transport category aircraft and all subsonic jet aircraft regardless of category.⁶⁴

On the rationale that the modification of aircraft already in use or manufactured under an existing type certificate involved different economic and technical considerations from the design of new aircraft, the FAA wrote Part 36 to apply only to airplanes for which new type certificates are sought, with the commitment to propose noise standards for older aircraft at the earliest possible time.⁶⁵

When Part 36 became effective a number of applications for new aircraft within its scope were pending. One application for certification of a major aircraft, the Boeing 747, had been pending before the 1968 amendment to the Federal Aviation Act was enacted and before the FAA proposed Part 36. Consequently, the designing of that aircraft was well along before it became clear that the government would impose mandatory noise limits.

Initially, Part 36 required all new aircraft having turbojet engines with bypass ratios of 2 or more to meet the standards imposed for future airplanes. With respect to aircraft on which applications had been filed, no matter how long ago, manufacturers were merely required to furnish information to flight crews on how to minimize noise in the operation of the planes.⁶⁶ This approach was changed in two ways when the rules were finally adopted.

The first change provided for an additional tradeoff provision permitting more noise by airplanes powered by more than three turbojet engines with bypass ratios of 2 or more and for which applications had been made before December 1, 1969.⁶⁷ Second, the FAA excused the 747 from the noise limits in Appendix C, requiring only that its noise levels be reduced "to the lowest levels that are economically reasonable, technologically practicable, and appropriate to the particular type design."⁶⁸ This dispensation was limited, however, by the imposition of a time period at the end of which the certificate for the 747 was to be suspended or modified unless the aircraft had been redesigned to meet the applicable limits set forth in FAR 36 Appendix C.⁶⁹ This requirement was later met, with the FAA certifying that the type design had been changed to meet those applicable limits.

Part 36 also regulates aircraft that were type-certified before its effective date but that, after that date, undergo voluntary design changes increasing the noise levels created by the aircraft.⁷⁰ Such a change is treated as an "acoustical change," and the manufacturer must obtain FAA approval before making any such change. The purpose of the rule is to prevent escalation of aircraft noise when and if the older type certified aircraft are enlarged.⁷¹

The noise evaluation technique contained in Part 36 involves measurement of the noise produced by an aircraft at the approach, takeoff and sideline points. Before Part 36 took effect it was amended to change the conditions for testing approach noise to make explicit that the landing configuration for the noise test is to be the same as that used in satisfying the safety requirements for type certification.⁷²

In 1971 the FAA published a notice of proposed rule making concerning a possible amendment to Part 36 to require altitude and temperature accountability throughout that Part in order to strengthen the test conditions for acoustical change approvals.⁷³ The FAA has never finally adopted this amendment. In October 1972 the FAA announced that it intended to propose an amendment to Part 36 that would lower the noise limits in Appendix C for aircraft types certified in the future.⁷⁴

Since the incorporation of noise-reducing features into an airplane at the time of manufacture can normally produce greater results at lower costs than can post-manufacture modification, the FAA in July 1972 published a proposal that would require new airplanes of types certified before Part 36 took effect to comply with Appendix C noise standards.⁷⁵ The proposed requirement would apply to all transport category and turbojet aircraft, including the 707, DC-8, 727, 737 and DC-9. The airworthiness certificate issued to each copy of a type-certified aircraft would be the vehicle for ensuring that new copies of these aircraft incorporate design changes to satisfy Appendix C. If the rule were adopted as proposed, Appendix C would apply to new copies of the older aircraft types produced after the effective date.

The power of the FAA to impose retrofit rules on existing type certificated aircraft not covered by Part 36 in order to reduce noise levels is clear, as is the prospect that noise levels will begin to go down once such rules have been applied to a significant extent.

Part 36 does not require retrofitting of any existing aircraft. But the FAA stated in the preamble to Part 36⁷⁶ that further noise reduction would be required as technology progresses, and on November 4, 1970, published an advance notice of proposed rule making concerning the retrofitting of the existing type certified subsonic turbofan engine powered airplanes as a condition to their further operation.⁷⁷ The 1968 Amendment to the Federal Aviation Act was cited as the authority to undertake such rulemaking. The notice stated that the legislative history of the Amendment contemplated that retrofit would be required when feasible. In the advance notice of proposed rulemaking for retrofit the Administrator of the FAA noted that " there is an obvious public need for relief. It was the noise of the current fleet of aircraft that, in large part, led to the enactment of 49 U.S.C. § 1431 and with respect to which the public need for protection is clearly the most urgent."⁷⁸ The notice itself, however, did not propose any specific rules. To achieve this retrofit noise reduction two alternative approaches were discussed:

1. Prescribing the entire modification scheme and equipment so that the means of compliance will be clear to the carriers.
2. Setting the conditions that must be met by the retrofitted plane without setting the means to achieve the reduction in noise, thereby allowing flexibility in technologies.

As detailed in the advance notice, NASA has conducted a 3-year research program, which has demonstrated that application of special acoustical material to the engine nacelles of 707's and DC-8's could reduce the noise from these aircraft on takeoff and approach by approximately 3.5 EPNdB and 12-15 EPNdB respectively.⁷⁹ By mid-1971, however, the Administrator of the FAA announced that retrofit of these two older model planes would, in his view, yield only small benefit to the

public in view of the cost of the remodeling, the time it would take, and their ultimate replacement by newer and quieter types, and that the focus of retrofit considerations should be directed to the less noisy 727, 737 and DC-9 airplanes.⁸⁰

Procedurally, the advance notice is to be followed by a notice of proposed rule-making, and then by the final adoption of the retrofit rules. While no direct action has been taken to date with respect to ordering retrofit, the FAA, based on the comments to the advance notice, has issued an advance notice of proposed rulemaking concerning airline Fleet Noise Level (FNL).⁸¹

Civil Airplane Fleet Noise Level (FNL) would be the measure of the average noise level created by all old and new planes in a carrier's fleet. The FNL would be weighted by the number of flights made by each aircraft. The theory behind the proposal is that by pushing down the carrier's FNL, the overall aircraft noise will be reduced. The most efficient way to accomplish such reductions will be left to the carrier. Among the options that a carrier may select are: retiring noisier aircraft, reducing the frequency of their use, operating them at lower weights, and retrofitting.

The proposed regulation would:

- Prevent escalation of fleet noise levels.
- Require a reduction in fleet noise levels on or before July 1, 1976.
- Require airplanes to comply with Part 36 on or after July 1, 1978.

The proposal would apply to aircraft operated in interstate commerce, under Part 121 of the Federal Aviation Regulations⁸², by air carriers, supplemental air carriers and commercial and air taxi operators operating turbojet engine powered airplanes with maximum weights of 75,000 pounds or greater. The extent to which the proposal would apply to airplanes engaged in domestic as well as foreign operations is ambiguous. Pending achievement of the proposal's objective, the FNL concept would immediately establish an upper limit on the cumulative noise levels of each fleet operator and then would require a phased reduction of those levels so that

by July 1, 1976, at least 50 percent of the reduction required by July 1, 1978, would be achieved.⁸³ However, for reasons that are not entirely clear, the proposal would eliminate the sideline measurement.

There have been two proposals for rulemaking in the SST/sonic boom area. The first, the civil supersonic aircraft type certification rule is still in the advanced notice stage, no rules having been proposed.⁸⁴ Rather, the government has merely invited public participation to discuss different courses of action.

The period for public comment expired in November 1970 and no proposed rules have to date been published. The FAA, in the advance notice, took a definite stand that noise ceilings would be placed on such aircraft. This rule would amend Part 36 and would represent the first step in implementing the objective of establishing noise levels on supersonic airplanes and developing criteria concerning the airport noise characteristics of the airplane that must be met prior to the issuance of a type certificate.

The second proposal, in the sonic boom area, was published as a notice of proposed rule making on April 16, 1970,⁸⁵ and was promulgated on March 28, 1973.⁸⁶ It amends FAR 91,⁸⁷ which prescribes rules for the operation and maintenance of all aircraft in the country. Under the new rule, no person may operate a civil aircraft at a true flight Mach number greater than 1, except in compliance with conditions and limitations set forth in an authorization to exceed Mach 1 which is issued by the FAA to the operator under the terms of Appendix B to the new rule. Each application for an authorization to exceed Mach 1 must demonstrate that one or more of the following conditions is satisfied:

- The flight is necessary to show compliance with airworthiness requirements.
- The flight is necessary to determine the sonic boom characteristics of the of the airplane.

- The flight is necessary to establish means of reducing or eliminating the effects of sonic boom.
- The flight is necessary to demonstrate the conditions and limitations under which speeds greater than a true flight Mach number of 1 will not cause a measurable sonic boom overpressure to reach the surface.⁸⁸

Further, the application must demonstrate that the purpose of the test cannot be safely or properly accomplished by overocean testing.⁸⁹ An authorization to exceed Mach 1 is effective until it expires or is surrendered or until it is suspended or terminated by the Administrator. Such an authorization may be amended or suspended at any time, if the Administrator finds that such action is necessary to protect the environment. Any such suspension or amendment remains in effect during the period that any hearing on such action takes place.⁹⁰ The authority for the promulgation of this civil aircraft sonic boom rule is the 1968 Amendment to the Federal Aviation Act.⁹¹

The possible development of large STOL commercial aircraft during the next decade will create new demands for noise abatement technology. In addition to operating out of large commercial airports, these aircraft will operate out of short field general aviation airports, most of which have not previously created an appreciable adverse noise impact on the surrounding community. New STOL aircraft are expected to be subject to new noise certification regulations developed specifically for this type of aircraft.⁹² A design objective of 95 EPNdB at 500 feet for STOL aircraft has been tentatively selected.⁹³ Design of vehicles and propulsion systems meeting this goal is being approached by intensive research and development of suitable propulsion and lift concepts that may be examined with respect to potential jet noise technology.⁹⁴

The VTOL industry is primarily geared to military helicopter requirements, which account for approximately 80 percent of the more than 20,000 such vehicles produced prior to January 1970.⁹⁵ The industry has been engaged in research and development programs specifically aimed at reducing helicopter noise. There are regulations, however, limiting the noise of helicopters for civil use. Thus, there is little motivation for transferring this helicopter noise abatement technology into the civil sector. Since it has been demonstrated that substantial noise suppression can be provided for current helicopter designs, it is practical to consider that the helicopter can eventually be compatible with community useage.⁹⁶ In the long run, this result can be achieved only by incorporating adequate noise reduction methodology into vehicles produced for the urban user. Application of available noise control technology, however, to currently marketed light piston-powered helicopters can be fostered by regulatory action.⁹⁷

When the FAA promulgated Part 36, it explained the exclusion of STOLs and VTOLs on the ground that such aircraft presented peculiar problems because of their unconventional propulsive systems and their ability to operate in close quarters, these problems required further study and separate treatment.⁹⁸ The FAA promised to propose further rules controlling airport noise from such aircraft "at the earliest possible time,"⁹⁹ but has not yet done so.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

NASA was established by the National Aeronautics and Space Act of 1958.¹⁰⁰ The purpose of NASA under the Act is to carry out the declared policy of the United States that aeronautical and space activities sponsored by the United States shall be the responsibility of and be directed by and under the control of a civilian agency, with the exception of defense activities.¹⁰¹ NASA is authorized to:

- Conduct research into the problems of flight within and outside the earth's atmosphere.
- Develop, construct, test and operate aeronautical and space vehicles for research purposes.
- Perform such other activities as may be required for the exploration of space.¹⁰²

Noise reduction technology has been accelerated by NASA through research and development programs aimed at utilizing existing turbofan engines by modifying them with a noise reduction retrofit package. An example of such an effort is the NASA Acoustically Lined Nacelle Program, which has demonstrated the feasibility of reducing engine noise on approach and of moderately reducing takeoff and sideline noise.¹⁰³ In September 1966 NASA in conjunction with Boeing and Douglas undertook a study of potential noise reduction with respect to the JT3D engine, which is the engine used with the DC-8 and 707. This study was finally concluded in October 1969 and indicated that noise attenuation results on approach were possible for Douglas DC-8 and Boeing 707 modifications. Attenuation in approach noise on the order of 10.5 EPNdB and 15.5 EPNdB were attained in this study for the Douglas DC-8 and the Boeing 707, respectively. The primary value of the program was the demonstration that the basic concepts of sound absorption developed in various laboratories were valid for aircraft in flight.

Another NASA program, due to be completed in 1973, is the Quiet Engine Program aimed at demonstrating the feasibility of designing a new turbofan engine with

takeoff and approach levels significantly lower than any achieved to date. The objective of the program is the development, from the first stage of design, of an experimental turbofan engine having low noise production as the primary configurational constraint.¹⁰⁴

NASA, in conjunction with the FAA, the Environmental Science Services Administration, and the Department of Defense, has conducted research on sonic boom and its effects on people, animals, terrain, structures, and ecology in general. Although these efforts have had many significant technical and psychological results, they have not established a ceiling below which sonic boom caused by civil aircraft in commercial air transportation would be considered "tolerable" or "acceptable."¹⁰⁵

In connection with this study for EPA, NASA submitted a preliminary report to EPA dealing with aircraft noise reduction technology.¹⁰⁶ Reference is made to this report for a detailed presentation of the various types of research programs in the area of aircraft noise and sonic boom conducted and sponsored by NASA. This draft purports to do no more than briefly present the different kinds of research programs for which NASA has been or is responsible.

NASA has supported studies to characterize and evaluate individual and community response to aircraft noise.¹⁰⁷ It has sponsored a number of community survey research studies with the objective of establishing a correlation between the manner in which people react to airport noise and their exposure time histories and existing measurement techniques.¹⁰⁸

Technology for sonic boom assessment has not been developed as systematically as that for aircraft noise assessment. Considerable effort has been expended, however, to characterize the statistical nature of the exposure; that is, its variability from a true N-wave along with associated community and individual responses.¹⁰⁹

Laboratory studies are planned, with the use of improved facilities, to study the intrusiveness of aircraft noise, particularly the significance of background noise and the effect of low frequency noise and noise induced vibrations on the psychological and physiological responses of people.¹¹⁰

Both short- and long-range plans have been developed for airport community noise research. Data will be obtained by means of special tower facilities to better define the propagation through an inhomogeneous medium from flight altitudes to the ground at various angles. The data will be correlated with actual ground contour measurements from aircraft in flight in order to improve the capability for predicting contour patterns, particularly at large distances. Long range plans call for repeating community surveys in selected localities in order to evaluate and correlate expected changes in the noise exposure and the associated responses.¹¹¹

NASA is initiating plans to conduct in-house combustor noise tests using the existing facilities in order to determine means for predicting core noise levels and to find viable means of reducing the core noise floor. Current research is being conducted on the basic principles and problems underlying combustion noise.¹¹² Also, NASA has initiated studies of thrust reverser noise.¹¹³

Theoretical work on noise suppressors is continuing in order to provide a better understanding of suppressors and to provide better design techniques. Experimental studies with sonic (or choked) inlets have been conducted.¹¹⁴ Present research efforts are directed at making noise suppressors more efficient. Emphasis is being placed both on theoretical and experimental programs.¹¹⁵

The NASA report notes that:

"In order to progress beyond the FAR 36-10 noise levels economically, a vigorous noise reduction technology program is required. Advances in noise source reduction and improved suppression efficiency are areas of major importance for future technology programs. The fan and possibly the turbine are the primary candidates for source noise reduction program. Improvements in suppression technology are needed to increase acoustic treatment effectiveness so that less treatment will be required for a given noise reduction and also to reduce the weight per unit area of treatment by incorporating new materials or fabrication concepts or both. The use of a sonic inlet also is a promising technique for reducing the cost of noise suppression. This concept will also be evaluated in future programs."¹¹⁶

NASA also has a refan program, which applies current source abatement technology to the engines that power the narrow-body aircraft in the United States civil fleet. No advances in the state-of-the-art are anticipated. The program objectives are to demonstrate, through development of retrofit kits, that the noise produced by the narrow-body fleet can be reduced by 5 to 10 EPNdB below the Part 36 requirements, while retaining demonstrated engine reliability and maintainability and causing no degradation of aircraft performance or safety, and all at an acceptable fleet retrofit cost. Close coordination of the program is being maintained with the Department of Transportation through the Joint DOT/NASA Office of Noise Abatement.¹¹⁷

Further NASA research programs include:

- Nonpropulsive (airframe) noise.¹¹⁸
- Jet noise abatement technology, including suppression devices, inflight effects on suppression devices and core noise.¹¹⁹
- Sonic boom.¹²⁰
- Powered lift aircraft, including augments wing noise, externally blown flap noise, quiet, clean short-haul experimental engine programs and short-haul aircraft system studies.¹²¹
- Rotorcraft.¹²²
- Operating procedures, including two-segment approach studies, microwave landing systems, curved approaches and decelerating approaches.¹²³

CIVIL AERONAUTICS BOARD (CAB)

The CAB was created in 1938 by the Civil Aviation Act of 1938.¹²⁴ The Board's current authority is contained in the Federal Aviation Act of 1958, as amended.¹²⁵ Under the 1958 Act the Board is directed to regulate the economic aspects of the airline industry. Board functions under the Act include the issuance of certificates of public convenience and necessity authorizing an air carrier to engage in air transportation,¹²⁶ the approval of mergers,¹²⁷ and the regulation of air fares.¹²⁸

The Board is required by the Act to consider six factors in deciding whether a course of action is in the public interest.¹²⁹ There is no explicit requirement in that Act that the CAB consider the environmental impact of its decision. However, on September 12, 1968, the Court of Appeals for the District of Columbia, in the case of Palisades Citizens Association v. C.A.B., held that consideration of the environmental impact was implicit in its statutory authority to regulate for the public convenience and necessity.¹³⁰ On January 1, 1970, the mandate of environmental protection became explicit, as on that date the National Environmental Policy Act¹³¹ became effective.

In June of 1970, the Board issued regulations implementing the requirements of NEPA.¹³² Although the Board stated that it can interject environmental considerations in other contexts, the Board's regulations implementing NEPA state that the need for an environmental impact statement will arise most often in instances in which the Board issues a certificate authorizing air transportation: (1) To an area not previously served by air transportation; or (2) to be operated under conditions or with equipment which might result in changes significantly affecting noise or air pollution levels.¹³³

Board regulations provide for consideration of environmental factors in the context of formal Board proceedings.¹³⁴ Under Board procedures, it is the responsibility of the hearing examiner to file a final environmental impact statement after the completion of the formal proceedings if he determines that Board action will result in "a major federal action significantly affecting the quality of the human environment." If the examiner determines that there is no need for the environmental impact statement he must set forth the basis for this decision.

The basic thrust of Board environmental procedures is to develop all the environmental information needed to make an intelligent decision at the hearing stage.¹³⁵ This assumes that "the primary burden of producing environmentally relevant evidence will fall upon the applicants, parties, and agencies with environmental expertise participating or commenting on any particular proceeding."¹³⁶ The Board has stated on several occasions that this procedure meets NEPA requirements because other

agencies have expertise and authority in areas directly concerned with the environmental impact of aircraft operation and because the Board is primarily concerned with the economic regulation of the airline industry.

Although the CAB has the authority to deny a certificate authorizing air transportation if it finds that the adverse impact of the operations on the environment outweighs whatever factors point to the grant of the certificate, it cannot according to its regulations, interfere if a carrier changes schedules, increases frequency, or introduces new equipment over its authorized routes which result in new, different, or increased impact on the environment.¹³⁷ The CAB, as justification for this position, cites section 401(e)(4) of the 1958 Act, which prohibits the CAB from attaching any conditions to the grant of a certificate, and the control of aircraft and aircraft operations granted to the FAA by the same Act.

The CAB has acted to reduce congestion and lower the frequency of flights by approving capacity limitation agreements among airlines.¹³⁸ These agreements allow all carriers on a particular route to reduce the frequency of flights on that route thereby raising airline load factors.

The CAB has also acted to reduce the noise impact around congested airports by requiring that carriers on certain routes use less congested airports. Under § 401(d)(1) and 401(e)(1) of the FAA Act, the Board can find that the public interest requires the use of a particular airport and so specify the airport in the carrier's certificate. The courts have held that Board specification of a particular airport is lawful, since it was merely a description of the "points" that a carrier is authorized to serve.¹⁴⁰

The CAB is considering the desirability of discouraging excessive schedules in order to reduce airport congestion noise and air pollution in setting load factors for use in computation of fares.¹⁴¹

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)

The HUD legislative authority contains no explicit provision mandating that HUD adopt regulations designed to protect the public health and welfare from aircraft noise. However, the Department of Housing and Urban Development Act of 1965¹⁴², which

created HUD, and the National Environmental Policy Act of 1969¹⁴³ implicitly provide authority for HUD to act. The Department of Housing and Urban Development Act declares that the general welfare of the nation requires the "sound development of the Nation's communities and metropolitan areas."¹⁴⁴ The Secretary was given the authority to adopt such rules and regulations as were necessary to carry out the purposes of the Act.¹⁴⁵ The National Environmental Policy Act of 1969 required all Federal agencies to develop procedures to carry out the purposes of NEPA.¹⁴⁶

In July of 1971, HUD promulgated Circular 1390.2, which established noise exposure policies and standards to be observed in the approval or disapproval of all HUD projects. The Circular cited the Department of Housing and Urban Development Act and NEPA as authority.¹⁴⁷ The Circular covers assistance for planning, for funding new construction, and for rehabilitation of existing structures. To be eligible for planning assistance, projects are required to take sufficient consideration of noise exposures and sources of noise so as to assure that new housing and other noise sensitive accommodations will not be planned for areas whose current or projected noise exposures exceed the standards of the circular. All forms of HUD assistance are prohibited for new dwelling units on sites which have or are projected to have unacceptable noise exposures. The circular also provides that HUD is to encourage modernization of existing buildings for noise purposes so long as such modernization does not extend the useful life of the buildings.

The Circular requires an environmental impact statement when a HUD official requests approval of a project with a noise exposure which is "normally unacceptable."

HUD, as part of the Federal Interagency Aircraft Noise Abatement Program, sponsored, together with the Department of Transportation, studies of four airports.¹⁴⁸ These Metropolitan Aircraft Noise Abatement Policy Studies (MANAPS) considered present alternative land use related strategies for achieving remedial and preventive relief from aircraft noise for residents in the vicinity of airports.¹⁴⁹ The Chicago MANAP Study recommended that HUD could take additional steps which could reduce the impact of aircraft noise on communities located near airports.¹⁵⁰ The recommendations included:

- Funding soundproofing programs by providing HUD-supported loans and loan insurance for rehabilitation¹⁵¹ and for home and property improvements to property owners in sound impacted areas to enable them to soundproof their own dwellings;¹⁵²
- Funding local and regional "701" planning programs to help stimulate regional planning which gives adequate consideration to the noise impact of airports in developing land use controls.¹⁵³

HUD combines the experience of 10 airport case studies, including the four MANAP studies, to develop planning guidelines for local agencies, including both airport and community options for reducing aircraft noise conflicts.¹⁵⁴

DEPARTMENT OF DEFENSE (DOD)

There is no separate statutes primarily concerned with DOD aircraft noise abatement efforts. However, the annual military construction and appropriation acts provide enabling authority and funds for acquisition of land, facilities, and equipment for aircraft noise abatement.¹⁵⁵ While some authorizations are clearly set forth, for example, "AIR INSTALLATIONS COMPATIBLE USE ZONES—Various Locations, \$12,000,000",¹⁵⁶ to identify others resort must be made to the legislative history of the enactment.

DOD has directed that "Insofar as practicable, and with appropriate consideration of assigned missions and of economic and technical factors, programs and actions of all DOD components shall be planned, initiated, and carried out in a manner to avoid adverse effects on the quality of the human environment. When this is not feasible, all reasonable measures shall be taken to neutralize or mitigate any adverse environmental impact of the action."¹⁵⁷

Within DOD, aircraft noise abatement efforts include installation of sound suppressors and blast fences for power check pads and jet engine test stands; redesign of jet aircraft engine air inlets and ducting; and modifications and constraints in aircraft operational procedures.¹⁵⁸

DOD is currently coordinating a proposed draft directive¹⁵⁹ that provides policy guidance on DOD interest in privately owned real property near military bases having active aircraft runways. The plan seeks to assure that the use of such land is compatible with both mission accomplishment and protection of the public. This is to be attained, where possible, through zoning by the local governing body, state legislation, or through acquisition of the land or aviation interests by the Federal Government. The proposed policy defines the methods by which an air installation compatible use zone (AICUZ) may be determined and delineated. DOD believes that establishment of the AICUZ should promote the development of non-noise sensitive activities in the high noise areas near air installations. Such high noise areas would be determined by use of the present tri-Service manual "Land Use Planning with Respect to Aircraft Noise".¹⁶⁰ From the resultant contours, the AICUZ is obtained for each base by its Commander. Basically, it is the land subject to an intensity, frequency and duration of noise as to place it in Composite Noise Rating Zone 3 (a Noise Exposure Forecast above 40) or, in some cases, Composite Noise Rating 2 (a Noise Exposure Forecast of 30 to 40). Controls over the use of this land are to be sought to maximize compatible uses in the AICUZ. This may require prohibition of some uses of the land (such as restricting residential construction) and may permit other uses subject to appropriate restrictions. Wherever possible, local commanders would seek alleviation of the noise problem in their AICUZ through local governmental action. If local zoning or other desired action is not forthcoming and the problem is not otherwise resolved, then consideration is to be given to Federal acquisition of the necessary land interest. Because of budgetary limitations and statutory restrictions on land purchase, the acquisition of each land interest under the AICUZ concept would require Congressional approval and appropriation. Such acquisitions, thus, would be on an incremental basis extending over a period of years.

Each military department has issued regulations seeking aircraft noise abatement. Air Force Regulation 55-34, directs that "Commanders must take every precaution to protect communities near Air Force bases from annoyances and risks associated

with flight operations."¹⁶¹ The action suggested to achieve these ends are familiar, involving:

- Preferential runways
- Traffic patterns
- Takeoff and landing techniques
- Location of engine test stands and run-up pads
- Use of blast fences and other protective devices

To minimize sonic boom disturbances, required supersonic flights are to be conducted at altitudes above 30,000 feet over land areas. Lateral separation from metropolitan and other specified areas of one mile for each 2,000 feet of altitude is directed, unless a waiver is obtained from Hq. USAF for a "mission essential operational requirement." Further, sonic booms may not be generated except incident to active missions, approved training or test flights, authorized demonstrations, or emergency.¹⁶² Consolidated Sonic Boom Logs have been established to record pilots' reports of supersonic flight. Such recording assists in early settlement of just sonic boom damage claims.¹⁶³

DOD and Service regulations establish policies, assign responsibilities, and provide criteria and standards for an environmental pollution abatement program.¹⁶⁴ Regulatory coverage includes "noise" as a "pollutant." It directs the establishment of an Environmental Protection Committee at Hq., USAF, major command, and at Base level. It establishes, as policy, the requirement to assess the environmental consequences of any proposed action at the earliest practicable stage in the planning process. A previously issued regulation¹⁶⁵ sets forth guidance for the preparation of environmental assessments and statements.

DEPARTMENT OF LABOR (DOL)

In the Occupational Safety and Health Act of 1970, Congress directed the Secretary of Labor to promulgate rules concerning the occupational safety and health of the

employees in the country.¹⁶⁶ The purpose of the Act was to ensure that every working person in the country had safe and healthful working conditions. Employers and employees were encouraged to reduce the number of safety and health hazards at their places of employment and to institute new and to perfect existing programs for providing safe and healthful working conditions.¹⁶⁷ "Employer" was defined to mean any person engaged in a business affecting commerce but not including the United States or any State or political subdivision thereof.¹⁶⁸ The term "employee" was defined as an employee of an employer in a business that affects commerce.¹⁶⁹ The geographical scope of the statute included the States as well as territories and possessions of the United States.¹⁷⁰ Each employer was directed to furnish employment conditions that were free from recognized hazards and to comply with the occupational safety and health standards promulgated under the Act.¹⁷¹

The Secretary of Labor was empowered to promulgate, modify or revoke by rule any occupational safety or health standard.¹⁷²

The terms of this statute appear to be sufficiently broad to authorize the Secretary to promulgate rules concerning the level of noise in the working area of employees of an airport, including employees inside the plane. It is unlikely that a conflict will exist between FAA regulation of noise at the source and DOL regulation of employee noise exposure.

The occupational safety and health rules promulgated by the Secretary of Labor pursuant to the Occupational Safety and Health Act, are contained in parts 1901 to 1950 of 29 C.F.R. Part 1910 deals specifically with occupational safety and health standards. Only one part, however, concerns occupational noise exposure,¹⁷³ and requires that protection against the effects of noise exposure be provided when the sound levels exceed the following values:

<u>Duration per day, hours</u>	<u>Sound level dBA slow response</u>
8	90
6	92
4	95
3	97
2	100

<u>Duration per day, hours</u>	<u>Sound level dBA slow response</u>
1-1/2	102
1	105
1/2	110
1/4 or less	115

This section in subsection (b) (1) requires "feasible administrative or engineering controls to be utilized" when employees are subjected to sounds exceeding those listed in the above table. If such controls fail to reduce the sound levels within the levels set forth in the table, then personal protective equipment is to be provided and used to reduce sound levels within the levels set forth in the table.

There is no description concerning what methods are to be utilized to insure acceptable noise levels or what equipment should be provided if those noise levels cannot be maintained. The paragraph is general and presumably applies to any area of occupational employment within the broad definition of the Act.

While this entire part in 29 C. F. R. deals with employment conditions in general, it also deals with certain specific areas of employment, none of which, however, are in any way related to aircraft operations. The specific areas of employment dealt with include ship repairing, shipbuilding, shipbreaking and longshoring.¹⁷⁴ This part also contains a subpart on "special industries," including:

- Pulp, paper and paperboard mills
- Textiles
- Bakery equipment
- Laundry machinery and operations
- Sawmills
- Pulpwood logging
- Agricultural operations¹⁷⁵

For each of the specific industries listed in the preceding two categories, specific occupational safety and health standards are set forth. None of these standards is directed to noise conditions, including the abatement of same or the supply of protective equipment. The general provisions set forth earlier would apply.

The part concerning occupational noise exposure is currently under review by OSHA. A standards advisory committee on noise was appointed by the Secretary of Labor early in 1973. Their deliberations are to be completed no later than the end of November 1973. OSHA staff has developed a draft regulation from which the Advisory Committee is presently working. Promulgation is due in late 1973 or early 1974. It appears that the new standard will be significantly more explicit and somewhat more protective than the present one. The current OSHA draft suggests lowering the maximum permissible exposure levels for 8 hours to 85 dBA in 5 years. More explicit hearing conservation measures are also outlined.

ENVIRONMENTAL PROTECTION AGENCY (EPA)

The legal authority of EPA as to all aspects of aircraft noise is essentially derived from the Noise Control Act of 1972.¹⁷⁶ The 1972 Act provides EPA with the authority to advise, to warn, and to be consulted.

Section 7(a) of the 1972 Act provides that EPA shall "study", inter alia, "implications of identifying and achieving levels of cumulative noise exposure around airports," and "shall report" the results of such study to Congress.¹⁷⁷ Section (7)(b) amends Section 611 of the Federal Aviation Act of 1958 (1968 amendment) to provide that after the submission of the report to Congress, "EPA shall submit to the FAA proposed regulations to provide ... control and abatement of aircraft noise ... as EPA determines is necessary to protect public health and welfare."¹⁷⁸ This limited grant is to be contrasted with all other EPA regulatory authority, for in the area of aircraft noise EPA has no authority itself to promulgate, much less to enforce, the regulations it proposes to the FAA.

Thereafter, should EPA have reason to believe that FAA action on the regulations proposed does not protect the public health and welfare, EPA has the right to request further review by and a report from the FAA.¹⁷⁹ The FAA is required to issue such a responding report, but no additional authority is granted to EPA except to "air" its differences with the FAA in the pages of the Federal Register.

The legislative history of the 1972 Act shows that Congress considered and rejected language that would have given EPA the authority to promulgate the standards in question after consultation with the FAA. As enacted, however, EPA authority at best is the right to try to propose the good and attempt to defeat by discussion the bad.

It is to be noted that Section 5(a)(1) of the 1972 Act requires EPA to "develop and publish criteria with respect to noise",¹⁸⁰ including indication of "the kind and extent of all identifiable effects on the public health or welfare which may be expected from differing quantities and qualities of noise." Under Section 5(a)(2) of the Act, EPA is to "publish information on the levels of environmental noise the attainment and maintenance of which in defined areas under various conditions are requisite to protect the public health and welfare with an adequate margin of safety."¹⁸¹

Section 4(c) of the 1972 Act gives EPA the authority to "coordinate" the noise control and noise research programs of all Federal agencies.¹⁸² This is in addition to the authority conveyed by the Clean Air Act of 1970 "to review and comment on" FAA actions with respect to regulating and constructing airports.

The National Environmental Policy Act (NEPA) of 1969 requires the responsible Federal official who prepares an environmental impact statement to "consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved," as cited on page I-2-9.

THE DISTRIBUTION OF POWERS TO CONTROL AIRCRAFT/AIRPORT NOISE WITHIN THE FEDERAL GOVERNMENT

Within the Federal Government, the primary power to control and enforce aircraft/airport noise abatement is presently vested in the FAA. However, as was decided by the Supreme Court in the Burbank case, since the 1972 Act the FAA exercises this control "in conjunction with EPA." The FAA is charged with enforcement and EPA is charged with formulating aircraft/airport noise levels in accord with public health and welfare standards.

Six other Federal agencies or Departments also have authority to act in the area of aircraft/airport noise. The first is NASA, which has the authority to undertake research and development to abate aircraft noise at the source and to propose the results thereof to the FAA for incorporation in the Federal Aviation Regulations. Such R&D includes not only hardware items, design changes and model development, but also the software of noise abatement operating procedures.

The third Federal entity is the HUD, which has the authority and expertise to plan for and contribute to compatible land use in noise affected areas adjacent to airports and to advise on noise-resistant building constructions.

The fourth is the Department of Health, Education, and Welfare (and the National Institutes of Health), which conducts research on the health effects of noise. Fifth is the DOD, which has a continuing program for compatible land use at military airports and which conducts R&D on technology for quieter aircraft and a certain amount of research on health effects of noise. Sixth there is the CAB, which has the authority (as yet unexercised) to take noise abatement retrofit of the carrier fleet and other noise abatement needs into account in setting fares.

The foregoing Federal authority and power presently exists. Although it is widely dispersed and not yet focused, it can be of tremendous assistance in planning and achieving an abatement of the health and general welfare effects of airport/aircraft noise. This is especially the case under the 1972 Act as it pertains to the area in question. Under the Act, EPA has the authority to publish environmental noise

standards to protect public health and welfare. EPA is also charged with regulating, through source emission standards on products and through noise limits on interstate rail and motor carriers, toward eventual achievement of the established exposure limitation goals.

The only significant noise source for which neither EPA nor any other agency has been given exclusive regulatory authority, either in design or operation, is that produced by aircraft. This means that inputs from the other Federal agencies with expertise and authority is especially necessary if Federal aircraft/airport noise abatement program is to succeed.

INTERNATIONAL LEGAL FRAMEWORK

The basic treaty is the Convention on International Civil Aviation ("the Chicago Convention"), a multilateral treaty that became effective on April 4, 1947.¹⁸³ The Chicago Convention is treaty law in the United States with respect to various matters including operations in the United States by aircraft of other contracting States, and the applicability to such operations of the air regulations, rules of the air and airport and similar charges of the United States. Articles 11 and 15 of the Chicago Convention should particularly be considered in connection with the application of noise restrictions to foreign aircraft. Those articles require that regulations and charges by a contracting state be imposed on a nondiscriminatory basis with regard to aircraft of all contracting States.

The Convention also established the International Civil Aviation Organization (ICAO). The ICAO Council adopts international standards and recommended practices and procedures relating to matters concerned with the safety, regularity and efficiency of air navigation. Under Article 38 of the Convention, any contracting State which finds it impossible to comply in all respects with an ICAO Standard or incorporate it in its own laws and regulations is required to notify ICAO of its differences. The United States and 127 other nations are parties to the Convention.

In 1969, ICAO convened an international conference in Montreal, as a result of which Annex 16 to the Chicago Convention was adopted containing international standards and recommended practices for aircraft noise certification. This ICAO Annex

follows closely FAR 36. It provides minimum noise certification standards for certain new types of subsonic jet aircraft and (Sections 1.4 and 1.5) for the recognition of noise certifications by other ICAO member States if they meet these Standards. The ICAO Committee on Aircraft Noise is working on noise reduction modification for existing jet aircraft and noise requirements for future SST's. Any additional United States noise limitations applicable to U.S. certification of foreign manufactured aircraft certified as meeting ICAO standards would have to be covered through bilateral arrangements.

The United States is not a party to the so-called Rome Surface Damage Convention¹⁸⁴, which came into force among ratifying nations in 1958 (Canada, Egypt, Luxembourg, Pakistan and Spain). At last report 22 additional nations had ratified. This convention limits the financial liability for damages to persons or property on the grounds resulting from aircraft operations in the airspace of signatory nations.

In addition to the Chicago Convention, the United States has bilateral air transport agreements with many countries, and most of these follow a similar pattern. Using the one with France as an example,¹⁸⁵ each country gives the other country the right to conduct specified air transport services between them by carriers designated by the respective countries. The carriers of each are required to offer services that closely relate to the requirements of the public for such services and they must comply with the operational and navigational rules and regulations of the other, applied on a nondiscriminatory basis. Airport and other charges must be non-discriminatory.

Although most such bilateral agreements of the United States follow a pattern, there are variations among them, and each must be separately considered to ascertain whether any given noise restriction is consistent with the particular agreement.

While a subsequent Act of Congress can supersede a treaty or executive agreement, as domestic law, it would not eliminate the international obligation. Thus, whereas a subsequent statute is permissible insofar as its consequences affect only United States citizens or entities, any effect it would have upon citizens or entities of foreign signatories in conflict with treaty provisions would violate principles of international law.

STATE AND LOCAL GOVERNMENTS

CONTROL OF AIRCRAFT/AIRPORT NOISE

State and local efforts to achieve aircraft/airport noise abatement have taken place at three different levels. First, there are, and have been, efforts at the state level to regulate airport noise impacts, aircraft operations and engine noise at the source. For example, the Minnesota Noise Abatement statute¹⁸⁶ authorized the Minnesota Pollution Control Agency to adopt noise control regulations, including airport/aircraft noise rules.

An advanced and systematic approach to State regulation of airport noise has been adopted by California.¹⁸⁷ A variety of legal/institutional mechanisms and procedures support the objective of airport noise reduction. Each California county has an Airport Land Use Commission for purposes of assuring that there is some control over the area immediately adjacent to the airport other than the usual local zoning authority. New airport sites and additional runways require both State and local approval.

Under another statute, a performance standard is established by regulation regarding the Cumulative Noise Exposure Level (CNEL) that should not be exceeded in residential areas. A limit value of CNEL is set, applicable now to all airport actions which would impact existing residential areas with exposures above this value, and a timetable (ending at 1985) is set for airport proprietors to reduce existing exposures to this limit value. "Noise problem airports" as defined in the regulation are required to perform noise monitoring to assess their progress, as compared to their implementation plans, toward achieving the CNEL limits.

The regulation requires, under the state permit authority over airports, that a "noise impact boundary" be established, which is the location of the cumulative noise contour corresponding to the statewide timetable for "noise problem airports." The objective is to reduce the extent of this contour so that it no longer encloses incompatible land uses. The incompatible land use area within the noise impact boundary

is called the noise impact area. Airport proprietors may not operate their airports with a noise impact area other than zero without a variance, and specific criteria for issuing variances are set forth in the regulation.

The regulation sets forth a variety of means available to affected parties to reduce the noise impact area to zero. None is specifically required. It is provided that:

"5011. Methodology for Controlling and Reducing Noise Problems. The methods whereby the impact of airport noise shall be controlled and reduced include but are not limited to the following:

"(a) Encouraging use of the airport by aircraft classes with lower noise level characteristics and discouraging use by higher noise level aircraft classes;

"(b) Encouraging approach and departure flight paths and procedures to minimize the noise in residential areas;

"(c) Planning runway utilization schedules to take into account adjacent residential areas, noise characteristics of aircraft and noise sensitive time periods;

"(d) Reduction of the flight frequency, particularly in the most noise sensitive time periods and by the noisier aircraft;

"(e) Employing shielding for advantage, using natural terrain, buildings, et cetera; and

"(f) Development of a compatible land use within the noise impact boundary.

"Preference shall be given to actions which reduce the impact of airport noise on existing communities. Land use conversion involving existing residential communities shall normally be considered the least desirable action for achieving compliance with these regulations."188

The airport noise regulations also provide for "single-event noise exposure levels," for which statewide minimum standards are set based on the noisiest aircraft class utilizing the specific airport on a recurrent basis. Levels set are a "compromise to allow continuation of the basic level of existing service at an airport but prevent any

trend toward noisier aircraft and prevent typical operations of currently operating aircraft which lead to excessive noise." Airport proprietors may recommend numerically lower single-event levels, as a part of their implementation plan, to limit the use of their airport to acceptable aircraft types. Hence, the single-event limits are a useful tool for the use of the airport proprietor to control and decrease the noise environment associated with his airport.

The CNEL regulations do not directly control the individual aircraft or its noise level. Instead, they provide a quantitative framework for solving or abating the aircraft/airport noise problem at specific airports, to cause "the airport proprietor, aircraft operator, local government, pilots and the department (of aeronautics) to work cooperatively to diminish noise."

As stated in the background document supporting the California airport noise regulation:

"For existing airports which presently have a noise problem with respect to their residential neighbors, the processes of planned change must be set in motion so as to control and reduce the extent of the noise environment wherever it encompasses residential areas. When such land lies in extreme noise regions very near the airport boundaries, the earliest and most equitable means should be applied to provide relief for the residents. When all available methods have been utilized by the airport to reduce the noise in residential communities, processes should be set in motion to convert the remaining land to a compatible use." 189

Both New York and Illinois are currently conducting public hearings on proposed regulations to achieve aircraft noise abatement through cumulative noise standards and airport implementation plan development similar to the California model. Several States are considering bills to authorize similar regulations.¹⁹⁰ The recently promulgated Council of State Governments suggested State Noise Control Act.¹⁹¹ proposes adoption of such aircraft/airport noise regulation, including both the airport-directed portion and the supplementary land use control mechanisms.

The second effort is the municipal ordinance approach to the noise abatement problem. These municipal ordinances are basically attempts by noise-affected municipalities to control the noise of aircraft at adjacent airports through exercise of their police powers. The third type of non-Federal effort to achieve noise abatement is that asserted and exercised by the airport owner as a proprietary right, e. g. as landlord.

All three types of non-Federal attempts to achieve aircraft/airport noise abatement were discussed and briefed before the Supreme Court in City of Burbank v. Lockheed Air Terminal, Inc., cited in footnote 6. The opinion of the Court in Burbank reviewed a municipal ordinance that made it unlawful for a privately owned airport located within the jurisdiction of the municipality to permit takeoffs or landings of jet aircraft between 11 p. m. and 7 a. m. The Court held that the Burbank ordinance was an invalid exercise of police power because the "pervasive nature of the scheme of Federal regulation of aircraft noise . . . leads us to conclude there is preemption."

To reach this conclusion, the Court started with a recitation of two sections of the Federal Aviation Act of 1958. Section 1508 of the Act provides that "The United States of America is declared to possess and exercise complete and exclusive national sovereignty in the airspace of the United States . . ." Section 1348 gave the FAA authority to regulate the use of the navigable airspace, "in order to insure the safety of aircraft and the efficient utilization of such airspace . . ." and "for the protection of persons and property on the ground . . ."

The Court then analyzes The Noise Control Act of 1972 and concludes "that FAA, now in conjunction with EPA, has full control over aircraft noise, pre-empting state and local control."

The Court cites Rice v. Santa Fe Elevator Corp.¹⁹² for the proposition that even in areas such as aircraft noise which the states and localities "have traditionally occupied. . . . The scheme of Federal regulation may be so pervasive as to make reasonable the inference that Congress left no room for the states to supplement it. . . ." Then

the Court cited Northwest Airlines, Inc. v Minnesota¹⁹³ to establish that "Federal control is [so] intensive and exclusive [that the] . . . moment a ship taxis onto a runway it is caught up in an elaborate and detailed system of controls." Accordingly, "the pervasive control vested in EPA and in FAA under the 1972 Act seems to leave no room for local curfews or other local controls."

The Court then discussed a prior FAA action in 1966 where "the FAA rejected a proposed restriction on jet operations at the Los Angeles airport between 10 p.m. and 7 a.m. because such restrictions could "create critically serious problems to all air transportation problems! 25 Fed. Reg. 1764-5."

That ruling, "announced in 1960, remains peculiarly within the competence of the FAA, supplemented now by the input of the EPA. We are not at liberty to diffuse the powers given by Congress to FAA and EPA by letting the States or municipalities in on the planning."

There can be no doubt that the ruling in Burbank means that a state, or any political subdivision thereof, cannot use its police power to protect its citizens from aircraft noise. This raises the question of whether the airport owner may exercise its own proprietary rights to achieve noise abatement.

The Court citation of the 1960 FAA actions at LAX would indicate that the FAA could prevail over the airport owner, since the curfew was attempted by the owner of the airport. However, in a footnote the Court declined to affirm that this would follow. The footnote in question deals with the legislative history of the 1968 Act. The text of the footnote is as follows:

"The letter from the Secretary of Transportation . . . expressed the view that "the proposed legislation will not affect the rights of a State or local public agency, as the proprietor of an airport, from issuing regulations or establishing requirements as to the permissible level of noise which can be created by aircraft using the airport. Airport owners acting as proprietors can presently deny the use of their airports on the basis of noise considerations so long as such exclusion is nondiscriminatory." (Emphasis in opinion)

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"Appellants and the Solicitor General submit that this indicates that a municipality with jurisdiction over an airport has the power to impose a curfew on the airport, notwithstanding Federal responsibility in the area. But, we are concerned here not with an ordinance imposed by the City of Burbank as 'proprietor' of the airport, but with the exercise of police power. While the Hollywood-Burbank Airport may be the only major airport which is privately owned, many airports are owned by one municipality yet physically located in another. For example, the principal airport serving Cincinnati is located in Kentucky. Thus, authority that a municipality may have as a landlord is not necessarily congruent with its police power. We do not consider here what limits if any apply to a municipality as a proprietor."

The distinction between the "police power of the state" and the "rights of property owners" is an interesting one. It must first be considered from the vantage point of who or what is an owner and who or what is a policeman.

The Office of Airport Service of the FAA takes the position that the airport owner (i. e. Lockheed Air Terminal Inc.) in the context of the Burbank ruling is a private person type of owner, not a governmental entity. This would limit the application of its case to those two or four privately owned airports used by the certificated jet carriers such as the appellee.

However, the Supreme Court does not note probable jurisdiction and affirm a case such as Burbank unless a substantial Federal question is presented. If after noting probable jurisdiction, the Court finds that the appellant constitute a class of one or two and that no broad question is therefore presented, the case will be dismissed. When the Court affirms with a precedent setting opinion it "must" have believed that state and local government owned airports could be included within the the preemption rationale. In other words, when state owned property is regulated, its regulation may nevertheless be invalidly based on police power. Nothing in the opinion explicitly suggests the foregoing, except that, with an exception or two, all air carrier airports are owned by states or political subdivisions thereof. If all such airports can be curfewed by their owners as owners, the Burbank opinion means very little.

It is submitted that the proprietary right in fact consists of the right to defend from liability. In other words, given the prior Court position in the Griggs case, the airport operator would have to have been left with its own right to protect itself from constitutional takings, or the Federal Government would have preempted the very ability of the airports to act and thus would have shifted liability to the Federal Government. If this be the proprietary right the Court left undefined, it must be viewed in the context of the Federal authority to certificate state and local government owned airports for noise abatement. Would that certification preempt the airport owner's proprietary right to act to defend itself from liability?

Whatever this proprietary right of the airport owner and however that right may be affected by certification, the result of the decision is clear: Airport operations, i. e. operations concerning aircraft, may not be regulated for noise purposes under the state and local police power. According to the Court, under the 1972 Act, this is so even if both the FAA and EPA were to do nothing.

The cases prior to Burbank developed a number of applicable concepts that must be kept in mind in any overall consideration of State and local authority in this area.

The first such case, Allegheny Airlines, Inc. v. The Village of Cedarhurst,¹⁹⁴ arose out of the adoption in 1952 by Cedarhurst of an anti-flyover police power ordinance prohibiting overflights that were less than 1,000 feet above the ground. The ordinance was said to be necessary because Cedarhurst was within some 4,000 feet off the eastern end of the JFK International Airport. Cedarhurst was then sued to prevent enforcement of the altitude ordinance by the Port of New York Authority as well as air carriers using JFK airport. The district court enjoined enforcement of the ordinance and the case was taken to the Court of Appeals for the Second Circuit.

In sustaining the injunction, the Court of Appeals noted that the predecessor to the FAA had been directed by the existing Federal law to prescribe air traffic rules regulating safe altitudes of flight and that in complying with these rules aircraft landing or taking off at JFK were required to fly as low as 450 feet over Cedarhurst under certain adverse weather conditions. As a result, the Court found it was not possible

for an aircraft at once to comply with the Federal rule and the Cedarhurst ordinance. Given the existence of such a direct conflict, the Court sustained the Federal Air Regulation under the Supremacy Clause of the Constitution. The Cedarhurst opinion also went on to rule that, without regard to the existence of a conflict, the Federal Air Regulations had completely preempted the field of air traffic regulations and had left no room for any other kind of regulation. As is illustrated by the result in the later case of American Airlines, Inc. v. The City of Audobon Park, Kentucky,¹⁹⁵ the Cedarhurst precedent put an end to State and local effort to achieve noise abatement by way of a "minimum altitude" type of legislation.

A second type of legislation that has been attempted on a local basis is illustrated by the "Unnecessary Noise Ordinance" enacted by the Town of Hempstead, New York, in 1964. The ordinance set a maximum noise limit that could legally be made by each aircraft which overflew the town. Hempstead, as was the case with Cedarhurst, was adjacent to JFK Airport. Given the location of the airport, the practical effect of the Hempstead ordinance was in many cases to prevent the use by jet aircraft of "the FAA landing approach and take-off procedures" used at the JFK airport. The air carriers using JFK sued to enjoin the enforcement of the ordinance and at trial the ordinance was enjoined on the ground of conflict, preemption, and a burdening of interstate commerce, American Airlines, Inc. v. The Town of Hempstead.¹⁹⁶

On appeal, the Court of Appeals relied on conflict alone, stating that in view "of the present state of development of noise suppression techniques, . . . compliance with the noise ordinance [of Hempstead] would require alterations in the flight patterns and procedures established by Federal regulations."

The case law defining private rights and remedies for aircraft noise has thus influenced the allocation of authority between state, local government and airport owners to deal with the aircraft noise problem. Given the relative lack of success of enjoining the operations of a noise airport, nearly all of the case law concerns either damaging or constitutional taking. First, as to the taking, the taking cases generally represent the so-called Federal rule, which originates with the decisions

of the Supreme Court in United States v. Causby¹⁹⁷ and in Griggs v. Allegheny County.¹⁹⁸ The Causby case announced that Federal Government (apparently as a partial lessor of the Winston Salem Airport rather than as the operator of the military aircraft in question) had in the constitutional sense "taken" an interest or "aviation easement" in the property the aircraft overflow. Because of this, the United States was required to pay just compensation under the Fifth Amendment to the Constitution, the measure of damages being the diminution in the value of the overflowed property. Some 10 years later in the Griggs case the Supreme Court had before it an airport owned by State authorities, and the airport was used by commercial aircraft, the flight patterns of which were regulated by Federal authorities. It was clear that there could be no taking in the constitutional sense by the commercial carriers who used the airport and generated the noise. The court held that the local governmental authority, *i. e.* the airport owner, was liable for taking the aviation easement on the directly overflowed property.

Since both Causby and Griggs involved direct overflights, the theory of the cases has been called the trespass theory of inverse condemnation which requires the actual physical invasion of the property, *i. e.* the air above the ground. This direct overflight approach has not been frequently followed in those State courts whose constitutions bar not only governmental takings but also governmental damaging unless there is just compensation. As will be discussed later, those jurisdictions have allowed recovery against the governmental airport owner on a broader rationale that does not require overflight.

The point to be made here is that the power still left with the states and local government to achieve aircraft noise abatement at the source appears to be their right as property owners to defend themselves from liability and to keep their air terminal systems viable. As will be discussed in the next section, the state and local governments continue to have the power to control exposure to aircraft through land use control and building design.

CONTROL OF EXPOSURE TO AIRCRAFT/AIRPORT NOISE THROUGH LAND USE AND BUILDING DESIGN CONTROLS

As indicated in the previous section, state and local government efforts to control aircraft noise at the source through an exercise of the police power are no longer valid under the Burbank rationale. However, land use planning and control measures are still available to the State and local governments.

Aside from the three land use measures that have been frequently proposed and that will be discussed below, several states have adopted, or are in the process thereof, an advanced and comprehensive approach to assure that there is some regional control over the area adjacent to airports other than the traditional zoning authority.

Minnesota, for example, has adopted an Airport Zoning Act (Chapter 1111, 1969 Session Laws, Attachment A, Appendix B, discussed later) that establishes state and regional airport neighborhood planning agencies. These agencies are responsible for determining incompatible land use boundaries. They are also responsible for promulgating land use regulations to preclude development of incompatible uses and encourage the conversion to compatible uses in airport affected areas. Such state and regional regulations are in addition to, and where inconsistent supersede the traditional local zoning authority.

As discussed at the outset of the preceding section, cited in footnote 187, the approach adopted by California includes not only the source regulation put into question by Burbank, but also a comprehensive procedure to obtain compatible land use. Every California county has an Airport Land Use Commission to insure that there is government control over all areas immediately adjacent to the airport. This, like the Minnesota approach, is in addition to and supersedes the usual local zoning authority. Additional airport sites require both state and local approval. The point to be made on the basis of the approaches taken by these two states is that compatible land use can normally be achieved only if a regional procedure is adopted so that there will be the necessary and uniform jurisdiction over all noise affected land surrounding the airport.

Traditional land use planning measures available to minimize the impact of aircraft noise fall into three basic categories. The first consists of the zoning ordinances, to exclude incompatible uses in noise-impacted areas. The second consists of a governmental unit acquisition of property by condemnation or purchase and the imposition of (similar type) limitations in its capacity as owner. And the third consists of imposing soundproofing requirements on residences located in noise sensitive areas.

The procedure to control land use most often suggested in the past is local government zoning. Generally, two types of zoning have been utilized in connection with airport operations. One limits the height to which structures may be erected so that airport approaches will be free from obstructions. The second, concerned more directly with aircraft noise problems, restricts the uses that may be made of property in the vicinity of an airport to those compatible with airport operations. This excludes erection of noise-sensitive uses, such as schools, hospitals and residences, while commercial and industrial development is permitted.

However, zoning, like every exercise of the police power, is limited by applicable constitutional requirements. This means at least three things. First, the restrictions imposed on property may not be so severe as to deprive the owner of all, or substantially all, of its beneficial use.¹⁹⁹ Applied more particularly, this rule prohibits legislation that limits the use of property to purposes for which there is no reasonable economic demand. Second, a zoning enactment cannot be arbitrary, capricious or unreasonable as applied to any particular land owner, or group of owners. And third, zoning may not be employed as a substitute for use of the condemnation power when an analysis of the governmental action involved discloses that the government is, for its own purposes acquiring, using or, in the words of the courts, "taking" the zoned property. The second and third limitations have thus far been the principal stumbling blocks to effective airport land use planning based upon the zoning power.

There are 19 reported decisions dealing with the validity of airport zoning. Twelve ruled that the particular ordinances in question went beyond the bounds of permissible regulation, amounting to an invalid taking of property without compensation.²⁰⁰ Only

7 of the 19 cases upheld, or at least refused to strike down, airport zoning enactments.²⁰¹ Analysis of the cases is difficult because eight involved zoning to assure an obstruction-free airport, six involved use limitation zoning and five involved both types of restrictions.

The earliest reported zoning case is the 1939 Maryland lower court decision involving an act that limited the height to which buildings could be erected on land located in the vicinity of public airports, Mutual Chemical Co. v. Mayor and City Council of Baltimore.²⁰² After pointing out that "[n]either the state nor the city can, through the guise of a zoning law or ordinance confiscate the property of an individual," the court rules that the statute's restrictions amounted to "a practical confiscation" of property rights.²⁰³

The rule enunciated in this case received support by the inverse condemnation decisions of the Supreme Court in Causby,²⁰⁴ and Griggs.²⁰⁵ Typical of the cases in which airport zoning ordinances were invalidated on the basis of Causby and Griggs is a 1964 ruling of the Idaho Supreme Court invalidating an ordinance whose restrictions confined the use of land to agricultural purposes in certain zones and to single family residences in others. The court rules that "a landowner has a property right in the reasonable use of the airspace above his land which cannot be 'taken' for public use without just compensation."²⁰⁶

The rationale for the seven cases which have refused to strike down airport zoning enactment is ultimately derived from the leading American zoning decision, Euclid v Ambler Realty -- zoning is a valid exercise of the police power unless it is "clearly arbitrary."²⁰⁷ The most frequently cited case upholding airport zoning is the 1959 Florida decision in Harrell's Candy Kitchen v. Sarasota-Manatee Airport Authority,²⁰⁸ in which the court said that such regulations "are presumptively valid and the burden is upon him who attacks such regulation to carry the extraordinary burden of both alleging and proving that it is unreasonable and bears no substantial relation to the public health, safety, morals or general welfare."²⁰⁹ The ordinance upheld was a height limitation restriction, which precluded the complaining property owner from

constructing an ornamental roof on its premises designed primarily for advertising purposes.

In answer to the defendant's constitutional attack on the regulations, the court held: "The restriction, . . . as applied to this particular property cannot be said to deprive the owner of the beneficial use of his land to such an extent that it violates the constitutional prohibition in this respect or is otherwise unlawful."²¹¹ The court noted that while the use of the superstructure "was beneficial to the operation of the main building, it could not be said that it was essential to it."²¹¹ The court emphasized that it was concerned here only with "whether this particular regulation as it affects these appellants' property is valid."²¹² Significantly, the court added, "[w]hether other. . . regulations enacted by this authority are valid depends upon the facts in each particular case. . . ." ²¹³

In Willoughby Hills v. Corrigan,²¹⁴ the Ohio court noted that an unconstitutional taking might result, in given factual situations, from the enforcement of zoning regulations. The court said that where "it is shown that the enforcement of any such airport zoning regulation as to specific property will result in an unconstitutional 'taking' of such property, a court may enjoin the operation of the. . . regulation. . . or may . . . direct the institution of eminent domain proceedings for the purpose of compensating the property-owner for such 'taking.'" ²¹⁵

The three most useful rulings from the point of view of upholding compatible land use zoning in the vicinity of airports are two California cases and a Pennsylvania decision. The California cases hold that a limitation on residential development designed to prevent inverse condemnation claims of the Causby and Griggs variety from arising, constitutes a valid exercise of the police power. Smith v. County of Santa Barbara;²¹⁶ Morse v. County of San Luis Obispo.²¹⁷ The first California decision upheld an ordinance that rezoned plaintiff's property from residential use to "design industrial," and the second sanctioned a zoning change from a single residence per acre to a single residence for every five acres. In the latter case plaintiff argued that any rezoning of land near an airport that reduces allowable population density should automatically

be presumed to represent an uncompensated taking of air easements for the purpose of flight. The court, however, held that the presumption of the law is just the opposite: zoning regulations are presumed to be valid exercises of the police power in furtherance of the public safety and general welfare.

On much the same basis, a 1967 Pennsylvania decision upheld an ordinance which prohibited any residential use of land located within an airport district, except for allowing an airport guard to reside with his immediate family upon airport property. Township of Hickory v. Chadderton,²¹⁸ The ordinance was upheld as a reasonable use of the police power "to prevent a congestion problem" and also because of "safety considerations."²¹⁹

Under a comprehensive zoning plan a land owner would have no sound basis for objection if the airport is able to benefit from the zoning. But zoning solely for the benefit of an airport seems in the final analysis to be nothing more than a sophisticated version of spot zoning, which courts almost universally strike down. The sine qua non of valid zoning has been held to be the existence of a comprehensive zoning plan. Idell v. Haag,²²⁰ Compatible land use zoning for airport purposes appears to present the identical view that the New York Court of Appeals struck down in the leading case of Vernon Park Realty, Inc. v. City of Mount Vernon.²²¹ There, an ordinance restricted the use of plaintiff's property to parking lot purposes--the use to which it had been devoted for many years. Although the city attempted to justify the restriction on the ground that congested traffic and parking conditions were such as to require the restriction in the public interest, the court disagreed, stating "However compelling and acute the community traffic problem may be, its solution does not lie in placing an undue and uncompensated burden on the individual owner of a single parcel of land in the guise of regulation, even for a public purpose."²²²

Even valid exercise of zoning power may be ineffective because of the commonly accepted doctrine of non-conforming uses, which allow the continuation, for reasonable periods of time, of non-conforming uses that exist when a zoning change is adopted. The two California cases, previously discussed, which upheld compatible

land use zoning as reasonable exercises of legislative power to prevent inverse condemnation claims from arising, were concerned solely with ordinances which were to be applied prospectively. In fact, of the nineteen reported airport zoning cases only one dealt with an attempted retroactive application of the ordinance and there the ordinance was invalidated. Sneed v. Riverside County.²²³

The black letter rule on non-conforming uses is set forth as follows by the present Chief Judge of the New York Court of Appeals:

"It is the law of this state that nonconforming uses or structures, in existence when a zoning ordinance is enacted, are, as a general rule, constitutionally protected and will be permitted to continue, notwithstanding the contrary provisions of the ordinance." People v. Miller.²²⁴

Finally we come to the last suggested means of reducing the adverse impact of aircraft noise by land use planning -- the requirement of soundproofing. This subject was studied in detail in a report prepared for the Tri-State Transportation Commission in February, 1970.²²⁵ The report dealt mainly with mandatory rather than voluntary soundproofing regulations, and pointed out that it is questionable whether, without proper enabling legislation, there presently exists local power to adopt soundproofing requirements. Furthermore, adherence to the following guidelines was considered essential:

1. The regulation should be applicable only in the highest noise areas.
2. It should be the least expensive and disruptive means of accomplishing the sound reduction.
3. The effective reduction of noise within the structure should be substantial.
4. The regulation should contain as much flexibility as possible to allow for individual differences, hardships and inconveniences.

The report indicated that accomplishment of mandatory soundproofing by means of the police power stands its best chance of successfully withstanding constitutional attack if its application is limited to the owners of multiple unit structures which are

rented. It is far simpler, the report states, to demonstrate benefit to a class of the public, and no restriction is placed on the freedom and privacy of the building owners subject to the regulations.

Soundproofing regulations for a single-family residence would, the report noted, face substantial obstacles. This is so not only because the smallest element of public benefit is conveyed (only the individual and his family are involved), but also because there would be the greatest interference with individual freedom to live as one chooses. But the report emphasized that even in the cases of multiple unit structures there were no cases directly in point.

In the California airport noise regulation, the list of land uses deemed "compatible" within the noise impact boundary of the airport includes acoustically treated homes, up to a limiting value of Cumulative Noise Exposure Level (CNEL). The use of acoustical treatment as an acceptable solution is limited to cases in which both the homes and the airport are pre-existing and quantitative performance requirements are set for the acoustical treatment in its finished form.

Major considerations, must, of course, be directed to the question of cost. The factors involved here are the determination of who must bear the expense of implementing the program, and the magnitude of the cost involved.²²⁶ The experience in the Los Angeles area indicates a cost of approximately \$3,000 per individual dwelling unit with a school experience of about \$10,000 per class room.

NOISE CONTROL EFFORTS BY AIRPORT PROPRIETORS

Discussed here are instances in which airport owners as proprietors have imposed noise control restrictions on the aircraft operators using their facilities.

The Port Authority of New York and New Jersey, in its capacity as an airport operator, has imposed restrictions on the use of jet aircraft at its four air terminals, Kennedy International, LaGuardia, Newark International, and Teterboro. Even prior to the advent of commercial jet flights, the Authority adopted a regulation providing

that no jet aircraft may use its airports without permission. Such permission has been granted only on the condition that the noise produced by each jet flight in the communities under the takeoff flight path, is no greater than that produced by 75 of the large four-engine piston aircraft in use at the time jet aircraft were being introduced commercially in 1958. That value, 112 PNdB, constitutes the limit for jet takeoff noise.

Additionally, at Kennedy International Airport the Port Authority has required the use of specific runways for takeoff during the hours between 10:00 p. m. and 7:00 a. m. in order to take advantage of the geographic location of the Airport to reduce noise impact. The southern boundary of Kennedy International Airport is formed by Jamaica Bay. At night the runways specified for takeoff have flight paths with initial climb portions over Jamaica Bay, thus keeping the noisiest portion of the takeoff over uninhabited areas.

At hearings held in 1959-62 before Subcommittees of the Committee on Commerce, House of Representatives, 86th and 87th Congress, the then General Counsel of the Authority advised that the legal basis for its restrictions was the

" . . . power [that] inheres in the very nature of the property ownership and control and unless surrendered by contract is possessed by all owners or operators of real property." Hearings, p. 657²²⁷

He further explained that the assertion of Port Authority power to restrict the use of its airports for noise abatement purposes:

" . . . was not an assertion. . . of any legislative power. It was a common-law right which inheres to the owner and operator of land." ²²⁸

The Authority right to impose restrictions on its airline tenants in the interest of noise abatement has been challenged in one case. Port of New York Authority v. Eastern Airlines, Inc., et al.²²⁹ The litigation arose out of the objection by an airline to following a temporary ban which the Authority had placed on jet aircraft using a recently completed runway at LaGuardia Airport until the construction of a second runway was also completed. The Authority wanted to avoid the concentration of jet

noise that would have resulted from the use of the one runway alone. The airline contended that the Authority restriction invaded a field preempted by Congress and although the Authority conceded that Congress had preempted, to a great extent, the field of air traffic regulation, it argued that Congress had not ousted an airport operator of jurisdiction to control the use of its facilities. The Authority asserted that a corollary to the Supreme Court holding in the Griggs case²³⁰ must be that an airport operator possesses the right to protect himself from possible liability by limiting the use that aircraft can make of his runways. Acceptance of the airline position would, the Port Authority argued, create an impossible situation for airport operators since in certain instances only by restricting the use of jet aircraft at their airports can such operators avoid monetary liability to property owners aggrieved by aircraft noise. The court ruled in favor of the Authority holding, first, that its prohibition was reasonable; second, that the prohibition neither conflicted, nor interfered with the FAA ability to control air traffic; and, finally, that the Authority was entitled to injunctive relief without specifically showing irreparable damage or loss.

At the time that jet service was initiated at Washington National Airport (DCA), agreement was reached between the operator of the airport (the FAA) and the airlines that jet service would not be scheduled at the airport between the hours of 10:00 p. m. and 7:00 a. m. This agreement continues in force to date. In addition, the FAA has promulgated as a policy decision for Washington National Airport that "Air carriers will not be permitted to operate a new aircraft type into DCA unless the new aircraft is quieter and results on an average day in less emissions on a per-passenger-seat basis than the aircraft it replaced and is to be used for service within the range of the short-haul provisions of this policy."²³¹

The Santa Monica, California, City Council adopted a 7:00 p. m. to 9:00 a. m. curfew on business jet operations at the city-owned Santa Monica Municipal Airport. This was an extension of a curfew that was in force from 11:00 p. m. to 7:00 a. m. The original curfew was upheld in Slagg v. Municipal Court of Santa Monica.²³² The court, finding no conflict between Federal and state statutes and the local

ordinance, upheld the ordinance as within the municipality's home rule power to regulate municipally owned public utilities, and a municipally owned airport is classified as a public utility.

At Orange County Airport (California), there has been considerable success with lease restrictions requiring noise abatement. On the basis of the airport lease provisions, a noise preferential system is in effect as well as a restriction on the number of flights per day by each lessee airline, a noise monitoring system and a night curfew on operations from 10:00 p. m. to 7:00 a. m.²³³

At Los Angeles International Airport, a recently adopted rule (with which the air carriers have agreed), requires that all aircraft using the airport shall be certified in compliance with Part 36 of the Federal Aviation Regulations on or before December 31, 1979. "This fleet noise rule shall stand as a regulation at Los Angeles International Airport unless and until a more stringent rule is adopted by the Federal Government."²³⁴ In the interim period, the Board of Commissioners of Los Angeles International Airport requires all aircraft approaching the airport between the hours of 11:00 p. m. and 6:00 a. m. to approach it from west to east. In the event that weather or wind conditions require the use of approaches over the residential areas east of the airport, only those aircraft that meet FAR Part 36 noise requirements may utilize runways that would affect the residential areas.²³⁵

PRIVATE (JUDICIAL) RIGHTS AND REMEDIES FOR CONTROL OR COMPENSATION

Persons sufficiently affected by aircraft noise who seek relief in the Courts are neighbors of airports. Thus, the case law relating to aircraft noise is concerned almost exclusively with airport neighbors, who have generally sought two kinds of judicial relief: an injunction to prevent or limit aircraft operations and damages for injury to their property or person.

Injunctive relief is logically the favorite remedy of airport neighbors since that remedy would stop or limit the noise. Damages on the other hand generates extra

income for the successful litigant but the noise remains. Thus, it is that injunctions are often sought as an alternative remedy in damage actions. However, they have also sometimes constituted the primary relief sought, especially in cases brought as class actions,²³⁶ by municipalities located near airports,²³⁷ or by an attorney-general on behalf of the State.²³⁸

Despite the understandable appeal of this type of litigation to airport neighbors and the often substantial measure of local support for it, injunctive relief has, with one exception,²³⁹ been denied in recent years. It has been suggested that the need for a national air transport system has made the courts reluctant to take any action that interferes with this scheme. On the other hand this suggestion may be at odds with the concession by the Secretary of Transportation to Congress in 1968 that:

"Airport owners acting as proprietors can presently deny the use of their airports to aircraft on the basis of noise considerations so long as such exclusion is non-discriminatory. . ."²⁴⁰

Moreover, in its report recommending the 1968 noise control amendment the Senate Committee stated that it concurred with this view of the Secretary of Transportation.²⁴¹

Plaintiffs have often asserted the theory that the airport operations constituted a nuisance. Courts have until a recent exception, rejected this on the theory of "legalized nuisance", which means there is no private remedy against the conduct of legislatively authorized activity that might otherwise constitute a nuisance.²⁴² Courts have also referred injunctive relief on the grounds that the balance of the equities did not warrant it and that it would conflict with applicable Federal statutory and administrative regulation.²⁴³

The exception to the denial of injunctive relief is seen in the case of Township of Hanover v. Town of Morristown.²⁴⁴ This suit was brought by several communities adjoining an airport as well as by individuals. The court granted "experimental" relief banning jet flights between 11:00 p. m. and 7:00 a. m. Monday through Saturday and any time on Sunday except between 1:00 p. m. and 3:00 p. m. and ordered a prescribed preferential runway system to go into effect upon completion of certain

improvements. The plaintiffs in the Morristown case had sought an injunction against an extension of a runway and the above injunctive provisions in the order were imposed by the court as part of the order permitting the runway extension.

In assessing the precedential value of the Morristown case, it should be noted, the federal government has instituted suit in federal court to challenge the injunction granted by the state court.

The number of damage suits filed by airport neighbors against airport operators and the airlines has increased enormously since the introduction of jet aircraft in civil aviation. Although the aggregate size of the claims outstanding in such current lawsuits is spectacularly large, actual recovery to date has been very modest -- a total of not more than \$3 million.

Most claimed damages and virtually all judgments have been for "inverse condemnation" under state or the federal constitutions. The origin of this theory as discussed above was the Causby case, in which the government was held liable for diminution in value of a property immediately adjacent to and in the flight path of one of the runways of the airport. The theory endorsed by the Supreme Court was that although the governmental authority had not completely expropriated the property-owner, it had taken an interest or "avigation easement" in the property, for which it was bound to pay just compensation under the Fifth Amendment to the United States Constitution. Again as discussed above in the Griggs case, the Supreme Court applied the doctrine in the more complicated context of an airport owned and operated by state government authorities, regulated by federal authorities, and used by commercial airlines. It held that the governmental authorities that owned the airport, rather than the Federal government or the airlines, were liable for taking the avigation easement.

The doctrines of the Causby and Griggs cases have been followed by the lower federal courts and these state courts that have state constitutions providing only for taking. The crucial question that faced the courts in these cases has been the type and degree of overflight "trespass" interference which constitutes a taking.²⁴⁵

This trespass approach has been modified in the state courts, which have tended to adopt a "nuisance" theory of damaging. The nuisance approach does not require direct overflight trespass, and looks rather to the impact of the noise on the property in determining whether there has in fact been a taking.²⁴⁶

More recently in Aaron v. City of Los Angeles the court relied heavily on an NEF ("Noise Exposure Forecast") contour map of the airport and its environs, which delineates the relative exposure of the areas surrounding an airport to aircraft noise, in much the same way that an altitude contour map shows the relative altitudes of the terrain on the map.²⁴⁷ The court held that any landowner located in the NEF area having the highest exposure was entitled to recover to the extent that he could establish that jet aircraft noise had substantially diminished the market value of his property. The court went on to hold that "damage is substantial if it is measurable as contrasted with that which is merely nominal."²⁴⁸

Though generalizations are difficult in this area of case law, it would appear that recently the courts are tending to conclude that it is the "noise" rather than the "aircraft" that is the trespassor. This avoids the problem of the legal nuisance and can arguably be said to recognize the reality of the fact that noise travels to a greater extent than do aircraft. However, most recently in Nestle v. Santa Monica,²⁴⁹ the court while finding no inverse condemnation, permitted a cause of action under the California Civil Code on a pure nuisance theory.²⁵⁰

Section I-3

CRITERIA FOR ANALYZING LEGAL AND INSTITUTIONAL ARRANGEMENTS TO CONTROL AND ABATE AIRCRAFT/AIRPORT NOISE

Prior to evaluating the present legal/institutional structures governing the control and abatement of aircraft noise or analyzing possible solutions to problems encountered in such arrangements, it is necessary to define explicitly the considerations and criteria on the basis of which such structures should be measured. This section of the report will identify a number of considerations that bear upon the ability of the law and institutions regulating aircraft/airport noise successfully to fulfill that mission. Such considerations suggest criteria, or goals, for the proper design of a legal/institutional system to regulate noise, and focus upon the constraints imposed upon such institutions by legal, economic, political, and social factors.

It should be emphasized that the criteria discussed here relate to the analysis of legal/institutional arrangements for the control of noise. These are not criteria for the consideration of what regulations or enforcement priorities should be adopted to control noise. Rather, the question here is how to design laws and institutions which will promote the adoption and implementation of an ongoing aircraft/airport noise control program that is adequate to protect public health and welfare. This section will suggest and address which factors should be considered in adopting or evaluating particular noise control regulations or strategies. Nevertheless, the primary focus of this chapter is to evaluate the effectiveness of legal and institutional arrangements by which such regulations are adopted (and to recommend changes in those arrangements in order to address more effectively the aircraft/airport noise problem).

CRITERION I: PROMOTE ADEQUATE CONSIDERATION OF ALL RELEVANT FACTORS

The legal/institutional arrangement adopted for the control and abatement of aircraft/airport noise should promote and assure full and adequate consideration of all relevant factors in the development and implementation of noise control regulations, standards or strategies.

Section 611 of the Federal Aviation Act of 1958, as amended by the Noise Control Act of 1972, establishes four general factors which, *inter alia*, must be considered in the adoption of standards and regulations for the control of aircraft noise:

1. Available data relating to aircraft noise and sonic boom including the results of research, development, testing, and evaluation activities conducted by the Federal Government.
2. Whether the proposed standard or regulation is consistent with the highest degree of safety in air commerce.
3. Whether a proposed standard or regulation is economically reasonable, technologically practicable, and appropriate for particular types of aircraft, engine, or appliance or certificate.
4. Whether the standard or regulation will afford present and future relief and protection to the public health and welfare from aircraft noise and sonic boom.

FACTORS TO BE CONSIDERED

Further delineating the Congressional mandate, the legal and institutional arrangement (including federal, state and local components) should assure adequate consideration and balancing of the following factors:

1. Effects of noise on public health and welfare
 - a. Direct health and welfare effects of noise (such as effects on hearing, sleep, annoyance, and other physiological and psychological impacts).

- b. Economic and social impacts of noise (effects on property value, use and enjoyment of private property, cost of land acquisition, displacement and relocation of impacted land uses, cost of litigation, disruption of human activities, speech, and communications, and costs of operational limitation).
2. Positive and negative effects of noise control and abatement equipment, procedures or strategies on air transportation safety (both with respect to persons flying and persons on the ground).
3. Technological practicability of implementing particular noise standards, procedures or strategies.
4. Economic feasibility of implementing particular noise standards, procedures or strategies (including short term financing, long term cost allocation, and interrelationships with other economic aspects of air transportation and pollution control).
5. Effects on the overall transportation system of implementing or failing to implement noise control regulations, standards or strategies.
6. Effects on the total environment (such as energy consumption and increases or decrease of other pollutants).
7. Effects of noise control strategies on social disruption, relocation, housing availability, employment, job disruption and other relevant welfare considerations.

Not all of these factors are quantifiable, nor is it advisable always to cost out such elements. Nevertheless, neither the law nor the institutions responsible for noise control should disregard those factors that are not capable of expression in monetary terms. Regulatory decision making regarding the control and abatement of aircraft noise must not be delayed because one or more factors cannot be accurately quantified or evaluated. Institutions responsible for aircraft and airport noise regulation can be expected, in determining appropriate regulations, to consider and evaluate such

factors to the maximum extent feasible and practicable. Certain of these factors will differ markedly in different airport situations, so that the balancing required in adopting a specific noise control implementation plan for an airport and its neighbors may best be done at the local or regional level.

AGENCY EXPERTISE AND INFORMATION

In order properly to evaluate and balance each of these factors, the agency or agencies assigned the duty of developing, adopting, and implementing aircraft/airport noise regulations must have the expertise and information necessary to assess each factor.

Two questions must be answered:

1. What expertise and information is necessary to assess adequately each factor?
2. What agencies have or can develop such expertise and information?

In the field of aircraft/airport noise control, expertise and information may be both overlapping and fragmented. The problem for the legal/institutional scheme is to get this expertise and information to the decision makers, whether on the Federal, state, or local level, who must select and adopt appropriate airport/aircraft noise regulations and strategies. Furthermore, it is incumbent that where there is a void in expertise and information in one or all agencies or levels of government, such areas be identified and corrective steps taken to develop the necessary basis for decision making.

INTEREST GROUP INPUT

If each factor is to be adequately assessed by the decisionmaking agency, all affected interest groups should have full opportunity to make adequate input to the decision-making process. Airport neighbors, general aviation operators, consumers, airlines, pilots, airport operators, manufacturers, environmental groups,

Federal, state, and local agencies should have access to an open decision-making process by the noise regulatory agency.

Thus, several questions should be addressed:

1. What formal interest group inputs are provided by the legal/institutional arrangement? Such formal inputs may include comments to proposed rules, hearings, study panels, representation before courts and on decision-making boards.
2. What informal interest group inputs are available? For example, what opportunities for contact are there between agency personnel and various interest groups working on other projects within the agency's purview?
3. Which interest groups are presently represented either formally or informally in those agencies responsible for airport/aircraft noise regulation? To what extent are such groups represented in those agencies?
4. What types of published invitations for interest group inputs are made? Which groups receive such invitations? How can a balanced invitation process be designed?

CRITERION 2: FULL, ADEQUATE, AND EXPEDITIOUS DECISION MAKING

The legal/institutional arrangement adopted for the regulation of airport/aircraft noise should assure decision-making power will be fully, adequately, and expeditiously exercised.

Full and adequate exercise of noise regulatory powers would require adoption of a comprehensive set of aircraft/airport noise control and abatement strategies, capable of attacking, after a period of time for implementation, the entire problem. Such a regulatory scheme would address source abatement, including design and retrofit requirements; operational procedures; airport siting, development and operations; and airport environ land use control.

Furthermore, a comprehensive regulatory program should be developed and adopted as soon as possible. Exercise of decision-making power should not be delayed by reference to the chimera of waiting for the optimum solution. Solution of the aircraft/airport problem will be incremental, and yet attack on each part of the problem must be coordinated with other aspects of the total effort. When new technology makes noise abatement technically feasible, authority to require implementation should be expeditiously exercised. However, regulatory efforts need not merely follow technology development, but may provide incentives to new research and development efforts, by setting future standards in advance. Without expeditious and progressive regulatory decisions, the state-of-the-art in aircraft/airport noise abatement is likely to advance at slower rates and in a more uncoordinated fashion.

Where they are found, existing regulatory powers have not been fully, adequately, or expeditiously exercised, and in order to avoid similar problems in the future, three questions must be asked:

1. What hindrances to decision making does the legal/institutional scheme create?
2. What pressures to exercise decision making power does the legal/institutional scheme provide?
3. To what extent, if any, has inadequate funding hindered decision making?

To the extent that present regulatory authority has not been fully, adequately, and expeditiously exercised, much of the problem must be laid to the hindrances and disincentives to regulation posed by legal doctrines and institutional structures. A number of such institutional hindrances have been suggested by commentators, including the following:

1. Conflicts between the primary mission of agency or agencies assigned the noise regulatory function and implementation of aircraft/airport noise regulations (e.g., the promotion of air commerce or the promotion of local land use and development).

2. Failure clearly to define and assign responsibility for various aspects of aircraft/airport noise regulation, resulting in confusion regarding authority and counterclaims of insufficient power and inadequate action by responsible agencies.
3. Reluctance to implement aggressively noise control options available under existing authority, lest the assertion of that authority result in increased liability of, or a shift in liability toward, the institution which has moved to implement its authority.
4. Inadequate funding and staff to make sound regulatory decisions, to adopt and implement regulations, or to conduct research regarding potential abatement strategies.
5. Failure of agencies responsible for aircraft/airport noise regulation and land use decisions to be politically accountable to all affected and interested parties, including air transport users and noise impacted neighbors.
6. Nonconcurrence of real, as well as legal, power to regulate airport/aircraft noise and responsibility to provide compensation for personal, property-taking or nuisance damages resulting from an excessive noise level.

In analyzing the present legal and institutional scheme, and suggested modifications thereof, it is important to determine the actual existence and significance of each of these alleged institutional problems.

CRITERION 3: CONTINUING REGULATORY PROCESS

The legal/institutional structure should provide the basis for a continuing process of noise control and abatement, rather than a one-time regulatory effort. Such a continuing process should establish goals for noise abatement in advance of technological development in order to provide targets and incentives for noise control and abatement research and to encourage implementation. Regulatory actions must be reviewed periodically and revised where appropriate to reflect the state-of-the-art when new and more effective noise control technology is developed.

CRITERION 4: CLEAR DEFINITION OF COMPENSATION LIABILITY

Liability for compensation for damages resulting from excess aircraft noise levels should be clearly defined. The compensation scheme adopted should promote amelioration of noise impact to the maximum extent possible. The methods of determining liability should not be overly repetitive, wasteful or costly, nor should they result in inequitable differences between various jurisdictions regarding theories or standards of liability.

CRITERION 5: ULTIMATE ALLOCATION OF NOISE COSTS

The ultimate allocation of noise damage and noise abatement costs should promote the economically rational use of transportation resources and promote rational decision making regarding the regulation of aircraft/airport noise.

The legal and institutional schemes adopted for the control and abatement of aircraft noise will determine, either explicitly or implicitly, the ultimate allocation of noise damages and noise abatement cost. It is, therefore, important to understand how legal doctrines and institutional arrangements will affect such cost allocations, and how such cost allocations will hinder or promote the rational use of transportation resources in adoption of noise regulations.

There are a number of alternative cost allocation schemes, which can largely be determined by the legal/institutional arrangements adopted. The first is to "let the costs fall where they may." Under such a system, the airport neighbor will continue to bear the cost of noise damages; the airline and the air transportation passenger and shipper would absorb the cost of noise control devices; and the taxpayer would bear the noise related losses to public buildings and the cost of airport relocation and construction.* A second possible allocation scheme would

*Where the airport is operated by an independent authority, rather than a general powers government, whose revenue derives from user charges rather than taxes, costs of airport relocation and construction will be borne, in general, by airport users, through landing fees, increased rentals, etc.

shift the cost of both noise damages and noise abatement to the general taxpayer through governmental, as opposed to airport proprietor or airline, liability for noise compensation and through governmental subsidies to airlines for the implementation of noise control technology. A third scheme would shift the cost of damages and noise abatement to the air transport consumer, by means of increased landing fees, taxes on air transport use, or direct liability of airlines. Due to market or institutional imperfections, the cost allocation method selected may never exist in pure form. For example, attempts to shift cost to general taxpayers or air transport consumers may not be wholly successful, due to the inability to adjust landing fees, tax rates, or governmental subsidies.

Furthermore, the distinction must be made between short term financing problems vs. the issue of long-term cost allocations. For example, if the requirement that the airlines install noise abatement equipment, without government loans or guarantees, creates serious short-term capital finance problems, expeditious implementation of noise regulatory decisions will be inhibited. However, solution of this problem is a separate though related matter from the question of how such noise abatement cost will ultimately be allocated. Both issues must be addressed and solved by the legal/institutional structure for noise control.

Theoretically, air transport beneficiaries should pay the full cost of providing air service, including secondary costs such as those of abating noise pollution. Economists suggest that where such costs are fully internalized, consumers can more rationally choose among different modes of transportation; and transportation, energy, and other resources will be used in a more economically rational fashion.

These considerations suggest the following subcriteria:

SHORT-TERM FINANCING

The legal/institutional scheme should provide adequate financing mechanisms to assure that noise abatement technology will be installed at the earliest feasible time and that problems, if any, of the commercial financing of large capital investments necessary for such implementation will be avoided.

COST INTERNALIZATION

The cost of noise abatement and noise damages should be ultimately internalized by the air transportation industry and passed on to the maximum extent possible to the air transport beneficiaries.

CRITERION 6: ENFORCEMENT RESOURCES

The institutions assigned the responsibility of developing and adopting noise regulations must have both the legal and practical power, and adequate resources to enforce such regulations.

One of the most difficult jobs in assigning responsibility for noise regulation and abatement is to assure that the institutions responsible for regulation have the power and resources to enforce rules once adopted. Some institutions presently assigned this task may have regulatory responsibilities, with no enforcement power or resources. For example, airport proprietors may have the duty to control noise impacts resulting from aircraft using the airport, but may be unable to impose such legal sanctions as fines or criminal penalties on noncomplying aircraft operators, or to control land use around the airport. Where enforcement sanctions must depend on economic pressures, the success of such regulations will depend on the market power of the institution involved. A small airport cannot be expected to affect aircraft design appreciably by imposing aircraft noise standards, particularly where traffic to and from such air terminal may be diverted to other, less restrictive, airports. For this reason, care should be taken to insure that responsible institutions have the real power to control that portion of the problem which they are assigned to regulate.

POWER TO IMPOSE VIABLE SANCTIONS

Institutions responsible for developing and adopting noise regulations must have the power to impose viable legal sanctions for noncompliance, including inter alia, fines, charges, and to allow equitable remedies.

LEVERAGE

The institution must have practical leverage over the aspect of the problem for which it is assigned regulatory responsibility.

SUFFICIENT RESOURCES

The institution must have sufficient resources to monitor compliance with the regulations for which adoption and implementation are its responsibility.

CRITERION 7: ADMINISTERABILITY

The legal/institutional scheme for compensating noise-caused damage and for developing and enforcing aircraft/airport noise regulations must be administerable. It should not be overly cumbersome, and should incur the least possible administrative cost compared to the benefits involved.

CRITERION 8: NATIONAL PROGRAM/LOCAL CONDITIONS

The institutional scheme for airport/aircraft noise regulation should allow for a coordinated national noise control program and provide sufficient flexibility to allow for adoption of additional regulations or strategies to meet special or unique local conditions or needs.

This criterion requires little explanation. It is a fundamental tenet of the Federal-state-local partnership, in this and other areas, that the best system provides for a coordinated national program while allowing sufficient flexibility to meet special or unique local conditions. In a large and diverse nation, centralized decision making may not provide for the most expeditious amelioration of the serious problem of aircraft/airport noise, and local experimentation of adjustment will be necessary to meet local problems as perceived on the local level. For example, if a Federal regulation were promulgated limiting cumulative noise exposure, it should

1. Be formulated as a performance standard, specifying the result to be achieved without limiting the specific means of achievement.

2. Allow for more protective limits to be established by state or local institutions in cases where they determine this is desirable. On the other hand, such local decisions must be subject to coordination with the national noise control program if the problem is to be effectively solved.

CRITERION 9: PLANNING GUIDELINES AND INCENTIVES

The legal/institutional arrangement adopted to control noise should provide guidelines for future planning, research and design by state and local governments, planning and other concerned agencies, aircraft operators, airports, and manufacturers. Such guidelines should allow substantial flexibility in the development and implementation of noise control strategies and should provide incentives for airlines, airport proprietors, and other concerned parties to maximize noise abatement in excess of imposed standards in the most expeditious fashion.

The promulgation of regulations, such as performance standards for noise emissions at the source, and cumulative noise exposure by the recipient, should precede the development of technology, design of aircraft, and land use planning activities. Such regulations should serve as goals or targets for researchers, designers and planners, rather than merely reflect what has previously been done. If engineers, planners, and government officials are adequately to solve the airport/aircraft noise problem, they must know -- in advance -- what the end results should be and what is expected of them to reach that result. With goals thus announced, a coordinated program involving source abatement, operational procedures, airport location, design and operation, and land use control can be cooperatively developed by the private parties and public agencies responsible for various aspects of the total solution.

CRITERION 10: INTERNATIONAL CONSTRAINTS

The legal/institutional scheme for noise control regulation should be consistent with international arrangements, treaty commitments, and allow to the maximum extent possible, for a coordinated international approach to the aircraft/airport noise problem.

At the same time, the mechanisms of formulating United States policy for noise regulation and abatement at the international level should be constructed so as to preserve the complete ability of the Federal, state and local governments of the United States to protect the health and welfare of the people. Thus, a coordinated national noise control program should form the basis for active U.S. leadership in formulating consistent international arrangements.

SUMMARY

To be effective, the legal/institutional scheme for dealing with airport/aircraft noise must meet the following criteria: It must assure all relevant factors are considered in adopting and implementing noise abatement regulation. Regulatory decision making must be complete, adequate and expeditious. Assignments of regulatory responsibility over various aspects of the problem should be clearly defined. The regulatory process should be continuing and not static. The legal/institution scheme should develop a clear definition of compensability. The cost of noise abatement and land use conversion must be ultimately allocated to the air transportation users and beneficiaries. Institutions responsible for airport/aircraft noise regulation must have adequate resources. To enforce such regulation the legal/institutional scheme must also be administrable and must not incur excessive administrative cost compared to the benefits derived therefrom. The scheme should provide for a coordinated national program of noise control and abatement, and yet allow for the adoption of additional strategies or more stringent standards to meet local and regional conditions or needs. Regulations and guidelines should be adopted to provide guidance and goals for land use planning, aircraft design and research and development of noise abatement technology and procedures, and to establish incentives for airlines, airports, and concerned agencies to maximize noise reduction in excess of imposed standards in the most expeditious fashion. Finally, the legal/institutional scheme should be consistent with United States Treaty commitments, and allow, to the maximum extent possible, for a coordinated international approach to the airport/aircraft noise problem, while guaranteeing the ability of the Federal, state and local governments to protect the health and welfare of their citizens.

SECTION I-4

PROBLEMS IN THE PRESENT LEGAL/INSTITUTIONAL SCHEME FOR AIRCRAFT/AIRPORT NOISE REGULATION

The general problem faced in this report is self evident. The problem of aircraft/airport noise has not been solved, nor does such a solution appear likely in the near future. Specifically, the problem is that noise-sensitive, incompatible land uses in the vicinity of our nation's airports are subject to, and severely impacted by, intolerable noise levels from aircraft operations. A comprehensive national (i.e. Federal, state, and local) program to attack this problem of airport/aircraft noise has not been developed or implemented by regulatory actions of government agencies or voluntary efforts of private industry. To the extent the present legal/institutional framework for aircraft/airport noise regulation is intended to address and solve this problem, it has failed to date.²⁵¹

This section of the report will focus on the strengths and weaknesses of the present legal/institutional framework for solving the aircraft/airport noise problem. Using each of the criteria and questions set forth in Section I-3, an attempt will be made to determine the extent to which the legal/institutional scheme has either hindered or encouraged development of viable solutions, and identify where further regulatory or legislative actions on the part of Federal, state, or local governments may be appropriate to assure full and adequate solution of the aircraft/airport noise problem in the shortest possible time. Thus, the discussion below will analyze the entire legal/institutional framework, taken as a whole, against the criteria and considerations outlined previously. Later sections of this report will suggest possible alternative institutional arrangements, as well as actions which could be taken pursuant to existing authorities, to address the shortcomings identified here.

COMPARISON OF THE PRESENT LEGAL/INSTITUTIONAL SCHEME WITH IDENTIFIED CRITERIA

ADEQUATE CONSIDERATION OF ALL RELEVANT FACTORS

On the Federal Level

Prior to adoption of the Noise Control Act of 1972 amendment,²⁵² § 611 of the Federal Aviation Act did not require a consideration of all the factors listed above, in the development, adoption and enforcement of Federal aircraft noise regulations. The 1968 Act, P.L. 90-411, required the FAA, in "prescribing and amending standards, rules, and regulations" for aircraft noise control, to consult with appropriate Federal, State, and interstate agencies, and to consider

1. Relevant available data relating to aircraft noise and sonic boom.
2. The consistency of a proposed rule with aircraft safety.
3. Economic reasonability and technological practicality.
4. The extent to which a proposed standard, rule or regulation will contribute to carrying out the purposes of § 611.

The major difference between the 1968 and 1972 acts lies not in the listing of these considerations,²⁵³ but in the section's statement of purpose. The stated purpose of § 611 as adopted in 1968 was to "afford present and future relief and protection to the public from unnecessary aircraft noise and sonic boom."²⁵⁴ The purpose of § 611 as amended by the Noise Control Act of 1972 is to "afford present and future relief and protection to public health and welfare from aircraft noise and sonic boom."²⁵⁵

Nowhere in the 1968 Act substantive provisions do the words "public health and welfare" appear. The goal of the 1968 provisions was relief from "unnecessary aircraft noise," not from noise detrimental to "public health and welfare." The "unnecessary noise" standard suggests a focus on the issue of what level of noise can be abated in an economically reasonable and technologically practicable manner.

"The (Public Law 90-411) statutory language on aircraft noise abatement was drafted in 1968 when fewer citizens were adversely affected by noise pollution and prior to the Nation's awakening to the problems caused by environmental degradation. In short, the 1968 statute contains 'aviation' language not 'environmental' language."²⁵⁶

The 1968 Act did not explicitly require a consideration or balancing of the demands of public health and welfare for a quieter environment on the one hand versus the economic and technological feasibility of instituting abatement measures on the other. Such a balancing was not, of course, precluded. Certainly, in assessing the economic reasonability of implementing certain noise control standards,²⁵⁷ the FAA could have and should have considered the economic, social, environmental costs of not implementing the standard, or of adopting a less stringent standard. These factors were certainly urged by numerous public comments—from local and state agencies citizens groups, and airport proprietors—submitted in response to various proposed rules announced by the FAA since passage of the 1968 Act.

An examination of FAA Advanced Notices of Proposed Rule Making, Notices of Proposed Rule Making, and final Rule Making, with particular attention to the agency analysis of public comments, does not indicate the suggested approach was, in fact, implemented. While the FAA consistently "noted" receipt of public comments calling for stricter noise limitations, the vast majority of the agency analysis of proposed rules and comments have addressed the questions of economic reasonableness and technical feasibility as raised in aircraft manufacturer and air carrier comments to proposed rules.²⁵⁸

Clearly, one of the major obstacles to FAA consideration of environmental, social, and economic costs of noise pollution in assessing the reasonableness of various proposed aircraft noise rules has been its inability to quantify such effects. Public comments demanding increased protection from aircraft noise tend to address the issue of environmental effect with generality; and fail to adduce hard data on either direct noise effects or the indirect cost of additional noise pollution.

Nor has the FAA developed the expertise, information or criteria to evaluate such environmental effects on an in-house basis, or identify the most efficient solutions to the airport noise problem.

In 1968, the Air Transport Association and Aerospace Industries Association offered the FAA free use of the results of a jointly funded study,²⁵⁹ including computer software, which attempted to define a methodology for identifying the most cost-effective combination of actions for abating aircraft noise impact to a given level. Although generally recognized as the most extensive such effort to that date, the FAA has not yet made use of the methodology.²⁶⁰

In 1967, pursuant to an FAA contract, an acoustical consulting firm developed the Noise Exposure Forecast (NEF) methodology for evaluating cumulative noise exposure impacts on airport environmental land uses,²⁶¹ taking into account the various noise characteristics of different aircraft, the topography of the area, the number of aircraft operations by type and flight path, the time of day of aircraft operations, weather conditions, etc. The resulting contours were correlated to expected impacts on different land uses subject to given noise exposures.²⁶² The NEF methodology has been generally considered the most sophisticated system of evaluating airport noise impact developed to date.²⁶³ Although developed by and for the FAA, and initially promoted by that agency for the purposes of airport area land use planning, the FAA has consistently refused to use the NEF procedure to evaluate environmental impacts of noise exposure vis-a-vis its own regulatory actions. In contrast, the Department of Transportation Office of Noise Abatement has adopted the NEF System for evaluating the relative effectiveness of alternative aircraft noise abatement techniques, while the Department of Housing and Urban Development has incorporated NEF standards in its guidelines for FHA mortgage and other Federally assisted housing programs.

The FAA recently proposed a new system for evaluating noise impact, called the Aircraft Sound Description System (ASDS).²⁶⁴ This system does not account for the cumulative exposures resulting from different aircraft types or for operations at different times of day, e.g. the greater annoyance factor of night operations. Further, it does not provide a plot of exposure for use in land use planning in evaluation of the effectiveness of different combinations of abatement strategies, nor is it a quantity by which cumulative noise exposure can be measured at a given point on the ground.

ASDS has been severely criticized as being less accurate, less sophisticated, and less useful in evaluating environmental impacts of aircraft noise, and planning to prevent such impacts, than any analytical system developed in the last 20 years.²⁶⁵

The cost of abatement to airlines and manufacturers, on the other hand, is more readily quantified, and heavily documented in industry comments on proposed rules.²⁶⁶ The result has been a skewed analysis, focusing on abatement costs and financing difficulties and all but ignoring environmental effects and economic costs of non-abatement. This particular problem was underscored before the House Hearings on the 1972 Noise Control Act. There, the argument was made for a "full cost benefit analysis" under the "economically reasonable" standard of P. L. 90-411, including consideration of the human cost (annoyance), the cost of land acquisition, litigation costs, costs of limitations on operations, cost of ground transportation (where airports must relocate farther from the area they serve), costs of aircraft operating delays, and costs of noise abatement operating procedures.²⁶⁷

Although the 1968 Act may have used "aviation" language, it can be assumed, without lengthy citation, that Congress was concerned then, as now, with the detrimental effect of aircraft noise on communities neighboring airports. The 1968 Act was enacted for the purpose of protecting health and welfare—at least in the sense those words are used to describe statutory "police powers."

The 1972 Amendments, however, make this consideration explicit. The FAA is charged therein to consider health and welfare effects of noise.²⁶⁸ It further requires that the Environmental Protection Agency (EPA) initially propose those regulations and standards that, in EPA's opinion, are necessary to protect public health and welfare,²⁶⁹ and establishes a formalized mechanism for EPA challenge of any FAA regulations that EPA believes provide inadequate protection.²⁷⁰

Whether the 1972 Amendments to Section 611 afford a total solution to the problem of adequately assuring assessment on the Federal level of all the factors suggested in Criterion 1, A, is an open question at this time. No substantial aircraft regulatory action, other than final adoption of the sonic boom rule, has occurred since passage

of P.L. 92-574. However, an evaluation of the past and present institutional structure in terms of the subcriteria listed above is useful in identifying remaining areas for adjustment and improvement.

Agency Expertise and Information

To adequately evaluate the efficacy of proposed aircraft noise rules and standards, the responsible decision-making agency must have the expertise and information to address a wide variety of issues. It must have expertise in aeronautical engineering, particularly engine and airframe design, aircraft operating procedures and safety requirements, economics, acoustics, psychological and physiological sciences, and similar disciplines.

On the Federal level, expertise and information in the field of aircraft noise abatement is both overlapping and fragmented. For example, expertise and information regarding the technological and economic feasibility of implementing aircraft noise emission control technology exists in several agencies, e.g. NASA, FAA, Department of Transportation,²⁷¹ EPA, and Department of Defense.²⁷² On the other hand, expertise and/or information necessary to analyze the health effects of noise are largely concentrated in agencies such as EPA, HEW and Department of Defense. Expertise and information concerning social and economic impacts of aircraft noise are shared, for the most part, by EPA, HUD, and state and local planning agencies.

The problem is to assure that such expertise and information are available to, and considered by, the decision-maker responsible for adopting appropriate aircraft/airport noise regulations. At the present time that decision-maker is the Administrator of the FAA. Prior to the 1972 Noise Control Act, the primary mechanism for direct interagency exchange of data and opinion was the Interagency Aircraft Noise Abatement Panel (IANAP).²⁷³ IANAP was dissolved in April 1973. Another formal process, requiring EPA to review and comment upon the environmental effects of proposed administrative actions of other agencies,²⁷⁴ was operationalized to a limited extent. The directive of § 402(c) of the 1970 Clean Air Act Amendments²⁷⁵ that

Federal agencies consult with EPA whenever EPA determines noise resulting from a Federally sponsored activity constitutes a public nuisance has never been invoked in challenging inadequate aircraft noise regulatory actions. The latter two provisions were largely superseded by the Noise Control Act of 1972. First the 1972 Act assigns to EPA the task of coordinating all Federal noise control and noise research.²⁷⁶ In addition, and more important, the 1972 Act's Amendments to §611 establish a unique procedure by which EPA determines and recommends to the FAA those levels of noise abatement which EPA believes are necessary to protect public health and welfare, and further provides EPA with a procedure for challenging FAA regulations which fail to adequately protect the public.

While the new institutional scheme established by the 1972 Act assures that noise-related health and welfare factors will be analyzed and brought to the FAA attention, what of the other considerations—technological feasibility, economic cost of abatement, and aircraft safety? Clearly, not all of the expertise and information regarding these factors are concentrated in the FAA. The majority of research experience and personnel relating to technical feasibility effectiveness, cost, and safety of implementing new noise abatement technology has been accumulated under the aegis of NASA, sometimes with grant assistance from FAA. Indeed most of the research reports forming the data base for aircraft noise regulatory decisions are a result of NASA sponsored, supervised, or conducted studies.

In terms of manpower and experience, NASA is in a good position to determine, on at least an initial basis, the feasibility, effectiveness, cost and safety of implementing various noise abatement strategies, whether they be retrofit, operational procedures, or a combination thereof. As a research agency, NASA's in-house and contracted studies provide an important data base for making such determinations.

One problem encountered in making such determinations, however, has been that in some cases—for example the nacelle treatment program—research has been artificially dichotomized between NASA and the FAA. In such instances, NASA has been assigned the task of initial development of abatement technology, after which the FAA

has undertaken a similar research program to bring the technology to experimental flight status. This has resulted, to a certain extent, in lost time, retraced steps, and split expertise.

In contrast, the approach taken in the refan research program appears more efficient, wherein NASA has accepted the assignment of developing the program—not just in its initial phases - but until a safe, flyable, economically and technically feasible technology is complete.

Only after such a thorough research and development program can rational determinations be made as to the feasibility, safety, cost, and effectiveness of the technology under study. Unfortunately, because of past partitions of research efforts, results have often been incomplete and unclear. As a result, interpretation of the results has been made a matter of debate before the regulatory agencies, based on comments presented for the docket by industry and public interest groups. Preferably, such issues would be settled by a complete research program whose results and determinations would be thoroughly reported by the research organization.

More important, the legal/institutional scheme does not provide a formal mechanism to assure government research results and determinations are conveyed directly to the agency which must ultimately adopt and implement noise control regulations, nor does it assure that such determinations will be reviewed and acted upon once received. The same is true of information and views held by other agencies concerned with aircraft/airport noise, in particular HUD, HEW and the CAB. It is most important that such information and viewpoints be relayed on a regular basis, not just in reaction to regulatory proposals, but in designing a comprehensive regulatory program and coordinating the activities of the government groups which have authority over various portions of the problem.

Interest Group Inputs on the Federal Level

Because the current law assigns primary Federal regulatory power over aircraft noise to the FAA, with EPA and DOT consultation, interest group inputs to those agencies are the most important for the purpose of this analysis.

The formal interest group inputs to FAA regulatory process are defined by the Administrative Procedures Act (APA),²⁷⁷ and to date have largely consisted of comments to Advanced Notice of Proposed Rule Making and Proposed Rule Making notices published in the Federal Register. As noted previously, comments to airport noise regulations have been submitted by State and local governments, airport neighbor, and environmental groups. However, the greater part of such input, in terms of document volume and detail, has come from airline, aircraft manufacturing, pilot, and airport operator associations.

Formal input to the FAA, requesting action be commenced, as opposed to commenting on proposed action, is provided by the APA petition process. In at least one instance, the petition process was invoked by environmental groups to require FAA publication of an Advance Notice of Proposed Rule Making in the aircraft noise field. On May 15, 1970, the Environmental Defense Fund, Inc. filed a petition with the FAA "requesting the immediate promulgation of the environmental standards that will govern certification of the supersonic transport".²⁷⁸ Responding to the petition, the FAA issued an ANPRM for "Civil Supersonic Aircraft Noise Type Certification Standards," stating its intent "to insure that supersonic aircraft, like subsonic aircraft, are subject to type certification standards that require the full application of noise reduction technology, and insure that these standards establish ceilings beyond which noise will not be permitted".²⁷⁹ The Agency to date has not progressed to "Notice of Proposed Rule Making" for SST noise type certification, although the British-French Concorde is expected to enter service on the North Atlantic routes in mid-1975, and the Russian TU-144 is expected to enter service even earlier.

Two other formal input mechanisms, public hearings and appeals of administrative actions, exist in theory. It should be noted that no formal hearings on proposed noise rules have ever been conducted, nor has any FAA noise regulatory action, or inaction, been appealed to the courts. On the other hand, both of these mechanisms have been used to require CAB consideration of noise effects in reviewing proposed certification of new air service.²⁸⁰

Perhaps the most important inputs to the decision making process are "informal", or at least less formal compared to the legally established notice and comment requirements of the APA. The most significant of these "informal" processes are the formation of advisory task forces to develop, review and comment upon proposed regulatory actions. In this regard, the current study is a product of such a task force approach, wherein the EPA invited representatives of concerned federal agencies, industry associations, airport operators, state and local governments, environmental and citizen groups to participate.

The FAA has also used such a study group mechanism, although it has been criticized as being less inclusive in its invitation. For example, in November, 1970, the FAA gave advance notice of proposed subsonic retrofit requirements,²⁸¹ requesting public comments and suggestions on appropriate standards. In early October, 1971 the Agency announced its failure to develop a standard which could obtain the concurrence of airport operators, airlines, and environmental groups. As a result, the FAA stated that it was turning over responsibility for drafting the new regulations to a task force, including representatives of the Air Transport Association and the Airport Operators Council International. Invitations to participate in the study group were not extended to representatives of state or local governments, airport neighbors, pilots, or environmental groups.

To this extent, at least, the legal/institutional framework has not been wholly successful in assuring all concerned parties have an adequate opportunity to input to an open regulatory process. Clearly, "equal" inputs from all interest groups should not be expected or required. But the regulatory process should insure, through either its formal or informal mechanisms, that a balanced view is obtained and that all relevant facts and viewpoints are considered.

Perspective in Developing and Adopting Regulations

One of the greatest difficulties with the present arrangement for insuring adequate consideration of all relevant factors in Federal aircraft noise regulation is the lack of

an agency, or interagency body, with perspective to coordinate the various inputs described above, and to formulate appropriate regulatory responses. Perspective, in this sense, means the ability to analyze simultaneously the myriad of noise-related health and welfare, safety, general welfare, technical and economic factors relating to aircraft noise regulation, together with the capability to see such regulatory action in the context of the larger issues of overall transportation and environmental policy.

The Interagency Aircraft Noise Abatement Panel served this function to a limited extent prior to its dissolution in April 1973, although the primary IANAP function was to coordinate Federal aircraft noise research efforts. The research coordinating mission of IANAP was transferred to the Environmental Protection Agency by the Noise Control Act of 1972, but no effort has as yet been undertaken to replace IANAP with another continuing structure to coordinate inputs and formulate regulatory response on a continuing basis.²⁸² It is clear that neither the FAA nor EPA, alone, provides a viable structure for achieving such perspective. The FAA is not particularly capable of dealing with environmental policy issues, nor is either agency responsible for viewing aircraft noise in light of an overall transportation program. The consultative roles assigned EPA and DOT by § 611²⁸³ may somewhat ameliorate this problem, but will only be effective to the extent such consultation is progressive and continuous, rather than ad hoc and reactive. The Section 611 structure, furthermore, still does not establish a coordinated program of aircraft noise regulatory development to the extent other concerned Federal agencies - such as NASA, HEW, HUD and the Department of Defense - are not regularly included in such consultation.

On the State and Local Level

Four institutional structures are concerned with aircraft/airport noise regulation on the state and local levels:

1. Airport proprietors
2. State legislatures

3. State administrative agencies
4. Municipal and county governments.

Have these institutions considered all relevant factors in their aircraft noise related decisions? Do they have the expertise and information to consider and balance such factors? What inputs are available to them?

It is hard adequately to assess, across the board, whether state and local governments, and airport proprietors, have adequately considered all relevant factors in making decisions affecting the aircraft/airport noise problem. In some instances, the result of such decisions suggests that some factors have not been considered—for example, where zoning around airports not only allows, but mandates, residential uses in noise impacted environs. In other cases, certain actions or inactions by responsible state and local institutions may indicate problems other than imbalanced consideration of environmental, social, economic and technological facts—such as lack of economic leverage, power, or resources to implement effective noise abatement strategies. Thus, the analysis of the problem on the state and local level must rely on answering the questions regarding availability of expertise, information and interest group input opportunities. Such an analysis will suggest whether, all other factors being equal, the branches of state and local government can adequately consider all relevant factors.

Most airport proprietors possess substantial experience and expertise in the economic and technical aspects of aviation. The in-house noise control expertise available to airport proprietors, on the other hand, is extremely limited. For the most part, airport operators requiring information on noise effects and noise abatement must rely on Federal agency assistance and private consulting firms. Airports of smaller size and more limited fiscal resources are unable to field the more sophisticated noise control studies conducted by their larger counterparts, yet their problem may be proportionately less serious and solution less complicated. A major airport noise control program, however, requires substantial funds and personnel resources for monitoring, planning, and implementation. Because many city, state and local

authority airports are already operating on a marginal, non-profit basis, such resources are not readily available for the purchase of necessary equipment and consultative services without some outside assistance.

Several state and municipal governments have in-house noise staffs, as well as personnel versed in aviation. Often, this expertise is not concentrated in one agency, but divided among many; for example, departments of environmental control, health, aeronautics and commerce. In the actual drafting of noise legislation and regulations, states and local governments, like airport proprietors, have turned to private consultants for additional expertise and information. In the area (of the problem) where state and local governments have the clearest responsibility, land use planning, they are often hampered by an inability to assess airport noise exposures and determine land use compatibilities. With the FAA's retraction of the NEF contours, which were originally distributed to state and local planners to assist in planning, state and local agencies have been severely hampered in undertaking land use control around airports. Yet the cost of NEF or similar studies, and experience required properly to prepare them, place them beyond the fiscal capabilities of many planning agencies.

The quality and extent of interest group inputs to airport operator, state and local government decision-making process varies depending on location and institution. Generally, hearings before state legislatures include considerable comment from all interested parties and organizations. Lobbying efforts are less easy to gauge, and vary according to the resources of the groups involved.

On the municipal level, particularly in cities neighboring airports, most interest group activity is concentrated in citizen-environmental group and business-chamber of commerce efforts. Airline association, airframe manufacturers, and pilot comment is usually minor or nonexistent—except where such organizations challenge, by litigation, the legality of local noise control actions. Affected airport proprietors have often presented their views before local government legislative bodies. Unfortunately, efforts of airport operators thereby to stimulate local land use control measures have been, with few exceptions, ineffective and unsuccessful.

Input to airport proprietor decision making is much more complicated. Where airports are operated by line agencies of municipalities or counties, input mechanisms generally run through the local governmental legislative body. In addition, hearing requirements contained in the Airport and Airway Development Act guarantee direct opportunities to input to and sometimes confront an airport operator on proposed controversial airport development projects.

A number of airports are operated by independent or semi-autonomous authorities or commissions. Enabling legislation for these authorities may require appointment of certain interest group representation. For example, the Massachusetts Port Authority Board,²⁸⁴ by law, must contain persons with backgrounds in business, labor, and engineering professions. Pursuant to executive policy, a few representatives of noise impacted communities have been appointed to the governing bodies of a few such authorities.

Specifically with respect to the noise problem, at least one airport proprietor has formed an advisory noise abatement committee, formed of representatives from the FAA, State aeronautics commission, airlines, pilots, and neighboring communities.

The advisory committee has the duty of developing proposed noise abatement guidelines for consideration by the airport proprietor, and in theory, at least, provides a basis for continuing, regular input by all interested parties.

FULL, ADEQUATE, EXPEDITIOUS REGULATORY DECISION-MAKING

With perhaps the sole exception of the State of California, no level of government or agency acting either alone or in cooperation with other responsible agencies has attempted to formulate a comprehensive regulatory program for aircraft/airport noise abatement.

Existing regulatory measures address only a small portion of the problem. FAA aircraft type certificate noise standards apply to only five percent of the present fleet; 95 percent of all commercial and business jet aircraft are unregulated with respect to noise emissions. Yet the unregulated portion of the fleet contains those aircraft which create the greatest noise, and dominate the noise problem at every major

American airport. Preferential runway procedures, as noted on page have been published as regulations since the early 1960's. Their enforcement is accomplished by way of Air Traffic Control clearance procedures whereby the control tower clears the pilot for the preferred runway and the pilot is bound by the clearance unless he informs the tower of his objection for safety reasons. Few federal regulations have been adopted with respect to the other areas necessary to complete a comprehensive noise control program; that is, approach and takeoff procedures, community exposure standards, single-event aircraft operational noise standards, or land use control and incompatible land use conversion guidelines. Only one State and a small number of local governments and airport proprietors have attempted to address the latter regulatory areas. In some instances, these efforts are beginning to show promising results, particularly in the California system. Nevertheless, the amount of success possible is severely delimited by the absence of a coordinated national plan and adequate Federal action.

Federal aircraft/airport noise regulation to date reflects a history of inadequate, nonexpeditious decision-making. Evidence of nonexpeditious FAA rule making appears in several areas, for example:

1. Retrofit and fleet noise standards for existing first-generation, low-bypass ratio subsonic jet aircraft.
2. Type certification standards for new supersonic transports.
3. Standards for new production units of previously type certified low-bypass ratio subsonic aircraft.

As noted previously, in November 1970, the FAA issued an ANPRM covering subsonic retrofit requirements, requesting public comments and suggestions on appropriate standards. The comment period expired on February 26, 1971.²⁸⁵ In October 1971, the FAA announced it was unable to develop a standard acceptable to both industry, airport and environmental groups.²⁸⁶ Two days later, John. H. Shaffer, then FAA Administrator, stated that the FAA would soon issue proposed retrofit rules for two and three engine aircraft, but not for the four engine low bypass ratio jets (DC-8 and Boeing 707).²⁸⁷ These proposed rules were never issued, and

on January 24, 1973, 15 months later, the FAA issued a new ANPRM on Civil Airplane Fleet Noise Level Requirements.²⁸⁸

Following receipt of the Environmental Defense Fund petition requesting FAA promulgation of noise standards for civil supersonic transport type certification,²⁸⁹ the FAA issued an ANPRM for civil SST noise standards on October 6, 1970.²⁹⁰ Although the initiation of procedures is encouraging, the Agency to date has not progressed to the "notice of proposed rule making" stage. Application for certification of the British-French Concorde SST has been submitted to the FAA, and said aircraft is expected to be in trans-Atlantic service by mid-1975. At the date of this report, the FAA is more than 32 months behind its originally announced schedule for final promulgation of SST type certification noise regulations.²⁹¹

On July 7, 1972, the FAA issued proposed rules for newly produced aircraft of older type design, which would have required all subsonic aircraft first flown after July 1, 1973, to comply with FAR 36 noise standards. Currently, technology is available to significantly quiet new units of previously type certified aircraft. The Boeing Company, for example, presently is offering new 727-200 and 737-300 aircraft with an optional acoustically treated nacelle. Some airlines have ordered new planes with this noise abatement package, but Federal regulations do not make the package mandatory, and other carriers are still buying aircraft that do not incorporate best available abatement technology. Such new untreated aircraft will have to be retrofitted if and when the FAA adopts a retrofit rule or retroactively applies the new aircraft regulations. As of this date, the FAA has not adopted the new aircraft rules proposed in July 1972.

As stated in the Section I-3, a number of reasons have been suggested for the present inadequate, incomplete, unexpeditious process of noise regulation. Each of these criticisms must be analyzed to determine if it validly identifies a constraint imposed by the present legal/institutional structure, and the seriousness of that constraint.

Primary Mission Conflicts

It has been frequently argued that assignment of the noise regulatory function to agencies with a conflicting primary mission (e.g., to promote the expansion of the civil aviation system, or to maintain the financial stability of an airport authority) has resulted in the inability of agencies such as the FAA and airport operators from adequately exercising their legal powers and duties in the noise field.

Putting aside the question of what are the real or perceived missions of various agencies—whether the FAA sees its mission as air transport promotion or safety regulation²⁹²—do the hypothesized conflicts exist? Does noise regulation conflict with promotion of air commerce or operation of a fiscally sound airport?

On reflection, the alleged conflicts are chimeric. Not only is aircraft noise "the most explosive problem facing aviation today,"²⁹³ it has also become the greatest obstacle to air commerce expansion. Airport development and improvement has been embroiled in controversy, delayed and often defeated, because of public dissatisfaction with current noise levels. Until adequate noise control programs are instituted, such public opposition is likely to continue and perhaps become even more intense. Furthermore, measures to reduce noise and measures to increase performance and economy may often be congruent. Major examples are:

- The emergence of the fan engine and its high bypass ratio versions, which provide not only important increases in performance and economy but also significant reductions in noise.
- The improved financial situation of airlines operating under capacity limitation agreements which also have beneficial environmental effects: slight reduction of noise exposure, and significant reduction of total exhaust emissions and energy consumption, through reduced flight frequencies. In the long run noise control is in the best interest of, and not in conflict with promotion of air transport.

Whether all parts of the air transport industry perceive this compatibility, particularly in the short run, is debatable. Issues of cost, and who is to pay, for interim phases of noise control appear of most concern to air carriers, who have questioned the wisdom of proposed retrofit, type certificate, and other noise regulations. From a regulatory agency viewpoint, however, noise control in both the short and long term should appear wholly consistent with commitments to promote air commerce.

Failure Clearly to Define Responsibility

One of the most obvious problems created by the legal/institutional scheme is the failure clearly to define what agencies have responsibility for particular aspects of the aircraft/airport problem. This constraint is amply evidenced by the present relationships between the FAA, airport operators, and state and local governments.

The FAA claims jurisdiction over aircraft in flight in the navigable airspace (which includes airspace necessary for takeoff and landing), type certification, and aircraft noise emission standards. The FAA has taken the consistent position that it can only adopt noise regulations insofar as they "involve economically reasonable burdens on the aircraft industry and are technologically practicable."²⁹⁴ According to the FAA, responsibility for setting permissible levels of noise at an airport belongs to the airport operator, not the FAA.²⁹⁵

On the other hand, airport operators have argued that they do not have sufficient enforcement power or economic leverage to impose effective aircraft source noise standards at the local level, that the FAA and not the airports, has primary authority to control flight paths and operating procedures, and that local governments other than the airport operator have land use control powers for the noise impacted airport environs.

Local governments having jurisdiction over land around airports and states allege they are unable to control the entire land use within excessively large noise impacted zones so long as airport and Federal regulations on the source are inadequate, while at the same time airports, airlines and federal authorities have thus far successfully blocked state and local efforts to impose standards on aircraft noise

levels. On the other hand, the FAA has disclaimed any authority to influence land use control, despite clear provisions of the Airport and Airway Development Act requiring adequate land use control as a condition to awarding airport development grants, and authorizing airport certification regulations including airport noise standards.

The underlying difficulty lies in the manner in which the legal system has judicially assigned present noise control responsibility and accountability therefor. The current allocation of regulatory powers is performed, not according to a legislative or administrative determination of what agencies or levels of government should have responsibility for part of a coordinated comprehensive national aircraft/airport noise control, but pursuant to constitutional principles of preemption and taking liability.

The debate over whether states and/or local governments can use their police power to set noise exposure limits to protect their citizens has been answered in the negative by the Supreme Court in the Burbank case on the ground that the Congress has preempted the entire area of aircraft noise regulation. Also Burbank continues for the present airport proprietors' responsibility for aircraft noise apparently based on interpretation of who should be liable under Griggs for property taking and damaging resulting from excessive noise. Such constitutional questions imply all-or-nothing answers, and not coordinated noise regulatory efforts, with each level of government doing that it can do best to implement agreed-upon goals. Reliance upon judicial allocation of such authority not only is awkward, but has resulted in unnecessary jurisdictional conflicts and acrimony between agencies and governments which should be cooperating toward a coordinated solution to a common problem.

Interagency Conflict

A related alleged deficiency in the present scheme is interagency conflict; that is, one agency effectively refusing to cooperate with another where such cooperation is necessary to implement a proposed regulatory program.

Upon investigation, the Task Group could only document one such instance of serious import. In July 1970, a study prepared for the FAA indicated that retrofit would be economically feasible with a modest fare increase.²⁹⁶ The FAA published its ANPRM for retrofit standards October 30, 1970. While such standards were under consideration, the CAB let it be known it would not authorize a fare increase to finance retrofit if the FAA adopted the proposed rule. Further, in Senate hearings held in July 1971, the CAB vigorously opposed legislation which would have compelled a fare increase to the extent of retrofit costs.²⁹⁷ Because any retrofit rule implementation will require a substantial investment by air carriers, which logically must be amortized and included in the charges to their users, the practical effect of the CAB announcement—all other things being equal—is to scuttle retrofit plans until either Congress establishes an alternative financing scheme, or CAB changes its mind.

Fear of Liability for Noise Damages

The fear of liability for noise created damages or taking of property has been a serious deterrent to adequate, rational noise regulatory decisions. Airport operators have argued consistently for the past several years that the Federal government has so preempted the aircraft field, that they should no longer be liable under the Griggs doctrine, but that such liability has, or should be, shifted to the Federal treasury. As a corollary, some have argued, most airport proprietors have refused to impose noise regulations for fear that such action would appear inconsistent with their present legal posture.

On the other hand, Congress, in the legislative history of the 1968 and 1972 Acts, made clear its desire not to open the Federal purse to noise damage claims by total preemption. As a result, a dichotomous doctrine was enunciated, imposing preemption as against the State and local governments acting pursuant to their police powers, but allowing imposition of aircraft noise standards by airport authorities acting in their proprietary capacity. Although some former and present FAA officials expressed

the belief that fear of noise damage liability has never hindered FAA noise regulatory action,²⁹⁸ nevertheless, the FAA has consistently argued that responsibility for establishing acceptable noise exposure limits around airports is a proprietor, not FAA, duty—a view which is the practical progeny of a legal doctrine conceived to avoid financial liability for inadequate regulatory action. As noted above, the result of such fear, or its resultant legal machination, is a wholly unsatisfactory definition and allocation of regulatory responsibility.

Inadequate Funding and Staff

Some have asserted the present deficiencies and delay of regulatory action in the noise field is a result of inadequate funding and staffing of responsible agencies. This is certainly true at the State and local government level. With the exception of California and possibly Illinois, no State or local planning or aviation agency has adequate funds or trained staff to fully assess noise problems, develop a comprehensive noise control program, draft regulations, and monitor and enforce such rules once adopted. In terms of fiscal constraints, airport operators are somewhat better situated to acquire needed staff, develop and enforce a noise control program, although only a few large airport operators, including Los Angeles International and the Port of New York and New Jersey Authority have attempted, on even a limited basis, to do so.

At the Federal level, funding and staffing of regulatory agencies, such as the FAA, does not appear to be a major hindrance. The FAA's current and proposed regulatory actions do not require large financial commitments to prepare and enforce. On the other hand, research and development programs, exploring possible noise abatement techniques, could possibly be more effective and expeditious with additional funding. The fact remains, however, that current regulatory actions are behind, not ahead of, technological developments. Noise abatement equipment and procedures have been developed which have not yet been acted upon by the responsible regulatory agencies, in particular the FAA. Such delay cannot be attributed to funding and staff inadequacies.

Political Accountability

One of the most frequent criticisms of the present regulatory scheme is that many of the institutions responsible for portions of the problem are not politically accountable, either directly or indirectly, to all parties concerned with the problem.

Often, for example, airports are operated by a municipal government whose boundaries do not include the land around the airport, and thus it is not responsible to airport impacted neighborhoods. At the same time local governments having jurisdiction over land neighboring the airport and responsible for compatible land use control are not accountable to the larger group of airport users. A similar situation arises where airports are owned and operated by nongovernmental entities (such as Lockheed Air Terminal), or by independent authorities, which are by definition and design not politically responsible to anyone.

Where institutions responsible for airport noise regulations are not politically accountable, the only pressures to consider all sides and take adequate action lie in economic threats (for example, liability for noise damages), indirect "political" action, (such as opposition to airport expansion plans and grant applications), or legal duties imposed by statute, regulation or judicial decisions. Such pressures, however, are often weak and remote, and in certain cases may be legally nonviable as a result of constitutional preemption and similar doctrines.

On the Federal level the question is not one of fragmented constituencies, but of remoteness from the political process. Most regulatory decisions have been delegated to the FAA, which as an administrative agency is only indirectly accountable to elected representatives. Thus, the primary mechanisms for assuring accountability lie in Congressional and Executive oversight of agency action. The success of such oversight will depend on the priority Congress and the President assign to this problem, the time available to devote to overseeing the actions of such administrative actions, and the willingness of both the legislative and executive branches to impose sanctions if responsible agencies continue to fail in fulfilling their statutory obligations to control aircraft noise.

Concurrence of Liability and Authority: Sanctions for Inadequate Rule-Making

Presently, liability for inadequate aircraft noise control which results in the taking of or damages to property of neighboring land uses is borne entirely by the airport proprietors. This would not be necessarily inequitable if airport operators had sufficient real as well as legal power to take the necessary actions to avoid such liability.

Congress, in Section 611, and other sections of the Federal Aviation Act, assigned to the FAA the power to regulate noise at the source through, among other things, type certification, design and retrofit standards, arrival and departure path designation and operating procedures. The statute is clear. According to some observers, the FAA reaction to it has been "downright schizophrenic."²⁹⁹

In adopting and proposing Federal noise regulations pursuant to § 611, the FAA has often repeated the shibboleth that airport proprietors, in accordance with their Griggs responsibilities, can legally adopt noise limits affecting which aircraft may use the airport. For example, in proposing the original type certificate noise rule, the FAA stated:

"(T)he proposals in this notice should be placed in broad perspective. This notice does not promise the immediate achievement of socially acceptable noise levels in airport neighborhoods where the responsible State or local governments have not, or cannot, act to achieve land use compatibility for their existing or planned airports. Further, this notice does not promise a Federal substitute for actions that airport operators, as proprietors, can take and have traditionally and responsibly taken, to make their airports fit the particular needs of their locales, such as establishing the conditions under which their airports and airport facilities may be used, including the issuance of specific noise ceilings.

"... Just as an airport owner is responsible for deciding how long the runways will be, so is the owner responsible for obtaining noise easements necessary to permit the landing and takeoff of the aircraft. The Federal Government is in no position to require an airport to accept service by larger aircraft and, for that purpose, to obtain longer runways. Likewise, the Federal Government is in no position to require an airport to accept service by noisier aircraft, and for that purpose to obtain the service. In dealing with this issue, the Federal Government should not substitute its judgment for that of

the States or elements of local government who, for the most part, own and operate our Nation's airports." 300

The FAA's official statements in § 611 rule notices regarding the airport proprietor's duties are clear: "Airport owners acting as proprietors can presently deny the use of their airports to aircraft on the basis of noise considerations so long as such exclusion is nondiscriminatory."³⁰¹ To solve the noise problem, an airport operator may, among other things, ban jets, limit their noise, or put curfews on aircraft operations. According to the FAA, it has authority to do any of these.

Yet, the FAA position vis-a-vis individual airports appears to have been, in a number of cases documented by the Task Group, entirely opposed to the above quoted policy pronouncements. In awarding grant funds to airport operators under the Airport and Airway Development Act, and previous acts, the FAA enters into grant agreements and sponsor assurances. Where such assurances are violated the Federal Government may among other things, sue for reversion of the airport property, and turn over control of the airport to another agency. By these agreements, or FAA interpretation thereof, and threats to take "drastic action," the FAA has routinely taken away by contract (or interpretation thereof) the airport operator's power to deny the use of the airport to noisy aircraft, or otherwise impose noise abatement strategies—powers which form the basis of the Griggs decision that the airport operator, and not the Federal government, is responsible for noise created property takings.

For example, the San Diego (California) Board of Airport Commissioners proposed the imposition of a curfew at Lindbergh Field in order to cut down on the nuisance inflicted on the neighboring property owners. Immediately upon publication of the Commissioners' request, the FAA informed them that any such restrictions would violate their commitments under their Federal Aid to Airports grant agreements, which required them, under the FAA interpretation, to operate the airport without restriction to hours. After many discussions with FAA officials, it was determined that the proposed regulation should not be implemented.

FAA district and regional officials have recently expressed "scepticism" as to the legality under a grant agreement of imposition by City of Torrance, California, as proprietor of Torrance Municipal Airport, of noise standards which are currently under study. Torrance officials were orally told that the matter would be turned over to the FAA regional counsel for review and appropriate action. ³⁰²

It may be noted that Torrance Municipal Airport is not an air carrier airport and is only a few miles from Los Angeles International Airport on the north and Long Beach Municipal Airport on the south. The objective of the airport proprietor in setting noise limits is to exclude business jets, which are the only cause of the airport noise problem at Torrance.

The FAA has further taken the position that an airport which received Federal grant assistance could not deny access to business jet aircraft on the basis of noise. In 1967, the Fullerton (Calif.) Municipal Airport, which has always been a general aviation airport without jet operations, issued a Notice to Airmen (NOTAM) prohibiting pure jet aircraft from using the airport. The FAA (Los Angeles Area Office) initially objected to this exclusion, on the grounds that the NOTAM was an unlawful violation of Fullerton's sponsor's assurance agreement regarding "unfair discrimination against types or classes of aircraft." Fullerton Airport has also been advised by FAA that terms of its lease agreements with Golden West Airlines (which now operates DeHavilland Twin Otters into Fullerton) and other tenants, requiring the City Administrator approve aircraft used at the City's airport, were illegal. J. Bryan Douglass, airport manager, has stated that the City may be forced to return the Federal funds and close the airport if the now several year old controversy with FAA over Fullerton Airport's power to control noise is not resolved. ³⁰³

However, the FAA has taken the position, in at least one case, that an airport owner which receives federal funds cannot choose to close the airport, for noise or other reasons. Santa Monica, proprietor of Santa Monica Municipal Airport, faced a serious noise problem from general aviation, as there exists no buffer between the airport and neighboring residences. Nearby homes are subjected to noise ranging

higher than 120 EPNdB. As a result of the City's assessment of these problems, the city fathers in 1971 considered shutting the airport down entirely. Before the city council could pass a resolution, however, the FAA intervened, stating in a letter to the City:

"We have been informed that the City of Santa Monica is considering alternative uses of the property presently used for the Santa Monica Airport. I respectfully suggest, at the outset, that retention of the Santa Monica Airport in our transportation system requires consideration of many factors other than direct economic returns, not the least of which is the fact that air transportation in Southern California is highly dependent upon the continued operation by multiple municipalities of all the existing airports serving our complex community. This is as true for Santa Monica as it is for the continued operation of Los Angeles International Airport. The Federal Aviation Administration has no intention of consenting to the use of this property for other than airport purposes and will insist on the City of Santa Monica complying with its contractual obligations to the Government. To do otherwise would seriously impair the national air transportation system and particularly would be detrimental to the residents of all of Southern California who are dependent in one way or another upon air transportation. "304

It should be noted that Santa Monica Municipal Airport is a general aviation airport, without air carrier service, and is located only a few miles from Los Angeles International Airport on the south and Van Nuys Airport on the north.

Although the FAA has taken the view before Congress that Federal preemption of aircraft noise control under §611 does not extend to the airport proprietor, it has recently argued, before the Federal District Court and Ninth Circuit Court of Appeals, that the 1968 Amendments and §611 the 1970 Airport and Airway Development Act may extend that preemption even to the extent of prohibiting airport proprietor action.

Prior to passage of the 1968 Aviation Act Amendments, the City of Santa Monica, as owner of the Santa Monica Municipal Airport, imposed a night curfew on jet flights. The California Court of Appeal upheld the curfew's legality in the case of Stagg v. Municipal Court.³⁰⁵

In discussing the Stagg decision, in its amicus brief in the Burbank case,³⁰⁶ the FAA stated;

"The important 1968 Amendment to the Federal Aviation Act appears not to have been considered by the Court which upheld a jet curfew at the Santa Monica Municipal Airport. . . . The Stagg case was commenced in January 1968 before the amendment was enacted, and although the appellate decision was rendered after the amendment became law, perhaps the failure to consider the amendment was a consequence of the fact that there was no appearance in the appellate court by the party challenging the curfew. Moreover, the Court in Stagg had no opportunity to consider the further pre-emption resulting from the 1970 Airport and Airway Development Act."

Respecting this statement, one attorney familiar with the Stagg case noted before EPA hearings that "(T)here are several important points to be derived:

"First. While the Stagg opinion does not refer to the 1968 amendment, that legislation was considered. In fact, it was brought to the court's attention by the airport operator.

"Second. The FAA now feels that no one but the FAA may regulate in the field of aircraft noise.

"Third. The FAA is playing unfortunate games with the public interest; either it has all pervasive power—as it represented to the court in the Burbank airport case—or it has limited power—as it represented to the public when issuing noise standards for certification. It cannot have things both ways."³⁰⁷

If the FAA continues to insist, pursuant to the Airport Development grant sponsor agreements (AADA) and/or § 611, that airport proprietors are void of real power to limit use of their airport through noise limits, impose curfews, and avoid damage liability, then the Federal Government will be forced under the Griggs doctrine to assume full responsibility for the failure of FAA to adequately control noise, and the noise damages and property takings which result therefrom.

Even if the FAA alters its sub silentio policy of barring exercise by airport operators of their authority to control noise, in fact effectuation of that authority may be realistically impossible. To an extent, individual airports may be able to exclude

certain aircraft which produce excessive noise, but even a large airport operator does not have power and economic leverage to impose upon the aircraft industry strict noise standards applicable to design and retrofit. Design standards can be viably imposed only on a national scale; drastically different aircraft noise standards from airport to airport where airline service is involved would be a practical disaster. Furthermore, without FAA concurrence, airports cannot revise approach and departure flight paths or impose flight procedures.

Real ability to solve the airport noise problem does not lie exclusively with the FAA or airport operators, but is a joint responsibility of the Federal government, airport operator, airlines, and State and local authorities responsible for land use control around airports. Incomplete or ineffective regulation by any one responsible party will result in further noise damage, and the possibility of further litigation and monetary awards. Airports should not be liable if the FAA or any other responsible agency fails to exercise adequately its powers, or prevents airport proprietors from fully exercising theirs. A liability system, such as that currently in effect, which assigns liability to parties which cannot realistically solve the problem alone, only encourages irresponsibility among other concerned agencies and delays solution of the larger aircraft/airport noise problem.

CONTINUING REGULATORY PROCESS

The present regulatory scheme for aircraft/airport noise control, with the notable exception of California's CNEL standards, does not provide abatement goals or establish incentives for expeditious research, development, and implementation of new noise control strategies. As a result a continuing regulatory process in the field of aircraft noise control has never been established.

Current and proposed FAA regulations, for example, are tied to previously developed technology (see the discussion on Planning Guidelines and Incentives later in this section), not an assessment of what technology could be developed in the future. In part this is a result of the § 611 mandate that the FAA determine that a

particular rule is technologically practicable, a determination which can only be made with certainty after technology has been developed. Unfortunately, this has created a stalemate; for often it appears development and/or implementation of new noise technology is awaiting the stimulus of regulatory action, which is awaiting the development of new technology.

The Section 611 mandate, however, does not legally bar FAA announcement of goals for future regulations, or promulgation of stepped noise regulations for certain target years, subject to revision if predicted technological developments are not entirely forthcoming. In January 1969, the FAA, in fact, announced a "noise floor, or objective to be sought" of 80 EPNdB, and proposed that noise levels in new aircraft be required to be as close to that goal as consistent with economic and technological feasibility.³⁰⁸ This announced goal would have provided a target for future technological development and an incentive to further research, development and implementation of noise abatement equipment. However, after strenuous industry objections, the FAA withdrew the "noise floor" in final publication of the FAR Part 36 type certificate regulations.³⁰⁹

Thus, at this time there are no stated goals for the definition or solution of the aircraft noise problem. Yet such targets are desperately needed, not only as a guide to aircraft engineers and designers, but also to assist airport operators and State and local governments to fulfill their proper role. Without common goals, the best combination of possible strategies including retrofit, aircraft retirement, operational procedure, airport curfews, and land use conversion, cannot be identified or implemented in a coordinated fashion.

A corollary of this problem is that the present regulatory scheme has not tended to progress as the state-of-the-art has advanced. As previously noted, regulations still do not require installation on new aircraft of all available noise abatement equipment, even though such equipment is in actual production. Regulations have tended to be one-time efforts, and despite promises to the contrary, review and improvement of out-dated FAA standards has not been realized. Without predetermined goals,

there is no continuing incentive for the various responsible regulatory agencies continuously to scrutinize their current rules and adjust them where possible to move closer to achievement of the goal. If a continuing regulatory process is ever to be established in the aircraft noise field, such goals must be developed and agreed upon now by all concerned parties, and each must become committed to taking appropriate part in a coordinated effort to reach those goals.

DEFINITION OF COMPENSATION LIABILITY

Present case law holds that the airport operator is liable for constitutional takings of property and/or damages resulting from excessive aircraft/airport noise. However, the extent of such liability is less than clearly defined. In large part, the scope of liability depends on the State in which the airport is located, and the liability theory adopted in that jurisdiction. In some jurisdictions, the test of compensable damages is whether the land is overflowed by an aircraft; other parcels, equally impacted by noise from aircraft flybys may be excluded from compensation. Other areas have developed noise exposure (e.g. NEF) based criteria as a compensability test, and at least one State has sustained a damage suit on the basis of nuisance, e.g., unreasonable interference with use and enjoyment of property. Such drastic differences in the tests of when noise impacts require constitutional compensation or damage awards have only further complicated the fragmented problem of noise abatement.

An equally important problem is the present form of compensation awards. Current airport noise litigation, if successful, ends in a one-time, lump sum payment for purchase of a noise or aviation easement. Such an easement is essentially a license to pollute, and provides no financial incentive for future abatement of noise. Furthermore, there is no evidence that the present compensation system—except perhaps by way of a threat of yet unrealized financial liability—results in any amelioration of the noise problem. Damage awards are not tied to, and are rarely used, for either sound proofing impacted structures or relocation of incompatible land uses. They are, put bluntly, "hush" money, which does not assist in achieving an eventual solution to the airport noise problem.

Finally, the present judicially oriented airport noise compensation system has become a costly, repetitive, and wasteful process proving again and again what noise constitutes a taking, as well as what damages have been actually suffered by the individual litigants. Up to 50 percent of such compensation awards are absorbed in legal fees and judicial costs, and such costs do not include the expense of judicial time committed to the adjudication.

Constitutionally minimum requirements of just compensation for taking and/or damaging resulting from noise cannot be legislatively or administratively curtailed. Yet it must be recognized by all three branches of government that the boundaries of "taking" and the realities of "just compensation" require a thorough review to the end that equally noise damaged individuals receive at least similar treatment before the law, and that compensation be geared to amelioration and solution of the airport noise problem.

PRESENT ALLOCATION OF COSTS

The vast majority of costs, or damages, resulting from excessive levels of aircraft noise is presently being borne by the airport impacted neighbor. A substantial portion of that cost is not reflected in devaluation of airport environ property on the real estate market, which may be affected by other factors, such as increase in value of such property for commercial and industrial purposes. Rather, a substantial portion of such "cost" is reflected in the loss of pleasant use and enjoyment of property, particularly homes, around airports. Although taking awards to date have been relatively low—under \$4 million dollars—the amount of noise annoyance borne by airport neighbors, as estimated by various techniques including NEF analyses, is considerable. Thus, much of this annoyance loss is being absorbed by the victim, not by the beneficiary, of the air transport system.

To the extent that taking and damaging liability has been imposed on airport operators, it is somewhat unclear to whom such costs are finally to be allocated. Some airports have indemnification clauses in leases with airlines using the airport

facilities, requiring airline reimbursement for any damages awarded in airport noise litigations. Other leases provide such damages will be factored into landing fees and amortized over the given period. To the extent airports can invoke such pass-throughs, the cost will be allocated to air passengers and shippers via increased air fares, or absorbed by airline stockholders via reduced profits. Where the airport cannot achieve such reimbursement, airport bondholders, concession lessees and local taxpayers must pay the price of airport noise.

The cost of developing noise abatement technology and procedures has in part been underwritten by the Federal treasury supported by general tax revenues. Such past and current research programs were and are funded through appropriations to and grants from such agencies as NASA, DOD, DOT and the FAA.

On the other hand, allocation of the cost of implementing new noise abatement technology has not been settled by the legal system. Installation of the original fan engines, and purchase of the quieter wide body jets, was and is being financed through regular air fares. However, the CAB has announced it will not favor an increase in air fares to finance a retrofit program, implying the air transport user should not—in CAB's opinion—absorb this cost. Because the implementation of any proposed retrofit or fleet noise rule would involve substantial sums, this long range allocation problem definitely must be solved.

While the foregoing subsection has dealt with the problem of long range allocation, a related problem of short term financing also exists. A comprehensive solution to the noise problem, involving retrofit, aircraft replacement, and some land use conversion, will require large funds not generally available in the private market. Although such sums can be financed in the long-term, a front-end load problem is created because of the need for funds now to start implementation of these solutions. Some government action, such as discussed later, will be necessary to assure the availability of such funds, and provide a financing scheme whereby these costs may ultimately be borne by those who directly benefit from air transportation.

ENFORCEMENT RESOURCES

The FAA

The Federal Aviation Act provides a number of enforcement mechanisms for compelling compliance with FAA certificate standards and flight rules. First, all Title VI certificates, including aircraft type certificates, airman certificates, air carrier certificates and airport certificates, are subject to amendment, modification, suspension or revocation for noncompliance with FAA regulations and conditions applicable thereto. Section 611, of course, empowers the FAA to adopt noise standards in regulations, and to apply such regulations to any Title VI certificate. Thus, the FAA could, if it so desired, condition any or all of the certificates mentioned upon compliance with FAR's relating to noise. For example, if an airplane repeatedly violates operational noise standards, its air worthiness certificate could be suspended for a set period or until it complied. If a pilot violates an FAR without showing safety or emergency so required, the airman certificate could be suspended or revoked. An airport which fails to meet FAA standards for airport design and equipment (or noise abatement, if such standards were adopted) would be subject to partial or total decertification, thus barring certificated carriers from using the airport. The same airport certification process could, of course, be extended to cover all airports serving jet aircraft, not only those serving certificated air carriers.

The FAA certificate powers are potentially valuable tools for the enforcement of noise standards. The option of suspending a single aircraft's air worthiness certificate or a pilot certificate for a short time—even a day—because of failure to comply is a realistic tool. Such suspension penalties are strong enough to be heeded, and yet not so severe in their impact upon the whole transportation system (as opposed to suspension of an airport or type certificate) as to effectively preclude their use and make them meaningless. Unfortunately, the FAA has never used these enforcement powers in furtherance of its noise control mandate, and only a limited number of type certificates are even covered by noise standards.

A second enforcement tool available to the FAA is the civil penalty provision of Section 1016, which allows FAA imposition of up to a \$1000 civil penalty for violation of Federal aviation standards and rules. Here again, because there are no mandatory Federal noise standards, either with respect to aircraft emissions in actual day-to-day operation or with respect to flight path designations and approach/departure procedures, these civil penalty provisions are presently inapplicable in the noise control area.

The Airport Operator

Except where airport operators are also general power municipalities or State governments, the airport proprietor per se has no authority to invoke the police powers of the State to prosecute violations, either criminally or civilly, of airport noise rules. Few, if any, airport operators, acting alone, have been delegated the power to impose fines, such as was given to the FAA, nor can most proprietors issue administrative orders or sue for injunctions to stop violations.

Thus, most proprietors have been forced to rely on lease agreements. Under airport leases, enforcement tools as against the tenants are fairly limited. Either the airport can impose charges, if provided in the lease, or it can cancel the lease for breach of contract. The latter option is so drastic that it is doubtful whether airport operators would impose it. The former possibility exists only where the airport has the leverage to obtain such a clause in contract negotiations.

State and Local Governments

The California airport noise regulation, and several proposed laws of other States, provide that violation of an airport noise standard, adopted by the airport proprietor pursuant to a State required noise abatement plan, is unlawful and subject to certain civil fines and criminal penalties. In a sense, such provisions are attempts to add the State's police powers vis-a-vis enforcement mechanisms to the airport's proprietary power with regard to adoption of noise standards for aircraft using the airport. Since the Burbank decision, it is doubtful whether a particular State government can adopt penalties for noncompliance with proprietor-adopted rules.

Resources to Monitor Compliance and Prosecute Violations

The question of who has adequate enforcement resources involves two issues: what enforcement tools, in terms of penalties, are available (discussed above) and who has resources to monitor compliance and prosecute violations.

Some types of regulatory monitoring can be adequately effected by portions of the regulated industry. For example, type certification noise standard compliance can be easily satisfied by manufacturer or airline conducted tests, the results of which are submitted and certified to the FAA. Or the FAA can conduct its own tests using Federal (e.g. NASA) test facilities. The former alternative is currently used by FAA for monitoring compliance with existing safety and noise standards.

On the other hand, operational noise standards and flight procedure rules require a much more extensive, airport-by-airport, monitoring system. It is relatively clear that should either the Federal or State governments establish noise control programs which include such strategies as single event noise standards, curfews, and approach procedures, monitoring must be done on the airport level. It is also axiomatic that should the Federal and State, as well as airport authorities, establish noise limits requiring monitoring of actual operations, duplicate monitoring systems would be wasteful and unnecessary. Thus, the question arises, who should be assigned the task of monitoring compliance with such standards and prosecuting violations.

Some monitoring functions may also be accomplished through radar vectoring if the aircraft is certificated to meet the noise standard and approach and takeoff routes and procedures have been adopted to qualify for the airport noise certification. Thus, if a given aircraft is certificated to meet a specified noise standard using a particular procedure, the observance of the procedure and use of the prescribed noise abatement route may be observed, i.e. monitored, with radar, and thus the desired result achieved without blackbox noise monitoring. Such radar facilities now exist at all airports used by certificated air carriers.

At the present time, the California airport noise program requires airport operators to monitor compliance with regulations adopted pursuant to the airport implementation plan. Similar airport monitoring is being conducted by the Port Authority of New York and New Jersey at its airports. However, airport operators do not have prosecution power to take action once noncompliance is discovered. If an FAA noise standard, for example, is violated, currently only the FAA can prosecute the case. If a State law is violated, only a District Attorney, Attorney General, or other authorized official can bring action. This dichotomy is not especially logical, and the history of enforcement in this field would appear to indicate it is not particularly effective.

ADMINISTRABILITY AND ADMINISTRATIVE COSTS

The present system of administering noise regulatory authority on the Federal, State, and local level would appear to be excessively expensive in view of the benefits derived therefrom. This, however, is less related to the administrative structure than to the failure of responsible agencies to use their current authority.

The present legal scheme, as implemented, has had ironic results: Federal preemption where there is no Federal regulation and protection of public welfare; and abrogation of airport operators' constitutional duties to control noise by Federal grant agreements while the Federal government avoids legal liability by pointing to such airport powers. The effect of such a scheme has been to shift the airport noise issue from questions of regulation and solution, to compensation litigation--the most administratively expensive system which could be devised.

While the present administrative structure for regulating and abating noise could be operated at relatively low costs, the current compensation scheme incurs massive administrative costs compared to the results achieved. Legal fees and court costs are excessive compared to either compensation awards (which are relatively small) or the solution thereby achieved (none). Courts are simply not equipped to design a comprehensive noise control program, and even questions of what test should be used

to determine compensability or whether funds are best spent on relocation of land uses, soundproofing or other relief are expensive to litigate and difficult to decide in terms of traditional legal doctrines. Yet in the absence of an adequate, comprehensive aircraft/airport noise control and abatement program, the compensation system will continue to dominate the picture and waste monies better devoted to solution of the problem.

PLANNING GUIDELINES AND INCENTIVES

The Federal regulatory scheme, so far as it has been implemented, has been but a restatement of an historical state-of-the-art. With the exception of the 80 EPNdB noise floor, nothing has been proposed, much less adopted, which would set forth planning guidelines for noise abatement which can or should be achieved, for example in five, ten, or fifteen years within the to-be-expected state-of-the-art.

Unfortunately, the present approach to regulatory action has led to a circular process of inadequate action. The airline industry is waiting for regulatory mandates before implementing existing abatement technology and demanding more expeditious research activities to develop new technology. Regulatory agencies are awaiting the development of new technology before adopting noise standards. The manufacturing industry, aircraft engineers, and research teams, however, need regulatory goals and incentives to guide the development of new technology.

And, as noted before, without goals and guidelines commonly agreed upon, other responsible parties cannot plan their participation in solution of the problems. Airport operators cannot plan development and make operational decisions; State and local planners are unable to plan and zone noise impacted land; Federal, State, and local development officials are unable properly to plan and locate new housing, hospitals and other facilities.

The present legal/institutional scheme is even weaker in terms of its application of nonregulatory incentives to expeditious development and implementation of noise abatement technology. The low amount of compensation awarded thus far and the

lump-sum nature of such awards provides little incentive to spur rapid noise abatement. The threat of future litigation, though large in potential impact if realized, is lessened by the remoteness of full realization.

One of the very few and perhaps only incentive approaches tried to date is the dollars-for-decibels landing fee scheme imposed by Los Angeles International Airport. However, to have any real impact, such a scheme must be imposed at all or a substantial number of airports, and must provide significant landing fee differentials between relatively noisy and relatively quiet aircraft. However, such a common scheme does not presently exist.

NATIONAL PROGRAM/LOCAL CONDITIONS

Not only has the present legal/institutional scheme failed to identify national goals for a coordinated Federal, State and local noise abatement program, but the current scheme substantially hinders local flexibility in identifying special or unique local conditions and adopting additional regulations to meet those conditions. The current "Constitutional" method of allocating responsibility for noise protection and regulation on the basis of preemption, discrimination, and similar doctrines is a poor substitute for formulation of a method for cooperative action by Federal, State, and local governments and airport proprietors to meet common goals of noise abatement and solve the aircraft/airport noise problem.

INTERNATIONAL CONSTRAINTS

As noted previously, the international arenas for formulation of solutions to the aircraft noise problem consist of ICAO and bilateral air transport agreements between the United States and numerous foreign countries. To date ICAO has only accomplished adoption in 1969 of Annex 16 to the Chicago Convention which substantially mirrors the previously promulgated Part 36 of the Federal Aviation Regulations and sets forth international Standards and Recommended Practices for aircraft noise certification. Like Part 36, ICAO standards cover only new types of subsonic jet aircraft, and affect less than five percent of the existing fleet.

Although the ICAO Committee on Aircraft Noise is presently considering a noise reduction retrofit standard for existing aircraft, progress on such a rule cannot be viewed with optimism. Significant hostility was expressed in recent ICAO meetings to international retrofit standards as proposed by the United States. Several foreign governments representing flag carriers which use American airports expressed the position that they are not responsible for solving our noise problem.

Nothing in the Chicago Convention or bilateral air transport agreements precludes airport proprietors from acting to protect their proprietary rights on the basis of noise standards. On the contrary, such agreements bind foreign carriers to comply with the rules and standards applicable to the airports which they use. A caveat should be noted, however, that unilateral imposition of noise standards, and, more importantly, refusal to adopt international standards once they are agreed upon, could result in foreign retaliation. If the previous pattern of ICAO standard adoption continues, however, an international rule substantially similar to U.S. rules can be expected, shortly after U.S. adoption. International conflicts could be avoided, in such case, by United States acceptance of foreign aircraft which comply with the substantially equivalent ICAO standards.

SECTION I-5

POTENTIAL OPTIONS FOR MODIFYING THE EXISTING LEGAL/ INSTITUTIONAL SYSTEM: ALTERNATIVES

Having discussed the problems encountered in the present legal/institutional framework for solving the aircraft/airport noise problem, this section analyzes the major alternatives both for actions pursuant to the current institutional arrangements and authority, and for modification of the legal/institutional arrangements. Each of the problems identified in Section I-4 will be addressed and alternatives for its solution discussed. Some of these alternatives can be accomplished under existing legal authority while others would require new legislation on either the Federal, State or local level.

The advantages and disadvantages of each alternative, to the extent they can be identified, will be evaluated. Finally, in the next section, the Task Group Recommendations, chosen from among these alternatives, will be presented.

HOW TO ASSURE EXCHANGE OF AGENCY EXPERTISE, INFORMATION, AND VIEWPOINTS

It was noted above that a substantial number of Federal agencies—as well as State and local governments—have expertise, information, and important viewpoints which should be considered in solving the airport noise problem. There are a number of ways such expertise can be exchanged, and adequate balancing of information and opinion promoted.

1. Agencies can exchange reports through a clearinghouse, such as the EPA noise research coordination process under the Noise Control Act.
2. Agencies can be required to review and comment upon proposed regulatory actions, as under the Noise Control Act, NEPA, and the A-85 process.

3. Agencies having special expertise or authority can be required formally to present their findings and determinations to the regulatory body having jurisdiction over the final decision, as for example, EPA is required to propose to the FAA those regulations EPA determines are necessary to protect health and welfare.
4. An interagency body could be formed of concerned agencies to discuss all aspects of the problem and recommend appropriate actions to the responsible regulatory bodies.
5. An interagency body could be formed which would establish a coordinated program and exercise actual rulemaking authority binding on all the concerned agencies.

Both 1 and 2, report exchange and proposed action review, are passive measures. While these options promote interagency input of information, they do not address the need to hammer out a coordinated attack on the noise problem by all of the responsible authorities. Review and comment procedures, in particular, are reactive processes—only engaged when action is proposed. Yet much of the problem is not ill-thought action but inaction—an issue which is not amenable to solution by a review and comment requirement.

Option 3, the formulation of formal input requirements, is an alternative first suggested in Section 7 of the Noise Control Act. Under a formal input procedure, for example, EPA would be required to determine and report to the FAA those levels of noise found adverse to public health and welfare and recommend actions to avoid such adverse effects. Similarly, NASA could be required to determine and inform the FAA whenever it found a particular strategy was technically feasible, safe, and effective, together with its estimate of the cost of implementing the technology. And HUD could be required to report the land use problems incurred by both airport noise and alternative noise abatement strategies.

The advantage of the formal determination and report process is that it is dynamic and not reactive. Information and views which should stimulate new regulatory and abatement programs would be exchanged prior to formulation of regulatory actions, rather than in reaction to proposals. However, mere exchange of information and determinations is ineffective unless the regulatory body to which they are addressed has a duty to review and respond to the information. In this respect, for example, the Noise Control Act contains provisions requiring FAA hearings and formal adoption or refutation of EPA proposals, guaranteeing that the information and views exchanged do not languish in files, but are actually acted upon.

Provisions extending formal input and response requirements to the determinations of NASA, HUD and/or HEW would require amendment of §611 of the Federal Aviation Act, although probably the same process could be established via an executive order requiring the FAA to solicit the views of other agencies and action thereon within a specified time.

Although a formal determination exchange procedure may have salutary effects in promoting regulatory action in the noise area, there is some fear this scheme may result in a process of interagency "ping-pong" and regulatory impasse. There is a distinct need, not just to make appropriate findings, but to reconcile the information thus brought together and formulate a coordinated program for solving the problem. This cannot be done by an exchange of memos, but requires some method of bringing all the concerned agencies together in the policy-making and decision-making process.

A continuing interagency exchange and coordination process could be accomplished through formation of some type of Interagency Aircraft/Airport Noise Abatement Committee (IAANAC). Two types of interagency group are possible. The first, which could be established by executive order, would be formed of representatives from concerned agencies—such as FAA, DOT, NASA, EPA, HUD and HEW—and charged with developing coordinated approaches to the problem and recommending appropriate actions to the member agencies. Under this option, actual regulatory power and final decision authority would remain in the respective agencies. The

second type of group would be composed of similar representatives, but would have the power to make decisions binding upon the member agencies—that is, to exercise real regulatory authority. The latter type of authority could be conferred only by new legislation.

Both types of IAANAC would serve the function of providing a forum to work out a coordinated control and abatement program. The extent to which the first will succeed, however, is dependent on three conditions:

1. That the representatives are appointed from policy making levels in each agency, and are not merely technical advisors.
2. That each agency commit itself, to the maximum extent possible, to implementing the recommendations arrived at by the interagency group.
3. That the interagency committee determinations and recommendations are regularly made part of the public record through publication and promulgation in the Federal Register.

An interagency committee with final policy and regulatory powers would be free of the problem of obtaining voluntary compliance and cooperation by all concerned agencies. On the other hand, shifting of responsibility for land use, aircraft design, airport operations, research, and environmental effects decisions as to noise to one interagency group might raise the problem of coordinating those decisions with similar aircraft, airport, land use and environment programs remaining in the original agencies. The solution must be a mechanism which allows both coordination of the noise abatement program and coordination of the noise program elements with other regulatory, development and environmental programs. Further, the total noise environment is what must be reduced, and not just the contribution made to it by any single type of noise source, and therefore any process which tends to decouple the abatement planning for one source type from the overall exposure limitation goal is undesirable.

An available mechanism which might be considered is that of the Office of the Secretary of Transportation. The OST presently presides over a confederated

Department of Transportation, with most, if not all, of its modal agencies (i.e., FAA, FHWA, etc.) acting independently from direct DOT supervision. Yet many of these modal agencies have an interest in transportation noise abatement generally. Thus the OST, which at least in theory has direct control over the FAA, could be used as a home for an interagency committee with final policy and regulatory authority.

Alternatively, because of the need to coordinate noise abatement with respect to all sources in order to achieve limitation of cumulative noise exposure according to public health and welfare needs, the coordination of aircraft/airport noise abatement could be carried out by a subcommittee, which would be part of an interagency noise abatement committee chaired by EPA as a part of its coordination responsibilities under Section 4(c) of the 1972 Act.

HOW AND WHEN TO CONSIDER EACH OF THE RELEVANT FACTORS: DEFINITION OF AGENCY ROLES

It has already been stated that a comprehensive noise control program must take into consideration a broad range of the factors listed in the Criteria Section. But how and when should each of those factors be brought into the process of regulation? Who should collect the information and conduct the balancing process?

Clearly, one option is to balance all of the factors on the Federal level, to collect the information on health and social effects of noise, technological solutions, costs, effects of abatement on housing and employment, and land use impacts, and adopt regulations setting national, uniform standards on the basis of an overall assessment of these factors. Under this option, the Federal government would balance the need for housing versus the noise impacts and health effects, the environmental considerations versus the economic costs of abatement, to arrive at one noise standard for the country. Unfortunately, the noise problem around airports is not amenable to national generalization. To be sure, the health effects of noise and assessment of technological and economic feasibility of new aircraft equipment can be made at the Federal level. But assessment of what combination of strategies, be they curfew or flight paths, airport runway realignment or relocation of housing, requires an analysis of

each local situation. In some cases, construction methods may make housing insulation very expensive or impossible; in other areas it may be quite easy. For some localities, the needs and desires for housing located in the noise impacted area may require a different balancing of social factors versus air transport service level needs than in regions where other housing is available. At some airports, a fast climbout may help; at others, a two-stage departure may be better.

Thus, an airport-by-airport analysis must be made to develop the best combination of solutions, including operational changes at the airport. Can or should this analysis be made on the Federal level? Certainly airport solutions must be coordinated with the national program, but much can be said for allowing as much local input and choice as possible in developing possible airport strategies. No Federal agency has the personnel, information, or inclination to study the problem and develop the best solutions for each area. The information and choices must be developed at the local level, and then reviewed at the Federal level and coordinated with the national goals and regulatory actions.

Several options exist to accomplish this process. Basically, they consist of a series of Federal regulations on aircraft design, operations and airport noise exposure; development of airport/community noise abatement implementation plans on the local or regional level; and Federal review and approval of implementation plans plus promulgation of Federal regulations to support the implementation of the approved local choices.

The first set of regulatory actions would deal with the noise levels of new aircraft designs, and modification of existing aircraft. Clearly the establishment of such regulations requires a national design standard based on an assessment of available technology, safety, costs, and effectiveness, and taking into account a national standard for limitation of noise exposure consistent with public health and welfare needs with respect to noise. These standards are closely related to other aircraft design requirements, such as are now contained in FAA airworthiness and aircraft type certificates. There seems general agreement that these standards should remain

part of the FAA regulatory system, with increased input by such other concerned agencies, as NASA, EPA, and HUD.

The second area of regulatory actions involves operational standards and procedures used at each airport to lower the noise impact of aircraft operations. Some of these regulations, such as flight path, approach and departure procedures, are ultimately within the purview of the FAA acting in its traffic control role. Others, for example, partial or total curfews or exclusion of certain aircraft because of excessive noise emissions, fall within the airport operator's proprietary powers, although they may, in some cases, have broader impact on air transportation. The combination of the aircraft design and airport regulatory actions, of course, will determine the scope of the other facet of the problem—how much incompatible land use will have to be converted or dwelling units insulated. The question is how to bring these decisions together for each airport.

One method suggested is to establish a Federal airport noise certification standard pursuant to Federal Aviation Act §§ 606 and 611, and to require development by each airport operation, in consultation with concerned industry and citizen groups, Federal, State, and local governments, of an airport noise abatement implementation plan. The Federal regulation might identify a series of local options—curfews, flight paths, families of approach/departure procedures, land use conversion and dwelling unit insulation, and single-event noise limits on particular runways—from which the proprietor could select the best combination to solve its problem.

The Federal airport certification standard would require the operator to develop a plan eventually to lower noise impacts on sensitive land uses to acceptable levels, or protect such land uses, by relocation and/or insulation, from adverse noise exposures. One of the advantages of the airport certification standard would be to allow consideration, on an airport-by-airport basis, of a number of factors which cannot be adequately assessed at the Federal level. For example, it may appear in some cases that overriding local needs for housing exists, despite the fact that such housing is in noise impacted areas; or that near-term relocation of incompatible land uses

may cause severe dislocation of viable economic and social communities. Where such problems exist, variances as to methods of solutions, timetables of implementation, or even application of standards could be considered. But identification and assessment of such problems must come from the community, and an implementation plan scheme would elicit such input and decision-making.

In turn, coordination of the implementation plans with national programs and needs would be accomplished by Federal review and approval of each plan upon submission by the airport. Each plan would be reviewed:

1. To assure that it would meet the cumulative airport noise exposure limits.
2. To assure that each element of the plan was consistent with national programs and needs.

Some elements of the plan, once approved, would require adoption as FAA rules, for example, establishing locally developed and recommended flight paths, approach/departure procedures, and flight frequency restrictions as part of the national air traffic rules. Unless found inadequate or unacceptable, other elements would be implemented directly by the airport, e.g., curfews, runway reorientation, residential insulation and conversion programs.

One further problem of coordination remains: how to assure that land use control decisions of municipalities neighboring airports are consistent with airport implementation plans and the national aircraft/airport noise program. It appears there are at least six potential methods of achieving such coordination.

The first is to eliminate the present uncertainty as to noise effects and noise exposures around airports. Planners in airport impacted jurisdictions need guidance and information. In particular, they need noise exposure contours which display the current and predicted problem in order to design appropriate land use control mechanisms and geographic patterns. To accomplish this, airports and the Federal agencies should cooperate as much as possible, by providing rather than withholding contour and other noise effect information to local governments.

The second possibility is to include representatives of neighboring municipalities in consultations during the formulation of the airport implementation plan. While this would promote a better exchange of information and understanding, actual coordination would rely on voluntary cooperation by all interested parties. Unfortunately, often other stimuli, such as the need to encourage short term tax base development, may mitigate against local government land use decisions which could assist in solving the noise problem. On the other hand, inclusion of representatives from airport neighboring jurisdictions can surely assist in promoting an understanding of the mutual needs, desires and responsibilities of airports and airport neighbors in solving the problem, and achieving commitments of all parties to implement an openly agreed upon course of action.

A third possibility would be to withhold Federal assistance, in terms of mortgage, grant or loan program, from any land use development, or airport-related surface transportation development which would stimulate nonconforming land uses, within contemplated areas of adverse noise levels or where such development is not in conformity with an implementation plan. One of the problems with the second method is that it essentially makes the airport and Federal government the land use planning and zoning agency in the airport environs.

Another alternative would require as part of the implementation plan certification that adequate local land use controls exist to avoid incompatible use development in impacted areas. Without such assurance, the plan would be inadequate and the airport could not be certified for certificated air carrier use. This may not be a viable choice, however, unless neighboring communities perceive that they will be adversely affected by airport decertification should they refuse to cooperate by adopting adequate land use controls. If neighboring communities conclude—analyzing only their own jurisdiction—that they would be better off without the airport, only an impasse would result—unless, of course, higher authorities such as the State stepped in to solve the dispute and override local land use decisions.

A fourth possibility is to establish special regional airport area land use control commissions, such as now exist in California, to approve development in the vicinity of airports. Such commissions, formed of representatives from all concerned local governments (both those owning the airport facilities and those having jurisdiction over affected land) — would provide a link between local land planning and airport planning processes.

The fifth option is to promote State and/or regional oversight, review, and approval of local planning decisions, particularly in airport areas. Under such a scheme, coordination between airport implementation plans and local land use plans might be achieved by requiring the State or regional planning authority to "sign off" the airport implementation plan and certify adequate land use controls are in effect to bar incompatible use development in noise impacted areas.

Lastly, the airport proprietor, via private market mechanisms could assure compatible land development, through, for example, the purchase of "non-residential-use" easements from property owners. This would be a much more expensive option than the imposition of adequate local, regional or State land use controls under police power authority. Furthermore, there is no assurance the airport could actually or amicably acquire or condemn sufficient restrictions on all the land it might need to control.

Assuming that some type of airport implementation plan scheme should be established, the question remains of which agency should be responsible for designating the airport noise exposure standard and/or for adopting the implementation plan regulation. At the present time these functions are shared. The FAA has the authority to adopt a § 611 noise standard applicable to airport certificates under § 606 of the Federal Aviation Act. At the same time, EPA has the duty to prescribe criteria regarding what levels of noise are adverse to public health and welfare—from all types of noise sources, including aircraft operations.

An airport implementation plan requirement could be set up two ways. The first is for the FAA under its existing powers to adopt such a provision as a part of the Federal airport certification program. This has several advantages. Many of the noise control options which may be selected by the airport require FAA approval, promulgation, and enforcement. For example, path designations and flight procedures for noise control are impossible to separate from other air traffic functions, which are solely within FAA purview. Furthermore, such a rule, if adopted by the FAA, would eliminate the issue of what limits, if any, exist vis-a-vis the airport proprietor's rights to control noise from aircraft which use the airport; as an implementation plan approved by the FAA would become a Federal rule as well and, thus, merge the airport operator's and Federal government authorities. Perhaps most important, an FAA airport noise rule would engage existing enforcement techniques available under the Federal Aviation Act of 1958 for the implementation of airport options, putting to rest the difficult problem of what tools are available to an airport operator, in its proprietary rather than police power role, to enforce airport noise rules.

One problem with FAA designation of an airport noise exposure standard and adoption of the airport implementation scheme is the possibility the FAA noise exposure standards for airports may vary from the noise exposure standards set for other noise sources established under EPA authority. It would be unfair, for example, for the EPA to require highway and railroad noise be limited to 25 NEF in residential communities and for the FAA only to set a 35 NEF standard for airport noise exposure in residential communities. With respect to the method of measuring cumulative noise, and to the limit set to protect public health and welfare, a common scheme must be adopted, and it makes sense that the EPA derived standards be adopted not just as to noise sources which it is charged with controlling directly, but as to aircraft/airport noise exposures as well. Furthermore, the public health and welfare with respect to noise exposure simply cannot be protected unless the same exposure standard is used to express the limitation goal without regard to noise source. If a dual standard is used, then legally the result will be a kind of first- and second-class citizenship and not equal protection under the law. In other words, the FAA and EPA

should adopt the same noise exposure standard in all decision-making relating to noise regulation.

The second alternative is for the Congress to adopt new legislation empowering EPA to establish an airport noise permit program, including promulgation of appropriate community noise exposure limits and regulations requiring development and submission of airport implementation plans of the type discussed above. This has the advantage of assuring that the airport noise program is coordinated with other noise abatement programs under EPA jurisdiction. To be successful, the EPA airport program would, however, still require FAA cooperation regarding such items as traffic rules and approach/departure procedures adoption and enforcement -- which are areas outside of the airport operator's powers to implement. New mechanisms, apart from the Federal Aviation Act, would also have to be established to enforce the EPA rule and to coordinate its impact with the requirements of the FAA airport certification regulations adopted under § 606 of the 1958 Aviation Act. Furthermore, the airport proprietor's powers to use "police-power" type of enforcement mechanisms to secure compliance with airport rules would have to be confirmed or clarified.

INTEREST GROUP INPUT

Throughout the decision-making process, at the Federal, State and local levels, various interest groups have valuable information, experience, expertise and viewpoints to contribute. These groups include not only industry, carriers, pilot and airport operator associations, but also concerned environmental and community groups, city planners and government officials. The process for eliciting the response and input from all these groups in the past has not proven satisfactory from the viewpoint of establishing mutual trust, understanding, and cooperative efforts at developing solutions to the noise problem.

Most of the previously utilized formal processes for interest group input have been reactive, allowing comments on proposed rules to be submitted to the public

docket or providing public presentation and hearings on proposed actions. While hearing and comment procedures may be useful in some cases, and often legally mandated, neither is very helpful in eliciting and refining suggestions for possible combinations of strategies or regulatory actions — where an exchange of ideas and viewpoints is necessary to develop a workable proposal. In this regard, the advisory task force approach may prove much more successful. Through the task force, representatives of various interests can bring expertise and ideas together, identify existing problems and potential answers, analyze the viability of possible strategies, and provide the decision-maker with a more dynamic and constructive method of developing solutions and balancing varying values. This is not a substitute for expeditious decision-making by responsible agencies, but does provide a better basis for their decisions.

The problem is to assure that the task force provides an input for all the viewpoints that should be considered. This is much more a matter of how invitations are extended, than design of the task group mechanism. While it may be impossible to include representatives of every interested group, representatives of every concerned view, be it industry, airline, pilot, airport, State and local government, environmental, or airport neighbor — should be invited to participate, and all deliberations should be on the public record. Comments from persons or groups not directly represented should be elicited in writing and considered by the task force. Such an open process of developing solutions, particularly with respect to the design of airport implementation plans and review of broad Federal policy and program approaches, can be a most valuable administrative tool if properly used.

DESIGN OF A CONTINUING REGULATORY PROCESS

Some of the alternatives discussed above bear directly on the problem of maintaining a continuing regulatory process in the field of aircraft/airport noise abatement.

Specifically, formal input mechanisms such as those established for EPA under the Noise Control Act, and suggested for NASA and HUD, could assist in assuring the review and implementation of new and more effective control strategies as they

are developed. An interagency coordinating panel may further assure a continuing review and update of regulatory actions by providing an active focus for developing better noise abatement programs.

The other part of this problem is establishing meaningful but attainable goals to guide future actions and provide incentives for the development of more effective noise abatement technologies. This, it would seem, could be accomplished via several regulatory and non-regulatory measures.

One method would be to announce approximate source noise goals for target years, perhaps as a preamble to type certificate, retrofit or fleet noise rules — putting airlines and manufacturers on notice as to the levels toward which they should be working. While certainly this is better than no goal at all, the informal goal setting scheme raises the unsettling specter of shifting goals over time — creating the problem of the moving target. Such goals should be reasonably fixed and clearly set forth for all to see, use, and rely on in planning, research and development. In this sense, a more formal regulatory alternative may be preferable.

A more formal alternative would entail the adoption of such goal levels in the regulations, e.g., for 1980, 1985, 1990 and beyond, subject to some revision later if and when it appears the scheduled attainment is technologically or economically unfeasible. This is analogous to the process adopted in the 1970 Clean Air Act Amendments with respect to auto emission standards.

Another possibility is to use a stepped implementation in an airport certification rule, that is to require successive attainment of stricter cumulative noise exposure standards over an appropriate period (e.g., NEF 45 by 1978; NEF 40 by 1982; NEF 30 by 1990; etc.) until the program results in no incompatible land uses within the area subject to adverse noise levels. Such a goal is better to guide the overall program development than merely a source emission standard goal alone, as it provides for a method of coordinating the effects of new source technology, operational procedure modification, and land use options. This alone may not be a total answer, however. It does not really establish a target for aircraft engineers and airlines in

developing new technology. To these purposes, some assessment from the noise exposure goal should be made of that portion of the solution which must be accomplished by source reduction, and that analysis translated into targets or regulatory goals for aircraft source abatement. In other words, two sets of goals and implementation dates should be established in an optimum scheme: one for cumulative noise exposure around airports, and the second for aircraft design and source abatement.

It is essential that the "long range goal" for limiting airport cumulative noise exposure be stated at the outset and utilized thenceforth as the performance standard by which all new projects are evaluated, both new airport and airport expansion projects and new land use developments. Only in this way can new noise impact problems be prevented from arising in the future.

FINANCIAL RESOURCES -- ALTERNATIVES FOR FINANCING IMPLEMENTATION OF NOISE ABATEMENT STRATEGIES

Development and implementation of noise control and abatement strategies will require application of substantial financial resources. While a few strategies, such as new operating procedures, would not incur large capital investment or significantly increased operating cost, a comprehensive noise abatement program--including expedited retirement of first-generation aircraft, research and development of engine noise control technology, retrofit, insulation of residential structures, and relocation of incompatible land use--will necessitate a major commitment of financial resources and the development of financing methods. Without adequate financing mechanisms, expeditious implementation of a comprehensive program to alleviate even the most severe airport noise impact problems (designated as adverse to public health) will be impossible.

AREAS OF EXPENDITURE AND FINANCE ALTERNATIVES

Development and implementation of a comprehensive noise control program will entail commitment of financial resources in a number of expenditure areas, in particular:

- Research and development of noise abatement technology.

- Production start-up for implementation of noise abatement technology.
- Retrofit of existing aircraft with nacelle treatments, refan engines or new "quiet" engines.
- Accelerated retirement of existing aircraft and replacement with new equipment.
- Increased operating costs (if any) resulting from implementation of noise abatement strategies.
- Insulation of residences and other selected types of noise-impacted structures.
- Relocation of incompatible land uses.

For each of these expenditures, the questions arise as to who should ultimately pay and how should it be financed.

The first question is answered generally in the Criteria Section: "The cost of noise abatement and noise damages should be ultimately internalized by the air transportation industry and passed on to the maximum extent possible to the air transportation user." (Section I-3.) Among the beneficiaries of air transportation who must so internalize noise related costs are both aviation passengers and shippers, and those who indirectly enjoy the benefits of aviation — consumers of goods shipped by air, and airport attracted businesses. The scheme or schemes adopted to finance noise abatement must be so designed as to attempt an equitable distribution of the cost of noise abatement in accordance with the relative contributions of each of these beneficiary groups to the noise problem and with the benefits each group receives from aviation.

Of course to accomplish such an allocation, each beneficiary need not be charged directly for noise abatement costs. Where, for example, part of the noise costs are financed by a tax on air freight, consumers of goods shipped by air will pay indirectly through higher prices. Other beneficiaries, such as airport area businesses, may not be subject to such passthroughs, and allocation of noise costs may require some other, more general, revenue collecting system.

Recognizing the issue of ultimate allocation, the primary question here is how noise abatement expenditures should be financed. A variety of mechanisms have

been suggested to fund the costs of noise control and abatement. Among them, the most important are:

- A passenger head tax and freight tax, of a set amount (e.g. per person and per pound) imposed on all commercial air transport, either "at the gate," or as a surcharge on tickets and freight invoices.
- Head & freight tax imposed only at noise-impacted airports.
- Expanded use of the Airport and Airway Development Act Trust Fund, for use in grants to airports and airlines for noise abatement.
- A surcharge on the aircraft fuel tax.
- A "dollars for decibels" landing fee or landing fee impost.
- A general fare increase, either by a set amount (e.g. \$1 a ticket) or on a percentage basis (e.g. 1 percent a ticket).
- Grants to aircraft manufacturers, airlines and airports financed by general tax revenues.
- Increased airport concession (e.g. parking & restaurant) rentals or fees.
- Government-guaranteed loans to airlines and airports.

Different financing methods may be chosen to fund various noise abatement costs, and thus a matrix of possible expenditure/financing alternatives must be analyzed, and appropriate choices made therefrom. Such an expenditure/financial resource matrix is presented in Table 1-5-1.

To choose the best financing scheme, or combination of schemes, several questions should be addressed:

- Who has authority to adopt the scheme?
- How could the scheme be designed and administered?
- What would be the incidence of the scheme -- that is, if the scheme were adopted, who would ultimately pay for the cost of the noise abatement expenditures so financed?

TABLE I-5-1
EXPENDITURE ITEMS

	R&D	Production Start-up	Retrofit	Retirement New Equip.	Operating Costs	Housing Insulation	Incompatible Land Use Relocation
1. General Head & Freight Tax							
2. Impacted Airport Head & Freight Tax							
3. Airport Development Trust Fund							
4. Fuel Tax Surcharge							
5. S-for-dB Landing Fee or impost							
6. Fare Increase -Set \$ amount -% increase							
7. General Tax Revenues							
8. Airport concession rentals & fees							
9. Government Guaranteed Loans							

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- How efficient would the scheme be in expeditiously developing sufficient funds to finance the noise abatement expenditures for which its use is intended?
- How appropriate is the scheme for financing the various expenditures listed above?

Unfortunately, this task group lacks the full knowledge and expertise necessary to definitively answer all of these issues. We are able to address the first two questions. As to the remaining issues, only a set of concerns and factors can be suggested here, for further exploration and analysis by those better versed in the economic details of the design and effect of such revenue measures.

ADOPTION, DESIGN AND ADMINISTRATION

National Head and Freight Tax or Surcharge

This alternative would contemplate set charges per passenger and per pound of freight to be levied on all air travel and shipping in the United States (e.g. a \$1 head tax and 1 percent freight tax). The revenue from such charges could be collected, either "at the gate" - through airline or airport personnel - or more likely as a surcharge on the passenger ticket and cargo way bill.

Once collected, such revenue would be turned over to a national fund, from which grants could be made to airlines, manufacturers, and/or airport operators for the purposes of financing research, production and installation of abatement equipment retrofitting, early retirement of noisy aircraft, soundproofing of homes and certain other buildings, or relocation of families in the most severe noise impact zones.

Implementation of this alternative would require Federal legislation—establishing the fund, prescribing its uses, designating the agency responsible for approving grant applications, setting the amount of the charge and its method of collection and prescribing the time period the charges are to remain in effect. In addition, depending on how soon what amount of money must be raised by this scheme to finance the expenditures contemplated, Congress may be required to appropriate an initial sum

to the Abatement Grant Fund, to be recovered and repayed to the general treasury out of future receipts from the head and freight tax.

Noise-Impacted-Airport Head & Freight Tax

This alternative would entail imposition of a set head and freight tax only at noise impacted airports, and really involves two possibilities:

1. Imposition by the Federal government at all airports found to have a noise problem, in accordance with a standard test thereof.
2. Imposition by the airport proprietor directly to finance airport abatement activities.

Federal imposition of such a tax would be more awkward than airport adoption of this scheme. To do so, the Congress would have to authorize the tax, establish a test of "noise problem," and delegate to an agency the task of comparing each airport situation to the tax test. Such a plan would probably involve enormous energies to achieve rather arbitrary decisions of who should be taxed and who should be exempt.

If an airport head & freight tax were imposed by the airport operator on all departing passengers and cargo, the tax could be collected "at the gate," in the fashion many foreign countries and several U.S. terminals collect airport charges. This would require airline collection of cash at the departure point, and accounting and payment of such funds to the airport, on a daily, weekly, or monthly basis. Such funds could be used two ways, to directly finance noise abatement at the airport - e.g. monitoring systems, purchase of new guidance equipment, construction of better aligned runways, insulation of nearby residences, and/or relocation of incompatible land uses. In the alternative, such funds could be applied to pay back Federal or private market loans given to the airport to finance previous noise abatement actions.

This method of finance, however, would be difficult to use in financing retrofit, R&D, and operating costs incurred by airlines and aircraft manufacturers - as such

would require a transfer of monies from the airports to the airlines, as transfer which would necessitate a pooling of such airport collected funds from all affected airports, and a system for distribution to carriers and manufacturers out of the central fund. This, of course, would work equitably only if all noise impacted airports imposed the same head & freight tax - which raises the same problems as discussed previously regarding Federal imposition of a head & freight tax only at noise impacted terminals.

Use of Airport & Airway Development Trust Funds

This alternative would require Congressional authorization to expand use of the AADA trust funds, derived from the aircraft fuel tax and Federal aviation freight and passenger taxes, to include grants to airports for the relocation of incompatible land uses, insulation of structures, and perhaps even grants to airlines and manufacturers for retrofitting, R&D and related costs. The airport noise abatement grants could be administered in precisely the same manner as other airport development grant applications are handled under the AADA, using existing agencies and mechanisms for the collection of the revenue (from fuel taxes and charges on freight and passenger tickets) and the distribution of the funds. If airline and manufacturer related items were added to the list of eligible items, revised but similar distribution mechanisms could be used.

Aircraft Fuel Tax Surcharge

Another alternative is to form a separate fund derived from a surcharge on the current 3¢/gallon Federal aviation fuel tax. Such revenue would be collected with the Federal fuel tax by the fuel distributors, segregated when it reaches the Federal treasury, and distributed by a grant scheme similar to that hypothesized for the national head and freight tax fund.

Dollars-for-Decibels Landing Fee or Landing Fee Impost

A noise-related landing charge could be set up in two ways. Under the first, the aircraft would be charged in accordance with the noise produced on each approach or takeoff as monitored by a "black box" at the airport. This monitoring scheme would provide the most sophisticated method of internalizing noise costs to noise production, but may prove overly complicated and expensive in comparison to the refinement it makes possible.

A second possibility would be to set up categories of landing fees based on the type of aircraft flown and the type certificate noise levels established, for example, under FAR 36 standard measurements. For example, one fee would be set for 727-200 aircraft based on the 727-200's type certificate noise levels, and another charge set for 707 aircraft. This could further be refined by having a scale of fees for each aircraft type varying by the plane's takeoff or arrival weight, e.g. one fee for a fully loaded 707, and another for a half loaded 707, related to the noise each makes at those weights.

This second type of system requires some calculation to achieve an aircraft-by-aircraft fee schedule, but once that schedule is set, the actual calculation of a fee for a particular operation can be read off the chart with relative ease. Los Angeles International Airport has recently instituted such a scheme, and indicated that this system is administerable.

A major problem of this system is the problem of imposing a noise related fee where landing fees are set by current long term leases between airports and airlines. In some of these cases, renegotiation of landing fees is called for in the lease. However, a similar result could be achieved by Federal law — establishing an airport loan program to finance airport abatement programs and authorizing any airport borrowing such federal funds to impose a "dollars-for-decibels" landing tax to repay all or part of the Federal loan.

One disadvantage of the dollars-for-decibels landing fee or impost scheme, however, is its uncertainty over time. As noisy aircraft are retired and retrofitted, the revenue from the fees will decrease unless they are adjusted upwards every year. On the other hand, upward adjustment of the charge per decibel, in order to maintain revenue levels would defeat one of the major advantages of the fee system, economically to encourage noise control by rewarding abatement with lower landing charges.

General Fare Increase

A general fare increase for noise abatement purposes, covering both passenger and freight rates, could be granted by the CAB under current legislative authority. Such an increase could take the form of a set amount (e.g. \$1.00) added to present ticket prices, or a percentage (e.g. 1 percent) rate increase. The latter type of increase was recently granted by the CAB to fund airport security programs mandated by Federal law.

Using the fare increase alternative, revenues would flow directly to the airlines to finance, for example, purchase of retrofit equipment or retirement of noisy aircraft. Similarly, part of the fare increase could be distributed to airports to assist in land use conversion and insulation projects through increased airport rental fees, landing fees, or other airport charges imposed on the airlines. One possible difficulty with this scheme is that some airlines, which have a quieter fleet already, may end up with surplus revenue, while other carriers having a greater problem may not have enough money expeditiously to implement abatement programs. On the one hand, this would reward the airlines which had previously made wise decisions (consciously or otherwise) from a noise viewpoint. Yet the fare increase may have to be higher than the equivalent head tax charge to assure airlines having a major problem will have sufficient sums in their respective treasuries to carry out the legally mandated abatement programs. If, after further analysis, it is found this might be a major problem, one alternative would be for such airlines to borrow funds for the deficits in the private market or from Federally established loan accounts, to be repaid out of future receipts from the fare increase.

In order for this alternative to be implemented, however, the CAB must agree to the fare increase. Unfortunately, prior to passage of the Noise Control Act of 1972, the CAB expressed its firm opposition to any such increase to fund retrofitting expenditures, based on the CAB evaluation of the wisdom of retrofitting. Perhaps, in view of the data evaluated pursuant to Congress's mandate in this study, the CAB will revise its position. In lieu thereof, the Congress would have to legislatively override the CAB decision and mandate a fare increase for noise abatement purposes.

Grants to Manufacturers, Airlines and Airports out of General Funds

One alternative to the special revenue measures listed above would be for the Federal Government to appropriate general tax funds for a grant program, to finance R&D, retrofitting, aircraft retirement, increased operating costs (if any), and land use protection projects. To a limited extent, such general funds are used now in the noise abatement field, to underwrite basic and applied research in noise abatement technology.

However, with the possible exception of advanced research programs, use of general tax revenues for the purposes of financing noise pollution control - especially to pay for the installation of noise control equipment and resulting operating cost increases, if any - is contrary to one of the Administration's fundamental tenets in the environmental area: that the user, and not the general taxpayer, should pay for pollution control. Under this policy, reflected in the Criteria 5, B in Section I-3 adopted by the Task Group, costs of pollution control, like the costs of fuel, personnel, and movies, should be borne by the air transportation consumer and beneficiary. Only with such internalization of pollution costs, will rational decisions as to the commitment of transport and other economic resources be made by the private enterprise system.

Airport Concession Rentals and User Fees

Another suggested revenue source would be increased rental charges for airline terminal facilities, concession rentals and royalties, and airport charges for such services as parking and ground transit. Such charges or rentals could be collected by the airport and used in the manners discussed above with regard to other airport operator collected charges, e.g. for land use changes and other airport operator implemented abatement projects.

One problem with this approach may be the inability of airports in the near term to modify lease and concession arrangements to raise rentals or impose charges needed to finance noise abatement programs. Most terminal leases with airlines are long-term, while concession royalty agreements may last for shorter, though still substantial, terms. Only directly imposed user fees, such as automobile parking rates (parking, however, is often run as a leased concession) are amenable to rapid change; although there is some question as to how viable such fees are in generating the necessary revenue for noise programs.

Government Insured Loans to Manufacturers, Airlines and Airports

Unlike the other financing alternatives, this option does not provide for a source of additional revenue with which airlines, manufacturers and airports can fund noise abatement activities. Rather, government guaranteed loans serve the sole purpose of assuring funds will be available in the private market for noise reduction investments which must be made in the near future and amortized over the longer term. The financing of repayments of such loans would be the responsibility of airlines (through present or increased tariffs), manufacturers (through receipts from the eventual sale of noise abatement equipment) and airport operators (through increased landing fees, rentals, etc.).

Government insured loan provisions might be coupled with a fare increase or landing fee revenue scheme to assure adequate funds are available for expeditious implementation of available noise reduction technologies and strategies. However,

such loan provisions, unlike the fare increase or landing fee decisions, must be adopted by new Federal legislation and coordinated with the non-legislative decisions of the CAB and airport operators.

Government insured loans may be a particularly useful solution in the area of production start-up costs incurred by manufacturers developing retrofit equipment. In this expense area, like other aviation manufacturing fields, recovery of initial investment depends on the number of units sold, which cannot be guaranteed in advance. As a result, and in view of the present state of the economy, private capital may not be available in the quantities needed to assure fast tool-up for abatement equipment production without some government underwriting.

Guaranteed loans may also be a useful tool in stimulating applied research and development of noise abatement technology. At the present time, the government's only fiscal stimulus in this area is grant-contract research through various agency programs. Such grant-contract subsidies are beneficial in assisting basic research, and certainly must continue. However, the progress of applied R&D may be better served by encouraging private enterprise investment — by keeping the profit motive alive. Although advanced R&D in the noise area is somewhat speculative, if usable technology results are achieved, initial research investment can be recovered, and, thus, total government grant subsidization of research would be inadvisable.

However, if private investment in noise research is to continue at substantial levels as more sophisticated applied research is undertaken, some government backing for loans to manufacturers may be required. This course may, in the end, be found less expensive and more efficient than merely increasing grant-contract programs, and should be more thoroughly considered in the design of Federal aviation research.

OTHER CONCERNS

The financial scheme or schemes adopted must be capable of addressing two sets of solutions. The first is the retrofit/operational limit/land use protection program

necessary to solve the problem of persons presently living within areas subject to levels deemed adverse to public health, as determined by Task Group 3. A target date of 1978 or earlier for this solution will require substantial investments in the near future -- during the early years of whatever revenue-producing system is adopted. The second, and less immediate problem, is posed by the long term abatement goals-- of gradually reducing noise impacts on noise sensitive land uses to levels below those found adverse to public welfare, as determined by Task Group 3. In the latter regard, the financial schemes adopted must be capable of producing a continued flow of revenue to fund ongoing land use protection programs at airports, and phased implementation of more advanced retrofit or fleet retirement programs by airlines.

In terms of approximate numbers, the financial schemes selected will be required to provide around \$500 million by 1978 for retrofitting and source reduction projects (SAM/SAM option) and no cost for land use programs to reach the health protection limit ($L_{dn} 80$) established by Task Group 3. In order eventually to achieve compatibility with the welfare protection goal of $L_{dn} 60$ established by Task Group 3, an additional \$1.0 to \$1.5 billion for source abatement and \$4 to \$5 billion for land use programs (control, conversion and/or insulation) will be needed over the period of 1978 to the late 1980's.

Another element to be considered in analyzing these alternatives is the propriety of establishing grant programs to fund airline investment in noise equipment and early retirement of noisy aircraft. If these abatement approaches are funded by fare increases, flowing directly to the airlines, carriers will have an economic interest in making the most economically efficient decisions on what combination of retrofit/retirement to adopt in achieving the desired noise reduction. Under the fare increase approach, if an airline can accomplish noise abatement at a lower cost, it could pocket the difference in increased profits. Under a grant program, such as would be required under a head and freight tax scheme, however, airlines would have to apply to a Federal agency for funds, setting out the retrofit/retirement combination to be funded. Because funds would be granted only for the cost of whatever strategy

combination was proposed, airlines could not profit from making least-cost decisions, and the government granting agency would be required to review each application on the issue of economic efficiency and noise exposure reduction effectiveness as well as eligibility. The price of limiting revenues for noise abatement to actual expenditures is the necessity of bureaucratic oversight of economic decisions, a process that has not proved successful in the past.

A similar question may arise under a grant program to airports to support land use conversion programs. Here, the economic efficiency problem may arise where grant funds are used to purchase residences and other impacted incompatible uses near airports. Often such land, once cleared and consolidated into larger parcels, is valuable for noise compatible commercial and industrial development. Such re-development should be economically encouraged. In this regard, a loan program or limited grant program to airports would provide greater stimulus for more efficient economic land use conversion decisions by airport operators and concerned local governments.

Lastly, in evaluating these funding techniques, a close analysis must be made of the incidence of the schemes. Although there is general agreement that the costs of noise abatement should be borne by the users and beneficiaries of air transportation, the policy question remains as to how closely the charge to each user or beneficiary can or should be related to the noise to which he or she contributes. Some financing schemes, such as the dollars-for-decibels landing fee, have close relation to the noise levels created. Other plans, such as the percentage increase in air fares and fuel taxes, which would charge greater amounts for longer trips, would be related to such factors as aircraft weight and type, which are partial determinants of noise levels among the present fleets, whose cumulative noise is dominated by the older, noisier aircraft. Head and freight taxes, on the other hand, correlate to the frequency of landing and takeoff operations, which is another factor in determining cumulative noise exposures. Some of the above options, for example, terminal rentals and concession royalties, have no correlation, direct or indirect, to noise levels produced by the revenue producer.

Further, the total scheme adopted should not (inequitably) omit charges to any major sector of noise producers. For example, a scheme based purely on passenger and freight charges would omit the business jet aircraft. Several of these aircraft have noise characteristics equivalent to the 2- and 3-engine airline transport aircraft. Hence, in terms of transport environmental efficiency (e.g., passenger mile per unit noise exposure impact or any other measure of efficiency related to environmental impact or resource consumption) the business jets show very low scores. Further, their numbers are increasing at a significantly greater rate than the number of aircraft in the commercial fleet (see Figure IV-1-19 Task Group 4 report), and may exceed them in the late 1970's and become twice as numerous in the mid-1980's. In that event, the noise of business jet aircraft may dominate the noise exposure at many airports, even air-carrier airports.

Comparing the options, it should be recognized that noise-correlated charges may be more appropriate for some abatement expenditures -- such as retrofitting and land use protection -- and inappropriate for other areas. But in deciding such appropriateness, a central question must be answered which we are unable to adequately address here: Does the cost of administering noise-correlated schemes of various sophistication and accuracy outweigh the advantages of such charges in encouraging wiser uses of aviation resources?

THE COMPENSATION PROBLEM—LIABILITY AND AMELIORATION OF NOISE IMPACT

No aspect of the airport noise problem has received more attention, nor created more consternation, than the problem of compensation. Who should be liable for personal and property damages caused by noise; to what extent should those damages be compensated; what measure of damages or relief should be adopted? Cumulative noise standards and goals have been proposed and withdrawn -- not because they were poor measures of the problem and inadequate guidelines for developing a solution -- but because of concern the standards and goals would be used in several airport noise compensation cases. More debate has been expended over the question of

whether the Federal government, airlines or airports should be liable for damages, than how each would contribute to a solution of the basic problem. This is not to say compensation questions have necessarily determined basic policy and approaches - and the actions of responsible regulatory agencies. But liability issues have, it would seem, often resulted in illogical definitions of that responsibility and induced strains among institutions which must cooperate if the aircraft/airport noise problem is to be adequately addressed.

One option is to leave the compensation question to the courts, that is, defer to the judicial system until the Supreme Court eventually decides, in light of Burbank, and the Noise Control Act, and 1970 Airport and Airways Development Act, whether Griggs has been reversed and liability shifted from the airport proprietors to the Federal government. This would mean, however, essentially putting the compensation question - and the airport noise problem - aside for several more years, to shift the crises of decision as to how to solve the problem to a future day. For the courts, through the Constitution, cannot solve the problem. They cannot assign roles among institutions, or even guarantee the compensation awarded will be used to help ameliorate the problem. That can only be done by a comprehensive legislative and regulatory program. Furthermore, the present judicial system of awarding compensation gives no one an incentive to abate the problem. Once an airport pays off an award, it gets a noise avigation easement to continue the pollution in perpetuity. Because of some lease arrangements, and the small amounts of actual awards, furthermore, costs of noise damages may not be completely passed on to the airlines - so they, too, have little incentive to abate the noise. The compensation problem should be addressed now in a forthright manner, and solved in a manner consistent with the overall noise abatement plan, so that we can get on with the work at hand.

An alternative often suggested by airport operators, State and local governments, is Federal government assumption of noise damage liability. One of the arguments put forward for this alternative is that, if the Federal government sets a health and welfare standard for noise levels and requires airports or airlines to take steps to

meet those standards, the United States should hold them harmless from any noise damages awarded during the implementation period. The problem is that the regulatory standard may be adopted by courts as useful in defining a cause of action or providing a measure of damages. This argument in essence suggests that the regulatory agency, by reason of defining the noise problem and assigning responsibility for its solution, should become liable for the pollution thus regulated, and the polluters should get off free.

A second argument for Federal liability is the actual allocation of power to solve the problem. Authority over many of the potential solutions lies with the Federal government, not the airport operators. Airport operators cannot directly regulate flight paths, approach and departure procedures, aircraft design or retrofit. The FAA even argues that airports cannot curfew or close entirely without Federal approval. The airport owner's options to avoid liability are notably limited in comparison to the broad powers of the United States. Thus, using the rationale that liability should follow regulatory responsibility and power, the Federal government should bear the Griggs duty of compensation.

The problem with Federal assumption of liability is how and to whom the noise costs will ultimately be allocated. If damage awards are paid out of general revenues, the costs of noise will be shifted to the general taxpayer. Airlines and airports will be free from the fear, although yet unrealized, of massive compensation litigation, and also free of any incentive to solve the problem. On the other hand, Federal agencies would be under greater pressure to adopt adequate regulations to protect the public fisc through expeditious solution of the problem. Yet, in the interim, the compensation scheme still will not be assisting in amelioration of the problem—particularly if persons awarded damages are merely paid off for the inverse condemnation of aviation or noise easements. Liability may be transferred, but the compensation problem has not been addressed.

A third possibility is suggested by the recent United States Supreme Court decision in Askew v. American Waterways Operators, Inc., and might be seriously considered

by the States in the absence of Federal solution of the compensation problem. In the Askew case, Florida had adopted legislation imposing strict liability on owners and operators terminal facilities and ships for damages incurred by the State or private persons resulting from any oil spill. The Court distinguished, for preemption purposes, between the State's power to regulate the activity and the power to impose liability on polluters for the damages they cause. A close reading of the Askew decision indicates that although Burbank may have precluded State police power regulation of aircraft/airport noise, States retain their power to enact legislation imposing absolute liability on airlines and/or airports for damages caused by aircraft noise.

Indeed, a comparison of the noise pollution and oil pollution laws indicates that the Askew result is easier to reach with respect to State laws on aircraft noise damage, for in the noise area, there are no Federal laws governing compensation. Adoption of an absolute liability scheme would surely provide a sharp stimulus to solving the noise problem, and could well be the next legislative step by State and local governments faced with inadequate progress toward abatement of aircraft/airport noise.

None of the aforementioned alternatives, however, provide an adequate answer to the compensation question, for mere assignment of responsibility to pay those impacted by noise does not mean the money thus transferred will be invested toward amelioration of the problem. For that, attention must turn from the issue of who is liable, to how the money is awarded and how it is used.

Real amelioration of the airport noise problem through neighboring land owners can only be accomplished if the money is used to insulate dwelling units (or other noise sensitive structures) or relocate incompatible land uses. The present compensation system—based on comparisons of property value and inverse condemnation of permanent aviation easements - is unable to direct the use of monies awarded. Courts are not in a position to condition relief on reasonable use of the funds paid toward solution of the original complaint. The only alternative that can address this

problem is a legislatively created and administratively directed compensation scheme tied closely with the overall abatement program. Such a scheme might provide, for example, that any person living within the area subject to an NEF of 45 or greater (the health line), could apply for and receive funds to cover the full value of his or her land and the costs of relocating. In essence, such land would be purchased, could be cleared, and resold for development of compatible land uses - such as industrial or commercial activities. The compensation scheme might further provide persons in the severe annoyance area (NEF 40 to 45) the option of applying for relocation funds or money to insulate their dwelling units, proper use of the money being assumed through appropriate conditions in the grant agreement. For less severely impacted areas (NEF 25 to 30 to NEF 40), the scheme could allow payment for structural insulation as needed to bring interior noise levels down to levels consistent with health and welfare requirements.

Legislation establishing such an administrative scheme must contain an adequate funding method - alternatives for which are discussed in the next section. However, once the financing method and standards are set in the legislation, it matters little whether the actual awards are made at the Federal or local level. Since the task that is left is one of appraising land values (in the case of relocation) and validating insulation costs, it probably would make most sense to handle applications for and awards of actual funds at the airport level.

Because of the Constitutional nature of present taking law, no administrative scheme for compensation could replace or preempt judicial remedies for noise damages, in the sense that workman's compensation systems have supplanted other legal remedies. But the same effect may be accomplished de facto by a properly designed and operated administrative remedy. An examination of individual compensation awards made by courts to date reveals that amounts substantially larger than those associated with insulation or relocation costs are not available from the courts. In other words, litigants have little to gain by pursuing a judicial remedy if an administrative remedy is available. In addition, judicial remedies are slow

and very expensive. A fast, relatively simple administrative procedure, whose results are predictable, would be an attractive alternative to cumbersome, uncertain compensative litigation. Furthermore, there is nothing to indicate that litigants in noise suits are motivated otherwise than by a desire to solve the problem; a compensation system which offers a viable solution is likely to elicit citizen cooperation rather than resistance.

ENFORCEMENT OF AIRCRAFT/AIRPORT NOISE REGULATIONS

Numerous potential enforcement mechanisms exist on the Federal, State and local levels to assure compliance with aircraft/airport noise regulations. Postulating the adoption of the Federal retrofit and operational rule/airport implementation plan scheme suggested previously, current Federal law provides the following enforcement tools:

- Civil penalties of \$1,000 for each violation of FAA rules (including approved elements of the implementation plan).
- Suspension of Title VI certificates for noncompliance with appropriate planning, maintenance, or operational conditions.
- Initiation and filing of complaints before the FAA by airports, State and local governments and citizens.
- Citizen suits to restrain violations of any §611 standard.
- Sanctions contained in airport-air carrier lease agreements.

Thus, even under existing law, a noise program which links airport operator planning and Federal regulatory power can now bring substantial enforcement resources to solution of the airport noise problem.

Several alternative or additional enforcement methods have also been suggested. One would be the enactment of Federal legislation empowering States to adopt laws incorporating noise rules and standards identical to those of the Federal aircraft

regulations. This would permit States to monitor and enforce compliance with operational noise limits and other regulations affecting airport noise exposures. This in turn, would enable States to lend their police power enforcement mechanisms to airport operators who wish to take actions to restrain or punish noncompliance with rules adopted in the airport implementation plan. The advantages of this option are:

- It would not limit enforcement, other than injunctive actions to the capabilities of available FAA staff, but would allow the commitment of additional enforcement resources funded by State and local governments.
- It would permit the development of less cumbersome and drastic enforcement tools - such as an air traffic ticket - with moderate fines for non-serious violations which do not merit high FAA priority.

A potential disadvantage of this option is that State and local enforcement mechanisms might result in differing interpretations of what should be identical and evenly enforced noise standards.

Another alternative would be to allow State and local governments and/or airport operators to prosecute cases before the FAA for violation of the FAA noise rules applicable in their jurisdiction. This would solve the potential problem stated above, to wit, that separate enforcement mechanisms may result in differing interpretations. On the other hand, non-FAA prosecution of violations could result in forcing the FAA to adopt some else's enforcement priorities as to which cases it will hear over its own. This issue can only be resolved if the FAA and only the FAA prosecutes cases, although this in no way abrogates the present right of any airport, State or local government, or citizen to file a formal complaint before the FAA and, thus, initiate enforcement activities.

INTERNATIONAL CONSTRAINTS

Finally, the issue of international constraints in solving the aircraft/airport noise problem must be addressed.

No noise control program in the United States can be completely effective if noise from international aircraft operations remains unregulated while domestic aircraft noise is controlled. At some airports, international flights make sufficient contribution to the cumulative noise exposure to make regulation of domestic traffic alone a futile exercise. The question is how such regulation of international air transportation noise can be accomplished.

One option is to exempt international aviation from United States regulatory actions and continue to press ICAO for meaningful international standards for new designs, SST's, and retrofit. An assessment of the present status of ICAO's debates on this subject, however, does not indicate this alternative will result in realistic progress.

A second possibility is to adopt Federal regulations, applicable equally to U.S. aircraft and all foreign aircraft operating into or out of U.S. airports. Some have argued that this raises the possibility of foreign retaliation against American aircraft and/or other U.S. trade and that it would certainly cause such reaction if the United States rejected aircraft complying with an international standard essentially similar to the Federal regulation. This retaliation argument is suspect, however, because many major foreign airports such as those serving London, Tokyo, and Paris and Zurich already have noise abatement rules (including noise limits, night curfews, etc.) to protect their citizens. Paris has recently adopted an airport tax based on noise emission. Thus, were the U.S. to require noise abatement at its international airports, it is difficult to comprehend how there could be more "retaliation" than already exists.

A third alternative is to announce the United States intent to adopt noise standards applicable to all aircraft, foreign and domestic, operating from American airports, but provide for application of any subsequently agreed upon international standard having substantially the same effect to any foreign owned aircraft in lieu of the Federal standard. The policy should be made clear that this country wishes fully to cooperate in the development of international standards but is unwilling to delay solution of a serious problem affecting the health and welfare of U.S. citizens. Too, as stated at the recent ICAO conference, the noise problem around U.S. airports is our problem. The United States must assume leadership in solving it.

SECTION I-6

RECOMMENDATIONS*

The resolution of the aircraft/airport noise problem requires a comprehensive program involving coordinated action on several fronts. The interrelation among the various actions may best be seen by viewing the aircraft/airport noise problem as a classical source - path - receiver system typical of all noise abatement problems.

From one point of view, the "source" is the individual aircraft, including its design and the power settings it utilizes in operation, which affect its noise emission characteristics. The "path" from this source to the "receivers" (persons on the ground who receive the noise) affects the amount of noise received in communities and is affected by the choice of flight paths and those aspects of flight procedures that together, control the distance between the aircraft and any given point in the community.

From the vantage point of the public, whose health and welfare is to be protected from noise effects, the source, as far as aircraft noise is concerned, is the total noise environment emanating from operations at the airport. The exposure to noise experienced by an individual is made up of the total cumulative effect of many noise events, from many individual noise sources throughout the day and night. Protection of the public health and welfare with respect to noise requires that the result of all significant noise sources be included in the exposure limitation efforts. Where a significant portion of time is spent within an airport noise impact zone (as is the case for residential and school activities), the cumulative contribution of the aircraft noise

*The recommendations presented herein represent the consensus of the task group members, arrived at in the May 18-19 meeting, and further detailed by the chairman following the guidance of the group. Two provisos were adopted by the group: 1. that it be made clear that not every participant supports every recommendation (i.e., unanimity was not required), and 2. the organizations represented in the task group may present their formal recommendations separately, in Appendix B.

to the human exposure must be limited, in order to limit the total cumulative exposure consistent with health and welfare needs.

Because it is the cumulative exposure that counts, rather than merely the noise level from any single noise event, the only logical way in which the exposure limitation goal with respect to aircraft-generated noise can be expressed is in terms of the cumulative noise received at various ground locations. Techniques for expressing, predicting and measuring such cumulative noise exposures have been developed. One such technique, which is meaningful for protection against noise in general, has been recommended by Task Group 3. The adoption and implementation of programs to achieve and maintain specific cumulative noise limits around airports, through appropriate regulatory and legislative action, has been one of the primary considerations of Task Group 1.

It should be realized that achievement and maintenance of cumulative noise exposure limits around airports will require actions:

1. To make aircraft inherently quieter and to have them flown as quietly as possible.
2. To modify the total operating plan of the airport so as to minimize the extent of the airport noise impact zone and tailor it to the shape of existing noise-sensitive land uses.
3. To prevent construction of new housing or other noise-sensitive land uses in present and future noise impact zones and, where necessary, resolve by land use conversion those few impacted areas where the noise exposure cannot be adequately decreased by other means.

RECOMMENDATION #1:

That the Federal government promulgate, administer and enforce an airport noise regulation, designed to limit the cumulative noise exposure received in residential communities.

The timely adoption and implementation of such a regulation will provide (1) the statement of a goal based on public health and welfare needs regarding noise and (2) a quantitative framework within which all levels of government and all affected parties can work together effectively to reduce existing and prevent further airport noise problems.

- A. The FAA airport certification process is the proper mechanism for administering the airport noise regulation. No new legislation is required.
- B. It is recommended that the airport noise certification regulation promulgated by the FAA contain the following elements:
 1. A statement of the purpose of the regulation:

To provide present and future relief and protection to the public health and welfare from aircraft noise."
 2. The cumulative noise exposure health and welfare limits determined by EPA for application to noise exposure from all sources.
 3. The timetable for compliance, determined by EPA, applicable nationwide to all existing airports.
 4. A definition of compatible and incompatible land uses within specified values of cumulative noise exposure, to be developed by FAA based on the formal recommendations of EPA and HUD.
 5. The requirement that all new airports, airport expansions or other airport actions tending to increase cumulative noise exposure be conditioned upon compliance with welfare limits for noise exposure.
 6. The requirement that each airport proprietor, in consultation with local governments and other concerned persons, develop an implementation plan for achieving compliance with the promulgated exposure limits in accordance with the promulgated timetable; procedures for applying for FAA approval of the implementation plan.

7. A list of airport operation options from which airport proprietors may select in formulating their implementation plans, subject to final FAA approval of the plan.

It is recommended that the list of airport operation options include at least the following:

- (a) Approach and departure paths applicable to specific runways and, if desired, to specific parts of the 24-hour day.
- (b) Takeoff, approach and landing noise abatement operational procedures applicable to specific runways or to the entire airport.
- (c) Single-event noise limits applicable to specific runways and, if desired, to specific parts of the 24-hour day; or, if desired, applicable to the entire airport and/or to the entire 24-hour day.
- (d) Reduction of flight frequency on specific runways, during specific hours, or for the entire airport and/or the entire 24-hour day.
- (e) Rules limiting the times and places, on the airport property, where engine ground runups are allowed, particularly for maintenance purposes; performance requirements for ground runup suppressors and/or, resulting airport boundary noise levels.
- (f) Complete closure of specified runways, temporarily or permanently, either to all aircraft, or to aircraft with noise characteristics above a specified value.
- (g) Construction of new runway(s) designed to place approach and departure paths over areas of compatible land use and remove them from areas of noise-sensitive land use.

The foregoing list of options are items that can be implemented by the airport proprietor with FAA approval and cooperation once the implementation plan is approved. The list of available options should also

include those which can be implemented by the airport proprietor with local government cooperation; Development of a compatible land use within the airport noise impact zone. The regulation should require that preference be given to actions which prevent or reduce noise impact upon existing communities, and that land use conversion involving existing communities be considered the least desirable action for achieving compliance with the regulation.

8. Requirements for a showing by the airport proprietor, in submitting its implementation plan:
 - (a) That the proprietor's plan does not contain elements which cannot be fulfilled; i.e., that all necessary legal and financial commitments necessary to implement the plan are obtainable;
 - (b) That the implementation plan being proposed has been developed by a consultive and participatory process involving local governments, representatives of affected and potentially noise-affected persons and other concerned persons; and
 - (c) That quantitative predictions of noise exposure values, population counts within noise exposure zones (both for the present case and for the implemented plan) and other relevant decisional data have been made a part of the consultive local process of developing the proposed implementation plan.
9. Provision for airport proprietors, in consultation with local government and other concerned persons, to adopt implementation plans which achieve the welfare standard at an accelerated rate compared to the Federal timetable, which is a minimum standard.
10. Provision for airport noise monitoring, according to the cumulative noise exposure scale in the regulation and according to specified procedures and measurement system performance standards,

- (a) For airports generating cumulative noise exposures such that welfare standards are exceeded for a number of population greater than a specified number;
 - (b) For any airport operating with a variance.
11. A variance procedure, applicable only to cumulative noise exposures between the health limit and the welfare limit, by which a temporary variance (not exceeding one year) can be granted to airport proprietors in achieving compliance with the national timetable. To be included in the regulation are the conditions to be met before a variance can be granted. A formal published determination by FAA is required, that the public interest would be satisfied by such a variance, based on at least the following considerations.
- (a) The impact of the resulting noise exposure upon the public welfare should the variance be granted;
 - (b) The value to the public of the air transport services which could not be obtained unless the variance were granted;
 - (c) A showing that the airport proprietor is taking good faith measures to the best of its ability to achieve the noise standards set by the regulation.
 - (d) The results of a public hearing on the variance, held in the vicinity of the airport, administered by the FAA with EPA cooperation.
 - (e) A commitment by the airport proprietor to place a moratorium on increases in flight operations, or any other actions tending to increase the cumulative noise exposure in any inhabited area, for the duration of the variance; and to confirm these results by monitoring cumulative noise exposure.
12. The airport noise regulation should set forth the enforcement powers of the FAA to achieve compliance by others with the airport proprietor's FAA-approved implementation plan. These powers include suspension, partial

suspension or revocation of any certificate issued by it, as well as civil penalties. Compliance with the Federal airport noise regulation should also be made a condition for award of Federal grants to the airport, excepting grants for construction of new runways or other projects which are part of an approved implementation plan.

To summarize, the process contemplated is as follows: After the promulgation of the Federal airport noise regulation, the existing airports with jet operations would be reviewed, and those not in compliance with the regulation identified. Proprietors of airports so identified would be given a specified amount of time to develop, and submit to the FAA, their implementation plans. Development of implementation plans for each airport would be done by a consultive local process, involving all local governments and concerned persons in the airport vicinity.

Testing of the effectiveness of various alternative operational modes for the airport should be carried out as part of the local development of the implementation plan, using a computerized cumulative noise exposure prediction and population-counting program. Federal government assistance is required in making such a standardized computer program available, together with valid input data on noise characteristics of various aircraft types.

The agreed upon implementation plan for the airport would then be submitted to the FAA for approval. Any final adjustments of the plan required during the approval process would be incorporated, and the implementation plan adopted as a Federal regulation for the airport. Specific elements of the plan would be promulgated as FAA regulations (e.g., air traffic rules) and thus become subject to FAA enforcement. Airport proprietors which fail to propose an implementation plan by the specified deadline would have implementation plans imposed upon them at the Federal level, following FAA development of a plan, including participation by all concerned persons. Progress in implementing approved plans would be reviewed on a periodic basis.

RECOMMENDATION #1a:

That the California airport noise regulation, particularly the CNEL portion, be adopted as a Federal (FAA) regulation, applicable in California only, until a nationwide Federal airport noise regulation goes into effect.

Whereas the proposed cumulative noise exposure Federal airport regulation is the cornerstone of a comprehensive program to resolve the airport noise problem in the United States, and because there is presently only one such operating system in the country (the California CNEL standard), and whereas the California statute may be in danger of discontinuation because of the Burbank decision, Task Group 1 makes the above recommendation.

The utility of having one State serve as a testing ground in environmental matters has already been recognized by the Federal government, both in statutes and in regulations in several instances. The United States has an interest in studying how a cumulative noise standard for airports works in operation. The California statutes now include three essential and complementary elements:

1. An airport noise standard.
2. Regional airport land use commissions.
3. Requirement of a noise element in all city and county general plans, with which all zoning must then be consistent. The opportunity is also afforded, therefore, to test a complete legal system for controlling both airport noise and land uses.

RECOMMENDATION #1b:

The FAA should, with EPA participation, establish a national resource to provide assistance to airport proprietors and state and local agencies in developing skills (within their own staffs) necessary to implement the Federal airport noise regulation.

Such assistance would include:

1. Developing and making available a standardized computer program for calculating cumulative noise exposure values and associated population counts, as well as contours of cumulative noise exposure for use in geographic land use decisions.
2. Guidance in development of noise monitoring or alternative equivalent monitoring programs, plans and systems.
3. Assistance in training of airport, planning agency and other staffs necessary to implement the cooperative airport and land use controls required to achieve and continue compliance with the cumulative exposure limit regulation.

RECOMMENDATION #1c:

Whereas the timely adoption and implementation of an airport noise regulation is the keystone of a comprehensive program to diminish aircraft noise in communities and whereas there is no statutory time limit applicable to the promulgation of this or any other aircraft noise regulation, it is recommended that an adequate time for FAA promulgation of the proposed airport noise regulation is no later than one year from the date of this report, or July 1974. This presumes the present EPA schedule for formal recommendation of regulations to FAA under Section 7(c) — i.e., end of October 1973 — will be met, and allows adequate time for the completion of the agency consultation and public review processes set forth in Section 7(c). The attention of the Congress is invited to focus upon the timely performance of both EPA and FAA in promulgation and implementation of the airport noise regulation.

RECOMMENDATION #2:

Whereas, the control land use is as integral a part of solving and preventing airport noise problems, as control of airport operations and whereas the transitional local government zoning mechanisms, operating alone, have failed to prevent encroachment of incompatible land uses around airports,

1. It is recommended that all States, by statute, require the formation of airport land use commissions, at the regional level or above, to incorporate the interests of both local governments and airport proprietors into effective land use controls around airports.

The geographic reach of the land use commission powers should to the maximum extent of the airport impact zone during its history, as determined by the location of the cumulative noise exposure contour corresponding to the public health and welfare standard in the Federal airport noise regulation.

The airport land use commission should participate heavily in the development and implementation of the airport proprietor's implementation plan, and in decisions involving the siting of new airports and airport expansions.

The airport land use commission should be operated with full public participation. However, its decisions, once reached, should override those of local governments within the airport impact zone, which should be required to implement the decisions of the commission by their own planning and zoning actions.

2. It is recommended that the Congress encourage States to establish adequate mechanisms for positive land use control within airport impact zones, by enactment of appropriate Federal land use legislation having wider but inclusive purposes.

RECOMMENDATION #3:

Whereas the attainment and maintenance of cumulative noise exposure levels consistent with public health and welfare needs is heavily dependent upon rapid realization of quieter aircraft—both jet air carrier fleets and business jets—the task group recommends an accelerated program of Federal regulation of aircraft noise, incorporating the following elements:

1. Noise certification standards and regulations for all aircraft categories for which standards do not now exist. No further type certificates should be issued until noise standards applicable thereto have been promulgated.
2. No new noise certification standards to be set which do not require noise emission characteristics to be substantially equal to or less than those of aircraft in compliance with the present FAR Part 36 values. (Reference is specifically to civil supersonic transport aircraft.)
3. A regulation to be promulgated establishing requirements for the purchase of currently provided noise attenuation hardware for production installation in new units of existing types, for any aircraft units which will be operated into U.S. airports.
4. A retrofit rule or equivalent incentive rule offering greater flexibility such as (an improved version of) the Fleet Noise Level (FNL) concept.
5. Noise regulations applicable to aircraft in service, covering both air carrier and private jet aircraft, and providing a selection of safe noise abatement takeoff, approach and landing procedures, from which airport proprietors may select (with FAA concurrence) according to local patterns of noise-sensitive land uses.
6. Incorporation of quantitative goals and timetables in all noise regulations affecting aircraft design and production indicating intended stepwise reductions, providing advance notice to designers, manufacturers and purchasers of aircraft as to the government's intent. Such stepwise goals are expected to motivate more rapid development of quieter technology and to aid purchasing decisions by airlines.

RECOMMENDATION #4:

Whereas program to resolve the aircraft/airport noise problem around U.S. airports cannot be considered apart from financial resource considerations, and the

absence of decisions regarding financing mechanisms may become a greater impediment to solution than technological or other considerations, it is recommended that the Congress and the Executive Branch agencies give high priority to evaluation of alternative financing schemes to allow feasible, desirable solutions to be expeditiously adopted and applied.

Attention is invited to Section I-5 of this report, in which alternatives for financing implementation of noise abatement strategies are presented and discussed. The task group lacks the full knowledge and expertise to answer definitively all issues involved and thus design and recommend the best complete financing scheme. However, the task group recommends that the scheme adopted:

1. Place ultimate allocation of the cost upon the users and beneficiaries of air transportation.
2. Provide for an initial fund, subject to payback from revenues later collected, so as not to delay implementation of adopted noise abatement strategies.
3. Incorporate revenue collection methods which are administerable without excessive administration costs.

The potential role of the Civil Aeronautics Board, and the need for its cooperation, in implementing portions of any financing plan was emphasized by the task group.

RECOMMENDATION #5:

Whereas it is the responsibility of the U.S. Government (in cooperation with lower levels of government under the Federal system) to protect the health and welfare of U.S. residents and whereas the achievement and maintenance of levels of cumulative noise exposure around airports requires control of aircraft noise regardless of national origin, it is recommended that all U.S. regulations regarding aircraft noise be applied equally to all aircraft operating into U.S. airports. This includes rules of airport proprietors adopted pursuant to achievement of their implementation plans under the proposed airport noise regulation.

Regarding the design of aircraft hardware, when adequate international standards are established (e.g., for retrofit, fleet noise level or type certification) which are similar to or which have substantially equivalent effect to U.S. regulations, it is recommended that the United States waive compliance with its rule to the extent foreign-owned aircraft comply with the international standard. This is provided foreign governments similarly waive compliance with their noise standards for U.S. owned aircraft that comply with an equivalent American regulation. The purpose is to provide for the substitution of equivalent measurement procedures, in which the result is substantially unchanged thereby.

RECOMMENDATION #6:

Whereas the development and implementation of a national plan to resolve the airport noise problem requires continuing, creative participation by several Federal agencies, and cannot be adequately served by ad hoc, intermittent or merely reactive arrangements, it is recommended that the affected Executive agencies form a continuing, cooperative task force to assist FAA in implementation of the proposed airport noise regulation. Further, this task force should participate in the development of necessary financing schemes, in the evaluation of emerging noise abatement technology and in other efforts related to the implementation of a comprehensive national aircraft/airport noise abatement program.

This task force should not operate independently of the national program to limit human exposure to noise from all sources. Because of this, and because of the EPA mandate to protect the public health and welfare with respect to general noise exposure and to coordinate the noise control programs of all Federal agencies, it is logical that EPA should accept the responsibility for establishing and chairing such a task force.

FOOTNOTES

1. 42 U.S.C.A. § 4901 et seq. (Pub. L. 92-574, 86 Stat. 1234).
2. Noise Control Act of 1972 § 7(a), 42 U.S.C.A. § 4906.
3. U.S. Const., art. I, § 8, cl. 3.
4. U.S. Const., art. VI, cl. 2.
5. Rice v. Santa Fe Elevator Corp., 331 U.S. 218 (1947), City of Burbank v. Lockheed Air Terminal, Inc. _____ U.S. _____ (1973), Slip. Op. No. 71-1637.
6. City of Burbank v. Lockheed Air Terminal, Inc. _____ U.S. _____ (1973), Slip. Op. No. 71-1637, at footnote 14.
7. 49 U.S.C. § 1301 et seq. (Used interchangeably in this text as the 1958 Act).
8. 25 Fed. Reg. 8538 (Sept. 3, 1960), 25 Fed. Reg. 10343 (Oct. 28, 1960).
9. 32 Fed. Reg. 15422 (Nov. 4, 1967).
10. 35 Fed. Reg. 5264 (March 28, 1970).
11. 49 U.S.C.A. § 1431 (Pub. L. 90-411, 82 Stat. 395) (Used interchangeably in this text as the 1968 Act).
12. "Air navigation facility" means any facility used in, available for use in, or designed for use in, aid of air navigation, including landing areas, lights, any apparatus or equipment for disseminating weather information, for signaling, for radio - directional finding, or for radio or other electrical communication, and any other structure or mechanism having a similar purpose for guiding or controlling flight in air or the landing and take-off of aircraft. 49 U.S.C. § 1301(8). "Airport" means a landing area used regularly by aircraft for receiving or discharging passengers or cargo. 49 U.S.C. 1301(9). (emphasis added).
13. 49 U.S.C. § 1426.
14. 49 U.S.C.A. § 1651 et seq.

15. 49 U.S.C.A. § 1653(a).
16. 49 U.S.C.A. § 1653(d).
17. 49 U.S.C.A. § 1701 et seq. (Pub. L. 91-258, 84 Stat. 219).
18. Airport and Airway Development Act § 51(b) (1) (84 Stat. 234), now 49 U.S.C.A. § 1432.
19. Noise Control Act of 1972 § 7(b) (86 Stat. 1239), now 49 U.S.C.A. § 1431.
20. 14 C.F.R. § 139.3.
21. 42 U.S.C.A. § 4321 et seq. (Pub. L. 91-190, 83 Stat. 852).
22. 42 U.S.C.A. § 4332(2)(c).
23. 42 U.S.C.A. § 4342.
24. 35 Fed. Reg. 4247 (March 7, 1970).
25. 36 Fed. Reg. 7724 (April 23, 1971).
26. DOT Order 5610. 1A, 36 Fed. Reg. 23699 (Dec. 11, 1971).
27. 49 U.S.C.A. § 1712(a).
28. 49 U.S.C.A. § 1712(b).
29. 49 U.S.C.A. § 1712(f).
30. 49 U.S.C.A. § 1712(h).
31. Report of the Aviation Advisory Commission, "The Long Range Needs of Aviation," Jan. 1, 1973.
32. 49 U.S.C.A. § 1716(c)(4).
33. Id.
34. Id.
35. Lake, "Noise: Emerging Federal Controls," 415-16. This article, presently in draft form, is part of a NSF study to be published by the Environmental Law Institute in the fall of 1973.

36. 49 U.S.C.A. § 1716(a).
37. 49 U.S.C. § 1101 et seq. (Act May 13, 1946, 60 Stat. 170).
38. Pub. L. 88-280 § 10 (78 Stat. 161), 49 U.S.C.A. § 1110(4), repealed by Airport and Airway Development Act of 1970 § 52(a) (Pub. L. 91-258, 84 Stat. 235). The provisions of 49 U.S.C.A. 1110(4) were carried forward, however, by Airport and Airway Development Act of 1970 § 18, and are now 49 U.S.C.A. § 1718(4).
39. FAA grant procedures are printed in 14 C.F.R. Part 151.
40. The Airport and Airway Development Act of 1970 was Title I of Pub. L. 91-258; the Airport and Airway Revenue Act was Title II of the same public law. The Airport and Airway Trust Fund was created by a provision of Title II, now 49 U.S.C.A. § 1762.
41. 49 U.S.C.A. § 1716(c)(3).
42. 42 U.S.C.A. § 4901 et seq. (Pub. L. 92-574, 86 Stat. 1234).
43. 42 U.S.C.A. § 4901(a)(3).
44. 42 U.S.C.A. § 4901(b).
45. Id.
46. 42 U.S.C.A. § 4903(c)(2).
47. Id.
48. 49 U.S.C.A. § 1431(b)(1).
49. 49 U.S.C.A. § 1431(c)(1).
50. Id.
51. 49 U.S.C.A. § 1431(c)(2).
52. FAA Order 6900.4 (June 30, 1970).
53. FAA Order 5050.2, "Interim Instructions for Processing Airport Development Actions Affecting the Environment" (Dec. 7, 1970), 36 Fed. Reg. 23686 (Dec. 11, 1970).

54. 14 C. F. R. § 399.110, 35 Fed. Reg. 10582 (June 30, 1970), as amended 36 Fed. Reg. 12514 (July 1, 1971).
55. 42 U.S.C.A. § 4231-3.
56. 49 U.S.C. § 1348(c).
57. 49 U.S.C. § 1470; 14 C. F. R. §§13.15, 13.17 and 13.19.
58. 14 C. F. R. § 93.121-31; See 33 Fed. Reg. 17896 (Dec. 3, 1968) and 34 Fed. Reg. 2603 (Feb. 26, 1969). The high density rules have been extended at La Guardia, Kennedy, Newark, O'Hare, and Washington National airports, 37 Fed. Reg. 22793 (Oct. 25, 1972).
59. 49 U.S.C. § 1382; see also n. 60 infra.
60. See, for example, CAB Order 72-1-86.
61. 38 Fed. Reg. 2711 (Jan. 20, 1973).
62. 49 U.S.C. § 1431 (Pub. L. 90-411, 82 Stat. 395).
63. 14 C. F. R. Part 36.
64. A type certificate is required for a new aircraft type or an existing type on which an "acoustical change" is to be made. An acoustical change is "any voluntary change in type design . . . that may increase the noise level created by an airplane," 14 C. F. R. § 21.93(b).
65. 34 Fed. Reg. 18357 (Nov. 18, 1969).
66. 34 Fed. Reg. 458 (Jan. 11, 1969).
67. 14 C. F. R. Part 36, Appendix C, section 36.5(b), 34 Fed. Reg. 18379 (Nov. 18, 1969).
68. 14 C. F. R. § 36.201(b)(1), 34 Fed. Reg. 18364 (Nov. 18, 1969).
69. 14 C. F. R. § 36.201(d).
70. 14 C. F. R. § 21.93(b).
71. Lake, supra, n. 31, at 376.
72. 34 Fed. Reg. 18815 (Nov. 25, 1969).

73. 36 Fed. Reg. 18584 (Sept. 17, 1971).
74. 18 Cong. Rec. S. 16455, S. 16457 (Oct. 2, 1972).
75. 37 Fed Reg. 14814 (July 25, 1972).
76. 34 Fed. Reg. 18357 (Nov. 18, 1969).
77. 35 Fed. Reg. 16980 (Nov. 4, 1970).
78. 35 Fed. Reg. 16981 (Nov. 4, 1970).
79. N.A.S.A. Acoustically Treated Nacelle Program, NASA Sp. - 220 at 52 and 99 (Oct. 15, 1969).
80. Hearings on H.R. 5275 Before the Subcomm. on Public Health and the Environment of the House Comm. on Interstate and Foreign Commerce, 92nd Cong., 1st Sess., at 381-382 (June 23, 1971).
81. 38 Fed. Reg. 2769 (Jan. 30, 1973).
82. 14 C.F.R. § 121.801 et seq.
83. 38 Fed. Reg. 2770 (Jan. 30, 1973).
84. 35 Fed. Reg. 12555 (Aug. 6, 1970).
85. 35 Fed. Reg. 6189 (April 16, 1970).
86. 38 Fed. Reg. 8051 (March 28, 1973), 14 C.F.R. § 91.55.
87. 14 C.F.R. Part 91.
88. 14 C.F.R. § 91.55, Appendix B, § 1(c)(2).
89. Id. at § 1(c)(1)
90. Id. at § 3(a).
91. 38 Fed. Reg. 8051 (March 28, 1973).
92. EPA, Report to the President and Congress on Noise, S.Doc. No. 92-63, 92d Cong., 2d. Sess., 3-7, (1972).
93. Id.

94. Id.
95. Id.
96. Id.
97. Id.
98. 34 Fed. Reg. 457 (Jan. 11, 1969).
99. 34 Fed. Reg. 18363 (Nov. 18, 1969).
100. 42 U.S.C. § 2451 et seq.; see 14 C.F.R. Part 1201 et seq.
101. 42 U.S.C. § 2457(b); 14 C.F.R. § 1201.101.
102. 42 U.S.C. § 2551(c); 14 C.F.R. § 1201.102.
103. See n. 79, supra; FAA has undertaken a subsequent program of nacelle treatment. The results of the research were demonstrated at Dulles International Airport in Washington, D. C. on May 7, 1973.
104. Aircraft Noise Reduction Technology, a Preliminary NASA Report to the Environmental Protection Agency for Aircraft/Airport Noise Study (February 28, 1973) (hereinafter referred to as NASA Preliminary Report), p. 45-55.
105. 35 Fed. Reg. 6190 (April 16, 1972).
106. NASA preliminary report, n. 104, supra.
107. Id. at 7.
108. Id. at 11.
109. Id. at 13.
110. Id. at 15.
111. Id.
112. Id. at 45.
113. Id. at 46.
114. Id. at 61.

115. Id. at 64.
116. Id. at 74.
117. Id. at 81-97.
118. Id. at 98-104.
119. Id. at 105-127.
120. Id. at 128-137.
121. Id. at 138-164.
122. Id. at 165-173.
123. Id. at 174-193.
124. Civil Aviation Act of 1938, 52 Stat. 973.
125. 49 U.S.C. § 1301 et seq.
126. 49 U.S.C. § 1371.
127. 49 U.S.C. § 1378(b).
128. 49 U.S.C. § 1373-1376.
129. 49 U.S.C. § 1302
130. 420 F. 2d 188 (D.C. Cir. 1969).
131. See n. 21, supra.
132. See n. 54, supra.
133. Id., § (c); see also p. 3-2 of "Environmental Considerations in Civil Aeronautics Board Proceedings," R. Tenney Johnson, General Counsel, CAB.
134. Id., § a(3).
135. Dec. 20, 1971, letter from CAB Chairman to Chairman of the Council on Environmental Quality.

136. "Environmental Considerations in Civil Aeronautics Board Proceedings," R. Tenney Johnson, General Counsel, CAB.
137. Oct. 2, 1970 letter from Chairman, CAB to Russell Train, Chairman, Council on Environmental Quality.
138. See, for example, CAB Order 72-1-86.
139. 49 U.S.C. §§ 1371(d)(1), 1371(e)(1).
140. City of Dallas v. CAB, 221 F. 2d 501 (C.A.D.C. 1954), cert. denied, 348 U.S. 914.
141. Domestic Passenger Fare Investigative Phase 6-B, Load Factors, Docket No. 21866-6B, Order 71-4-54 at 6, 13, 24; Lake, supra n. 35, at 407-408.
142. 42 U.S.C. § 3521 et seq.
143. National Environmental Policy Act § 101(b)(2), 42 U.S.C. § 4331(b)(2).
144. Department of Housing and Urban Development Act § 2 (Pub. L. 89-174, 79 Stat. 667), 42 U.S.C. § 3531.
145. Department of Housing and Urban Development Act § 9(c).
146. 42 U.S.C. 4332(2)(b).
147. HUD Circular 1390.2 § 1.
148. O'Hare International Airport, Chicago, Illinois; John F. Kennedy International Airport, New York, N. Y.; Bradley International Airport, Hartford, Conn.; Cape Kennedy Regional Airport, Melbourne, Florida.
149. Metropolitan Aircraft Noise Abatement Policy Study, O'Hare International Airport, p. iv.
150. Id. at 107.
151. Housing Act of 1964 § 312 as amended, 42 U.S.C. § 1452(b).
152. 12 U.S.C. § 1701 et seq.
153. 40 U.S.C. § 461.
154. "Aircraft Noise Impact: Planning Guidelines for Local Agencies," Department of Housing and Urban Development, Nov., 1972.

155. See, for example: Military Construction Authorization Act (Pub. L. 92-545, 86 Stat. 1135); Military Construction Appropriation Act (Pub. L. 92-547, 86 Stat. 1156); Department of Defense Appropriation Act (Pub. L. 92-570, 86 Stat. 1184).
156. Pub. L. 92-545, 86 Stat. 1143.
157. DOD Directive 6050.1, Par. IVc (Aug. 9, 1971); see also Par. 4-3 "Land Use Restrictions for Runway Clearances and Noise Abatement," DOD Construction Manual, DOD 4270.1-M (Oct. 1, 1972).
158. See pp. 6, 16, 49, 59, 62-65, "DOD Environment Quality Program," Status Report (Jan. 1, 1972).
159. DOD Directive 4165.XX, Subject: "Air Installations Compatible Use Zones."
160. AFM 86-5; TM 5-265; Nav Fac P-98 (Oct. 1, 1964).
161. Air Force Regulation 55-34, par. 3 (Feb. 14, 1972).
162. Id. par. 3d.
163. Id. pars. 4, 7. For Naval regulations to similar end re aircraft noise, supersonic flight, and sonic boom reporting, see OPNAV INSTRUCTIONS 3710.33, Feb. 24, 1971 and 3710.7F, May 27, 1971 (Pars. 434 and 820); For Army regulations re aircraft noise abatement, see TM5-803-4 (Draft).
164. DOD Directive 5100.50, June 23, 1970, Subject: "Protection and Enhancement of Environmental Quality;" AF Reg. 19-1, same subject, dated Feb. 18, 1972.
165. AF Reg. 19-2, Jan. 20, 1972.
166. 29 U.S.C. § 651 et seq. (Pub. L. 91-596, 84 Stat. 1590).
167. 29 U.S.C. § 651.
168. 29 U.S.C. § 652(5).
169. 29 U.S.C. § 652(6).
170. 29 U.S.C. § 653(a).
171. 29 U.S.C. § 654(a).
172. 29 U.S.C. § 655(b).

173. 29 C.F.R. § 1910.95.
174. 29 C.F.R. § 1910.11 et seq. (Subpart B).
175. 29 C.F.R. § 1910.261 et seq. (Subpart R)
176. 42 U.S.C.A. § 4901 et seq. (Pub. L. 92-574, 86 Stat. 1234).
177. 42 U.S.C.A. § 4906(a).
178. 49 U.S.C.A. § 4331(e)(1).
179. 49 U.S.C.A. § 4331(e)(2).
180. 42 U.S.C.A. § 4904(a)(1).
181. 42 U.S.C.A. § 4904(a)(2).
182. 42 U.S.C.A. § 4903(c)(1).
183. 61 Stat. 1180, Treaties and International Agreements Series, No. 1591.
184. Convention on Damage Caused by Foreign Aircraft to 3rd Parties on the Surface, signed at Rome on Oct. 7, 1952, ICAO Doc. No. 7364.
185. U.S. - French Air Transport Services Agreement, signed at Paris on March 27, 1946, 61 Stat. 3345, Treaties and International Agreements Series, No. 1679.
186. Ch 1111, 1969 Minn. Sess. Laws.
187. Title 4, Cal. Bus. Reg. § 5000 et seq.
188. Title 4, Cal. Bus. Reg. § 5011.
189. Wyle Laboratories, Supporting Information for the Adopted Noise Regulations for California Airports, Final Report to the California Department of Aeronautics, Report No. WCR 70-3(R), January 29, 1971.
190. Illinois, Pennsylvania and New York.
191. Council of State Governments, Suggested State Noise Control Legislation, A Report of the Workshop on Noise Control, 2nd Annual Symposium on Environmental Legislation, April 9-12, 1973.
192. 331 U.S. 218, 230.

193. 322 U.S. 292, 303.
194. 238 F. 2d 812 (2d Cir. 1956).
195. 407 F. 2d 1306 (6th Cir. 1969).
196. 272 F. Supp. 266 (E.D.N.Y. 1967), 398 F. 2d 369 (2d Cir. 1968), cert. denied, 393 U.S. 1017 (1969).
197. 328 U.S. 256 (1946).
198. 369 U.S. 84 (1962).
199. Anderson, American Law of Zoning, § 2.22.
200. Listed chronologically these twelve cases are: Mutual Chemical Co. v. Mayor and City Council of Baltimore, 1 Avi. 804 (Cir. Ct. Baltimore City, Md. 1939); Yara Engineering Corp. v. Newark, 132 N.J.L. 370, 40 A. 2d 559 (1945); Dutton v. Mendocino County & City of Ukiah, 1949 U.S. Aviation Reports 1 (Super. Ct., Mendocino Co., Cal. 1948); Banks v. Fayette County Board of Airport Zoning Appeals, 313 S.W. 2d 416 (Ky. Ct. App. 1958); Kissinger v. City of Los Angeles, 161 Cal. App. 2d 454, 327 P. 2d 10 (1958); Sneed v. Riverside County, 218 Cal. App. 2d 205, 32 Cal. Rptr. 318 (1963); Indiana Toll Road Commission v. Jankovich, 244 Ind. 574, 193 N.E. 2d 237 (1963), cert. denied 379 U.S. 487 (1965); Roark v. Caldwell, 87 Idaho 557, 394 P. 2d 641 (1964); Jackson Municipal Airport Authority v. Evans, 191 So. 2d 126 (Miss. Sup. Ct. 1966); Shipp v. Louisville and Jefferson County Air Board, 431 S.W. 2d 867 (Ky. Ct. App. 1968), cert. den. 393 U.S. 1088 (1969); Hageman v. Wayne Township Board of Trustees, 20 Ohio App. 2d 12, 251 N.E. 2d 507 (1969); Peacock v. County of Sacramento, 271 Cal. App. 2d 845, 77 Cal. Rptr. 391 (1969).
201. Harrell's Candy Kitchen v. Sarasota-Manatee Airport Authority, 111 So. 2d 439 (Fla. Sup. Ct. 1959); Waring v. Peterson, 137 So. 2d 268 (Fla. Dist. Ct. App. 1962); Baggett v. Montgomery, 276 Ala. 166, 160 So. 2d 6 (1963); Smith v. County of Santa Barbara, 243 Cal. App. 2d 126, 52 Cal. Rptr. 292 (1966); Morse v. County of San Luis Obispo, 247 Cal. App. 2d 600, 55 Cal. Rptr. 710 (1967); Township of Hickory v. Chadderton, 43 Pa. D. & C. 2d 319 (Common Pleas, Mercer Co. 1967); Willoughby Hills v. Corrigan, 29 Ohio St. 2d 39, 278 N.E. 2d 658 (1972), cert. denied, sub nom. Chongris v. Corrigan, ___ U.S. ___, 34 L. Ed. 2d 181 (1972).
202. 1 Avi. 804 (Cir. Ct. Baltimore City, Md. 1939).
203. Id. at 806.

204. U.S. v. Causby, 328 U.S. 256 (1946).
205. Griggs v. Allegheny County, 369 U.S. 84 (1962).
206. Roark v. Caldwell, 87 Idaho 557, 394 P. 2d 641 (1964).
207. 272 U.S. 365 (1926).
208. 111 S. 2d, 439 (Fla. Sup. Ct. 1959).
209. Id. at 443.
210. Id. at 445.
211. Id. at 444.
212. Id. at 445.
213. Id.
214. 29 Ohio St. 2d 39, 278 N.E. 2d 658 (1972), cert. denied, sub. nom. Chongris v. Corrigan, ____ U.S. ____, 34 L. Ed. 2d 181 (1972).
215. Id. at 45, 278 N.E. 2d at 662.
216. 243 Cal. App. 2d 126, 52 Cal Rptr. 292 (1966).
217. 247 Cal. App. 2d 600, 55 Cal. Rptr. 710 (1967)
218. 43 Pa. D. & C. 2d 319 (Common Pleas, Mercer Co. 1967).
219. Id. at 321.
220. 21 N.Y. 2d 463 (1968).
221. 307 N.Y. 493 (1954).
222. Id. at 498. The same point was made by the New Jersey Supreme Court when it invalidated a zoning ordinance requiring the maintenance of certain distances between the conduct of quarrying operations and residences. The court said "we have a situation in which some property owners are required for the special benefit of another proprietor to absorb part of the burden of an industrial use of acknowledged capacity to harm." Kozenik v. Montgomery Township, 24 N.J. 154, 176 (1957).

223. 218 Cal. App. 2d 205, 32 Cal. Rptr. 318 (1963).
224. 304 N.Y. 105, 107 (1952).
225. Cleary, Gottlieb, Steen and Hamilton, "Legal Aspects of Required Soundproofing in High Noise Areas Near John F. Kennedy International Airport," Feb. 1970.
226. See also, Department of Transportation, Measures of Benefits, Aviation Cost Allocation Study Working Paper 9.
227. Hearings on Aircraft Noise before Subcommittees of the House Committee on Interstate and Foreign Commerce, 86th and 87th Cong. (1959-62), at 657.
228. Id.
229. 259 F. Supp. 745 (E.D.N.Y. 1966).
230. Griggs v. Allegheny County, 369 U.S. 84 (1962).
231. 38 Fed. Reg. 2712.
232. 2 Cal. App. 3d 318, 82 Cal. Rptr. 578 (1969).
233. Bresnahan, R. J., Letter to Orange County Board of Supervisors, Subject: Report on Implementation of the Adopted Noise Regulations for California (District 5), County of Orange, Jan 26, 1973.
234. Resolution 7467, Board of Commissioners, Los Angeles International Airport (Dec. 20, 1972).
235. Id.
236. See, e.g., Greater Westchester Homeowners Association, Inc. v. City of Los Angeles, 13 C.A.3d 523, 91 Cal. Rptr. 720, 11 Av. Cas. 17,923 (2d Dist. 1970); Inglewood Residents' Protective Association v. City of Los Angeles, 11 Av. Cas. 17,696 (Cal. Super. Ct. 1970).
237. See, e.g., City of Inglewood v. City of Los Angeles, 451 F.2d 948, 11 Av. Cas. 18,413 (9th Cir. 1971).
238. State of New York v. Port of New York Authority, et al. (pending N.Y. Sup. Ct., Nassau County).

239. Township of Hanover v. Town of Morristown, Av. Cas. 17,436 (N.J. Super Ct., Morris County, 1969).
240. S. Rep. No. 1353, 90th Cong. 2d Sess. (1968), U.S. Code Cong. and Admin. News, 90th Cong., ad. Sess. (1968) at 2693-4.
241. Id.
242. See, e.g., Swetland v. Curtiss Airport Corp., 55 F.2d 201 (6th Cir. 1932); Atkinson v. City of Dallas, 353 S.W. 2d 275 (Tex. Civ. App. 1961), cert. denied 370 U.S. 939 (1962).
243. See, e.g., United States v. City of New Haven, 447 F.2d 972, 11 Av. Cas. 18,324 (2d Cir. 1971).
244. Supra n. 239.
245. See, e.g., Batten v. United States, 306 F.2d 580 (10th Cir. 1962), cert. denied, 371 U.S. 955 (1963); Leavell v. United States, 234 F. Supp. 734 (E.D.S.C. 1964). In Town of East Haven v. Eastern Airlines, Inc., 331 F. Supp. 16 (D. Conn. 1971), aff'd 479 F. 2d 148 (2d Cir. 1972), petition for cert. filed, 41 U.S.L.W. 3464 (Feb. 16, 1973), the Court permitted recovery for flights which, though they may not have been directly over plaintiff's properties, were very nearly so.
246. See e.g., Thornburg v. Port of Portland, 233 Ore. 178, 376 P. 2d 100, 8 Av. Cas. 17, 281 (1962); City of Jacksonville v. Schumann, 167 So. 2d 95 (Dist. Ct. App. Fla. 1964).
247. 11 Av. Cas. 17, 642 (Cal. Super. Ct., Los Angeles County, 1970).
248. Id. at 652.
249. 6 Cal. 3d 920 (1972).
250. The Nestle case is presently pending.
251. A 1973 report of the President's Aviation Advisory Commission, after a two-year study of the problems of civil aviation in the United States, concluded that aircraft noise is "the most explosive problem facing aviation today" and stated that attempts by government agencies and the aviation industry to reduce aircraft noise "are insufficient to win public acceptance." Noise Control Reports, Vol. 2, No. 1, page 4 (January 8, 1973).
252. Pub. L. 92-574, § 7(b), 86 U.S. Stat. 1241, amending 49 U.S.C.A. § 4331.

253. Compare Pub. L. 90-411, § 1[§ 611(b)] with Pub. L. 92-574, § 7(b) (§ 611(d)).
254. Pub. L. 90-411[§ 611(a)] (emphasis added).
255. Pub. L. 92-574, § 7(b) 611(b) (emphasis added). In addition to the substitution of "public health and welfare" for "unnecessary noise" in the new 611(b) (1), the old 611(c) language regarding National Transportation Safety Board modification and reversal of FAA noise enforcement actions was amended. Under the 1968 Act, the Board was required to find that control and abatement of aircraft noise and the "public interest" did not require affirmation before it could alter the FAA order [old 611(c)]. In the 1972 Act, "public interest" was changed to "public health and welfare" [new 611(c)] underscoring the amendments made in the new 611(b) (1).
256. Hearings on S. 1016, S. 3342 and H. R. 11021 before the Subcommittee on Air and Water Pollution of the Senate Committee on Public Works, 92d. Cong., 2d Sess., at 419 (April 12, 1972) [hereinafter cited as Senate Hearings].
257. Pub. L. 90-411, § 1[611(b) (4)].
258. See, e.g., 34 Fed. Reg. 18355-68 (Adoption of Noise Type Certification & Procedures).
259. Operations Research Analysis of Aircraft Noise Abatement; Phase I; Development of Methodology, "Final Report, IITRI Project No. J 8083 (June 1968) (jointly funded by ATA and AIA). The report included computer software for analyzing the cost-effectiveness of various solution combinations, verified by application of the methodology to situations at several existing airports.
260. Three task group members, involved in developing the study, verified the FAA's reflection of the ATA-AIA offer.
261. Bolt Beranek & Newman, Procedures for Developing Noise Exposure Forecast Areas for Aircraft Flight Operations, Rep. No. AD 660-705 (1967).
262. See, Galloway & Bishop, Noise Exposure Forecasts: Evolution Evaluation, Extensions, and Land Use Interpretations, Rep. No. 70-9 (1970).
263. The NEF procedure is not definitively accurate for all purposes, but does provide the best description of noise exposure and impact yet known.
264. A description of the ASDS method can be found in the report of Task Group 5.
265. Memorandum from Henning Von Gierke, Director, Biodynamics and Bionics Division, U.S.A.F., 6570th Aerospace Medical Research Lab.

266. See, e.g., FAA Docket No. 10664, Civil Airplane Noise Reduction Retrofit Requirements, R. M. Marrazzo, EPA, Aug. 30, 1972; R. W. Simpson and A. P. Hays, A Proposed System for Aviation Noise Measurement and Control, FTL Report No. R73-2 (Jan, 1973); Letter from Alvin F. Meyer, Director, EPA ONAC to Richard P. Skully, Director, FAA Office of Environmental Quality, Sept. 13, 1972.
267. Hearings on H. R. 5275, H. R. 923, H. R. 3364, H. R. 6002, H. R. 9686, and H. R. 6988 before the Subcommittee on Public Health and Environment of the House Committee on Interstate and Foreign Commerce, 92d Cong., 1st Sess., at 485 (June 24, 1971).
268. Pub. L. 92-574, § 7 (b) (§611).
269. Pub. L. 92-574, § 7 (b) (§611)(c)(1), 86 Stat. 1240.
270. Pub. L. 92-574, § 7 (b) (§611)(c)(2), 86 Stat. 1240.
271. The Federal Department of Transportation operates an office of Noise Abatement separate from and in addition to the FAA's noise control staff.
272. The following is a detailed breakdown for Fiscal Year 1972 of the budget resources and personnel of the various agencies committed to noise control research and regulatory efforts:

Agency	Program	Budget	Personnel
National Aeronautics & Space Administration	Research in aircraft noise source reduction, noise propagation, effects on receptors, source tests & approach procedures	Contract Research \$12.0 million In House Research Equipment - \$0.4 million Research Personnel & Management - \$7 million (\$19,500,000)	(204)
Department of Defense*	Research in biomedical effects of noise & noise exposure forecasting Research in aircraft noise abatement technology	\$761,000 \$662,000	
Department of Transportation	Measurement & Simulation of Community Noise Levels (Airport & Highway)	\$900,000	(5)
Federal Aviation Administration	Aircraft Noise Suppression & Noise Abatement Control Research	\$5,100,000 (\$5,717,000)	(1) in Airport Noise Abatement (9) in Office of Env. Quality
Health, Education, & Welfare	Occupational Health & Safety Research National Institutes of Health physiological and speech interference effects of noise	\$400,000 \$1,000,000	
Housing & Urban Development	Urban noise surveys, site exposure measurement techniques	\$500,000	

*Major non-hearing conservation programs of U.S. Army and Air Force, and Army Weapons Systems Research, Source: U. S. Environmental Protection Agency, Office of Noise Abatement and Control, Summary of Noise Programs in the Federal Government, R110-300-10 (Rev. 3/1, 1974).
Numbers in parentheses indicate funding and personnel for fiscal year 73-74.
Source: EPA Interagency Survey, Winter 1972-73.

273. IANAP was formed by Executive Order, and included representatives of DOD, DOT, FAA, HUD, HEW, EPA and private industry.
274. 42 U.S.C. § 1857h-6 (§309 of the Clean Air Act Amendments of 1970).
275. 42 U.S.C. § 1858 (§402(c) of the Clean Air Act Amendments of 1970).
276. Pub. L. 92-574, § 4, 86 U.S. Stat.
277. U.S.C. §§551 et seq.
278. Environmental Defense Fund, Inc., Petition Under the Federal Aviation Act Requesting the Immediate Promulgation of the Environmental Standards that will Govern the Certification of the Supersonic Transport, FAA Docket No. 10357 (May 25, 1970). The petition argued that the FAA was obliged to issue such standards in accordance with the National Environmental Policy Act, 42 U.S.C. A. §§4331 et seq. (1970 Supp.) and the Federal Aviation Act, 49 U.S.C. § 1431 (Supp. IV, 1969) [1968 version of § 611].
279. 35 Fed. Reg. 12555 (Aug. 6, 1970).
280. See, Washington/Baltimore Helicopter Service Investigation, CAB Order 68-11-71 (Nov. 18, 1968) aff'd sub nom. Palisades Citizens Association v. CAB, 420 F.2d 188 (D.C. Cir. 1969).
281. 35 Fed. Reg. 16980 (1970).
282. N. Y. Times, Oct. 12, 1971, § 1, at 1, Col. 6, and 85, Col. 5.
283. Pub. L. 92-574, § 4, 86 Stat. 1235.
284. The Massachusetts Port Authority, Proprietor of Logan Int'l Airport, Boston, Massachusetts.
285. 35. Fed. Reg. 16980 (1970)
286. N. Y. Times, Oct. 12, 1971, § 1, at 1, col. 6, and 85, col. 5.
287. N. Y. Times, Oct. 14, 1971, § 1, at 89, col. 5.
288. 38 Fed. Reg. 2769 (Jan. 30, 1973).
289. See Text at n. 278, supra.
290. 35 Fed. Reg. 12555 (Aug. 6, 1970).

291. Estimated Schedule of Rulemaking" in FAA, Noise Abatement-Technology, Public Law 4 Rules FAA Noise Abatement Program (1970).
292. How the FAA perceives its mission and role is a subjective question we are unable to answer. The Federal Aviation Act, Pub. L. 85-726, assigns the FAA both primary responsibility for air transport safety regulation and a more general charge for "the promotion, encouragement and development of civil aeronautics," one of the more revealing statements on this subject was made by the FAA's Assistant General Counsel: "The Federal Role, furthermore, is oriented toward growth, even at some environmental cost." R. Danforth, *Mercury's Children in the Urban Trap: Community Planning and Federal Regulations of the Jet Noise Source*, 3 *Urban Lawyer* 206, 237 (1971).
293. Aviation Advisory Commission, *The long Range Needs of Aviation* (advance copy), at 37-38. Accord, FAA, National Aviation System Plan, 1971-1980, at 28 (March 1970).
294. Notice of Proposed Rulemaking, Noise Standards: Aircraft Type Certification, 34 Fed. Reg. 453, (January 11, 1969).
295. This position has been taken despite the duty imposed by the 1968 Act, Pub. L. 90-411, that the FAA establish noise standards for all Title VI certificates, which includes the airport certificate added by the 1970 Airport Airways Development Act.
296. Rohr Corp., *Economic Impact of Implementing Acoustically Treated Nacelle and Duct Configurations Applicable to Low Bypass Turbofan Engines*, prepared for the FAA Office of Noise Abatement (July 1970).
297. Statement of Honorable Secor D. Brown, Chairman, Civil Aeronautics Board, Hearings on Noise Control Act of 1971 and Amendment before the Subcommittee on Aviation of the Senate Committee on Commerce, 92nd Cong., 1st Sess. 800 (July 13, 1971), at pp. 800-802.
298. Letter from George V. Carneal, former FAA General Counsel to Elizabeth Cuadra, EPA Office of Noise Abatement & Control, May 3, 1973.
299. Public Hearing on Noise Abatement and Control, Vol IV - Standards & Measurement Methods legislation and Enforcement Problems, before the Environmental Problems, before the Environmental Protection Agency, 104 (Sept. 27-29, 1971) (Statement of Michael Berger, Attorney) (hereinafter cited as "EPA Hearing")
300. 34 Fed. Reg. 453,457 (Jan. 11, 1969).

301. Richard Danforth Mercury's Children In the Urban Trap: Community Planning and Federal Regulation of the Jet Noise Source, 3 Urban Lawyer 206,215 (1971)
302. Telephone Interview with William Critchfield, Acting Airport Manager, Torrence, Calif., Municipal Airport by E. Cuadra, R. Randall, and R. T. Weston, May 13, 1973.
303. Telephone Interview with J. Brain Douglass, Airport Manager, Fullerton, Calif., Municipal Airport, by E. Cuadra, R. Randall and R. T. Weston, May 13, 1973.
304. Letter from Arvin O. Basnight, Director of FAA Western Regional Office, to Anthony Stiori, Mayor of Santa Monica, June 16, 1971.
305. 2 Cal. App. 3d 318 (1969).
306. Brief for FAA as Amicus Curiae at 2,8, Burbank v. Lockheed Air Terminal, 318 F. Supp. 914 (1971), quoted in E.P.A. Hearings, 107.
307. EPA Hearings, at 107.
308. 34 Fed. Reg. 456, 458.
309. For a detailed discussion of the "noise floor" and FAA's reasons for abandoning this goal, see Lake, supra note 35 at 377-382.

Appendix A
MEMBERSHIP OF TASK GROUP 1

APPENDIX A

MEMBERSHIP OF TASK GROUP 1

<u>I. Members</u>	<u>Representing</u>
Ms. Elizabeth Cuadra (Chairman)	Environmental Protection Agency
Mr. George Alderson	Friends of the Earth
Mr. David Bach	Environmental Protection Agency
Ms. Judy Campbell Bird	National Association of Counties
Mr. Wallace E. Brown	Department of Commerce
Mr. John E. Bryson	Natural Resources Defense Council, Inc.
Mr. George U. Carneal, Jr.	
Mr. Dick Danforth	Federal Aviation Administration
Mr. Clifford A. Deeds	Town-Village Aircraft Safety and Noise Abatement Committee (TVASNAC)
Mr. Dick Denney	Environmental Protection Agency
Mr. Charles H. Dudley	Department of State
Mr. Dick Dyer	National Association of State Aviation Officials
Dr. Marjorie W. Evans	Sierra Club
Ms. Ellen S. D. Flynn	Council of State Governments
Ms. Joan S. Gravatt	Department of State
Mr. Stanley J. Green	General Aviation Manufacturers Association
Mr. Georgr Grumbach	Air Transport Association of America
Ms. Janet Gray Hayes	City of San Jose, California
Mr. John Hellegers	Environmental Defense Fund
Mr. Lloyd Hinton	National Organization to Insure a Sound-Controlled Environment (NOISE)

<u>I. Members</u>	<u>Representing</u>
Mr. Steven Horowitz	Department of Housing & Urban Development
Mr. Craig W. Johnson	Natural Resources Defense Council, Inc.
Mr. Daniel Joseph	Department of Transportation
Mr. George Lapham	Air Transport Association of America
Ms. Catherine Lerza	Environmental Action, Inc.
Mr. Joseph Lesser	Airport Operators Council International
Mr. Neil G. McBride	Aviation Consumer Action Project
Mr. Ivars V. Mellups	Civil Aeronautics Board
Brig. Gen. Martin Menter	
Mr. Charles Miller	Aircraft Owners & Pilots Association
Ms. Isobel Muirhead	Airport Operators Council International
Mr. John Nammack	National Association of State Aviation Officials
Ms. Elizabeth Parker	National League of Cities and U.S. Conference of Mayors
Mr. Robert H. Rollins II	National Aeronautics and Space Administration
Mr. Seth Rosen	Airlines Pilots Association
Ms. Gail Schultz	American Institute of Planners
Mr. George P. Smith	Environmental Protection Agency
Mr. Larry Snowwhite	National League of Cities and U.S. Conference of Mayors
Mr. Robert J. Stowell	The Boeing Company
Mr. Lyman Tondel	Air Transport Association of America
Mr. Robert L. Tully	Airline Pilots Association
Mr. John M. Tyler	National Organization to Insure a Sound-Controlled Environment (N.O.I.S.E.)

- I. Members Representing
- | | |
|-----------------------|------------------------------|
| Mr. John E. Varnum | Department of Justice |
| Mr. Geoffrey Vitt | Environmental Defense Fund |
| Mr. R. Timothy Weston | Council of State Governments |
- II. Other Participants (EPA Consultants and Contractors)
- | | |
|-----------------------|---------------------------------|
| Ms. Betsy Amin-Arsala | George Washington University |
| Mr. Peter P. Back | Consultant in Economics |
| Ms. Joan Gelber | George Washington University |
| Mr. Louis B. Mayo | George Washington University |
| Mr. Robert E. O'Brien | Environmental Protection Agency |
| Mr. Robert L. Randall | Legal Consultant |
| Mr. Edward Studholme | George Washington University |
| Mr. Ernest Weiss | George Washington University |

Note: The membership list includes all persons who attended one or more meetings but does not include individuals serving as occasional alternate of their organization's usual representative.

Appendix C

LIST OF TASK GROUP 1 MASTER FILE DOCUMENTS

APPENDIX C

LIST OF TASK GROUP 1 MASTER FILE DOCUMENTS

The documents, letters, draft report sections and position papers listed below are maintained for public reference in the Aircraft/Airport Noise Study master file, at the Environmental Protection Agency's Office of Noise Control Programs, Washington, D. C.

This master file (or docket) was established as a reference materials resource for the use of task group members, EPA staff and consultants and interested public. A further information resource was made available to task group members by the document collection and abstracting efforts of Informatics, Inc., under contract to EPA.

The master file is also intended to serve as a record of the task force process; in addition to the listed documents, it contains summary minutes and tape recordings of Task Group 1 meetings.

The master file was developed from inputs from Task Group 1 members (including EPA representatives), and from interested experts and other citizens who requested that their positions be placed on the study docket. In addition, all citizen letters regarding existing aircraft noise problems received at EPA headquarters during the time period of the study were inserted into the docket.

AIRCRAFT/AIRPORT NOISE STUDY
TASK GROUP 1
MASTER FILE DOCUMENTS

Task Group #1
Serial Number

Item

. SUBMITTED BY CIVIL AERONAUTICS BOARD (3/2/73)

A. Statutes and Regulations:

- 1 1. Synopsis of Purposes and Provisions of the Federal Aviation Act in Relation to the Civil Aeronautics Board (revised March 31, 1971);
- 2 2. 14 C.F.R. 399.110, Implementation of the National Environmental Policy Act of 1969, as amended by PS-47;
- 3 3. Regulation PS-47, adopted June 10, 1971, amending 14 C.F.R. 399.110.

B. Interpretive material on NEPA:

- 4 1. Environmental Considerations in Civil Aeronautics Board Proceedings, by R. Tenney Johnson, General Counsel, Civil Aeronautics Board;
- 5 2. Memorandum, Implementation of the Board's Policy Statement re the National Environmental Policy Act of 1969 (14 C.F.R. 399.110) in decisions of hearing examiners (November 3, 1971);
- 6 3. Letter, C.A.B. Chairman to Russell E. Train, C.E.Q. Chairman (October 2, 1970), reporting on Board's NEPA procedures and Board's statutory authority;
- 7 4. Letter, C.A.B. Acting Chairman to Timothy Atkeson, C.E.Q. General Counsel (April 2, 1971), comments on CEQ Guidelines for preparation of NEPA §102(2)(C) statements;
- 8 5. Letter, C.A.B. Chairman to Russell E. Train, C.E.Q. Chairman (December 20, 1971), reporting on Board's experience in implementing NEPA;
- 9 6. Letter, C.A.B. General Counsel to Kent Frizell, Assistant Attorney General, Land and Natural Resources Division, Department of Justice (March 29, 1972), explaining Board's powers and procedures in regard to conditioning air carrier certificates to specify the use of certain airports.

SUBMITTED BY CIVIL AERONAUTICS BOARD (3/2/73)

C. Court of Appeals' decisions:

- 10 1. Air Line Pilots Association, Int'l v. C.A.B., C.A.D.C. No. 71-1751 (decided January 4, 1973);
- 11 2. The Palisades Citizens Association, Inc. v. C.A.B., 136 U.S. App. D.C. 346, 420 F.2d 188 (1969);
- 12 3. United Air Lines v. C.A.B., 108 U.S. App. D.C. 1, 278 F.2d 446 (1960), vacated sub nom. All American Airways, et al., 364 U.S. 297 (1960);

D. C.A.B. Orders relating to air carrier capacity reductions in certain trans-continental markets:

- 13 1. Order 70-11-35 (November 6, 1970);
- 14 2. Order 71-3-71 (March 11, 1971);
- 15 3. Order 71-5-68 (May 14, 1971);
- 16 4. Order 71-8-91 (August 19, 1971);
- 17 5. Order 72-4-63 (April 13, 1972);
- 18 6. Order 72-11-6 (November 2, 1972);
- 19 7. Order 73-2-60 (February 14, 1973).

E. Memoranda summarizing load factor results in capacity-reduced transcontinental markets:

- 20 1. Dated March 17, 1972--Last Quarter, 1971 data;
- 21 2. Dated May 22, 1972--First Quarter, 1972 data;
- 22 3. Dated June 19, 1972--April, 1972 data;
- 23 4. Dated June 27, 1972--May, 1972 data;
- 24 5. Dated July 27, 1972--June, 1972 data;
- 25 6. Dated August 25, 1972--July, 1972 data;

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- 26 7. Dated September 21, 1972--August, 1972 data;
 - 27 8. Dated October 30, 1972--September, 1972 data;
 - 28 9. Dated November 28, 1972--October, 1972 data;
 - 29 10. Dated January 10, 1973--November, 1972 data;
 - 30 11. Dated February 1, 1973--December, 1972 data.
- F. C.A.B. Orders relating to air carrier capacity reductions in the New York/Newark-San Juan (Puerto Rico) market:
- 31 1. Order 72-1-86 (January 25, 1972);
 - 32 2. Order 72-6-70 (June 16, 1972);
 - 33 3. Order 72-9-13 (September 5, 1972);
 - 34 4. Order 72-11-7 (November 2, 1972).
- G. Memoranda summarizing load factor results in capacity-reduced New York/Newark-San Juan market:
- 35 1. Dated September 18, 1972--August 1972 data;
 - 36 2. Dated September 21, 1972--August 1972 data;
 - 37 3. Dated October 16, 1972--September 1972 data;
 - 38 4. Dated October 24, 1972--September 1972 data;
 - 39 5. Dated November 3, 1972--October 1972 data;
 - 40 6. Dated November 21, 1972--October 1972 data;
 - 41 7. Dated January 10, 1973--November 1972 data;
 - 42 8. Dated February 7, 1973--December 1972 data.

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H. Other C.A.B. Orders:

- 43 1. Order 71-4-54 (April 9, 1971), Domestic Passenger-Fare Investigation, Phase 6B-Load Factor;
- 44 2. Order 71-7-140 (July 26, 1971), Complaint of the Natural Resources Defense Council, Inc.;
- 45 3. Order 72-2-41 (February 11, 1972), Petition of the City of Inglewood for Recertification.

I. Other:

- 46 1. Letter, C.A.B. Chairman to Senator John V. Tunney (July 26, 1972), commenting on Committee Print No. 6 of S. 3342, The Noise Pollution Control Act of 1972.

. SUBMITTED BY DEPARTMENT OF STATE (3/2/73)

- 47 Convention on International Civil Aviation, 1944
- 48 International Standards and Recommended Practices, Aircraft Noise, ICAO Annex 16
- 49 Report of the Special Meeting on Aircraft Noise in the Vicinity of Aerodromes, Montreal, 7th November - 17 December 1969, ICAO Doc. 8697
- 50 Committee on Aircraft Noise, Second Meeting, Montreal, 15 - 26 November 1971, ICAO Doc. 8993
- 51 Sonic Boom Committee, First Meeting, Montreal, 9 - 19 May 1972, ICAO Doc. 9011
- 52 ICAO Air Navigation Commission - Development of SARPS and/or guidance material relating to the quality of the human environment, AN-WP/4115, 20/7/73
- 53 ICAO Assembly Resolutions A16-3, A16-4, A18-11 and A18-12.
- 54 Standard U.S. Draft of Air Transport Agreement, September 28, 1970

- . SUBMITTED BY NASA (3/2/73)

55 "A Preliminary NASA Report to the Environmental Protection Agency for the Aircraft/Airport Noise Study," February 28, 1973. (Chapters include Impact Characterization Analysis, Source Abatement Technology, Operating Procedures, Military Aspects).
- . SUBMITTED BY N.O.I.S.E. (3/2/73)

56 "Airport Zoning: The Minnesota Example," Urban Land, Jan., 1973.
- . SUBMITTED BY NATIONAL LEAGUE OF CITIES AND U.S. CONFERENCE OF MAYORS (3/2/73)

57 Background information describing the activities of the National League of Cities and U.S. Conference of Mayors.

58 U.S. Conference of Mayors Resolutions on
 Noise Pollution
 Aircraft Noise
 Aircraft Noise Abatement
 Land Use Planning

59 National League of Cities 1973 National Municipal Policy on
 Environmental Quality
 Transportation

60 Maurice A. Garbell. Aircraft Noise Abatement at the San Francisco International Airport, March 10, 1971.

61 Information regarding the Dallas-Fort Worth Regional Airport.

SUBMITTED BY COUNCIL OF STATE GOVERNMENTS,
R. TIMOTHY WESTON (3/2/73)

- 62 M. Alushin, D.E. Benor, M.A. Grainer &
R.T. Weston, "Port Noise Complaint,"
Harvard Civil Rights, Civil Liberties
Law Review, Vol. 6, No. 1, pp 68-71,
December, 1970.
- 63 1971 Massachusetts Airport Noise Legislation,
file of information, including testimony by
the Airport Study Group of the Harvard Law
School Environmental Law Society.
- 64 1970 Massachusetts Airport Noise Legislation,
file of information.
- 65 P.A. Franken and D. Standley, "Aircraft
Noise and Airport Neighbors: A Study of
Logan International Airport," Report DOT/HUD
IANAP-70-1, March, 1970.
- 66 P.B. Larsen, "Improving the Airport Environ-
ment: Effect of the 1969 FAA Regulations on
Noise," 55 Iowa Law Review 808 (1970).
- 67 Pennsylvania Statutes:

Authorizing Political Subdivisions to establish
and operate airports.

Establishing the Aeronautics Commission and de-
signating the powers and duties thereof (including
the power to license airports).

Airport Zoning Act.

Aeronautics Act (specifying navigable airspace
and duties of aircraft operators regarding damages
to land or use and enjoyment).
- 68 J. E. Stephen, "Regulation by Law of
Aircraft Noise Levels, From the Viewpoint
of the United States Airlines."
- 69 M. Katz, "The Function of Tort Liability in
Technology Assessment," University of
Cincinnati Law Review, Vol. 38, No. 4,
Fall, 1969.

. SUBMITTED BY TVASNAC (3/2/73)

70

"The TVASNAC Proposal for Jet Aircraft Noise Pollution Attenuation," March 1, 1973, with supplements including:

- (a) "Worldwide Airport Nighttime Restrictions," TVASNAC, June 1, 1972
- (b) "Airport Curfews and Airmail."
- (c) TVASNAC letter to Commissioner Henry Diamond, New York State Dept. of Environmental Conservation, concerning proposed state noise regulations, September 11, 1972.
- (d) "Capacity Agreement Results in Big Load Factor Improvement."
- (e) "The Need for a Retrofit Program."

. SUBMITTED BY EPA (E. CUADRA)

71

Letter from David Standley (Executive Director, City of Boston Air Pollution Control Commission) to Prof. Louis Mayo, February 28, 1973, including comprehensive bibliography of reports, proposed legislation, etc., concerning noise from Logan Airport.

72

R.L. Paullin, "The Status of International Noise Certification Standards for Business Aircraft," paper for the Business Aircraft Meeting and Engineering Display, Wichita, Kansas, April 4-6, 1973.

73

Materials concerning Los Angeles International Airport Noise Abatement Program:

- (a) "Presentation to the Board of Airport Commissioners of Management's Recommendations for Airport Regulations and Policies Designed to Reduce the Noise Contours at Los Angeles International Airport," by Clifton A. Moore, General Manager, Los Angeles Department of Airports
- (b) Recap of Lawsuits, Court Decisions and California State Legislation-Impact Upon Department of Airports and its Role as Set Forth by City Charter to Accommodate Air Commerce and Navigation.
- (c) Excerpts from Legal and Official Documents Regarding Local Proprietor's Responsibility in Control of Noise.

(d) Resolutions 7467, 7483, 7484 and 7484A of the Los Angeles City Council.

- 74 Record of Conference (February 6) among EPA and DOT Personnel Regarding Noise Control Act of 1972 (memo to the record by C.R. Foster, DOT Office of Noise Abatement, dtd Feb. 7, 1973)
- 75 EDF letter of Feb. 26, 1973, Hellegers and Janssen to Cuadra (EPA), recommending additional task force members. EPA memo to the record by E. Cuadra, dtd. March 10.
- 76 Letter from Ruth E. Beale to Senator Mathias, dated Jan. 16, 1973, concerning aircraft noise from operations at Washington National Airport. EPA reply to Sen. Mathias dated
- 77 Letter from Robin Gogauff, dated March 2, 1973, concerning noise from operations at Boston - Logan. EPA reply dated March 12.
- 78 Letter from Nicholas C. Yost (Deputy Atty General in Charge, Environmental Unit, State of California) dtd. March 8, 1973, requesting that Task Force actions not negate California Airport Noise regulations (attaching copy of regulations). EPA reply.
- 79 EDF letter to FAA, on Docket No. 12534 (Civil Airplane Fleet Noise Level Requirements, FNL), dated March 2, 1973. (Includes matters regarding international air commerce and nature of U.S. participation in ICAO.)
- 80 Memo from Dr. Lawrence A. Plumlee, M.D., of EPA Office of Research & Monitoring, dtd. Feb. 22, 1973, concerning noise of police helicopters. GRAC reply dtd. March 10.
- 81 Letter from H.P. Kelly of Opa-Locha, Florida, concerning noise from Opa-Locha Airport (both commercial and military operations), dtd. Feb. 12, 1973. EPA reply dtd. March 13, 1973.

- 82 NASAO letter dated March 16, 1973, stating their position regarding need for development of a uniform state law covering land use control around airports, and need for Federal guidelines.
- 83 Letter from Marjorie W. Evans concerning EPA/FAA understanding on the need for EIS under NEPA if standard arrival or departure routes are to be altered.
- 84 Subcommittee report (by R.T. Weston) of the ad hoc subcommittee to study Congressional intent, "Congressional Intent Re. Section 7(b) of the Noise Control Act of 1972; Comparison of Criteria Established in the 1968 and 1972 Acts for the Promulgation of Federal Aircraft Noise Regulations," received March 16, 1973.
- 85 "Selected, Annotated Bibliography on Airport Noise," National League of Cities/ U.S. Conference of Mayors, March 1973.
- 86 William T. Lake, draft chapter on Federal Noise Law, from the Environmental Law Institute's study on federal environmental law, received March 20, from the author (INCLUDES COPYRIGHT RESTRICTIONS)
- 87 EPA memo by W. C. Sperry, dtd. March 20, 1973, concerning ICAO.
- 88 Report, "Airplane Noise Questionnaire Results," based on a study conducted by Attorney General Robert H. Quinn, Commonwealth of Massachusetts, dtd. 1971; submitted to the docket by Elynn R. Weiss, Deputy Assistant Attorney General, letter dtd March 13, 1973.
- 89 "Operations Research Analysis of Aircraft Noise Abatement; Phase I: Development of Methodology," Final Report, IITRI Project No. J 8083, June 1968 (funded by ATA and AIA). Copy contributed by ATA.
- 90 Letter from Janet Gray Hayes, member of the San Jose City Council, San Jose, California, dtd. March 21, 1973, submitting nine items (listed therein) to the docket.

- 91 Letter from Marjorie Evans, concerning environmental and safety aspects of P-3 Orion Flight Training Program at U. S. Naval Air Station, Moffett Field, California (with documentation).
- 92 DRAFT text, "The Meaning of the 'Public Health and Welfare' Pursuant to the Noise Control Act of 1972," by George Washington University (under contract to EPA), dated March 23, 1973.
- 93 Letter, Fred Lee (Sunnyvale, Calif.) to E. Cuadra, April 2, 1973, on noise from touch - and - go practice by U.S. Navy Orions from Moffett Field.
- 94 Letter, M. Evans to E. Cuadra, April 4, transmitting letter from the Environmental Planning Office, City of Palo Alto, concerning noise from training flights at Moffett Field.
- 95 Letter, City of Novato (California) to EPA, April 4, 1973, concerning noise from Hamilton Air Force Base, recommending that the point of conversion of a military air base to joint use or civil use be considered a "new airport" decision point.
- 96 Letter from Edward H. Neuwirth (Coraopolis, Penn.), March 15, 1973, concerning noise from ground testing of aircraft engines at Greater Pittsburgh Airport.
- 97 Letter from John M. Regan, Foster City, California, March 22, 1973, concerning the role of economics in airline flight operation decisions.
- 98 Letter from Jerry Scaffetta, Long Island, N.Y., March 15, 1973, opposing admission of Concorde (and other SST's) into the U.S.
- 99 Letter from Portola Valley Noise Abatement Committee, Portola Valley, Calif., March 26, regarding need for larger, visible aircraft identification numbers, for ground-based aircraft identification in communities.

- 100 Testimony by Nicholas C. Yost (Deputy Attorney General in Charge, Environmental Unit, Office of the Attorney General of California) before hearing by the Aviation Subcommittee, Commerce Committee, U.S. Senate, March 30, 1973.
- 101 Letter from M. Evans to E. Cuadra, April 2, summarizing her remarks at March 30 meeting of Task Group 1 (focusing upon (a) military aircraft noise problems and (b) light aircraft and business jets.
- 102 Statement on "Control of Aircraft Noise in the Basic Engine/Aircraft Design," submitted by N.O.I.S.E.
- 103 Statement on "Airport Design," submitted by N.O.I.S.E.
- 104 News release dated March 15, 1973, from N.O.I.S.E., concerning the Aircraft/Airport study (submitted by N.O.I.S.E.).
- 105 Letter, William M. Cooper, Jr. (Citizens for Conservation, Bernards Township) to W. C. Schettino, March 20, 1973, concerning aircraft noise problems associated with Metroplex II introduction (New York City area flight control plan) June 1970.
- 106 "Report of the Workshop on Noise Control," including draft model bill for state noise legislation, Second Annual Symposium on State Environmental Legislation, Council of State Governments, April 1973.
- 107 Statement by N.O.I.S.E., dated April 23, 1973, concerning positions on legal/institutional aspects of (a) control of aircraft noise and (b) control of land use.
- 108 Memo from John Bryson and Craig Johnson (NRDC), giving preliminary thoughts on task group recommendations (includes comments on Part I draft)
- 109 "Social and Economic Impact of Aircraft Noise," working paper of the Sector Group on Urban Environment, Organisation for Economic Cooperation and Development (OECD), Paris, 3 April 1973. Prepared for the Fourth Meeting of the Urban Environment Sector Group, May 2-4, 1973.

- 110 Official information on the "Paris noise tax" (Paris Airport Authority), from the Journal Officiel de la Republique Francaise, February 27, 1973, pp 2173 - 2180. (In French, accompanied by English translation)
- 111 Letter, Charles J. Peters (Acting Assoc. Gen. Counsel, Litigation Div., FAA) to Dr. N. E. Golovin (Deputy Chairman, Program Evaluation and Direction Committee, President's Office of Science and Technology), August 15, 1967, on then existing FAA noise regulatory authority.
- 112 Suggested redraft of TG 1 report section on "Alternatives," received from N.O.I.S.E., dated April 27, 1973.
- 113 Memo to chairman of TG 2 from N.O.I.S.E., "Findings and Recommendations re 'Adequacy of FAA Flight and Operational Noise Controls," dated April 27, 1973.
- 114 Letter from Northeast Clearwater Civic Association, Florida (undated) to EPA, signed by Mrs. Isabelle Meind, concerning noise from student flying practice at Clearwater Executive Airpark.
- 115 Letter from George Carneal, dtd. May 3, 1973, commenting on Parts II, III and IV of TG 1 initial draft.
- 116 Memo, Joan Gravatt to E. Cuadra, dated May 4, 1973, with Department of State preliminary recommendations.
- 117 Preliminary "recommendations" from N.O.I.S.E., dated May 4, 1973.
- 118 Letter, L. Tondel to E. Cuadra, May 3, 1973, transmitting redraft of the work of Writing Group I.
- 119 Letter, L. Tondel to E. Cuadra, May 2, 1973, transmitting his comments on subsections on local government, airport proprietors, land use planning and soundproofing; plus attached reference materials.
- 120 Preliminary "recommendations" from AOCI, dtd. May 3, 1973 (Joseph Lesser)

- 121 Letter, Tondel to Cuadra, transmitting supplemental brief and main brief of the appellees in the Burbank case.
- 122 Preliminary "recommendations" of the National League of Cities / U.S. Conference of Mayors, May 4, 1973.
- 123 "Action Against Aircraft Noise: Progress Report 1973," Department of Trade and Industry, Great Britain.
- 124 Letter, Mr. and Mrs. Walter Buhler to E. Cuadra, dated April 26, 1973, on noise and safety problems associated with training flights at Moffett Field, California.
- 125 Letter, Francis Friesenhahn (Randolph Sub-region Community Council, Randolph AFB, Texas) to EPA, dated 16 April 1973, stating position on acceptable uses of land in CNR Zone 2, and transmitting report of Randolph Airport Environs Study.
- 126 "Legal Aspects of Airport Noise and Sonic Boom," by L. R. Altree and W. F. Baxter (AD 682 900), February 1968.
- 127 Initial draft of subsection on land use planning and soundproofing, from Joseph Lesser, received April 30, 1973.
- 128 Initial draft of subsections on (a) airport proprietors and (b) local governments, from Joseph Lesser, received April 27, 1973.
- 129 Redraft of Section III "Problems," from C. Johnson and J. Bryson, received May 6, 1973.
- 130 Redraft of subsection on DOD, from Martin Menter, received May 3, 1973.
- 131 Initial draft of subsection on CAB, from G. Vitt, received May 1, 1973.
- 132 Initial draft of subsection on HUD, from G. Vitt, received April 26, 1973.

- 133 "Recommendations" of NRDC, transmitted by letter dtd May 4, 1973, Bryson and Johnson to Cuadra.
- 134 Comments on Part I of TG 1 Draft #1, National League of Cities/U.S. Conference of Mayors, (L. Snowwhite), dtd May 1, 1973.
- 135 Letter, D. Longmire to E. Cuadra, concerning noise problem from helicopter overflights in Brentwood/Crestwood Hills area of City of Los Angeles, dtd April 30, 1973.
- 136 Letter, Grumbach to Bryson and Johnson dtd May 2, 1973, responding to their April 20 comments on Part I draft.
- 137 ATA's "recommendations," transmitted by L. Tondel letter dtd May 8, 1973.
- 138 Letter, State of New York Department of Environmental Conservation, to J.C. Schettino, dtd April 25, 1973, stating position on federal and state roles for airport noise control.
- 139 Letter, R. P. Skully to J. C. Schettino, dated May 1, 1973, responding to EPA request for information on application of EIS procedures to changes in STAR's and SID's. Encloses latest draft of FAA's "Procedures for Considering Environmental Impacts of Proposed FAA Actions," FAA Order 1050.____, dated Dec. 4, 1972.
- 140 Letter, R. C. Blomberg (O'Hare Area Noise Abatement Council) to J. C. Schettino, dated April 30, 1973, concerning noise impacting Schiller Park residents from operations at Chicago-O'Hare (with multiple documintation).
- 141 Preliminary draft, "Legal Institutional Resources for Aircraft/Airport Noise Abatement," George Washington University report to EPA under Contract 68-01-1834, dated May 15, 1973.

Appendix D

RELATED REPORTS OF THE AIRCRAFT/AIRPORT NOISE STUDY

APPENDIX D

RELATED REPORTS* OF THE AIRCRAFT/AIRPORT NOISE STUDY

The task force effort which participated in development of EPA's report to Congress was composed of six task groups, each of which produced a report:

- | | |
|---------------|--|
| Task Group 1: | Analysis of Legal/Institutional Arrangements for Controlling Aircraft/Airport Noise |
| Task Group 2: | Operations Analysis, Including Monitoring, Enforcement Safety and Costs |
| Task Group 3: | Impact Characterization of Airport Noise, Including Implications of Identifying and Achieving Cumulative Noise Exposure Limits |
| Task Group 4: | Aircraft Noise Abatement Technology and Costs |
| Task Group 5: | Regulatory Actions for Recommendation to the FAA |

*Exact report titles will be inserted when they become available.

Task Group 6: Military Aspects of the
Aircraft/Airport Noise Problem

Two supporting reports were prepared under contracted studies:

- . "Legal/Institutional Resources for Aircraft/Airport Noise Abatement," by George Washington University. (relating to the charge to Task Group 1)
- . Aircraft/Airport Operations Study, by Bolt Beranek and Newman, Inc. (relating to the charge to Task Group 2)

The findings and recommendations of the Environmental Protection Agency, as a result of this study, are given in an executive summary:

"Report to Congress on Aircraft/Airport Noise"