

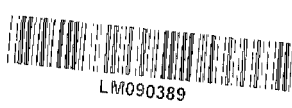


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Control Of Aircraft Noise And Air Pollution; Meetings Between FAA And The Public

Federal Aviation Administration
Department of Transportation
Environmental Protection Agency

**BY THE COMPTROLLER GENERAL
OF THE UNITED STATES**

RED-75-384

JUNE 19, 1975

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090389



COMPTROLLER GENERAL OF THE UNITED STATES

WASHINGTON, D.C. 20548

B-75409

The Honorable Joseph P. Addabbo
House of Representatives

Dear Mr. Addabbo:

Pursuant to your request of November 20, 1974, we compiled information on actions by the Federal Aviation Administration and the Environmental Protection Agency to abate aircraft noise and air pollution. In accordance with your request, we also summarized public comments on the Federal Aviation Administration's proposed regulations for quieting older aircraft engines and compiled information on meetings between high-level Federal Aviation Administration officials and the public.

The information in the enclosed report was informally presented to you on February 20, 1975. As you requested, we did not obtain comments from the Department of Transportation and the Environmental Protection Agency on this report.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Thomas A. Smith".

Comptroller General
of the United States

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ABBREVIATIONS

ANPRM	Advance Notice of Proposed Rulemaking
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
GAO	General Accounting Office
NPRM	Notice of Proposed Rulemaking

CONTROL OF AIRCRAFT NOISE AND AIR POLLUTION;
MEETINGS BETWEEN FAA AND THE PUBLIC

INTRODUCTION

The Federal Aviation Act of 1958 (49 U.S.C. 1421) was amended by the Aircraft Noise Abatement Act of 1968 (49 U.S.C. 1431) to require the Federal Aviation Administration (FAA) to prescribe rules and regulations for the control and abatement of civil aircraft noise and sonic boom. The Federal Aviation Act was further amended by the Noise Control Act of 1972 (42 U.S.C. 4901) to require the Environmental Protection Agency (EPA) to study aircraft and airport noise and the adequacy of FAA's noise controls and to submit proposed regulations to FAA requiring such control and abatement of aircraft noise and sonic boom as EPA determined necessary. The Noise Control Act also required FAA to publish EPA's proposals as notices of proposed rulemaking and to hold hearings so interested persons could comment and either adopt EPA's proposals as regulations or publish in the Federal Register an explanation of why each proposal was not adopted.

The 1970 Clean Air Amendments to the Clean Air Act (42 U.S.C. 1857) required that EPA develop emission standards applicable to any class or classes of civil aircraft or aircraft engines which either contribute or are likely to contribute to air pollution that endangers the public health or welfare. The act also required FAA to prescribe regulations to insure compliance with EPA's emission standards.

Rulemaking Procedure

The Administrative Procedure Act of 1946 (5 U.S.C. 553) requires that the public be allowed to comment on proposed changes in regulations unless a determination is made that it is contrary to the public interest and impracticable or that it is unnecessary to obtain comments. Usually, FAA and EPA publish a "Notice of Proposed Rulemaking" (NPRM) to elicit public comments. Comments are evaluated and the proposed regulation is revised, if necessary, before becoming a final regulation.

When FAA and EPA do not have enough information to formulate a definitive NPRM, they publish an "Advance Notice of Proposed Rulemaking" (ANPRM). The ANPRM discloses that rulemaking is being considered and gives the public the opportunity to submit information to be considered in developing the proposed regulation.

When FAA determines that a rulemaking action is needed, a "project" is authorized to obtain and analyze the necessary data or to draft the NPRM. Before project authorization, FAA efforts are aimed at determining whether or not a rulemaking action is warranted.

PROGRESS IN DEVELOPING NOISE ABATEMENT REGULATIONS

Pursuant to the Noise Abatement Act of 1968, FAA revised the Federal Aviation Regulations in November 1969 to add noise standards which certain new aircraft designs must meet to get FAA approval. As of May 1975, FAA had issued four other regulation amendments to control and abate noise pollution and sonic boom.

As required by the 1972 Noise Control Act, EPA identified nine areas of aircraft and airport design and operation needing regulatory attention and, as of May 1975, had submitted to FAA proposed regulations or amendments to existing regulations for four of the areas. FAA had already issued or initiated regulations or had issued nonregulatory advisory circulars in eight of the nine areas EPA identified as needing regulatory attention.

FAA actions initiated prior to EPA proposals

FAA initiated four amendments to the Federal Aviation Regulations before EPA identified areas needing regulatory attention. Two of these four amendments deal with subjects not included in EPA's nine areas.

FAA's first noise abatement regulation, issued in November 1969, contained noise standards to be met before FAA certified newly designed aircraft after December 1, 1969; the regulations also applied to certain turbojet aircraft for which certification was requested after January 1, 1967. This regulation established a ceiling on the amount of noise allowed by all newly designed subsonic aircraft in the air transport category and by newly designed turbojet aircraft. As a result, aircraft certificated after the issuance of the regulation (e.g., McDonnell Douglas DC-10, Lockheed L-1011, and some Boeing 747s) are quieter than many previously certificated aircraft. The regulation was preceded by an NPRM issued in January 1969.

This regulation also set the groundwork for future FAA noise abatement regulations by (1) prescribing the conditions under which design certification noise tests are conducted and the measurement procedures to be used, (2) prescribing the computational procedures to be used

for determining noise levels, and (3) providing noise criteria levels for different airplane weights.

Initially the noise standard regulation applied only to newly designed airplanes, but in October 1973 it was amended to include newly produced aircraft of older designs. This amendment was effective, depending on the size of the aircraft and type of engine, on either December 31, 1973, or December 31, 1974. This amendment was preceded by an NPRM issued in July 1972.

The noise standard regulation was further amended on December 12, 1974, to require more stringent conditions for testing acoustical changes in aircraft. This amendment, effective January 20, 1975, (1) prohibited any reduction of power or thrust throughout the takeoff test, (2) required that the airplane noise level before the acoustical change be determined using the quietest configuration, and (3) prescribed a method for determining test speeds to insure valid comparisons. This regulation was preceded by an NPRM issued in September 1971.

To protect the public from sonic boom of civil aircraft, FAA's regulation on general operating and flight rules was amended, effective April 27, 1973, to prohibit supersonic flights over land unless the aircraft operator applied for and received an FAA authorization. The regulation requires that an applicant for supersonic flight must provide FAA information which (1) explains the objectives of the flight, (2) explains why the objectives cannot be accomplished over the ocean, and (3) describes the conditions and limitations that will insure that no measurable sonic boom will reach the surface outside of the test area. The applicant must also provide an analysis of the flight's environmental effects on the test area. This regulation, issued on March 23, 1973, was preceded by an NPRM issued in April 1970.

Relationship of EPA's proposed regulations to FAA's actions

Of the nine areas of aircraft design and operation EPA identified as needing regulatory attention, FAA had issued or initiated regulations or had issued advisory information on eight.

The 1972 Noise Control Act required EPA to study aircraft noise, report its findings to the Congress, and propose regulations to FAA. EPA's report, submitted to the Congress in July 1973, described some areas in which EPA believed rulemaking was needed. In February 1974, EPA

published in the Federal Register and solicited public comment on a list of 10 areas being considered for rule-making.

According to EPA officials, EPA plans to submit proposed regulations to FAA in 9 areas (2 of the 10 listed in the Federal Register were combined). In December 1974 and January and February 1975, EPA submitted proposed regulations on the first four areas and, as required by the Noise Control Act, FAA issued them as NPRMs.

A synopsis of EPA's nine areas for proposed regulations and a discussion of FAA actions follow.

1. Minimum altitudes--EPA submitted a proposed NPRM on minimum altitudes to FAA on December 6, 1974; FAA issued the NPRM on December 31, 1974. The public comment period for the NPRM expired on March 7, 1975. FAA is analyzing the comments received. The EPA-proposed regulation would include a definition of "terminal area" and would prescribe minimum altitudes for turbojet powered airplanes approaching the airport within the terminal area.

As proposed by EPA, a terminal area would be the airspace designated by FAA for controlling aircraft operating to or from a particular airport. EPA's proposal included making mandatory those provisions of an FAA advisory circular relating to runway approach procedures. This circular, issued in February 1972, recommended approach and departure procedures for high-performance aircraft. The following high performance aircraft procedures were included in EPA's proposal:

- Enter the terminal area at 10,000 feet above ground level and remain at that altitude until further descent is necessary for a safe landing.
- Remain above 5,000 feet above ground level until entering the descent area established by FAA for the direction of the landing runway.
- Descend below 3,000 feet above ground level at the rate now prescribed in the regulations. In the case of airplanes landing under visual flight rules, the rate of descent would be not less than that associated with a 3° glide angle.

EPA estimated that adherence to these minimum altitudes would result in (1) at least a 25-percent reduction in the

area exposed to 90 EPNdB¹ or greater on straight in approaches and (2) up to a 9 EPNdB reduction in noise level under the flight path if the altitude at which the glide slope is intercepted were increased to the proposed 3,000 feet.

The FAA advisory circular was intended to familiarize pilots with FAA's "keep-em-high" program and, although addressed primarily to safety, it also recognized the possible noise relief associated with the program. The "keep-em-high" program evolved from a 1968 FAA report which revealed that a high percentage of near midair collisions occurred below 8,000 feet and within 30 miles of an airport with a control tower.

At the time the advisor circular was issued (in February 1972), the program had been in effect for about 1 year and had been successful in reducing noise in addition to improving safety.

FAA also issued an advisory circular in July 1974 which encouraged pilots flying under visual flight rules near noise sensitive areas, such as hospitals, schools, and national parks, to fly at altitudes higher than the minimum permitted by regulation and on paths which would reduce noise in such areas.

2. Propeller-driven small airplanes--EPA's proposed NPRM for propeller-driven small airplanes, submitted to FAA in December 1974, included noise standards for newly designed airplanes and newly produced airplanes of older type designs. It also prohibited changes to the airplanes which would increase their noise output, such as engine and muffler changes.

FAA issued an NPRM in October 1973 which proposed noise standards for propeller-driven small airplanes and was preparing a regulation when it received EPA's proposal. FAA simultaneously issued its final regulation and EPA's NPRM on December 31, 1974.

FAA's regulation required that, effective February 7, 1975, propeller-driven small airplanes (12,500 pounds or less) meet new noise level standards. These levels varied from 68 decibels to 82 decibels, depending on airplane weight and certification date.

¹EPNdB is the effective perceived noise level measured in decibels. This measurement includes the effects of strong tones and long durations of noise exposure in order to evaluate the qualities of aircraft noise that are particularly offensive to persons on the ground.

FAA believes that, depending on the comments received, EPA's proposed regulation can be incorporated into the regulation later. The public comment period on the NPRM expired on March 7, 1975, and FAA is analyzing the comments received.

3. Retrofit/fleet noise levels--Nearly 1,800 large turbojet airplanes operating in the United States are not covered by any noise regulations. According to EPA, these aircraft are the major source of noise at most airports.

In January 1975, EPA submitted draft NPRMs to FAA which proposed that existing turbojet engines be modified (i.e., retrofitted) to meet existing noise level requirements. Retrofitting would be accomplished by using either sound absorption material around the engines or more extensive internal engine modifications (refan). EPA estimates that for most aircraft the sound absorption material would reduce noise sufficiently to meet most of the current noise regulation levels and that refan could further reduce noise.

In addition, EPA proposed that the regulations be revised to require each air carrier to supply FAA with the data necessary to compute an average noise level for its turbojet fleet and to meet standards regarding the fleet's overall noise output.

FAA had been developing proposed regulations on retrofit and fleet noise levels since 1970 and has issued the following proposals:

ANPRM on "Civil Airplane Noise Reduction Retrofit Requirements," issued October 30, 1970--This proposal invited the public to offer information for FAA to consider in developing a proposed retrofit regulation.

ANPRM on "Civil Airplane Fleet Noise Requirements," issued January 24, 1973--This proposal invited the public to offer information for FAA to consider in developing a fleet noise regulation.

NPRM on "Civil Aircraft Fleet Noise Requirements," issued March 22, 1974--This proposal suggested amending FAA's operating and flight rules to establish fleet noise standards for turbojet-powered airplanes with maximum weights greater than 75,000 pounds.

FAA plans to decide in June 1975 whether to issue a regulation on retrofit requirements. Based on the comments

received, however, FAA dropped its plans to issue a regulation on fleet noise levels.

Responding to the EPA-proposed rulemakings on retrofit and fleet noise levels, FAA, as required by the Noise Control Act, issued NPRMs on February 20, 1975. Public hearings were held in March and April 1975. Based on comments on these NPRMs, FAA may now issue a regulation requiring fleet noise levels.

4. Supersonic transports--EPA's proposal on supersonic transports was sent to FAA in February 1975; it was issued by FAA as an NPRM on March 25, 1975. The proposal would limit the noise levels of future supersonic transports, either U.S. or foreign manufactured, to the maximum levels established for subsonic airplanes. The proposal would not apply to existing supersonic aircraft but it would apply to newly manufactured aircraft of existing designs.

FAA issued an ANPRM on August 4, 1970, on supersonic transport noise certification standards. Based on the comments received, FAA developed a draft NPRM in November 1972 which was never issued. At the time of EPA's proposal (in February 1975), FAA was developing a similar NPRM separately addressing current and future supersonic transports. Further work on this NPRM has been deferred pending comments on EPA's NPRM and FAA's evaluation of the comments. The comment period closed May 30, 1975.

5. Reduced allowable noise levels--EPA plans to propose lowering the noise levels now allowed for aircraft under the various noise regulations on the basis of recent technological advances. FAA has had a similar regulatory project underway since 1972. As of June 1975 FAA had drafted and was nearly ready to issue an NPRM which would recognize technological advances that allow reduced noise levels below those originally required by the regulations.

6. Approach and landing--EPA plans to propose that two new runway approach procedures be required, as appropriate for each runway, to minimize noise to nearby communities. They are:

Reduced flap settings--flaps normally are used to decrease the aircraft speed on approaches; however, use of flaps requires additional engine power (and increased noise) to compensate for the drag caused by flaps. EPA's proposal would require pilots to use reduced flap settings except when needed for safety.

Two segment approach--rather than approaching a runway at the current 3° glide slope, the two-segment approach would require an approach slope of 6° until about 3 miles from the runway when the 3° approach would be used. This would result in the aircraft being at a higher altitude over part of the approach, thereby reducing noise at ground level. EPA estimated that this would provide up to a 17 decibel noise reduction, depending on the type of aircraft and its approach altitude.

FAA issued an ANPRM on March 20, 1974, for a two-segment instrument landing system approach. As of June 1975, FAA was evaluating two-segment approach test results and expects to make a decision on further rulemaking in June 1975.

7. Takeoff--EPA plans to propose that individual airports or runways be categorized according to their effects on nearby communities, as follows:

Sideline noise sensitive--long, narrow airports where the main noise problem occurs in communities along the sides of the airport.

Near down range sensitive--airports with communities near the ends of the runways which are exposed to maximum noise immediately after takeoff.

Far down range sensitive--airports with communities farther away from the ends of runways that are exposed to noise during the aircraft's climb.

EPA is considering three different takeoff procedures, as appropriate for each runway, to minimize the noise level in the noise sensitive communities. For example, at near down range sensitive airports the procedures would call for reduced engine power shortly after takeoff while at far down range sensitive airports aircraft controls would be set to gain altitude as quickly as possible.

FAA began developing regulations in 1972 which resulted in a January 1974 advisory circular entitled "Recommended Noise Abatement Takeoff and Departure Procedures for Civil Turbojet Powered Aircraft." The advisory circular stated that the joint FAA/Air Transport Association "get-em-high earlier" program had proven effective in reducing aircraft noise at ground level. It recommended airplane speed and flap settings for 3 takeoff segments--takeoff to 1,500 feet above field level, 1,500 feet to 3,000 feet, and 3,000 feet to 10,000 feet.

FAA now plans to issue a regulation incorporating the procedures recommended by the advisory circular and possibly other noise abatement procedures, such as power reduction shortly after takeoff.

8. Short haul aircraft--EPA plans to submit proposed regulations requiring noise standards for aircraft capable of vertical, short, or reduced takeoff and landing. The lengths of runways being considered are: 1,000 feet for vertical, 2,000 feet for short, and 4,000 feet for reduced.

FAA issued an ANPRM in December 1973 which proposed noise standards for short haul aircraft. Based on the comments received to the ANPRM, FAA plans to issue NPRMs for noise standards applicable to helicopters and propeller-driven, large, short-takeoff-and-landing aircraft.

9. Airport operations noise control--EPA is obtaining data on the noise levels generated at airports to determine what can be done to decrease noise or its impact on the surrounding area.

EPA plans to propose guidelines under which airports would be granted noise certificates. Although FAA has no similar rulemaking underway, it is studying airport noise reduction policies such as curfews.

COMMENTS ON FAA'S PROPOSED REGULATIONS ON RETROFIT AND FLEET NOISE REQUIREMENTS

At the time of our review in March 1975, FAA had received and reviewed public comments on its proposed regulations for retrofit and fleet noise. Public comments on EPA proposed regulations were not complete at that time.

A summary of the 1,192 comments received by FAA on its proposed regulations follows.

International aviation

International aviation interests expressed concern over FAA's unilateral development of regulations that would affect foreign airlines and generally stated that the development of noise regulations should be internationally coordinated. Their comments, 14 on retrofit and 37 on fleet noise requirements, included the following:

1. Retrofitting is an international question and should be tackled at that level, with coordination and application of retrofitting regulations through the International Civil Aviation Organization. There are economic and technological differences between affected countries and what might be economically reasonable for the United States might not be so for other countries.
2. Fleet flexibility will necessitate retrofitting a higher number of aircraft than the number actually required to service U.S. airports.
3. Some absorption material will not provide a meaningful noise level reduction.
4. Studies are needed to determine the reduction in noise exposure that will produce a significant change in community reaction. Additional studies are needed on retrofit, other alternatives, and compliance time. Compliance, as proposed, may not be possible due to the unavailability of retrofit kits; it should be increased to 5 years.
5. The benefits to be derived from retrofitting existing aircraft are transient since these aircraft will shortly be retired from service. The cost to retrofit existing aircraft would delay the introduction of newer, quieter aircraft.

U.S. airlines

Comments were submitted by the Air Transport Association and five individual airlines. Their comments, one on retrofit and eight on fleet noise requirements, included the following:

1. Actions should be taken, but data as to how much noise reduction is required to provide meaningful relief does not seem to be available. Until such data is provided, cost-benefit analyses cannot be made.
2. Retrofitting which fails to provide meaningful relief may actually discourage the development of civil aeronautics because it will slow the purchase of newer, quieter aircraft. Also, FAA may soon require another method.

3. Retrofitting will increase costs and impose performance penalties.
4. Tradeoffs should be permitted; i.e., a greater than required noise decrease at one measuring point should be credited against the decrease required at another point, such as sideline and takeoff.
5. The compliance dates should be changed.
6. Pure turbojet engines should not be covered by this regulation since retrofit of these engines is not possible at this time.

The Air Transport Association estimated that retrofitting the 1980 fleet of aircraft would cost in excess of \$500 million (in 1974 dollars) and that inflation and unanticipated technological problems could increase this cost to \$1 billion. The Association also stated that more ground area is exposed to noise during an aircraft's takeoff but retrofit would result in greater noise reduction during an aircraft's landing. Therefore, according to the Association, the largest number of people exposed to aircraft noise would be given little relief.

U.S. aircraft manufacturers

Comments, three on retrofit and four on fleet noise requirements, were submitted by the Aerospace Industries Association, the General Aviation Manufacturers Association, and three individual aircraft manufacturers. The Aerospace Industries Association's comments included the following:

1. The necessary studies and information required to determine if the modification will produce meaningful noise reductions have not been done. Also, retrofit requirements should be agreed on internationally.
2. Worldwide compliance dates should be moved to 1980 for aircraft powered with Pratt and Whitney JT8D engines and 1983 for those powered with JT3D engines.
3. The cost of retrofitting the U.S. fleet could be about \$1 billion. The airlines could not support this burden from operating revenues. Users and the general public should help finance retrofit.

4. Land use and flight operating procedures near airports should be studied.

In addition to agreeing with the Association's comments, aircraft manufacturers had the following comments:

1. Sound absorption material retrofit is equivalent to refan retrofit in reducing landing noise. Sound absorption material plus modified take-off procedures are nearly equivalent to refan plus modified take-off procedures in reducing noise.
2. The Boeing Commercial Aircraft Company estimated the costs of retrofit kits, exclusive of installation, to be about \$800,000 for a 707 aircraft, \$10,000 to \$80,000 for a 727, and \$48,000 to \$135,000 for a 737.
3. FAA should cancel its proposed regulation and pursue more meaningful approaches to the airport community noise problem.

The General Aviation Manufacturers Association expressed concern that the proposed rulemaking might affect general aviation aircraft even though it appeared directed toward commercial aircraft.

Congressmen

Thirty-one members of Congress submitted 14 comments on retrofit and 20 comments on fleet noise requirements.

Their comments favoring the proposed regulations included the following:

1. Further delay in promulgation of the regulations could not be justified if FAA is to comply with the 1972 Noise Control Act. Quick action is requested. The potential benefits from the refan program do not justify the additional delay.
2. Sound absorption materials would provide meaningful relief.
3. The cost of retrofit could be financed by both a user tax and the Airport and Airways Trust Fund.
4. Promulgation of the proposed retrofit regulation would not prevent the use of refan technology when it becomes available.

Their comments against the proposed regulations included the following:

1. The sound absorption materials are of questionable value in terms of the relief they will provide the public.
2. The adoption of a retrofit regulation should be delayed until the refan program is completed. Consideration must be given to applying technology which will reduce aircraft noise to the lowest possible level.
3. The proposed retrofit regulation would preclude the application of other technologies which may provide far greater benefit.
4. The problem of financing the cost of retrofitting remains unresolved.

Citizen groups

Comments were submitted by a labor union, homeowner groups, schools, civic clubs, environmental groups, and community associations. Their comments, 34 on retrofit and 21 on fleet noise requirements, included the following:

1. Retrofitting is an absolute necessity for the health and welfare of people on the ground. Intolerable noise levels prohibit recreation, relaxation, sleep, and conversation.
2. It would be very difficult for a major airport and the surrounding community to coexist unless steps are taken to reduce noise at the source.
3. Financing could be achieved through passenger taxes, airline tax incentives, or low-interest loans.
4. An environmental group believed that the proposed regulation on fleet noise was not sufficient to guarantee adequate noise relief.

Private citizens

Private citizens submitted 840 comments--325 on retrofit and 515 on fleet noise requirements--which generally favored the proposed regulations. The majority of the comments were from citizens living near the following airports: Hollywood-Burbank, Los Angeles International, San Diego

International, Chicago O'Hare, and New York La Guardia. The private citizens' comments were as follows:

1. All aspects of life are negatively affected by aircraft noise.
2. The noise levels have increased over the years.
3. Concern was expressed over the extent and direction of the FAA effort.
4. Payment of the retrofit costs should fall on the airlines and airline travelers.
5. Action must be taken soon.

Several citizens suggested that airports should be removed from residential areas and that airplanes should fly at higher altitudes around airports.

State, county, and city agencies

Comments submitted by state, county, and city agencies generally favored retrofit or similar actions. Their comments, 59 on retrofit and 18 on fleet noise requirements, included the following:

1. Fifteen cities adopted resolutions supporting the proposed retrofit regulation.
2. Technical and economic studies have shown that the retrofit program is feasible and that the benefits to the community outweigh the cost of retrofitting.
3. Airlines and local economies depend on air transportation. In order for air facilities to expand to meet community needs, the aircraft noise problem must be resolved.
4. Aircraft noise has increased over the years and adversely affects community life, property values, and health.
5. The airlines and/or airline travelers should pay for the retrofit program.

U.S. airport operators

Comments, 8 on retrofit and 40 on fleet noise requirements, were submitted by the Airport Operators Council

International, the American Association of Airport Executives, the National Association of State Aviation Officials, the California Association of Airport Executives, and 35 individual airport operators.

The Airport Operators Council International stated that airplanes powered by Pratt and Whitney JT3D-type jet engines equipped with sound absorption material provide important, perceptible, beneficial relief by reducing by more than one-half the noise near major jet airports. The Council said retrofit of all JT3D- and JT8D-type jet engines--costing about \$600 to \$800 million--would provide noise reductions of up to 15 EPNdBs. Twenty-five airport operators endorsed the Council's position.

Other comments were as follows:

1. A retrofit program should be implemented immediately for those aircraft for which technological feasibility has been shown. If it is not, the economic consequences will be much greater.
2. Foreign carriers must be included since the airports having the most serious noise problems are those serving foreign carriers.
3. Additional research would only serve to prolong compliance times and is not needed; 5 years ago successful retrofit testing was completed. Also, sound absorption materials should be used over refan since the technology is currently available.
4. Financing options should be worked out after the regulation is promulgated. Suggestions included a ticket surcharge or a federal loan.

Federal agencies

Comments to the retrofit proposal were submitted by the National Academy of Sciences and the National Transportation Safety Board. Comments on the fleet noise proposal were submitted by the Department of State, EPA, the Department of Commerce, and the Civil Aeronautics Board. Their comments included the following:

1. The National Academy of Sciences completed a study in 1971 which included a recommendation that FAA require all aircraft to be retrofitted by 1975.

2. The National Transportation Safety Board favored retrofitting because it believed retrofitting was inherently safer than noise abatement operating procedures such as climbout power reductions.
3. The Department of State expressed concern about the possible proliferation of conflicting standards affecting international civil aviation.
4. EPA stated that the proposed regulation on fleet noise requirements was a step in the right direction.
5. The Department of Commerce recommended that the compliance dates be extended and that a cost-benefit analysis be performed before the regulation on fleet noise is adopted. They questioned if the 0 to 15 decibels of noise reduction expected was sufficient to warrant the cost of \$130,000 to \$800,000 an aircraft.
6. The Civil Aeronautics Board stated that the air carrier industry was incapable of financing the retrofit program and that FAA should consider requiring noise abatement operating procedures instead of fleet noise levels.

Private aircraft owners and operators

Comments were submitted by the Aircraft Owners and Pilots Association, the National Business Aircraft Association, and several corporate aircraft owners. Their comments, one on retrofit and nine on fleet noise requirements, included the following:

1. There are no assurances that retrofit would provide appreciable relief.
2. The expense of retrofit would delay the retirement of existing aircraft and, in effect, retard the aircraft noise abatement program.
3. There should be no action until refan results are known.
4. Action is needed now or the resulting backlash could retard growth of air transportation.

5. Public funds, such as the Aviation Trust Fund, should not be used. Retrofit could be financed through accelerated tax deductions to the industry.
6. The use of revised aircraft operating procedures to reduce noise should be increased.
7. Aircraft that nearly meet the noise standard regulation should not be required to retrofit.

Nonaviation U.S. industries

Comments on the proposed retrofit regulation were submitted by 10 nonaviation U.S. industries, such as a land developer, a natural gas company, and a home products company. They were either (1) against retrofit or against retrofit of a specific model of aircraft or (2) in favor of retrofit because it would help their business in some manner.

Airline pilots

The Air Line Pilots Association, in commenting on retrofit and fleet noise requirements, stated that it supported any program which reduced noise at its source. The Association said that operational procedures, although economically attractive, would not solve the problem and were only marginally safe. The Association also said that if FAA had required retrofitting earlier costs would have been lower and that FAA should explore methods of financing the cost of retrofitting.

Aircraft lessor

In commenting on the proposed fleet noise requirement regulation, the National Aircraft Leasing Company stated that the proposed regulation would destroy its competitiveness in leasing jet aircraft. National Aircraft also said the differences in the noise levels between aircraft weighing over and under 75,000 pounds were infinitesimal.

AIRCRAFT AIR EMISSION REGULATIONS

The Clean Air Amendments of 1970 required EPA to develop aircraft emission standards and required FAA to prescribe and enforce regulations to insure compliance with EPA's standards. In response to the Act, in July 1973, EPA issued standards for many classes of aircraft and aircraft engines and FAA issued the required regulations in 1973 and 1974. EPA has also issued three proposed amendments to its standards, none of which have been adopted.

The July 1973 standards specified smoke and emission criteria for new and in-use aircraft and aircraft engines (except wide-bodied and supersonic aircraft) and specified effective dates ranging from 1974 to 1981. The standards were coordinated with FAA to insure consideration of aviation safety.

In December 1972, EPA issued an ANPRM to obtain information on the implications of modifying ground operations of aircraft to control emissions. The result of the ANPRM was a joint study by EPA, FAA, the Air Transport Association, and the Air Line Pilots Association. EPA plans no further rulemaking action because FAA has authority over ground operation procedures and has acted on the results of the study, as described below.

On July 6, 1973, EPA issued an NPRM proposing to amend the emission standards to include emission standards for new and in-use engines of wide-bodied aircraft beginning January 1, 1983. The comments received in response to the NPRM disclosed that additional research was needed. As a result, additional rulemaking has been postponed until EPA's research efforts are completed.

EPA issued an NPRM on July 9, 1974, proposing emission standards for newly manufactured engines used in supersonic aircraft beginning January 1, 1979. EPA has drafted a final regulation which is expected to be issued in September 1975.

FAA issued a regulation on "Compliance with Aircraft Emission Standards Issued by EPA" on December 26, 1973, which outlined the acceptable means of complying with the EPA standards. This regulation was effective February 1, 1974. On December 23, 1974, the regulation was amended to require compliance with the EPA standards that went into effect January 1, 1975.

FAA issued an advisory circular entitled "Ground Operational Procedures for Aircraft Engine Emission Reduction and Fuel Conservation" on March 12, 1974. This circular was the outcome of EPA's ANPRM on this subject and a subsequent joint EPA, FAA, and industry study. The circular recommended taxiing and ground idle procedures but FAA has no plans to incorporate the procedures into its regulations.

Prior to the Clean Air Amendments of 1970, FAA issued (in March 1970) an ANPRM entitled "Aircraft Engine Emissions." Because the Clean Air Amendments gave EPA the responsibility for developing these standards, FAA did not promulgate a regulation.

FAA MEETINGS WITH THE PUBLIC

The majority of meetings held by 10 high-level FAA officials with the public during 1974 were with representatives of aviation industries and airlines. Few meetings were held with consumer groups.

In January 1975 we requested records on the 1974 meeting with the public by the FAA Administrator, Deputy Administrator, six Associate Administrators, and Directors of the Flight Standards Service and the Airports Service. Five of the FAA officials provided records of meetings held; for the remaining five such records were not maintained or had been discarded. These officials, however, provided information based on their recollections.

It is probable that some of the meetings listed below for individual officials were also attended by one or more other FAA officials; however, the records reviewed and information obtained did not disclose completely the extent of such meetings attended by one or more FAA officials.

Administrator and Deputy Administrator

The Administrator and Deputy Administrator did not maintain records showing their attendance at meetings with the public. In response to our inquiry, they said that their attendance at any such meeting would have been in conjunction with an Associate Administrator whose records should have indicated their attendance.

Available records showed that the Administrator or Deputy Administrator attended 3 meetings with Associate Administrators. FAA officials told us that the Administrator or Deputy Administrator was also present at 14 other meetings with the public.

Associate Administrator for Aviation Safety

The position of Associate Administrator for Aviation Safety was established in June 1974. In response to our inquiry, the Associate Administrator said that he had no meetings with the public during the 6-month period ended December 31, 1974.

Associate Administrator for Administration

The Associate Administrator for Administration had occasional meetings with representatives of the aviation industry which were of a courtesy call nature, but records of these meetings were not maintained.

Associate Administrator for
Engineering and Development

Detailed records of meetings held in 1974 had been discarded at the time of our January 1975 inquiry, but the Associate Administrator for Engineering and Development estimated that he had 20 meetings in 1974--5 office meetings with industry representatives and 15 speaking engagements and industry-sponsored functions.

Associate Administrator for
Air Traffic and Airway Facilities

The position of Associate Administrator for Air Traffic and Airway Facilities was established in June 1974 and partially replaced the position of Associate Administrator for Operations, which was abolished. During 1974 both of these positions were held by the current Associate Administrator for Air Traffic and Airway Facilities, who had 88 meetings with the following groups:

Aviation industries	45
Airlines	11
Airport operators	3
Foreign aviation interests	13
Pilots/pilot associations	3
Aircraft owners/operators	6
City/county officials	-
Consumer groups	-
Others (consultants, news media, schools, etc.)	7
Total	<u>88</u>

Director of Flight Standards Service

During 1974 the Director, Flight Standards Service, had 90 meetings with the following groups:

Aviation industries	39
Airlines	18
Airport operators	2
Foreign aviation interests	9
Pilots/pilot associations	10
Aircraft owners/operators	2
City/county officials	-
Consumer groups	-
Others	10
Total	<u>90</u>

Associate Administrator for
Airports/Director of Airports Service

The position of Associate Administrator for Airports was established in June 1974. Before June the Associate Administrator had served as the Director of Airports Service under the Associate Administrator for Operations. During 1974 this individual held approximately 29 meetings as the Director of Airports Service and 41 meetings as both the Director of Airports Service and Acting Associate Administrator for Airports. The meetings were as follows:

Aviation industries	13
Airlines	3
Airport operators	24
Foreign aviation interests	3
Pilots/pilot associations	1
Aircraft owners/operators	1
City/county officials	13
Consumer groups	3
Others	9
Total	<u>70</u>

Associate Administrator for
Policy Development and Review

During 1974 the Associate Administrator for Policy Development and Review held 79 meetings with the following groups:

Aviation industries	29
Airlines	10
Airport operators	8
Foreign aviation interests	4
Pilots/pilot associations	4
Aircraft owners/operators	6
City/county officials	-
Consumer groups	1
Others	17
Total	<u>79</u>