



**U.S. House of Representatives
Committee on Transportation and Infrastructure**

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Washington, DC 20515

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SUMMARY OF SUBJECT MATTER

TO: Members of the Subcommittee on Aviation
FROM: Subcommittee on Aviation Staff
SUBJECT: Hearing on "Aviation and the Environment: Noise"

PURPOSE OF HEARING

The Subcommittee on Aviation will meet on Wednesday, October 24, 2007, at 11:00 a.m., in room 2167 of the Rayburn House Office Building, to receive testimony regarding airport noise issues.

BACKGROUND

Over the last 20 years, air travel in the U.S. has grown faster than any other mode of transportation. The Federal Aviation Administration ("FAA") forecasts that airlines are expected to carry more than one billion passengers by 2015, increasing from approximately 744 million in 2006. With an increase in passenger traffic, there has been an increase in delays. The first eight months of 2007 accounted for the worst delays on record with almost 28 percent – a total of 1.39 million flights – delayed, cancelled or diverted.

According to the FAA, new runways and runway extensions provide the most significant capacity increases. Since fiscal year 2000, 13 new runways have opened at the FAA's 35 critical Operational Evolution Partnership ("OEP") airports providing the airports with the potential to accommodate 1.6 million more annual operations and decrease average delay per operation at these airports by about 5 minutes.

Looking forward, eight OEP Airports have airfield projects (three new runways, two airfield reconfigurations, one runway extension, one end around taxiway, one centerfield taxiway) under construction. These projects will be commissioned through 2012 providing these airports with the potential to accommodate about 400,000 more annual operations and significantly reducing runway crossings. Ten other projects at OEP airports (three airfield reconfigurations, three runway extensions, and four new runways) are in the planning or environmental review stage.

However, despite this progress, the U.S. still faces obstacles in trying to expand our airport capacity through infrastructure improvements. This is because aircraft noise, or the shifting of that noise, generates controversy with airport neighbors and communities. Many of our airports are adjacent to residential neighborhoods and residential communities have often been developed around airports that were once far removed from city centers. In some cases, local governments have not engaged in any meaningful zoning or land-use planning. Accordingly, aircraft noise is an airport capacity issue.

Advanced technology, new operational procedures, and land use measures have all contributed to noise reductions at airports, with advanced technology playing a primary role. In 1990, the Airport Noise and Capacity Act was enacted, which required the transition to quieter aircraft (so-called stage 3) by December 31, 1999 for aircraft 75,000 pounds or more.¹ According to the FAA, jets today are 75 percent quieter (20 decibels) than early jets. The transition to stage 3 aircraft has had the most impact in reducing aviation noise. The FAA states that there has been over a 90 percent reduction in the number of people affected by aircraft noise in the U.S. between 1975 and 2005. In July 2005, the FAA finalized a rule that requires manufacturers submitting an application for a new airplane type design, on and after January 1, 2006, to meet stage 4 noise standards, which will be cumulatively 10 decibels quieter than stage 3.²

Since 1990, the U.S. government has spent approximately \$600 million on research to reduce commercial aviation source noise, with approximately \$34 million of the \$600 million funded by the FAA, and the rest provided by the National Aeronautics and Space Administration (“NASA”). In addition, the FAA has spent approximately \$40 million on research to characterize noise and improve prediction methods, including work to develop a capability to determine tradeoffs between noise and emissions and quantifying cost and benefits of various mitigation strategies. In May 2006, NASA’s Aeronautic Mission Directorate restructured its research and development (“R&D”) to focus on primarily fundamental research. This change also affected its R&D relationship with the FAA by decreasing the technical maturity of the research it provides to the FAA. The FAA will need to bridge this “technology gap” by increasing its own R&D budget.³ The FAA, as part of the core activities of its Next Generation Air Transportation System, plans on pursuing significant research on environmental issues, including accelerating development of promising aircraft engine and technologies to reduce noise and emissions. Plans also include research to develop low noise operational procedures and efforts to enable environmental management systems that allow active noise control⁴

However, according to the Government Accountability Office (“GAO”), despite the progress that new technology has had on decreasing aircraft noise, the “expected growth in air traffic may limit the net reduction in overall noise levels generated by individual airports.”⁵ The FAA echoed this sentiment in a 2004 Report to Congress, stating that the “environmental impact of aircraft noise is projected to remain roughly constant in the United States for the next several years and then increase as air travel growth outpaces expected technological and operational advancements.”⁶ More recently, the

¹ Airport Noise and Capacity Act, P.L. 101-508 (1990) (codified at 49 U.S.C. § 47521 et. seq.) (“ANCA”). ANCA also established a process governing airport noise and access restrictions for stage 2 and stage 3 aircraft. FAA administers this program under its regulations at 14 C.F.R. part 161.

² 70 Fed. Reg. 38,724 (2005).

³ H.R. 2881, the FAA Reauthorization Act of 2007, provides \$1.8 billion over four years for the FAA’s Research, Engineering and Development account.

⁴ FAA, *2008-2012 Flight Plan, Charting the Path for the Next Generation* (2007) (“FAA 2008 Flight Plan”) at 9, 36.

⁵ GAO, *Aviation and the Environment* (GAO/RCED-00-98, April 2000) (“GAO 2000 Report”) at 8.

⁶ FAA, *Aviation and the Environment, A National Vision Statement, Framework for Goals and Recommended Actions*, Report to Congress (December 2004) (“FAA 2004 Report”) at 14.

FAA stated that preliminary analysis by its Joint Planning Development Office demonstrates that “noise and emissions could increase between 140-200 percent over the next 20 years, becoming a significant constraint on planned capacity increases.”⁷ The FAA believes there is no way to meet this aggressive goal without new technologies and operations. Over the next five years, the FAA’s goal is to reduce the number of people exposed to significant noise by four percent per year through fiscal year 2012,⁸ and that in fiscal year 2007, approximately 18,600 people in noise impacted areas will be the beneficiaries of noise compatibility projects funded by the Airport Improvement Program.

I. FAA Noise Programs

a. How is Noise Measured?

The take off and landing of aircraft generates the majority of airport-related noise. The analysis of airport noise is based on community reaction to aircraft noise and the likelihood that people will be annoyed. Supplemental analysis is sometimes performed to evaluate other potential effects such as speech interference, sleep disturbance, and learning interruptions. The FAA measures noise exposure based on a yearly day-night average sound level (“DNL”) produced by flight operations, which is measured in decibels.⁹ A DNL takes into account both the frequency of events as well as the noise level of each event. The DNL also gives a greater weight to flights taking off at night between the hours of 10 p.m. and 7 a.m., such that each flight taking off between those times is counted as 10 daytime takeoffs or landings. If the average cumulative airport-related noise level is at or above a DNL level of 65 decibels, the FAA has determined that the noise from an airport has a significant adverse impact on the community exposed to this level.¹⁰

b. Regulatory Programs

FAA’s statutory authority for providing federal funding of noise compatibility projects is derived from the Aviation Safety and Noise Abatement Act of 1979, and is administered through its regulations at 14 C.F.R. part 150 (hereinafter referred to as the “part 150 program”). Participation in the part 150 program enables an airport operator to receive Airport Improvement Program (“AIP”) funding from the funds set aside for noise projects, often referred to as the “noise set-aside.” Under current law, 35 percent of AIP discretionary funding, or approximately \$300 million per year, is set aside for such noise projects.¹¹

However, there are a few exceptions from the requirement that an airport must participate in the part 150 program as a pre-requisite for receiving AIP noise set-aside funds. For example, the FAA may provide AIP noise grant funds to an airport operator without a part 150 program for: insulation of public buildings that are used primarily for educational or medical purposes; noise mitigation projects at congested airports that are part of an environmental record of decision (“ROD”); as well as noise mitigation projects as part of an airport development project where there is an environmental finding (in an environmental assessment, finding of no significant impact, or ROD), and the mitigation is

⁷ FAA 2008 Flight Plan at 28.

⁸ *Id.* at 36.

⁹ This method of measuring noise was adopted by the FAA from the U.S. Environmental Protection Agency in response to the Aviation Safety and Noise Abatement Act of 1979 (49 U.S.C. §47501 et seq.); the Act also required the FAA to develop a single system for measuring aircraft noise that has a reliable relationship between noise exposure and reactions of people to that noise and can be applied uniformly at airports and surrounding communities.

¹⁰ See generally 14 C.F.R. part 150, Appendix A, Table 1 (2007).

¹¹ See 49 U.S.C. § 47117(e). The Airport Improvement Program funds projects for new and improved facilities at airports, including runways, taxiways, terminal buildings, land acquisition, and noise abatement.

required to allow the development project to go forward.¹² In addition, until the recent sunset of its authority on September 30, 2007, the FAA could provide funding to a state or local jurisdiction for noise planning grants under certain circumstances, as described in subsection (c) below.¹³

Under the FAA's part 150 program, an airport operator may submit a noise exposure map¹⁴ and a noise compatibility program ("NCP") to the FAA for review. An airport's development of a part 150 NCP must be conducted in consultation with local governments and affected communities, airport users and the FAA itself. After the submission of a NCP to the FAA, the agency has 180 days to approve or disapprove recommendations in the NCP, or it is automatically approved by law, with the exception of proposed changes to flight procedures.¹⁵ If the NCP is approved, the projects that involve FAA actions to implement, including changes in flight procedures and approval of AIP funding for eligible measures, must go through an environmental review process under the National Environmental Policy Act of 1969.

An airport's NCP sets forth the measures that the operator has taken, or proposes to take, to reduce existing incompatible land uses and prevent the introduction of new incompatible land uses at the airport in areas covered by the noise exposure map. While local authorities are ultimately responsible for determining land use compatibility, federal land use guidelines describe uses such as homes, schools, and hospitals as incompatible where noise exposure is at or above a DNL level of 65 decibels, while other uses including certain commercial and manufacturing activities are considered compatible above a DNL level of 65 decibels.

Some of the types of projects that the FAA funds under the part 150 program include: soundproofing (such as by insulating a home, replacing doors, windows, and perhaps adding central air conditioning); acquiring homes and relocating the residents to comparable housing elsewhere; and soundproofing schools or medical facilities. However, since October 1, 1998, the FAA has restricted approval of noise remediation measures (e.g., for sound insulation, acquisition, and relocation) for new non-compatible land uses in an effort to discourage additional non-compatible construction. In such circumstances, the FAA limits such funding to preventative measures only, such as zoning, subdivision regulation, building codes, and similar land use and or building controls.¹⁶

Importantly, an airport operator is not required to participate in the part 150 program; rather it is voluntary. Some airports may choose not to avail themselves of the part 150 program for reasons including: an airport may have a long-standing noise program that is essentially equivalent to, but predates, the part 150 program, so the undertaking of part 150 program may be redundant; the cost of conducting the study itself (for a large airport, the costs can exceed \$1 million); numerous incompatible land uses surround the airport such that land use mitigation would be cost prohibitive, dampening interest in accessing the AIP noise-set aside via part 150; and the use of alternative funding methods for noise mitigation (e.g., passenger facility charges, AIP funding for schools and medical facilities, local bonding). Moreover, conducting a part 150 study does not guarantee that better solutions will be reached or that all mitigation projects proposed by an airport or community will actually be funded by

¹² See 49 U.S.C. §§ 47504(c)(2)(D); 47504(c)(2)(E); and 47110(b)(1).

¹³ H.R. 2881, the FAA Reauthorization Act of 2007, would extend this authority until 2011.

¹⁴ A noise exposure map identifies an airport's present and future noise patterns, including non-compatible uses in the area of the airport and serves as a standard reference to the airport's existing and future noise impacts for proposed development near an airport.

¹⁵ 49 U.S.C. § 47504 (b). Flight procedures generally must be reviewed for safety and efficiency prior to being implemented, and therefore are not subject to the 180 approval deadline.

¹⁶ See 63 Fed. Reg. 16,409 (1998).

the FAA. To date, only 17 of the top 50 busiest airports have not submitted a part 150 study.¹⁷ The FAA states that by the end of 2007, 271 airport sponsors will have taken part in the noise planning process and, of these, 237 have first-time approved NCPs. The FAA also has approved 88 updates to these NCPs.

Unlike the AIP program, airports seeking to fund noise mitigation projects through the Passenger Facility Charge (“PFC”) program do not need to have an approved part 150 NCP. Airports can generally use PFCs to pay for the types of noise mitigation projects that are eligible under AIP and the part 150 program, as well as project financing costs. In addition, airports have more flexibility under the PFC program to set their own priorities for which noise-related projects they will fund, subject to FAA approval.¹⁸ However, unlike the AIP program, airports seeking to impose a new PFC charge for noise mitigation, as well as any other project, must get approval from the FAA, and must consult with airlines serving that airport, and any comments the airport receives from the airlines must be addressed in its application for PFC collection.

c. Land Use Planning

Current law recognizes that:

It is in the public interest to recognize the effects of airport capacity expansion projects on aircraft noise. Efforts to increase capacity through any means can have an impact on surrounding communities. *Non-compatible land uses around airports must be reduced* and efforts to mitigate noise must be given a high priority.¹⁹ [emphasis added]

State and local governments (including airport proprietors) are responsible for determining appropriate land uses around airport property and for interpreting the effect of noise contours upon those lands. In 1998, the FAA embarked on a Compatible Land Use Planning Initiative to help state and local governments achieve and maintain compatible land uses around airports to mitigate the effects of airport-related noise, including preparing guidance and sharing information.

However, in its 2004 Report, the FAA stated that “while federal and industry investments can be applied to reduce aircraft noise, it is local authorities that control land use decisions near airports” and that “while some communities have taken active roles in addressing land use issues near airports . . . a disconnect remains between federal aviation policy and local land-use decision-making.”²⁰

In 2003, the FAA was given the statutory authority to issue AIP grants for land compatibility planning to state or local governments if they are located near a large- or medium-hub airport that does not have a current part 150 NCP or if the NCP is over 10 years old.²¹ To date, the FAA has issued two noise planning grants to the following communities: \$750,000 to Des Plaines, Illinois (outside of

¹⁷ The 17 airports include: Boston Logan International; Chicago O’Hare International; Dallas/Fort Worth International; Dallas Love Field; Denver International; Washington Dulles International; Gillespie Field (San Diego, CA); Houston-David Wayne Hooks; Houston-George Bush Intercontinental; John F. Kennedy International (NY); John Wayne (Orange County, CA); LaGuardia (NY); Miami International; Newark International; Phoenix Deer Valley; Phoenix Mesa Gateway; and Van Nuys (CA).

¹⁸ GAO 2000 Report at 34.

¹⁹ 49 U.S.C. 47101(c).

²⁰ FAA 2004 Report at 14.

²¹ 49 U.S.C. § 47141.

Chicago O'Hare) and \$300,000 to San Mateo, California (near San Francisco International).²² However, that authority expired in September 2007; H.R. 2881 extends this authority until 2011.

II. Funding for Noise Mitigation

Airport operators may use either AIP or PFC funds for noise related projects, including acquiring homes and relocating people, soundproofing homes and other buildings, and constructing noise barriers. Noise projects are 80 percent eligible under AIP for large- and medium-hub airports, and 95 percent eligible at small, non-hub, general aviation and reliever airports. As noted above, 35 percent of AIP discretionary funding, or approximately \$300 million per year, is set aside for noise projects each year. In addition, noise projects are 100 percent eligible under the PFC program, including the local AIP match.

In 2007, the FAA issued 12 AIP grants and one PFC approval for new or updated noise studies at a cost of approximately \$6.1 million, and 70 grants for noise compatibility mitigation, totaling \$290 million. PFC collections in 2006 for noise planning and mitigation was approximately \$34 million.

Since 1982, the U.S. has issued \$5 billion in AIP grants and approved the imposition of \$2.8 billion in PFC revenue for noise mitigation measures, such as soundproofing schools, homes, and churches located near airport property, as well as on land purchases and relocation assistance.

A breakdown of the AIP monies spent on noise mitigation measures since 1982 is set forth below.

AIP National Noise Data FY 1982-2007	Total
Mitigation Measures for Residences	\$1,902,897,204
Land Acquisition	\$2,170,069,384
Noise Monitoring System	\$170,466,264
Mitigation Measures for Public Bldg.	\$702,619,381
Noise Compatibility Plan	\$86,779,196
Total	\$5,032,831,429

Source: FAA, 2007

A break down of the PFC monies collected for noise mitigation measures since 1992 is set forth below.

PFC National Noise Data FY 1992-2007	Total
Multiphase noise projects	\$1,282,997,018
Land Acquisition	\$480,995,096
Soundproofing	\$1,018,054,010
Monitoring	\$30,955,390
Planning	\$14,793,986
Other	\$11,272,000
Total	\$2,839,067,500

Source: FAA, 2007

²² FAA, *Airport Improvement Program, Fiscal Year 2006, 23rd Annual Report of Accomplishments*, Report to Congress (August 2007) at 58.

III. H.R. 2881, the FAA Reauthorization Act

H.R. 2881, which passed the House on September 20, 2007, includes several provisions related to noise mitigation and land use initiatives. Section 132 allows airport operators to reinvest the proceeds from the sale of land that an airport acquired for a noise compatibility purpose, but no longer needs for that purpose -- giving priority, in descending order, to the following: reinvestment in another noise compatibility project at the airport; reinvestment in another environmentally related project at the airport; reinvestment in another otherwise eligible AIP project at the airport; transfer to another public airport for a noise compatibility project; and finally, payment to the Airport and Airways Trust Fund.

Sections 503 and 504 allow the FAA to accept funds from airport sponsors to conduct special environmental studies for ongoing federally funded airport projects, or studies to support approved airport noise compatibility measures or environmental mitigation commitments, or to hire staff or obtain services to provide environmental reviews for new flight procedures that have been approved for airport noise compatibility planning purposes.

Section 505, the CLEEN engine and airframe technology partnership, directs the FAA, in coordination with NASA, to enter into a 10-year cooperative agreement with an institution, entity, or eligible consortium to carry out the development, maturing, and certification of continuous lower energy, emissions and noise engine and airframe technology, including aircraft technology that reduces noise levels by 10 decibels at each of the three certification points relative to 1997 subsonic jet aircraft technology.

Section 506 phases out all civil subsonic jet stage 2 aircraft less than 75,000 pounds in the 48 contiguous states within five years. Section 507, the Environmental Mitigation Pilot Program, funds six projects at public-use airports to take promising environmental research concepts into the actual airport environment to demonstrate measurable reductions of aviation impacts on noise, air quality or water quality.

In addition, section 818, the Redevelopment of Airport Noise Properties Pilot Program, provides new tools to encourage airport compatible redevelopment of noise impacted properties adjacent to airports to ensure joint comprehensive land use planning.

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