

History of Airport Noise Abatement

Scott Skramstad
Aviation Noise Program Specialist
Metropolitan Airports Commission
June 2002

Introduction

In the early days of commercial aviation, communities close to an airport were not greatly affected by the occasional prop aircraft overflight. The problem of aircraft noise became increasingly apparent with the beginning of the jet age in the late 1960's and early 1970's. The Deregulation Act of 1978 intensified the issue of airport noise. The act allowed for a more competitive environment between air carriers and the routes that they served. The increased competition brought better and more affordable services, an increase in demand, and an increase in jet noise.

Aircraft Noise Abatement - National Perspective

As air travel expanded, residents living in close proximity to the nation's airports became increasingly concerned. Citizens began to form activist groups and take action against local policy makers and airport operators. With the increasing concerns, complaints and environmental awareness, the airport noise issue became a serious problem between the airports, airlines, and the residents living close to the nation's airports.

From a national perspective, aircraft noise became a concern in 1970 when federal agencies began studying the problem and developing planning guidelines. The National Environmental Policy Act of 1969 (NEPA) was the first act of federal legislation that required airport operators to study and analyze aircraft noise impacts before undertaking major development or improvement projects. For airport operators to gain approval for major projects they had to develop an Environmental Impact Statement (EIS) that outlined the potential noise impacts of any proposed project on residents surrounding the airport.

Shortly after the NEPA was passed, the Department of Transportation (DOT) and the Federal Aviation Administration (FAA) adopted the Aviation Noise Abatement Policy (ANAP). The ANAP clearly identified aircraft noise responsibilities for the FAA, air carriers, airport operators, and local jurisdictions.

The ANAP identified airport noise as a local problem. The act stated that airport operators were responsible for dealing with citizen complaints. Shortly thereafter, airport operators became the targets of many airport noise lawsuits.

On the other hand, the ANAP stated that the FAA would be responsible for reducing aircraft noise from the source. The FAA could accomplish this initiative by developing and approving safe and feasible operational procedures that would help minimize the impact of aircraft noise. The FAA was also responsible for promoting and encouraging efforts that would help attain more responsible and compatible land uses around the nation's airports. In addition, the FAA could develop more stringent aircraft noise standards and implement a retirement schedule for noisy aircraft.

The airlines' main responsibility under the ANAP was to effectively retire, replace or retrofit older aircraft that were not compliant with current federal noise standards. In

addition, airlines were responsible for attempting to identify ways to conduct aircraft operations in a manner that would result in a minimal amount of impact to nearby residents.

Finally, the ANAP made a clear distinction for residents and prospective residents in the communities surrounding the airport. The act stated that residents living next to airports are responsible for seeking to understand the issue of airport noise and what steps could be taken to minimize its effect on people. The ANAP also stated that residents and prospective residents should be aware of the possible effects of aircraft noise and how it can affect their quality of life.

Noise Abatement Legislative Acts

After ANAP was passed, the first order of business for the FAA to help reduce noise impacts from the source came with the passing of Federal Aviation Regulation (FAR) Part 36 (Certificated Airplane Noise Levels). The purpose of FAR Part 36 was to establish noise certification standards for new turbojet and transport category aircraft. With Part 36, the FAA was able to mandate changes in turbojet noise emissions. The main focus of Part 36 was to encourage modification of engine designs that would provide a higher bypass ratio and reduce aircraft noise emissions from the aircraft engine(s).

In addition to Part 36, the FAA revised FAR Part 91 (General Operating Flight Rules) to include a schedule of removing all Stage I aircraft operating in the United States by 1975. (Stage I aircraft were the noisiest aircraft with older engine technologies).

Another major development was the passage of the Airport Safety and Noise Abatement Act of 1979 (ASNA). Through ASNA, Congress directed the FAA to establish a process for addressing airport noise and land use compatibility around the nation's airports. ASNA led to the promulgation of FAR Part 150 (Airport Noise and Land Use Compatibility Planning), which was adopted by the FAA in January 1985.

Part 150 essentially provides a means for airports to accomplish comprehensive noise reduction goals. Part 150 is a federal program appropriating aviation-generated funds for the purpose of aircraft noise mitigation and land use measures in communities surrounding an airport. Through the development of Noise Exposure Maps (NEM) and Noise Compatibility Programs (NCP), communities, airport officials, and local governing bodies are encouraged to work together in a good faith effort to develop realistic noise reduction solutions and make the areas surrounding an airport more compatible with aircraft operations.

The next major airport noise legislation came with the passing of the Airport Noise and Capacity Act of 1990. ANCA established a uniform policy, at a national level, to expedite the retirement of the Stage 2 fleet of aircraft (Stage 2 aircraft are considered noisier than Stage 3 aircraft) and transition to an all Stage 3 fleet by January 1, 2000. Additionally, during the passage of ANCA a congressional investigation determined the

following key points:

- Aviation noise management is crucial for continued increase in airport capacity
- Community noise concerns have led to uncoordinated and inconsistent restrictions on aviation that could impede the national air transportation system
- A noise policy must be carried out at the national level
- Local interests in aviation noise management should be considered in determining the national interest
- Community concerns can be addressed through the use of new technology aircraft and the use of revenues, including those available from passenger facility charges (PFCs) for noise management
- Revenues controlled by the United States government can help resolve noise problems and carry with them a responsibility to the national airport system
- Revenues derived from a PFC may be applied to noise management and increased airport capacity
- A precondition to the establishment and collection of PFCs are prescribed by the Secretary of Transportation in a regulation establishing procedures for reviewing airport noise and access restrictions on operations of Stage 2 and Stage 3 aircraft

As a result of congressional findings, the ANCA revised FAR Part 91 to include the provision that no civil subsonic turbojet aircraft weighing more than 75,000 pounds may be operated within the 48 contiguous states after January 1, 2000 unless it was shown to comply with the Stage 3 noise standards of FAR Part 36.

Additionally, the ANCA initiated a national program for reviewing airport noise and access restrictions. In 1991, the FAA adopted FAR Part 161 (Notice and Approval of Airport Noise and Access Restrictions) as a result of a new National Noise Policy (NNP). Part 161 outlines a stringent and lengthy process that airport operators must undergo to impose a noise or access restriction on aircraft that already comply with the new Part 36 noise standard. Part 161 requires an airport operator, when considering a Stage 3 aircraft noise or access restriction, to hold public hearings, gather documentation related to the restriction, provide public notice of the restriction, conduct an environmental assessment and perform an analysis to assess whether six specific conditions for approval have been met. The six conditions are as follows:

- The usual tests for reasonableness and non-discrimination
- Any undue burden on interstate or foreign commerce
- Safe and efficient use of the navigation airspace
- Lack of conflict with federal statutes or regulations
- Adequate opportunity for public review and comment
- Any undue burden on the national aviation system

The new NNP in conjunction with Part 161 strives to seek a balance between addressing the noise concerns of residents living close to the airports and the concerns of the airlines. Since the airlines were required to make a substantial investment to comply with the new Stage 3 noise standard, they were concerned that even after the transformation to an all

Stage 3 fleet, communities and airport operators may attempt to further reduce noise emissions by restricting Stage 3 operations. Part 161 places severe limits on the ability of an airport operator to place restrictions on aircraft that comply with the new Stage 3 noise standard.

Aircraft Noise Abatement - Local Perspective

The issue of aircraft noise has been a major concern for the residents of the Twin Cities metropolitan region for many years. Year after year, the MAC receives thousands of aircraft noise complaints from the Noise Complaint and Information Hotline and the Internet Noise Complaint web site. By the mid-1960s, as communities grew and air travel expanded, aircraft noise surfaced as a major community concern. In 1968, 400 people crowded into a Minneapolis city council meeting to demand passage of a proposed ordinance that would prohibit aircraft from flying over the city. Other communities also held public hearings and threatened the MAC with lawsuits if the issue of aircraft noise was not immediately addressed. MAC realized that the issue of aircraft noise needed to be addressed and successful noise abatement, would require a variety of people, both inside and outside the organization.

MAC's first initiative to address aircraft noise was the formation of a noise abatement group called the Metropolitan Aircraft Sound Abatement Council (MASAC). MASAC was a nonprofit organization that was comprised of an equal number of community representatives and aviation industry representatives. MASAC was responsible for a number of significant contributions for the alleviation of aircraft noise impacts around the region. In addition to MASAC's efforts, MAC has invested millions of dollars and countless hours of staff time to address the issue of aircraft noise. Listed below are some of the efforts the MAC has undertaken to address aircraft noise:

- Part 150 – MAC has implemented one of the most comprehensive Part 150 programs in the United States. One of the most significant portion of MSP's Part 150 programs is the Residential Sound Insulation Program. Since 1992, MAC has insulated approximately 7,000 homes at a total cost of over \$200 million. This program has made the areas most impacted by aircraft noise more compatible with residential living. MAC has also implemented several Part 150 Noise Mitigation and Land Use Measures to help minimize the adverse effects of aircraft noise.
- Airport Noise and Operations Monitoring System (ANOMS) - The ANOMS system at MSP is one of the largest in the country. This system collects noise data from 39 Remote Monitoring Towers (RMTs) located around MSP, in addition to flight track data from the FAA's radar located on the airport. ANOMS was installed at MSP in 1991 and 1992 at total cost of \$1 million. ANOMS provides an objective tool for assessing and analyzing airport noise impacts and airspace utilization.

- Differential Global Positioning System (DGPS) – DGPS is a state-of-the-art satellite technology that may enable precision navigation and curved/segmented approaches to a runway. DGPS technology, when more fully operational and prevalent within the National Airspace System, can offer worthwhile improvements to the noise exposure environment around MSP.
- Public Information Program – In an effort to inform the public of aircraft noise and land-use compatibility issues, the MAC has established a proactive public information program. Through the use of the Internet, public meetings, and a quarterly newsletter, MAC helps inform current and prospective residents of aircraft noise issues and how aircraft operations may affect their quality of life. In addition, the public information program provides guidance for communities in the development of planning and building guidelines, which can potentially thwart future noise compatibility issues.

Summary

The airport noise issue continues to be a topic of concern for airport operators, airport users, and residents living close to airports. The issue is very complex and requires a multi-dimensional approach to developing and implementing feasible solutions.. It has become imperative for airports to work cooperatively with community and aviation representatives to help minimize the effect of aircraft operations. In order for airport operators to acquire much needed facility and capacity enhancements, they will need to continue working side by side with all affected parties to explore new and innovative ways to address the issue.