



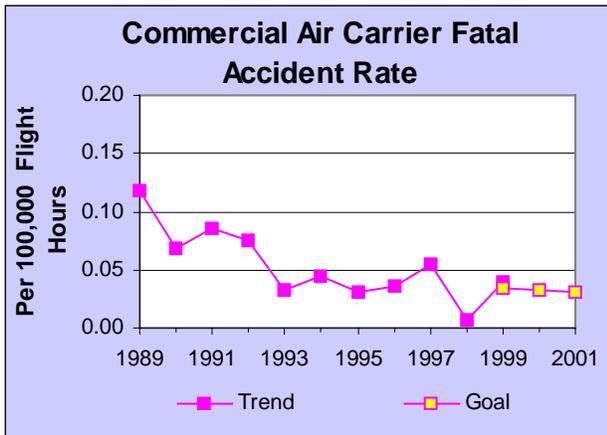
## MAJOR PROGRAM PERFORMANCE

### AIR

In the program performance area of air transportation, commercial air carrier fatal accident rates dropped off significantly as did exposure to aircraft noise. Concurrently, improvements were made in the areas of runway pavement conditions and international aviation growth.

#### SAFETY

#### AIR CARRIER FATAL ACCIDENT RATE



**Performance Measure:** Number of aviation accidents (U.S. commercial air carriers) per 100,000 flight hours.

2001 Goal: .043 per 100,000 departures

2000 Goal: .033

1999 Goal: .034

1999 Performance: .040

Commercial aviation is one of the safest forms of transportation. But when passengers board an airplane, they give up personal control and face an

unfamiliar risk. While fairly rare, aviation accidents can have catastrophic consequences, with large loss of life. The public demands a high standard of safety, and expects continued improvement.

In absolute terms, the fatal accident rate in commercial aviation is very low. One of the primary reasons for this is the use of jet aircraft. Since the introduction of jet transports into commercial aviation in the late 1950s, they have proven to be safer and more reliable than propeller driven aircraft. The expanded use of small jet aircraft in the scheduled regional segment of the industry appears to be contributing to the marked safety improvements in that segment, as well. Technological and procedural improvements have also contributed to a lower accident rate.

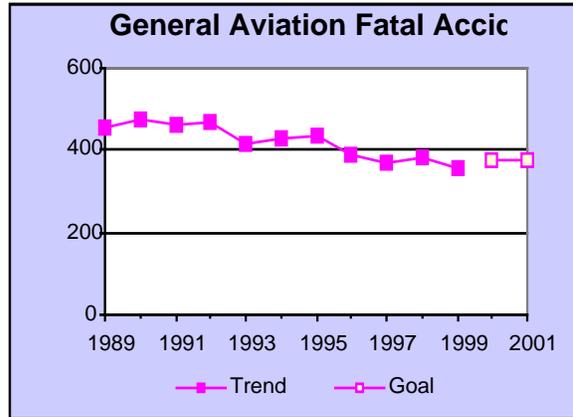
The air carriers fatal accident rate for calendar year 1999 was .040 per 100,000 flight hours, missing the goal of .034 by .006. There were two major-carrier fatal accidents, one of which involved passengers. Of the five commuter fatal accidents, two involved passengers. Four of them occurred in Alaska, one of which involved passengers on-board. The seven air carrier fatal accidents resulted in 24 fatalities.

To achieve the long-range goals, the FAA and its partners need to focus their efforts on those casual factors that contribute to the majority of fatal accidents. FAA’s “Safer Skies” effort in the commercial aviation area includes the following six accident categories: controlled flight into terrain, loss of control, uncontained engine failure, runway incursion, approaches and landings and weather. While having little immediate impact on fatal accident rates year-to-year, identifying and implementing corrective actions in these areas will positively impact the fatal accident rate in the future. In 1999, under the Safer Skies Agenda, FAA and its partners completed selection and prioritization, and began implementation of high pay-off interventions for the areas of uncontained engine failure and controlled flight into terrain. Casual analysis for approach and landing were completed and recommended strategies for interventions submitted for review by the joint government-private sector team. All initiatives relating to cabin safety were completed as planned.

FAA has also revised guidance (including rules and advisory circulars) in such areas as fuel tank safety; aging aircraft non-structural systems; aircraft performance and handling in icing conditions; terrain awareness and warning system; aircraft powerplant; crashworthiness; and, structures.

In the area of industry oversight, continued refinements have been made in both inspection resources targeting and automated systems designed to support aviation safety oversight of operations.

**GENERAL AVIATION FATAL ACCIDENTS**



<b>Performance Measure:</b> Number of fatal general aviation accidents.
2001 Goal: 379
2000 Goal: 379
1999 Goal: N/A
1999 Performance: 354

Aviation accidents overall have caused about 1,000 deaths a year in recent years, with the majority of these in General Aviation (GA), which for the purpose of this performance goal includes On-Demand Air Taxi. These public, private and corporate aircraft provide a wide range of services — like crop dusting, fire fighting, law enforcement, news coverage, sightseeing, industrial work and corporate transportation — in addition to personal and recreational flying. GA is an important element of the U.S. transportation system and the U.S. economy.

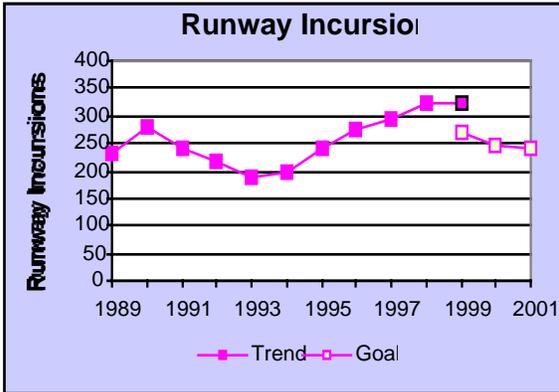
General aviation comprises a diverse set of aviation activities and includes all segments of the aviation industry except commercial air carriers and the military. The activities conducted are extensive and varied, including student training, business and corporate travel, air shows, aircraft and component manufacturing and maintenance, personal and recreational flying and the host of businesses, technologies, research, airports and services that support flight operation. Aircraft range from single-seat homebuilt aircraft, rotorcraft and balloons to highly sophisticated extended-range turbojets. Some elements of general aviation operate in hazardous environments, such as agricultural application, external-load operations, fire fighting and power line patrol. The level of risk is inherently higher for these elements.

In 1999, there were 354 general aviation fatal accidents, 29 fewer than in 1998. Since 1988, there has been a gradual trend downward in the number of general aviation accidents although on a year-to-year basis, progress has not been smooth.

Major recent interventions, which we believe are having a positive effect on the current fatal accident decline in general aviation, include:

- Development of a number of products in the FAA's Aviation Safety Program, e.g., decision-making training aids, personal minimums checklist video and CD-ROM, water survival video and a GA pilot education program with the Aircraft Owners and Pilots Association (AOPA) Air Safety Foundation and General Aviation Manufacturers Association (GAMA) on runway incursions.
- FAA's Aviation Safety Program has also launched an educational campaign to increase the use and installation of seat belts/shoulder harnesses in GA aircraft.
- Over the past five years, the AOPA Air Safety Foundation has conducted over 1,200 safety seminars, disseminating critical safety information through these seminars and on its web site. It has distributed hundreds of thousands of safety advisories on topics of weather and decision making.
- FAA published Advisory Circular, 23.1309-C, *Equipment, Systems and Installations in Part 23 Airplanes*, and 23.1311-1A, *Installation of Electronic Display in Part 23 Airplanes*. These advisory circulars will allow for more realistic reliability standards for general aviation airplanes and will also allow for new, less expensive avionics to be installed in the general aviation fleet. This will help to reduce the "loss of situational awareness" and weather accidents.
- The FAA signed agreements with contractors for Flight Information Services Data Link systems. These systems will enable pilots to receive text, graphical weather and other national airspace information directly into the cockpit display. This unique government and industry partnership will greatly improve information availability for pilots, thereby enhancing flight safety.

**RUNWAY INCURSIONS**



<b>Performance Measure:</b> Number of runway incursions.
2001 Goal: 243
2000 Goal: 248
1999 Goal: 270
1999 Performance: 321

Runway incursions create dangerous situations that can lead to serious accidents. A runway incursion occurs when an aircraft, ground vehicle or person occupies or crosses a runway that is in active use for takeoffs or landings. The largest aviation disaster in history, at Tenerife, resulted from a runway incursion. Reducing the number of runway incursions will lessen the probability of accidents that potentially involve fatalities, injuries and significant property damage.

Growth in airport operations has increased an average of 3.5 percent per year from 1996 through 1998, and the same rate of increase continued in 1999. With increased operations, the risk of incursions increases. Runway incursions are most likely to occur at complex, high

volume airports. These airports typically have multiple parallel or intersecting runways; multiple taxiway and runway intersections; complex traffic patterns; and the need for vehicular and aircraft traffic to cross active runways.

The 1999 runway incursion target was not met. However, it is worth noting that while operations increased, runway incursions did not. In fact, the number of runway incursions actually declined slightly from 325 for 1998 to 321 in 1999. This was the first year runway incursions have not increased since 1993.

The issue of runway incursions is complex and involves performance and human factors issues associated with pilots, controllers and vehicle operators. While a number of new initiatives were implemented in 1999, most will take several years to show measurable results. As initiatives mature, we expect to see the number of runway incursions decreasing at a faster pace. Runway incursions have decreased six of the last seven months compared to the previous year.

The three leading causal factors for runway incursions continue to be pilot/controller communications, lack of familiarity with an airport and lack of situational awareness.

Pilot/controller communication problems generally result from misunderstood control instructions. In numerous incidents, pilots proceeded onto or crossed an active runway even after acknowledging controller-issued hold short instructions. Pilots are encouraged through mass mailings, aviation articles

and seminars on tower operations, to read back runway hold short instructions verbatim.

Additionally, controllers' ability to hear and confirm proper read-back of hold short instructions is being improved through the use of mandatory computer-based instruction courses. Controllers are also mandated to perform monthly refresher training on surface safety related topics.

Pilot lack of familiarity with an airport including airport signage, markings and lighting; runway exiting procedures; and taxi procedures is another significant factor in runway incursions. In 1999, the Runway Safety Program, in conjunction with AOPA, posted digitized airport diagrams on the Internet. Pilots are encouraged to download and review airport/taxi diagrams prior to departing. In addition, standardized Taxi Routes are being implemented at select airports.

A large percentage of runway incursions are also attributed to a lack of situational awareness by controllers, pilots, vehicle operators and pedestrians. FAA implemented education and training initiatives designed specifically to increase the level of situational awareness of all individuals associated with airport operations. Additionally, the FAA has drafted an Advisory Circular (AC) on standardized cockpit procedures for airport surface operations.

Technological initiatives to improve airport ground operations, such as Airport Movement Area Safety System (AMASS), Global Positioning System (GPS) and Automated Dependent Surveillance Broadcast (ADS-B), are in various stages of development and

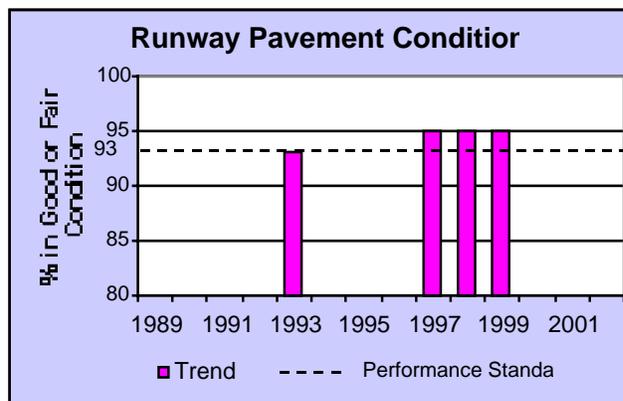
testing for potential acquisition and implementation.

Implementation of "Now Strategies" (near-term runway incursion reduction initiatives) is on-course with 16 of 18 established initiatives completed. Examples of "Now Strategies" include mandatory monthly air traffic management-airport operator meetings at the top 20 airports and runway incursion prevention training for controllers.

National Runway Incursion Action Team (RIAT) visits were conducted at 20 airports. Regional RIATs were conducted at seven additional locations.

**MOBILITY**

**RUNWAY PAVEMENT CONDITIONS**



**Performance Measure:** Percent of runways in good or fair condition (commercial service, reliever and selected general aviation airports).

2001 Goal: 93

2000 Goal: 93

1999 Goal: 93

1999 Performance: 95

Deteriorated airport runway pavement can damage propellers, turbines and airplane landing gear. Proper design, construction and maintenance can slow this deterioration, but runways still need complete rehabilitation every 15 to 20 years. This means that during a typical year, five to seven percent of runways require rehabilitation. Federal airport funding helps achieve this necessary level of rehabilitation, and — combined with proper maintenance — helps keep runway condition at or above the minimum level needed to ensure efficient airport operation. Runway rehabilitation is among the highest priorities of FAA's Airport Improvement Program (AIP), but projects must be initiated by airport operators who pay a portion of the cost. The availability of grants for rehabilitation may detract from regular maintenance programs, which are usually funded entirely by the airport operator.

The goal of maintaining over 93 percent of runway pavement in good or fair condition was met in 1999. Ninety-five percent of the runways at airports included in the National Plan of Integrated Airport Systems (NPIAS) were reported in good or fair condition. At NPIAS airports with commercial service, 98 percent of runways were in good or fair condition.

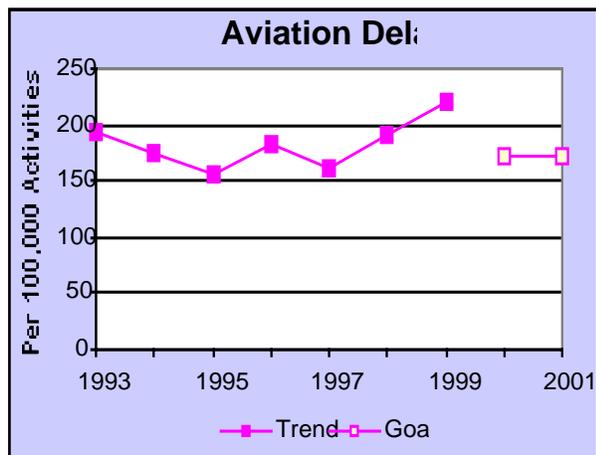
State aviation agencies made increasing use of computer-based pavement management systems to predict when pavement maintenance and rehabilitation are needed and most likely to be cost effective. These measures enhance the effectiveness of State and Federal expenditures on airfield pavement.

The National Pavement Test Facility was completed at the William J. Hughes Technical Center. This will enable FAA to conduct full-scale tests of aircraft landing gear configurations on test pavement sections to obtain data to improve pavement design and construction.

In FY 1999 the FAA issued 210 grants for about \$297 million to help rehabilitate runways. In addition, a three-year Pavement Maintenance Pilot Program involving six States was completed. Under this program, about \$1.2 million in AIP funds were used to pay for routine pavement maintenance at 52 non-primary airports. This program was the first under AIP to participate in costs other than capital planning and development. It focused on lower activity airports that might otherwise have been unable to pay for cost effective preventative maintenance. The pilot program was successful, and the FAA proposed legislation for a permanent program.

External factors influencing this goal in 1999 include air carrier flight operations at commercial service airports, which have increased by five percent over the past five years. More frequent operations can increase wear on runway pavement and shorten the time predicted between construction and rehabilitation.

**AVIATION DELAY**



**Performance Measure:** Aviation delays per 100,000 activities.

2001 Goal: 171

2000 Goal: 171

1999 Goal: #

1999 Performance: 219.8

# The measure for Aviation Delay was changed after 1999 to include all causes of delay, including weather.

Commercial aviation delays are estimated to cost the airlines over three billion dollars a year. Passengers are directly affected by the inconvenience of delays in terms of missed flight connections, missed business meetings and loss of personal time. There are approximately 20 congested airports, each with an estimated average annual delay of over 20,000 hours. With demand for passenger travel increasing each year, delays throughout the system are projected to increase.

Due to the air traffic density and the amount of adverse weather, capacity constraints at large hub airports lead to delays throughout the National Airspace System (NAS). As traffic increases further throughout the system, delays are likely to increase. Consequently, maintaining the current delay rate represents a significant accomplishment.

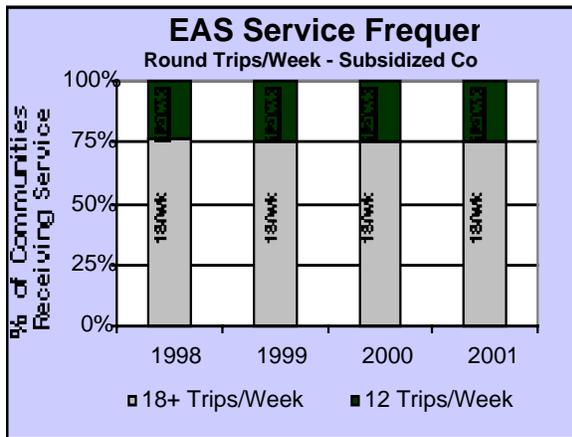
In FY 1999, the rate of volume and equipment-related delays was 30.37 per 100,000 flight activities, which exceeded the FAA goal of 30.70 or less. However, when weather delays are included, the rate of aviation delays per 100,000 activities increased to 220 from about 200 in 1998.

The 1999 results follow a multi-year trend of generally diminishing volume and equipment delays. Equipment delays have increased, but when combined with volume, there is an overall decrease. These results may be due to a number of FAA initiatives. The Air Traffic Control System Command Center (ATCSCC) has placed increased emphasis on honoring commitments to aircraft, helping to eliminate the practice of "no notice holding." Collaborative Decision Making (CDM) was begun in 1997 and continues to be used in ground delay programs. The National Operations Control Center (NOCC) located within the ATCSCC was established in January 1999. The NOCC collaborates daily with Traffic Management to ensure NAS equipment services are available for use. A primary focus of NOCC is delay mitigation when the issue is FAA equipment. The increased dissemination, within 24 hours, of written maintenance alert information contributes to reduced equipment delays by preventing similar events that stem from a common cause.

Some of the decrease in volume and equipment delay may also be attributed to a change in the method for reporting volume-related delays in 1997 which reclassified some volume delays as weather delays. The change to a new performance measure in FY 2000, which includes all causes of delay including weather, will eliminate problems related to misclassification.

Most aviation delay and variance in delay is the result of weather. In FY 1999, bad weather accounted for about 69 percent of all delays. This is a 13 percent increase over 1998. While FAA initiatives to improve weather prediction and flight routing can serve both to improve safety and to reduce delays, the FAA's ability to manage weather delays is more limited, and aviation safety will always be the foremost concern in air traffic control.

**ESSENTIAL AIR SERVICE (EAS)**



**Performance Measure:** Percentage of subsidized communities with at least two round trips/day, six days/week (12 round trips/week).

2001 Goal: 100

2000 Goal: 100

1999 Goal: 100

1999 Performance: 100

**Performance Measure:** Percent of subsidized communities with at least three round trips/day, six days/week (18 round trips/week).

2001 Goal: 75

2000 Goal: 75

1999 Goal: 75

1999 Performance: 78

An important aspect of the 1978 deregulation of the airline industry was establishing an EAS program to guarantee over 700 eligible communities at least some minimum level of continuous air service. Under the EAS program, the Department subsidizes an air carrier to provide scheduled air service only if no carrier is willing to provide the service subsidy-free. Presently, 102 communities in the continental U.S., Hawaii, Puerto Rico, the U.S. territories (non-Alaska) and Alaska receive subsidies. Service needs at the 27 Alaskan communities are unique and are determined on a

case-by-case basis to include cargo as well as passenger. This makes these more difficult to measure. Therefore, the performance measures shown pertain to only non-Alaskan communities.

The backbone of the EAS program for the past decade has been pressurized 19-seat aircraft. For a number of reasons, this aircraft size is being phased out of many airlines' fleets and is being replaced with larger, more costly aircraft. The increasing cost of both aviation fuel and labor will challenge our ability to subsidize three round trips/day, six days/week at 75 percent of the subsidized communities. Labor unrest can also prevent goal achievement.

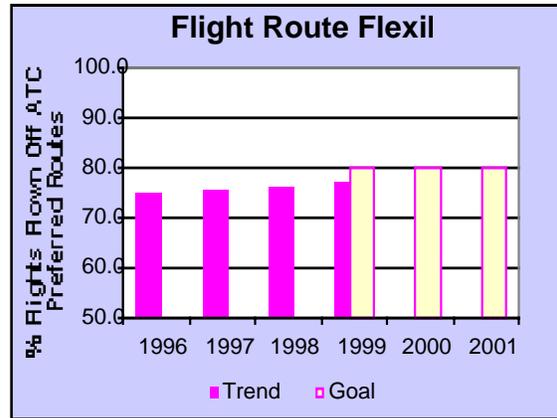
Seventy-five communities received subsidized air service out of the 500 plus non-Alaskan eligible communities. All 75 communities received at least two round trips/day, six days/week. In addition, 56 of those received at least three round trips/day, six days/week. Airlines tell us that more than two round trips/day are needed to maintain a viable market. Thus DOT met its goal of having 75 percent of the subsidized communities receive the higher lever of service. In addition to excluding the 27 Alaskan communities, this 1999 performance data also excludes three non-Alaskan communities whose unique service frequency needs and geographic situation were addressed individually.

In FY 1999, out of the EAS program's \$50 million annual budget, contracts totaling \$45 million were entered into with air carriers to provide essential air service at 102 communities in the U.S. and its territories. Beyond just subsidizing service, DOT also aggressively contacted other carriers to

alert them to the market opportunity opening up whenever an existing carrier reduced or eliminated service to an eligible community.

**ECONOMIC GROWTH AND TRADE**

**FLIGHT ROUTE FLEXIBILITY**



**Performance Measure:**

Percentage of flights that aircraft are able to fly off ATC-preferred routes.

2000 Goal: 80

1999 Goal: 80

1999 Performance: 77.4

Many of the most heavily traveled routes in the national airspace system have published air traffic control (ATC) preferred routes, which are based on flying from one navigational aid to another to ensure accuracy in navigation. These routes are designed to minimize conflicts in congested airspace, and they are an especially important tool in helping air traffic controllers organize

traffic flow around major airports. However, these routes can differ significantly from the routes that pilots or flight planners would normally propose between two cities. Pilots and flight planners desire the capability to optimize their operations based on their own objectives and constraints, which vary flight-by-flight and user-by-user. By allowing aircraft to fly the most direct routes, or choose other indirect routes to avoid weather, there can be time and cost savings or smoother flights that avoid turbulence. Enhanced automation aids now being developed facilitate the use of more direct routes.

Growth in aviation increases the complexity of air traffic control, making it difficult to allow unrestricted flight in all areas of the system. The goal of the program is to increase system flexibility as much as possible without interfering with safety.

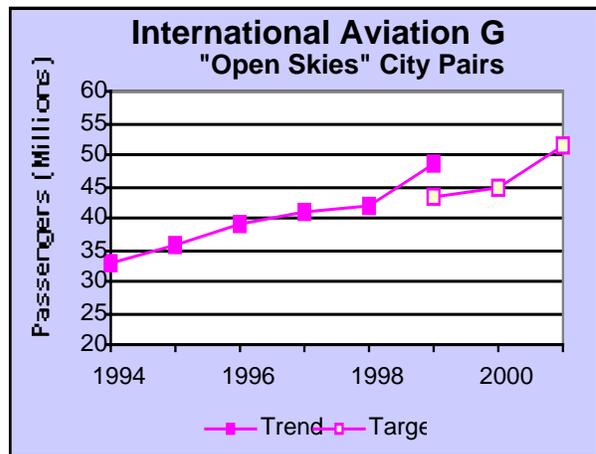
In FY 1999, 77.4 percent of flights were not subject to ATC preferred routes, falling just short of the FAA goal of 80 percent. However, this is a slight improvement over FY 1998 (76.2 percent).

The aim of not assigning preferred routes is to give increased flexibility to aircraft, which may translate into improved scheduling efficiency and reduced flight miles. The action of not assigning or eliminating preferred routes does not automatically make a contribution to the goal of aviation efficiency. It does provide flexibility to the industry and the potential for improved efficiency in certain situations. The impact of the elimination of an ATC preferred route depends on the amount of traffic between the associated city

pair. The impact increases as the amount of air traffic between the associated city pair increases. Air traffic activities grew at a rate of four percent from 1998 to 1999.

In FY 1999, FAA eliminated 170 published routes. There was a small saving in distance flown from eliminating two of the Special High Altitude routes. Other initiatives that have partially supported the goal of increased flexibility are the North American Route Program (NRP) and the Departure Procedures (DP)/Standard Terminal Arrival Route (STAR) program. The NRP allows filing of more efficient routes unimpeded by the Preferred Route system, which begins 200 miles from the departure and ends 200 miles from the arrival destination. DP/STAR expands the utilization of the NRP by establishing procedures that increase ingress and egress points for aircraft operators transitioning to NRP. DP/STAR provides significant benefit to both the air traffic system and system users in some of the most heavily traveled airspace around the major metropolitan areas.

### INTERNATIONAL AIR SERVICE



**Performance Measure:** Number of passengers (in millions) in international markets with open aviation agreements.

2001 Goal: 51.6  
 2000 Goal: 44.7  
 1999 Goal: 43.4  
 1999 Performance: 48.6

Since the 1940s, international air transportation has been subject to restrictive bilateral agreements which raise prices and artificially suppress aviation growth. DOT's policy is to open international air travel to market forces and remove these bilateral limitations on the freedom of U.S. and foreign airlines to increase service, lower fares and promote economic growth. DOT does this through "Open Skies" agreements. These agreements permit unrestricted air service by authorized airlines of both countries to, from and beyond the territory of each country, eliminating restrictions on how often carriers can fly, the kind of aircraft they can use and the prices they can charge. These agreements benefit travelers throughout the world as well as the general economics of the U.S. and other nations.

Agreements to foster greater access are negotiated on a nation by nation basis, and must balance conflicting interests. Negotiating agreements and achieving passenger growth goals may be influenced by the strength of the world's economy and by regional economic cycles.

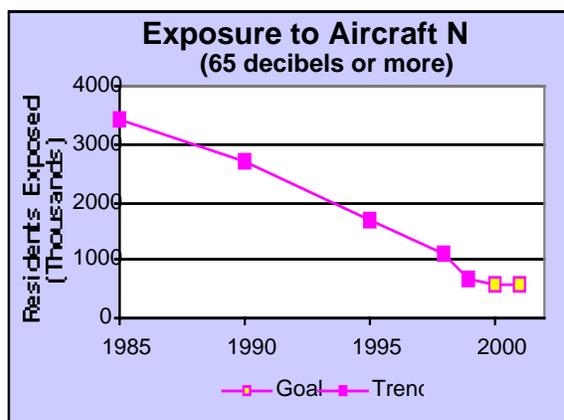
The FY 1999 goal of having 43.4 million passengers in international markets with

open aviation agreements was exceeded by 5.2 million.

In FY 1999, DOT added five new "Open Skies" agreements with Italy, Pakistan, the United Arab Emirates, Bahrain and Argentina. Thirty-six nations around the globe now have agreed to "Open Skies" with the United States. In addition, the U.S. has an open "transborder" agreement with Canada.

**HUMAN AND NATURAL ENVIRONMENT**

**AIRCRAFT NOISE EXPOSURE**



**Performance Measure:** Number of people (in thousands) who are exposed to significant noise levels (65 decibels or more).

2001 Goal: 600  
 2000 Goal: 600  
 1999 Goal: 680  
 1999 Performance: 680

Public concern and sensitivity to aircraft noise around airports is high. This aircraft noise is an undesired by-product

of our mobility, and the government acts to reduce the public's exposure to unreasonable noise levels.

Much of the recent progress has been achieved by legislatively mandated transition of airplane fleets to newer-generation aircraft that will produce less noise. Most of the gains from this change will be achieved by FY 2000. The Airport Noise and Capacity Act (ANCA) of 1990 set December 31, 1999 as the deadline for elimination of Stage 2 (older, noisier) aircraft weighing more than 75,000 pounds. Growth in aviation activity also works against easy progress.

The projections and rate of population reduction are the result of the phaseout of older, noisier airplanes, Stage 2. Since the phaseout occurred on schedule and is now 100 percent complete, the numeric goal is being met. In the future, FAA will report on results using a new, more accurate methodology to assess the number of people exposed to significant levels of aircraft noise around airports. The model development is being done in conjunction with the Committee on Aviation Environmental Protection (CAEP) under the International Civil Aviation Organization (ICAO).

At the end of 1998, airplanes that met the most stringent FAA noise standard (Stage 3 airplanes) comprised 86.9 percent of the total fleet of large civil subsonic turbojet airplanes, compared to an estimated 45 percent in 1990 when Congress enacted ANCA. After December 31, 1999, all civil jet airplanes over 75,000 pounds and operating in the contiguous U.S. met the Stage 3 noise standard.

Population growth, shifting population density, urban development around airports and increasing flight activity have all impacted our ability to meet this goal. These factors have generally increased the numbers of people potentially exposed to aircraft noise. A positive factor in lowering noise exposure has been aircraft fleet recapitalization within the industry.

Activities in 1999 included funding for noise reduction activities such as soundproofing of residences and buildings used for educational or medical purposes in the vicinity of airports, the purchase of buffer zones around airports and noise reduction planning.

FAA also monitored the annual Stage 2 phase out compliance plans of the airlines and produced an annual report to Congress on the progress.