

FAA-APO-99-5

**FAA LONG-RANGE  
AEROSPACE FORECASTS  
FISCAL YEARS  
2015, 2020 AND 2025**

**OFFICE OF  
AVIATION POLICY AND PLANS**

**JUNE 1999**

# FAA LONG-RANGE AEROSPACE FORECASTS FISCAL YEARS 2015, 2020 AND 2025

## **I. SUMMARY**

To assure consistency in agency planning, the Office of Aviation Policy and Plans provides an extension of its annual 12-year forecasts of aviation demand. Although forecast values are shown for specific years, it must be recognized that year-to-year fluctuations are difficult to forecast precisely. Therefore, the projections reflect the trend of average conditions expected during the forecast period.

The Federal Aviation Administration's (FAA) annual 12-year forecast is utilized for both manpower and facility planning as well as for policy and regulatory analysis. The latest 12-year forecast (FAA-APO-99-1, FAA Aerospace Forecasts: Fiscal Years 1999-2010, March 1999) provides projections of aviation activity and FAA workload measures through the year 2010. Periodically, a need arises for projections of aviation demand and activity beyond the published horizon. This document was developed to meet these needs, and contains projections for aircraft fleet and hours, air carrier and regional/commuter passenger enplanements, pilots, and FAA workload measures for the years 2015, 2020 and 2025.

The economic assumptions used in developing these extended forecasts are:

- o slower economic growth relative to the immediate 12-year period (2.0 percent versus 2.3 percent annually);
- o moderately higher increases in inflation (3.0 versus 2.3 percent annually);
- o declining real fuel prices (down 0.5 annually compared to an increase of 0.5 percent annually); and
- o relatively small increases in long-term interest rates beyond 2010.

These assumptions translate into slower growth of aviation activity and FAA workload measures during the extended 15-year period (2010 to 2025) than was forecast for the immediate 12-year period (1998 to 2010).

	<b><u>AVERAGE ANNUAL PERCENT CHANGES</u></b>	
	<b><u>1998 - 2010</u></b>	<b><u>2010 - 2025</u></b>
<b><u>AVIATION ACTIVITY</u></b>		
<b>PASSENGER ENPLANEMENTS</b>		
AIR CARRIER	3.4	2.9
REGIONALS/COMMUTERS	5.4	3.6
<b>AIRCRAFT FLEET</b>		
AIR CARRIER*	4.0	3.2
REGIONAL/COMMUTER	2.9	1.8
GENERAL AVIATION	1.0	0.8
<b>HOURS FLOWN</b>		
AIR CARRIER	3.5	3.2
REGIONAL/COMMUTER	4.9	3.3
GENERAL AVIATION	1.6	1.2
<b>PILOTS</b>		
TOTAL	1.5	1.0
INSTRUMENT RATED	1.4	1.0
<b><u>FAA WORKLOAD MEASURES</u></b>		
TOWER OPERATIONS**	1.8	1.6
INSTRUMENT OPERATIONS**	2.1	1.8
IFR AIRCRAFT HANDLED	2.3	2.0
FLIGHT SERVICE STATIONS	(0.2)	(0.2)

\* Includes regional jets.

\*\* Includes combined activity at FAA and contract towers.

## **II. LONG-RANGE FORECAST ASSUMPTIONS**

The long-range aviation forecasts are based on assumptions concerning the future of the commercial and general aviation industries and on the latest macroeconomic projections. For the purposes of this report, the forecast period refers to the long-range outlook, particularly the 2010 to 2025 period. Much of the discussion assumes some familiarity with the forecasts contained in FAA Aerospace Forecasts: Fiscal Years 1999-2010, dated March 1999. Copies of this report can be obtained from the FAA Statistics and Forecast Branch, APO-110, by calling (202) 267-3355. The Executive Summary and 45 forecast tables can be found on the Internet at [http://api.hq.faa.gov/apo\\_pubs.htm](http://api.hq.faa.gov/apo_pubs.htm).

### **A. Economic Assumptions**

The long-range economic forecasts are based on an average of the economic projections developed by DRI/McGraw-Hill (DRI) and WEFA Inc. (WEFA) for the years in which the two forecasts overlap. The DRI economic projections extend through the year 2023 and the WEFA economic forecasts extend through the year 2017. Both sets of economic forecasts were developed utilizing trend projections and assume that the economy experiences stable growth throughout the entire forecast period. Essentially, these projections represent the average of the possible paths that the U.S. economy could follow. Using trend projections assumes that (1) no major shocks will occur (such as a rapid run-up in oil prices), (2) economic policies remain stable, and (3) national and international markets do not experience dramatic shifts in either the supply or demand for economic goods and services. These long-term economic projections represent appropriate points from which to evaluate the effects of variations about the mean of expected values of various activity measures, transportation services, or FAA workload measures.

The consensus long-range economic outlook from DRI and WEFA is relatively unchanged from the 1998 projections. Last year, the major difference between the two economic forecasting services was the length of time before the Federal budget returned to deficit spending (2003 for WEFA and 2011 for DRI).

The latest DRI and WEFA forecasts are both more positive and consistent in their expectations for continued Federal budget surpluses throughout the long-term forecast horizon. In 1998 and again this year, the Treasury Department has and will be using part of the budget surplus to pay down the national debt. To the extent that the Treasury continues to use a portion of the current and expected budget surpluses to pay down the outstanding national debt, it will further reduce each succeeding year's debt and interest payments. This, together with the expected reduction in military spending and reduced growth in entitlement expenditures will contribute to a continuing decline in government spending as a percent of GDP, and result in a more positive environment for sustained economic growth.

## **Real Gross Domestic Product**

Currently, the U.S. economy is expected to grow at a moderate rate during the 27-year forecast period. Growth in real gross domestic product (GDP), adjusted for price changes and expressed in 1992 dollars, is projected to average 2.0 percent annually over the extended 15-year forecast period. This is considerably slower than both the historical past (3.0 percent between 1960 and 1998) and slightly lower than the economic projections for the immediate 12-year forecast period (2.3 percent between 1998 and 2010). During the entire 27-year period between 1998 and 2025, real GDP is expected to increase at an average annual rate of 2.1 percent.

## **Consumer Price Index**

Inflation is not expected to return to the high rates experienced during the latter half of the 1970s and early 1980s (8.7 percent annual growth between 1972 and 1982) during the entire 27-year forecast period. The opinion of the major economic forecasting services is that there will be little upward pressure from real wage rates and commodity prices, and that the Federal Reserve is committed to controlling inflation while providing for sufficient growth in the money supply to ensure growth in output. The consumer price index is projected to increase at an average annual rate of 2.5 percent a year during the 27-year time period--2.3 percent during the immediate 12-year period (to 2010) and 3.0 percent during the extended forecast period (to 2020).

## **Fuel Prices**

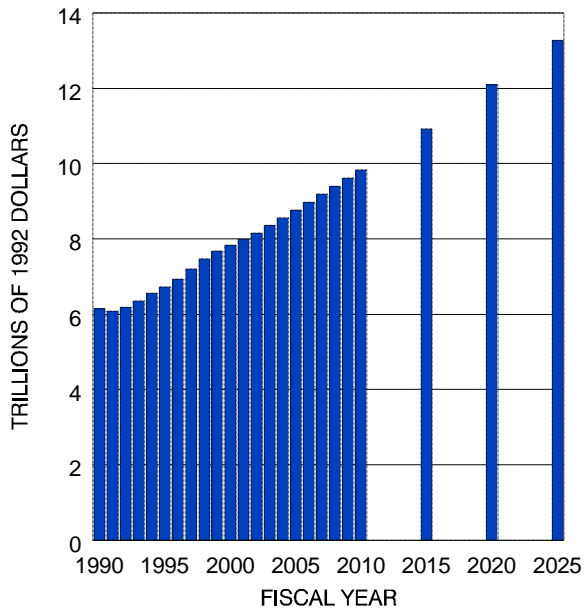
Fuel prices, as measured by the Oil and Gas Deflator, are forecast to increase at an annual rate of 2.5 percent over the 27-year forecast period--comparable to expected overall inflation rate. Between 1998 and 2010, nominal fuel prices are projected to increase at an annual rate of only 2.8 percent (up 0.5 percent annually in real terms). Between 2010 and 2025, nominal fuel prices are projected to increase at an annual rate of 2.3 percent (in real terms down 0.5 percent annually).

## **Interest Rates**

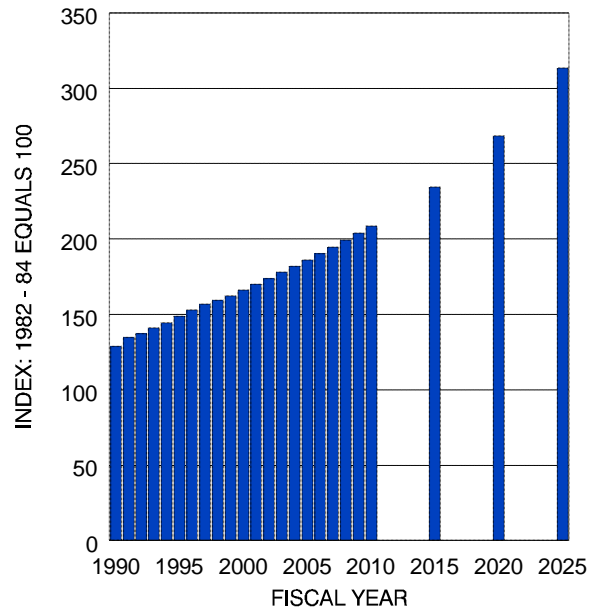
Long-term nominal interest rates are tied to inflationary expectations. The Federal Reserve is expected to pursue a monetary policy that keeps inflation in check and allows for sufficient monetary aggregate growth to sustain economic output gains. With budget deficit pressures apparently under control, and with the positive long-term outlook for the rate of inflation, long-term rates are expected to remain relatively stable over the immediate 12-year forecast period before rising slightly through 2025. Interest rates are expected to remain almost unchanged during the immediate 12-year forecast period (5.6 percent in 1998 compared to 5.5 percent in 2010). During the extended forecast period, interest rates will increase to 6.3 percent, not significantly above the 1998 rate of 5.6 percent.

# ECONOMIC VARIABLES FORECASTS

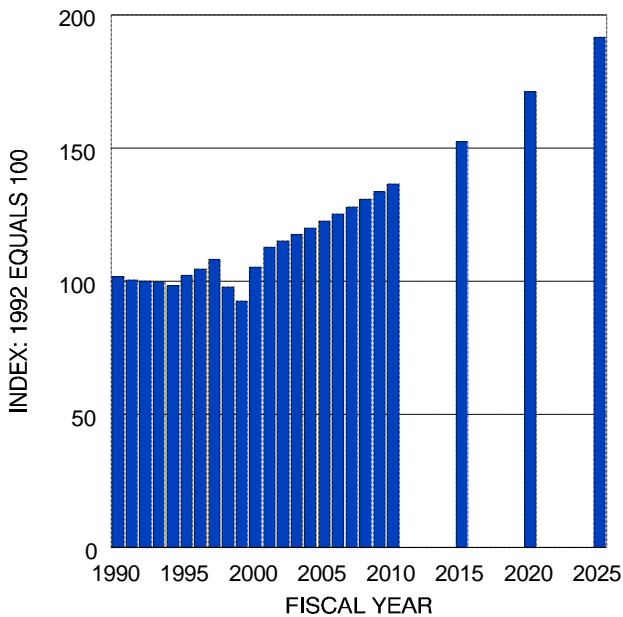
## REAL GDP



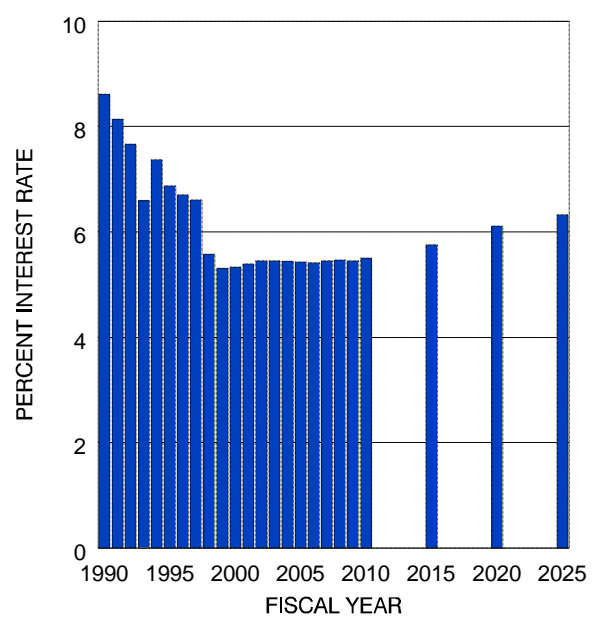
## CONSUMER PRICE INDEX



## OIL AND GAS DEFLATOR



## 30-YEAR GOVERNMENT BONDS



## **B. Operational Variables**

The long-range forecasts of various operational variables discussed below are, for the most part, a continuation of the trends discussed in greater detail in FAA Aerospace Forecasts: Fiscal Years 1999-2010. As with the economic projections, these forecasts reflect an average trend of the possible paths that the various operational variables could follow. They assume that (1) no major shocks will occur (such as a rapid run-up in oil prices), (2) economic policies remain stable, and (3) no dramatic shifts in either the supply or demand for aviation services. These long-term projections represent appropriate points from which to evaluate the effects of variations about the expected values of various activity measures, transportation demand and services, or FAA workload measures.

### **Air Carrier Domestic Passenger Yield**

The current 12-year and extended 15-year forecasts assume that real domestic passenger yields (expressed as revenue per passenger mile) will continue the historical long-term gradual downward trend. Real domestic passenger yields are projected to decline by 1.0 percent annually over the 27-year period. The downward trend in real domestic yields is based on the assumptions of continued strong competition in the industry, and continued improvements in efficiency and productivity.

### **Average Aircraft Size**

Federal noise legislation requires all stage-2 aircraft to be phased out of the U.S. fleet by January 1, 2000. This legislation is expected to result in the retirement and/or retrofitting of significant numbers of these smaller seating capacity stage-2 aircraft over the immediate 12-year forecast period, with replacement stage-3 aircraft generally being larger. Replacements plus additions to the fleet with larger aircraft results in an increase in the average seating capacity of air carrier aircraft in domestic service.

The increase in the average seat size of the fleet will be relatively small through the middle years of the immediate 12-year forecast period, averaging just under 0.4 seats per year between 1999 and 2005. After 2005 many of the hush-kitted stage-2 aircraft will begin to be phased out of the fleet. Replacement with generally larger stage-3 aircraft will result in an increase in the average seat size of about 1.2 seats per year through 2010. Over the entire 12-year forecast period, the average seat size of the fleet will grow by just over 0.6 seats per year (from 142.2 to 149.8).

The average seating capacity of the domestic air carrier fleet is expected to continue to increase over the extended 15-year forecast period. The new aircraft entering the fleet-- either for replacement of the remaining stage-2 aircraft or for expansion of capacity-- will be larger. Therefore, we expect

the average seating capacity of the domestic air carrier fleet to increase by 1.1 seats annually over the extended forecast period, reaching 166.3 seats in 2025.

The average seating capacity of regional/commuter aircraft is forecast to increase by just under 0.8 seats annually between 1998 and 2010 (from 33.1 to 42.2 seats). This trend is expected to continue over the extended forecast period, with the average seating capacity of regional/commuter aircraft averaging approximately 52.2 seats in the year 2025. This reflects the continued introduction of larger high-speed turboprop and regional jet aircraft into the regional/commuter fleet. The extended range and greater speed offered by these aircraft are expected to expand the market potential for the regional industry, and continue to blur the distinction between regional/commuters and the large commercial operators.

### **Load Factor**

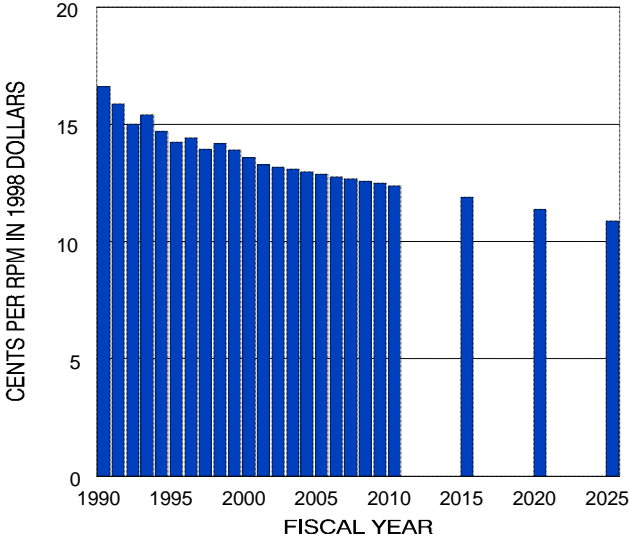
Domestic air carrier load factors are projected to remain at their current historical high levels throughout the remainder of the immediate and extended forecast period. During the past several years, airline scheduling policies have allowed air carriers to rapidly adjust capacity levels to more closely correspond to changes in passenger demand. This ability to make rapid adjustments to meet changing demand conditions has enabled the airlines to push up load factors to all-time highs. It is expected that present fleet plans will provide capacity levels that should maintain the air carrier load factor at between 69 and 70 percent throughout the forecast period.

Regional/commuter load factors are projected to increase from 56.5 percent in 1998 to 60.3 percent in 2010. During the extended forecast period, regional/commuter load factors are expected to continue to increase slightly, rising to approximately 65.1 percent by 2025. The higher load factors result from the continued introduction of larger high-speed turboprop and regional jet aircraft and the need to cover the higher cost per seat mile associated with these aircraft.

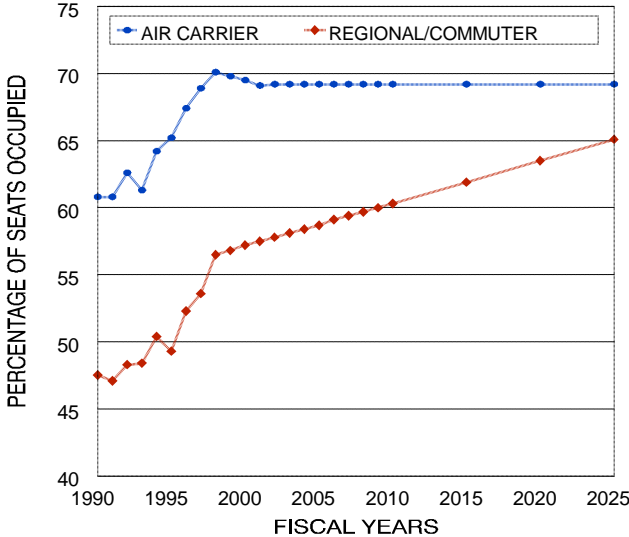


# OPERATIONAL VARIABLES FORECASTS

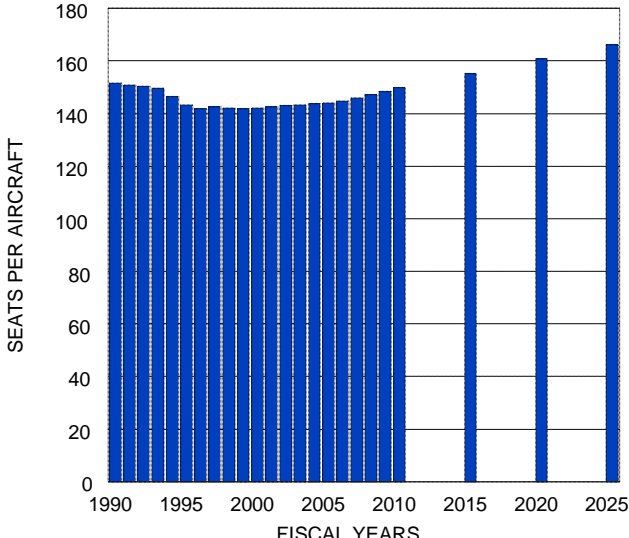
REAL DOMESTIC PASSENGER YIELD



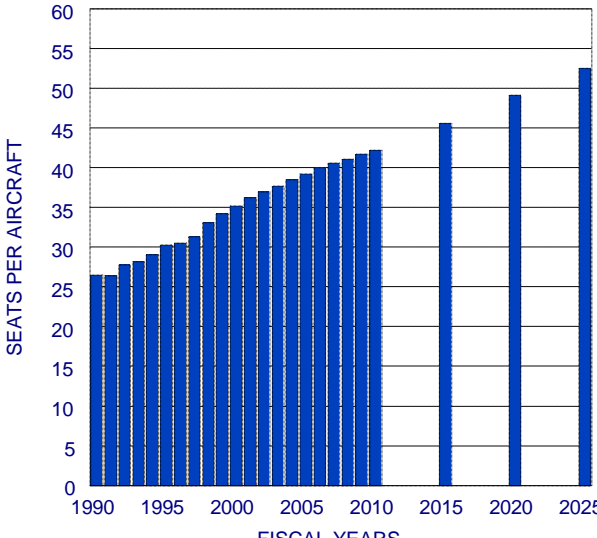
DOMESTIC PASSENGER LOAD FACTORS



AVERAGE SEATING CAPACITY DOMESTIC AIR CARRIER AIRCRAFT



AVERAGE SEATING CAPACITY REGIONAL/COMMUTER AIRCRAFT



### **III. LONG-RANGE AVIATION ACTIVITY FORECASTS**

Forecasts of various measures of aviation activity for 1998 and 5-year increments between 2000 and 2025 are provided in Table 1, page 13. A discussion of some of these measures of aviation activity follows in the paragraphs below.

#### **A. Passenger Enplanements**

##### **Air Carrier**

Air carrier demand, as measured by domestic passenger enplanements, is projected to continue to grow faster than the general economy. For the period 1999 to 2010, domestic passenger enplanements are forecast to increase at an average annual rate of 3.4 percent compared to a 2.3 percent annual growth rate in real GDP. Over the extended forecast period (2010-2025), domestic passenger enplanements are projected to increase at an average annual rate of 2.9 percent compared to real GDP growth of 2.1 percent annually.

##### **Regionals/Commuters**

The regional/commuter industry is projected to continue to grow at a relatively faster pace than the large air carriers through both the immediate and extended forecast periods. While a large part of the growth during the early years of the immediate forecast period will result from a continuation of the shift of low-density, short-haul markets from the larger air carriers to their commuter code-share partners, much of the growth during the 27-year forecast period will result from markets created by the expanded use of regional jet aircraft.

The introduction and popularity of regional jets is expected to open up new growth opportunities in thin, intermediate range markets which cannot be served economically with large jet aircraft. The speed and range of the regional jet also offers the opportunity for more point-to-point (hub bypass) operations in markets which are currently served only via connecting flights through large hubs. There are currently 11 regional/commuter operators operating regional jet aircraft, and up to four more are expected to be operating jets by the end of this year. This, together with the public preference for jet aircraft, should ensure that the regional/commuter industry will continue to grow more rapidly than the large air carriers.

During the forecast period 1999 to 2010, regional/commuter passenger enplanements are forecast to increase at a yearly rate of 5.4 percent. This rate of growth is expected to slow to 3.6 percent during the extended forecast period.

## **B. Aircraft Fleets and Hours Flown**

### **Commercial Air Carriers**

The commercial air carrier jet fleet is forecast to increase at an annual rate of 4.0 percent or 260 aircraft annually between 1998 and 2010. By far the largest increase, in terms of number of aircraft, is projected to occur in the two-engine narrowbody aircraft category, which is expected to grow by an average of 241 aircraft (5.4 percent) annually. By 2010, the two-engine narrowbody aircraft category is expected to total 6,162 units and account for 74 percent of the fleet. This includes the smaller regional jets (30 to 70 seats) which are projected to be introduced into the fleet in significant numbers over the forecast period. These regional jets are also included in the regional/commuter fleet projections.

Slower passenger demand during the extended forecast period is expected to result in a slowing in the expansion of the air carrier fleet. Between 2010 and 2025, the air carrier fleet is forecast to increase at an average annual rate of 3.2 percent, or just over 300 aircraft annually.

The number of hours flown by the larger commercial air carriers is forecast to increase by 3.5 percent annually between 1998 and 2010, and by 3.2 percent annually between 2010 and 2025. The immediate and extended range fleet forecasts imply that U.S. air carriers will use larger aircraft and continued high load factors to accommodate increasing passenger demand. The forecasts of hours flown imply that the average utilization of the U.S. fleet will increase gradually over the 27-year forecast period.

The regional/commuter fleet (60 seats or less) is expected to grow from its current 2,039 aircraft in 1998 to 3,800 by the year 2025. This is an average annual growth rate of 2.3 percent over the 27-year forecast period, or approximately 65 aircraft annually. By comparison, regional/commuter flight hours are forecast to increase at an average annual rate of 4.0 percent during the same time period (from 3.7 million hours in 1998 to 10.8 million in 2025).

### **General Aviation Aircraft**

In 1998, general aviation completed its fourth year of operation following the enactment of the General Aviation Revitalization Act of 1994. While 1995 represented the beginning of a period renewed of optimism for the general aviation industry, 1996 was the year in which the industry converted this optimism into constructive actions designed to stimulate the development and production of new general aviation products and services. In 1997 and 1998 the industry began to see the results of their actions, both in terms of an increase in the demand for general aviation products and services and in terms of increased business and pleasure flying. It appears that the industry has laid a firm foundation for growth throughout the extended forecast period.

The active general aviation fleet is expected to total 220,800 aircraft in 2010 and to expand to 248,800 by 2025. This represents an average annual growth of 1.0 percent during the immediate forecast period and 0.8 percent over the extended forecast period. The piston engine portion of the general aviation fixed-wing fleet is forecast to increase by 0.9 percent during the immediate 12-year forecast period and 0.8 percent over the extended 15-year forecast period. Fixed-wing turbine powered general aviation aircraft are expected to grow at a somewhat faster rate than the piston powered aircraft, increasing 2.7 percent annually between 1998 and 2010, and by 2.0 percent during the 2010 to 2025 period. The higher growth rate for the turbine portion of the fleet is based on the expectations of a greater business and corporate use of general aviation aircraft in an expanding U.S. economy.

Growth in general aviation flight hours is forecast to increase more rapidly than the growth in the active fleet. The higher growth in flight hours is based on the assumption that aircraft utilization rates will also increase over the forecast period. Over the last several years, general aviation aircraft utilization rates have been well below those experienced at the beginning of the decade. This was due primarily to the aging of the fleet, and the economic recession of the early 1990's.

General aviation activity is very sensitive to changes in fuel price and variations in the rate of economic growth. Based on the assumptions of sustained economic growth, relative stability in fuel prices, and the continued growth in fractional ownership programs and corporate flying, it is expected that aircraft utilization rates will return to the higher levels experienced prior to the 1990-1991 economic recession. General aviation flight hours are forecast to increase from 28.2 million in 1998 to 34.1 million in 2010, and to 40.8 million in 2025 (1.6 and 1.2 percent annual growth, respectively).

These forecasts for the active general aviation fleet and flight hours rely not only on the assumptions of sustained economic growth and price stability, but also are heavily dependent on continued plant expansion and production by general aviation manufactures and the success of industry programs, such as "GA Team 2000," to foster the growth in number of student pilots. If the general aviation industry falters in its efforts to stimulate the production of new general aviation products and services, the outlook for the active fleet, hours flown, and general aviation activity at FAA air traffic facilities could be considerably lower than the current projections.

### **C. Number of Pilots**

The total pilot population is forecast to increase from 618,300 in 1998 to 849,200 by the year 2025, an average annual growth rate of 1.2 percent over the 27-year forecast period. Much of the growth results from the continuing demand for airline transport pilots. Additionally, recent industry program initiatives designed to promote the benefits of general aviation flying to businesses and the public, to stimulate growth in the number of new pilots, and to develop an improved flight training infrastructure are also expected to contribute to the growth in the pilot population. During this same time period, the number of instrument rated pilots is expected to increase from 300,200 to

409,500. The percentage of instrument rated pilots decreases only marginally from 48.6 percent in 1998 to 48.2 percent in 2025.

#### **D. Total Aviation Activity**

Total civil aircraft activity at towered and non-towered airports (based on projections for just under 4,000 public use airports in the Terminal Area Forecast database) is forecast to reach 142.8 million by the year 2025, an average annual growth rate of 0.8 percent over the activity level forecast for 2010 (129.4 million operations). This represents an average annual growth rate of 0.9 percent over the 116.1 million total aircraft operations recorded in 1998.

Commercial aircraft operations (the sum of air carrier and commuter/air taxi) at all U.S. airports, towered or non-towered, are projected to increase from 28.6 million in 1998 to 36.6 million in 2010, and to 47.6 million in 2025. These forecasts imply an average annual growth rate of 2.1 percent over the immediate forecast period, and 1.8 percent over the extended forecast period.

The number of general aviation operations at towered and non-towered airports is forecast to increase from 87.4 million in 1998 to 92.8 million in 2010 and to 99.2 million in 2025. The average annual growth rate for both the immediate and extended forecast periods is 0.5 percent. Much of the growth is the result of increased use of the turbine fleet for business/corporate related flying.

**TABLE 1**

**LONG-RANGE FORECASTS**  
**AVIATION DEMAND AND ACTIVITY**

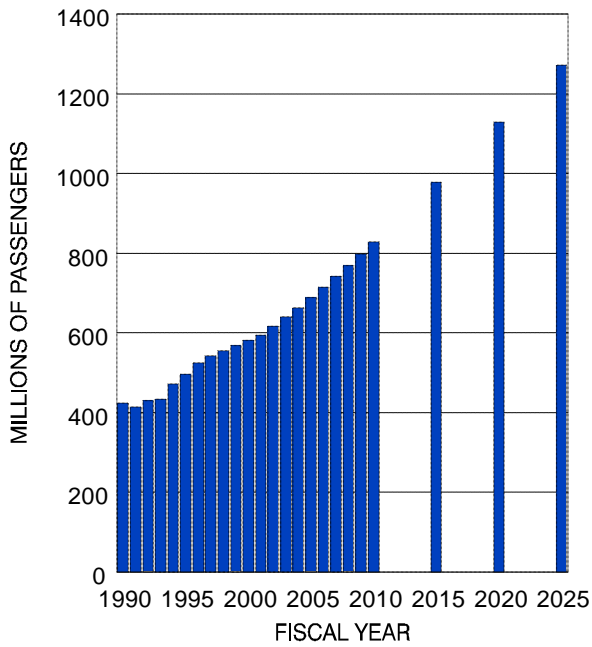
<b>Domestic Passengers Enplanements</b> (In Millions)	<b><u>ACTUAL</u></b>	<b><u>MARCH 1999 FORECAST</u></b>			<b><u>LONG-RANGE FORECAST</u></b>			
	<b><u>1998</u></b>	<b><u>2000</u></b>	<b><u>2005</u></b>	<b><u>2010</u></b>	<b><u>2015</u></b>	<b><u>2020</u></b>	<b><u>2025</u></b>	
Air Carrier	554.6	581.0	688.6	828.0	978.7	1,129.0	1,271.2	
Regional/Commuter	66.1	74.9	97.6	123.8	151.3	180.6	210.4	
<b><u>Aircraft Fleets</u></b> (In Thousands)								
Air Carrier*	5.2	5.6	6.9	8.4	10.0	11.7	13.4	
Regional/Commuter	2.0	2.2	2.6	2.9	3.2	3.5	3.8	
General Aviation	194.8	199.3	210.0	220.8	230.9	240.3	248.8	
Civil Helicopter**	6.8	6.9	7.2	7.4	7.7	7.9	8.1	
<b><u>Hours Flown</u></b> (In Millions)								
Air Carrier	13.1	13.6	16.3	19.8	23.7	27.7	31.7	
Regional/Commuter	3.7	4.1	5.3	6.6	7.9	9.4	10.8	
General Aviation	28.2	29.2	31.7	34.1	36.6	38.8	40.8	
<b><u>Active Pilots</u></b> (In Thousands)								
Total	618.3	640.4	697.9	735.1	772.6	812.0	849.2	
Instrument Rated	300.2	311.4	337.3	354.5	372.6	391.6	409.5	
<b><u>Estimated Civil U.S. Operations</u></b> (In Millions)								
Commercial	28.6	29.8	33.1	36.6	40.2	43.9	47.6	
General Aviation	87.4	88.3	90.5	92.8	95.0	97.2	99.2	

\* Includes regional jets.

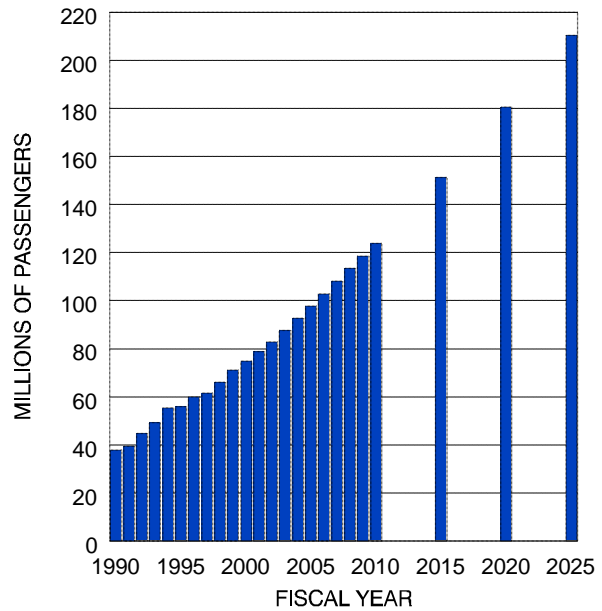
\*\* Included in General Aviation.

# AVIATION ACTIVITY FORECASTS

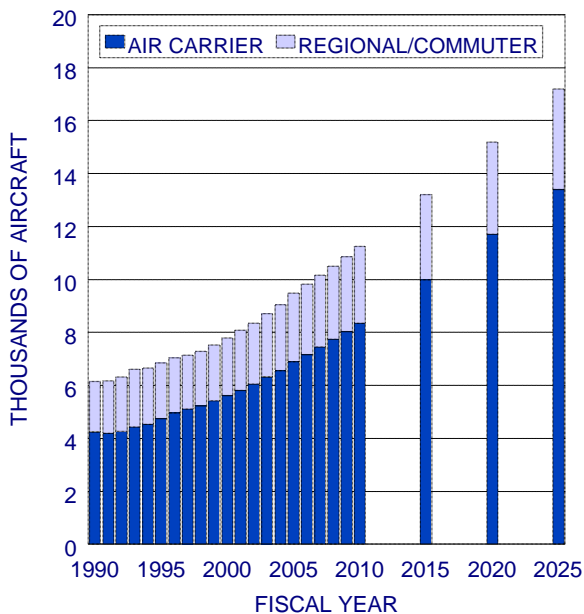
## AIR CARRIER DOMESTIC ENPLANEMENTS



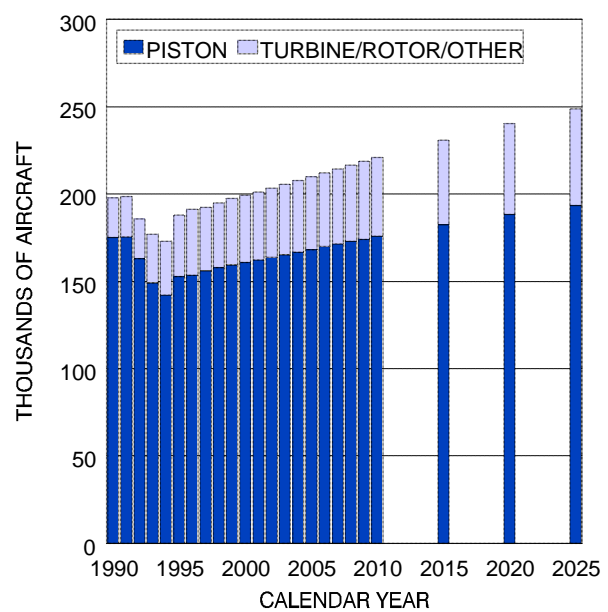
## REGIONAL/COMMUTER PASSENGER ENPLANEMENTS



## COMMERCIAL AIRCRAFT FLEET



## GENERAL AVIATION FLEET



## **IV. LONG-RANGE WORKLOAD MEASURE FORECASTS**

Forecasts of FAA workload measures by user groups for 1998 and 5-year increments between 2000 and 2025 are provided in Table 2, page 17. A discussion of the forecasts follows in the paragraphs below.

### **A. Towered Operations**

At the end of FY 1998 the number of FAA towers totaled 288, down from 402 in 1994. During this same period of time, the number of FAA contract towers has increased from 32 to 161. However, the contract tower program, and further tower conversions, have been placed on hold pending resolution of a lawsuit filed by the National Air Traffic Controllers Association, the result being that only one tower was converted to contract tower status during 1998. Given the uncertainty about current and future year conversions, the forecasts presented in this document are combined forecasts independent of the distinction between FAA and contract tower status.

Aircraft operations at combined FAA and contract towered airports are forecast to total 81.2 million in 2010 and 102.8 million in 2025 (1.7 percent annual growth for the 27-year forecast period). Most of the growth is expected to come from commercial activity (the sum of air carrier and commuter/air taxi), which is projected to grow 2.6 percent annually during the immediate forecast period and 2.2 percent annually during the extended forecast period. The slower growth in commercial activity relative to enplanements (3.4 and 2.9 percent during the immediate and extended forecast periods) is due to a combination of continued high load factors, larger aircraft, and longer passenger trip lengths.

Although regional/commuter enplanements increase at much faster rate than the larger air carriers over the 27-year forecast period (4.4 percent compared to 3.1 percent), commuter/air taxi activity increases at a 2.1 percent annual rate compared to air carrier growth of 2.5 percent annually. This slower commuter/air taxi activity growth is largely due to the large numbers of the regional jet aircraft which are expected to enter the regional/commuter fleet over the forecast period. As such, regional/commuter average aircraft size, load factors, and passenger trip lengths all increase at significantly faster rates than do those of the larger air carriers.

General aviation activity, which accounted for 58.3 percent of combined tower activity in 1998, grows at a considerably slower pace relative to commercial activity over the 27-year forecast period--1.4 and 0.7 percent, respectively, during the immediate and extended forecast periods. In the year 2025, general aviation is expected to account for just over 52.0 percent of combined tower activity. Military activity is projected to remain constant at the 2.8 million operations posted in 1998 throughout the 27-year forecast period.



## **B. Instrument Operations**

Instrument operations at combined FAA and contract towered airports are forecast to total 63.9 million in 2010 and 82.9 million in 2025, average annual growth rates of 2.1 and 1.8 percent, respectively, during the immediate and extended forecast periods. Most of the growth is expected to come from commercial activity, which is projected to grow 2.6 percent annually during the immediate forecast period and 2.2 percent annually during the extended forecast period. Air carrier instrument activity is forecast to grow 2.5 percent annually over the 27-year forecast period while commuter/air taxi activity is forecast to increase at a 2.2 percent average annual rate during the same time period.

General aviation activity is projected to increase at a relatively slower pace over the forecast period, averaging 1.7 percent through the immediate forecast period and 1.3 percent during extended forecast periods. Military activity is forecast to remain constant at the 3.4 million operations recorded in 1998 throughout the 27-year forecast period.

Commercial activity is expected to increase from 53.4 percent of total instrument activity at combined FAA and contract towers in 1998 to 60.1 per-cent by the year 2025.

## **C. ARTCC Aircraft Handled**

The number of aircraft handled at FAA en route traffic control centers is forecast to reach 56.7 million in 2010 and 76.5 million in 2025, an average annual growth rate of 2.3 percent for the 1998-2010 time period and 2.0 percent for the 2010-2025 time period. Much of the growth occurs in the number of commercial aircraft handled, which increases by 2.7 and 2.3 per-cent, respectively, over the two forecast periods. The number of air carrier aircraft handled increases by an average annual rate of 2.6 percent over the 27-year forecast period--2.8 and 2.4 percent, respectively, over the immediate and extended time periods. The number of commuter/air taxi aircraft handled is forecast to increase by 2.3 percent annually during the immediate forecast period and 2.1 percent over the extended forecast period--2.2 percent over the entire 27-year period.

The number of general aviation aircraft handled at FAA en route centers increases at a slower rate over the two forecast periods, 1.9 percent annually over the immediate 12-year period and 1.5 percent over the extended 15-year period. The number of military aircraft handled is forecast to remain constant at the 4.2 million recorded in 1998 through 2025.

By the end of the 27-year forecast period, commercial activity is expected to account for 76.9 percent of the total center activity compared to 70.1 per-cent in 1998.

## **D. Flight Services**

The number of services provided by FAA flight service stations is forecast to total 33.2 million in 2010 and 32.1 million in 2025, an annual decline of 0.2 percent over the 27-year forecast period. The projected decline in services provided by FAA flight service stations throughout the forecast period reflects both the continued consolidation of flight service stations and a greater use of automated and alternative flight services which are not provided directly by the FAA.

Average annual growth rates for each of the three flight service categories for the immediate and extended forecast periods are: flight plans originated: up 0.6 and 0.2 percent; pilot briefs: down 0.5 and 0.2 percent; and number of aircraft contacted; down 1.6 and 2.6 percent.

Automated services provided through the Direct User Access Terminal System (DUATS) are forecast to grow throughout the immediate and extended forecast periods. DUATS services are projected to increase to 20.1 million in 2010 (a 3.8 percent annual increase) and to 28.4 million in 2025 (a 2.3 percent annual increase). During the 27-year period, the combined FSS and DUATS services are forecast to increase at an average annual rate of 1.0 percent.

These forecasts of FSS and DUATS services assume that there will be no changes in the current definitions of the flight service measures nor any change in the manner in which they are delivered to the general aviation pilot. There is, however, significant uncertainty concerning the impact of technology on how the set of flight services will be provided in the future. As more specific information becomes known about the future flight service system the forecasts will be adjusted accordingly.

TABLE 2

**LONG-RANGE FORECASTS**  
**FAA WORKLOAD MEASURES**  
(In Millions)

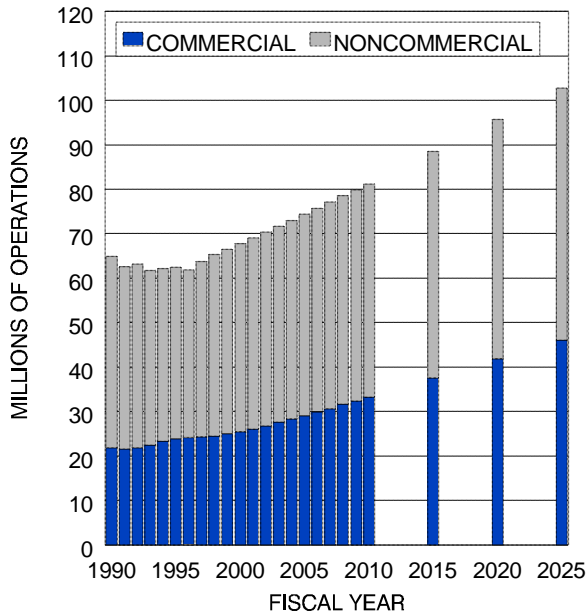
<b><u>Tower Operations*</u></b>	<b><u>ACTUAL</u></b>	<b><u>MARCH 1999 FORECAST</u></b>			<b><u>LONG-RANGE FORECAST</u></b>		
	<b><u>1998</u></b>	<b><u>2000</u></b>	<b><u>2005</u></b>	<b><u>2010</u></b>	<b><u>2015</u></b>	<b><u>2020</u></b>	<b><u>2025</u></b>
Total	<u>65.3</u>	<u>67.7</u>	<u>74.4</u>	<u>81.2</u>	<u>88.5</u>	<u>95.7</u>	<u>102.8</u>
Itinerant	<u>47.9</u>	<u>49.7</u>	<u>55.2</u>	<u>60.9</u>	<u>67.0</u>	<u>73.0</u>	<u>78.9</u>
Air Carrier	14.3	15.0	17.3	20.0	22.7	25.4	28.0
Commuter/Air Taxi	10.2	10.6	11.8	13.3	14.9	16.5	18.1
General Aviation	22.1	22.9	24.7	26.3	28.0	29.7	31.4
Military	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Local	17.4	18.0	19.2	20.3	21.5	22.7	23.9
General Aviation	16.0	16.5	17.8	18.9	20.1	21.3	22.5
Military	1.4	1.4	1.4	1.4	1.4	1.4	1.4
<b><u>Instrument Operations*</u></b>							
Total	<u>49.9</u>	<u>51.9</u>	<u>57.7</u>	<u>63.9</u>	<u>70.3</u>	<u>76.6</u>	<u>82.9</u>
Air carrier	15.4	16.1	18.7	21.5	24.3	27.1	29.9
Commuter/Air Taxi	11.2	11.6	13.0	14.6	16.4	18.1	19.9
General Aviation	19.9	20.7	22.6	24.4	26.2	28.0	29.7
Military	3.4	3.4	3.4	3.4	3.4	3.4	3.4
<b><u>ARTCC Aircraft Handled</u></b>							
Total	<u>43.2</u>	<u>45.2</u>	<u>50.6</u>	<u>56.7</u>	<u>63.1</u>	<u>69.8</u>	<u>76.5</u>
Air Carrier	23.2	24.6	28.2	32.4	36.8	41.4	46.1
Commuter/Air Taxi	7.1	7.5	8.3	9.3	10.4	11.6	12.7
General Aviation	8.6	9.0	9.9	10.8	11.7	12.6	13.5
Military	4.2	4.2	4.2	4.2	4.2	4.2	4.2
<b><u>FSS Services</u></b>							
Total	<u>33.9</u>	<u>33.8</u>	<u>33.5</u>	<u>33.2</u>	<u>32.9</u>	<u>32.6</u>	<u>32.1</u>
Pilot Briefs	8.7	8.6	8.4	8.2	8.1	8.0	7.9
Flight Plans Filed	6.5	6.6	6.8	7.0	7.1	7.2	7.2
Aircraft Contacted	3.4	3.3	3.1	2.8	2.5	2.2	1.9
DUATs	<u>12.9</u>	<u>14.2</u>	<u>17.1</u>	<u>20.1</u>	<u>23.0</u>	<u>25.7</u>	<u>28.4</u>

\* Includes combined activity at FAA and contract towers.

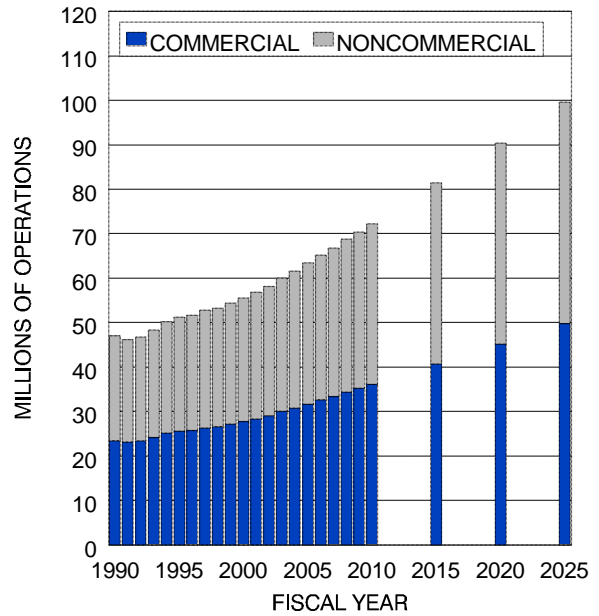
Note: Totals may not add due to independent rounding.

# FAA WORKLOAD FORECASTS

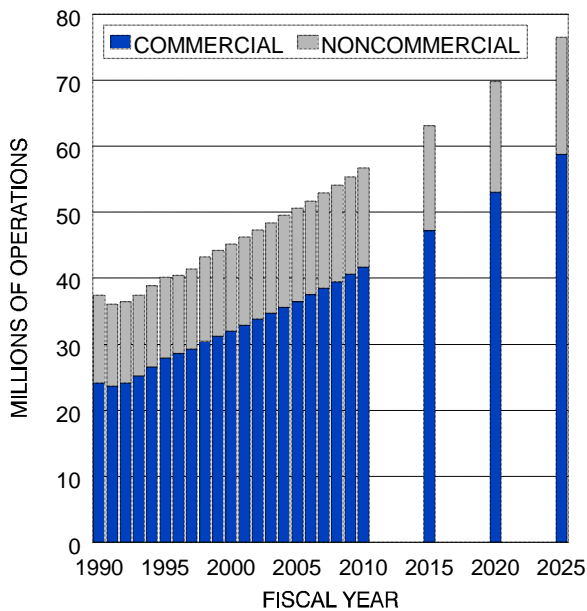
## TOWERED OPERATIONS



## INSTRUMENT OPERATIONS



## IFR AIRCRAFT HANDLED



## FLIGHT SERVICES

