FAA AEROSPACE FORECASTS

FISCAL YEARS 2005–2016

U.S. Department of Transportation
Federal Aviation Administration
Office of Aviation Policy & Plans

PREFACE

Last year's *Aerospace Forecasts* again proved to be an accurate depiction of aviation demand. We correctly anticipated the number of commercial industry seats miles and enplanements. And we were close in other areas as well, coming within two percentage points of predicting precise figures for FAA instrument and tower operations. Activity at en route centers exceeded our expectations.

This year, we foresee that the demand for aviation products and services will continue to increase from the low levels of the past few years, with most measures of aviation activity predicted to return to pre-September 11th levels in 2005. To be sure, the recent run-up in oil prices has triggered financial woes for most legacy carriers. Also, continued high fuel prices and the uncertain geopolitical situations in several major oil producing countries has heightened the prospect of additional bankruptcies and/or liquidations, increasing the risk and uncertainty of the current forecasts, both in the short- and long- term.

Our analysis of the metrics, trends and accounts of the aviation industry show that aviation will continue to rebound from the string of unanticipated events that have occurred since 2001. In summary, the broad expansion in U.S. economic activity witnessed during much of 2004 is expected to continue into 2005 and 2006. Aviation demand, which rebounded strongly in 2004, is expected to continue to exhibit relatively strong growth throughout the 12-year forecast

This year's report contains 10 chapters that address four major areas:

- U.S. and world economic environment, assumptions, and predictions used in developing the FAA aviation forecasts;
- historical data and forecasts of future aviation demand and aircraft activity for three major non-military user groups—mainline commercial air carriers, regional/commuter airlines, and general aviation/helicopters;
- workload forecasts for FAA and contract towers, en route centers, and flight service stations; and
- an outlook for commercial space transportation.

The report concludes with a discussion of our forecast accuracy and year-by-year historical data and forecasts for selected aviation demand and activity series. I would like to thank my staff, mentioned on the following page, for their hard work in putting together this document.

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Assistant Administrator for Policy,
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ACKNOWLEDGMENTS

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CHAPTER I

EXECUTIVE SUMMARY

FORECAST HIGHLIGHTS

The demand for seats on commercial airplanes, which dipped severely in the wake of 9/11, will make a complete return by the end of this year.

Without question, regional and low-cost carriers[1] are lifting a surprisingly heavy load. Their combined enplanements are up 40 percent since 2000. This gives them a 43 percent share of the market, up from a 30 percent share in 2000. Increased competition is causing legacy carriers[2] to continue to cut costs and prices in markets served by low-cost carriers. This is good news for the flying public, but a bitter pill for an industry navigating through tough business times. While total domestic enplanements are down 2 percent since 2000, legacy carrier enplanements are down more than 20 percent. In 2000, legacy carriers controlled 70 percent of the market; today that number is 57 percent.

As competition increases, the newer entrants are outpacing the legacy carriers that dominated the market for decades. In 2004, legacy carriers reported a $6 billion net loss. Conversely, low-cost and regional carriers combined to earn a net profit of $740 million, and cargo carriers reported net profits of $832 million. Higher fuel prices cost the industry some $3.4 billion last year alone.

For the FAA, the overall shift from large jets to smaller aircraft increases our workload. Regional jets carry fewer passengers per flight and represent 37 percent of the commercial traffic at the nation's 35 busiest airports. That's up from 30 percent in 2000. Lower ticket prices have resulted in less tax revenues flowing into the Aviation Trust Fund, which pays for most of the FAA's costs to operate the system. Because of the downtrend in flying post-9/11, the trust fund now holds $2.4 billion. In 2000, the balance was $4.3 billion.

Nevertheless, the FAA continues to be cautiously optimistic about the future. The last 5 years have resulted in a virtual holding pattern, with 9/11, the spread of the Severe Acute Respiratory Syndrome (SARS), and record high fuel prices dampening the demand for aviation services. An important yardstick, though, remains the number of passengers traveled. Last year, that number was 688 million, up from 642 million the previous

[1] American Trans Air, America West Airlines, AirTran, Frontier Airlines, JetBlue Airways, Southwest Airlines, and Spirit Air Lines.

[2] Alaska Airlines, American Airlines, Continental Airlines, Delta Air Lines, Northwest Airlines, United Airlines, and US Airways.

year. Commercial aviation remains on track to exceed one billion passengers by 2015. In addition, international traffic is growing almost 2 percent faster than domestic traffic. The remaining formidable hurdle for the commercial aviation industry as a whole will be the price of oil.

In the long run, inexpensive tickets, a strong national economy, and increasing demand for seats aboard aircraft should bode well for the industry and consumers.

REVIEW OF 2004

Since 2000, U.S. aviation has been jolted by a number of unanticipated events that have significantly impacted the demand for air travel. These include the September 11th terrorist attacks, conflict in the Middle East, the SARS epidemic, and a rapid run-up in world oil prices. The impact of these events on airlines, travel markets, and economic growth were immediate and significant.

Although the effect from these events has also been global in scope, the greatest impact by far has been on U.S. legacy airlines. Five U.S. mainline carriers are currently operating under Chapter 11 bankruptcy protection[3] and several others appear to be on the brink. Although demand recovered strongly in 2004, profits remained elusive for a fourth consecutive year. Following a 3-year run of declining shipments and weak billings, the market for general aviation products and services also staged a relatively strong recovery in 2004. General aviation aircraft shipments and billing were stimulated by growth in U.S. economic activity as well as by accelerated depreciation allowances for the operators of new aircraft.

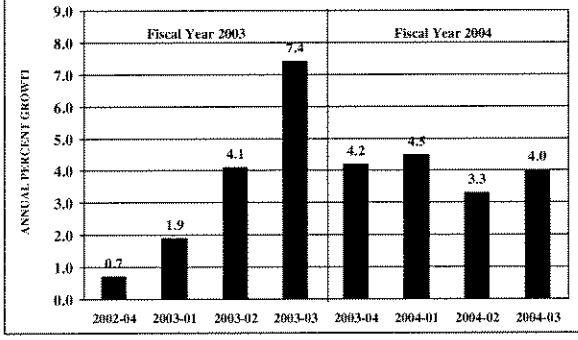
[3] Aloha Airlines, American Trans Air, Hawaiian, United Airlines, and US Airways.

Calendar and fiscal year results and growth rates have exhibited marked differences since September 11th, not only during the 2001 to 2003 time period, but also continuing through 2004. Where appropriate, statistics and growth rates are noted on both a fiscal and calendar year basis.[4] In addition, summary Table I-10 provides calendar year traffic statistics and growth rates for selected aviation supply and demand measures.[5]

U.S. ECONOMIC ACTIVITY

The U.S. economic recovery is well underway, with U.S. Gross Domestic Product (GDP) growing by 2.5 and 4.6 percent, respectively, in fiscal years 2003 and 2004. Seasonally adjusted quarterly growth has ranged from a low of 0.7 percent in first quarter fiscal 2003 to a high of 7.4 percent in fourth quarter fiscal 2003, the latter period reflecting the impact from the mid-year tax cut. The broad expansion in U.S. economic activity witnessed during the latter half of 2003 and most of 2004 is expected to continue into 2005 and 2006.

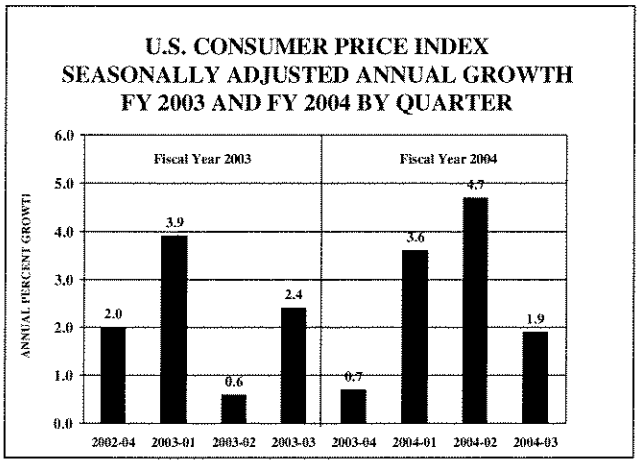
U.S. GROSS DOMESTIC PRODUCT
SEASONALLY ADJUSTED ANNUAL GROWTH
FY 2003 AND FY 2004 BY QUARTER



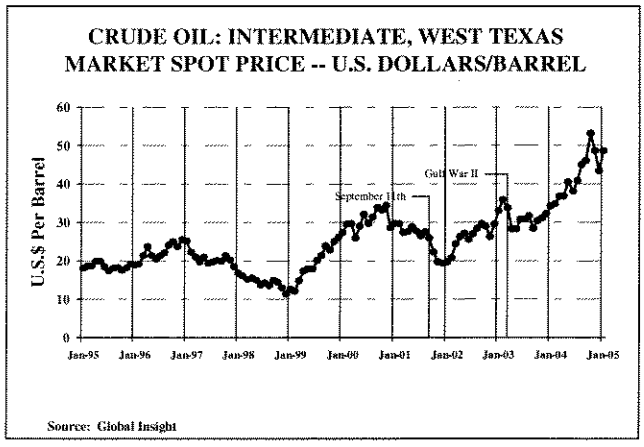
[4] All stated years and quarters for U.S. economic and U.S. air carrier traffic and financial data and forecasts are on a fiscal year (FY) basis (October 1 through September 30). All stated years and quarters for international economic and world traffic and financial data and forecasts are on a calendar year (CY) basis, unless otherwise denoted.

[5] See page I-41.

U.S. inflation (as measured by the consumer price index [CPI]) averaged 2.4 and 2.3 percent, respectively, in fiscal years 2003 and 2004. Although these annual price increases are no higher than the average over the last 10 years (2.4 percent), inflation edged considerably higher during the middle two quarters of fiscal 2004 (up 3.6 and 4.7 percent, respectively, on a seasonably adjusted basis), due, in large part, to the spike in oil prices.

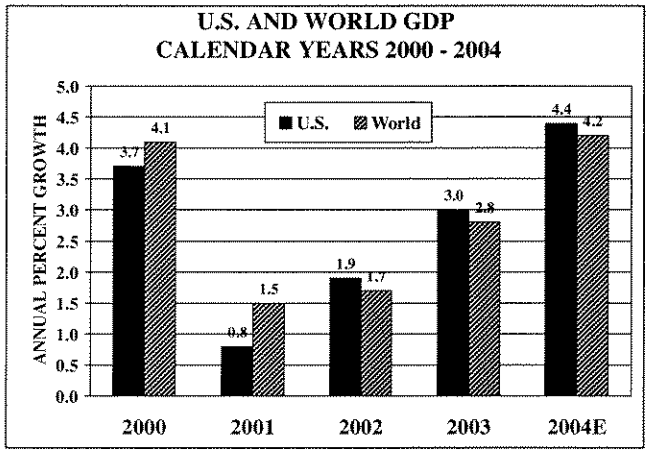


Fuel prices, as measured by the Oil and Gas Price Index, were up 18.5 percent in fiscal 2003 and 13.0 percent in fiscal 2004. However, much of the increase occurred during the latter half of 2004, with the spot price for intermediate west Texas crude oil peaking above $55/barrel in October. These high prices are the result of a number of factors, including strong worldwide economic demand and concerns regarding the potential disruption of oil supplies. Oil prices fell to $43/barrel in late December, prompting the Organization of the Petroleum Exporting Countries (OPEC) to cut oil production by 4.0 percent and to schedule another meeting for January 30 to consider further production cuts. In the interim, crude oil prices rose above $49/barrel in late January.



WORLD ECONOMIC ACTIVITY

Globally, economic gains have generally mirrored those of the U.S., growing by 4.2 percent in 2004 and averaging 2.5 percent annually over the past 4 years. The similarity in growth reflects the increasing convergence of global trade markets as well as the growing dependency of many world economies on export trade with the United States.



On a calendar year basis, economic growth in Canada is expected to be significantly less than that of the United States in 2004—up 3.0 percent compared to 4.4 percent. The combined economies of the Asian/Far East nations are expected to grow at an annual rate of 5.2 percent in 2004, due in large part to strong economic activity in China (up 9.1 percent) and the continuing economic recovery in Japan (up

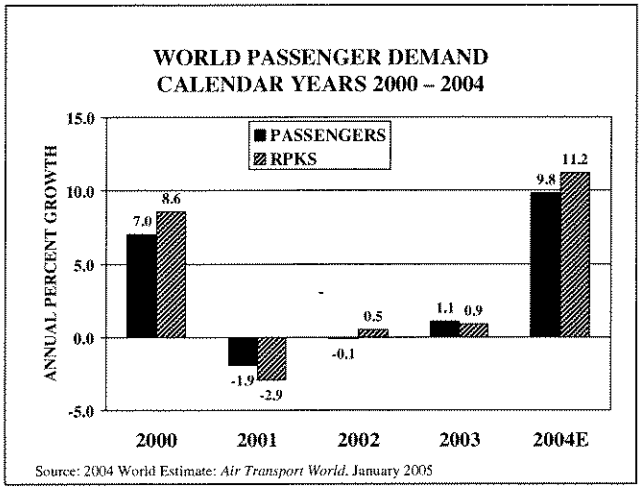
4.1 percent). The combined economies of the Europe/ Middle East/Africa nations are expected to grow by 3.0 percent in 2004, as relatively strong economic activity in Eastern European countries (up 7.1 percent) partially offsets sluggish growth in Eurozone[6] countries (up 1.9 percent). The combined economies of Latin America and Mexico are forecast to grow by 5.3 percent in 2004, the higher growth in this region due to the strong economic recoveries underway in Venezuela (up 16.4 percent) and Uruguay (up 11.0 percent).

COMMERCIAL AVIATION

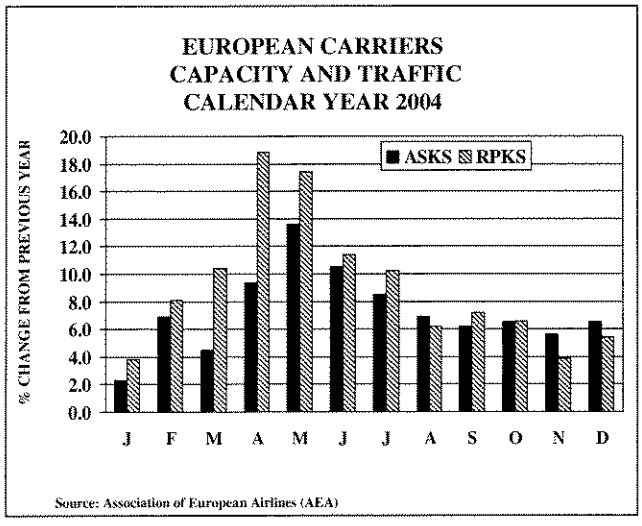
Although both U.S. and world airlines were heavily impacted by the run-up in jet fuel prices in 2004, the demand for aviation services was only minimally affected as increased competition from low-cost carriers (both U.S. and globally) precluded most carriers from passing the increased fuel costs on to the traveling pubic. The impact to U.S. and world airlines was to the bottom line—namely profits or the lack thereof.

World Travel Demand

Based on data compiled by the International Civil Aviation Organization (ICAO), world air carriers transported 1.6 billion passengers (up 1.1 percent) for a total of almost 3 trillion revenue passenger kilometers (RPKs) (up 0.9 percent) in calendar year 2003. Although worldwide traffic results are not available for full year 2004, early indications are that the demand for world aviation services more than made up for the slowdown attributed to SARS and the Gulf War in 2003. *Air Transport World* estimates that the number of passengers transported worldwide will increase by 9.8 percent and that worldwide RPKs will increase by 11.2 percent in 2004,[7] effectively surpassing pre-September 11th levels of demand for both passengers and RPKs.[8]



Statistics from the Association of European Airlines (AEA) indicate that passengers and RPKs increased 4.8 percent and 9.0 percent, respectively, during calendar year 2004. Capacity, as measured by available seat kilometers (ASKs), was up 7.3 percent.



The relatively strong growth by AEA members in 2004 largely reflects the strong recovery from the effects of the war in Iraq and SARS. During

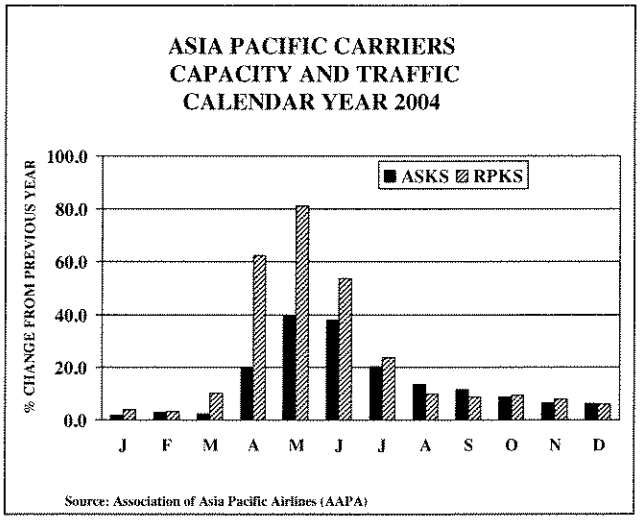
[6] Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain.

[7] *Air Transport World*, January 2005.

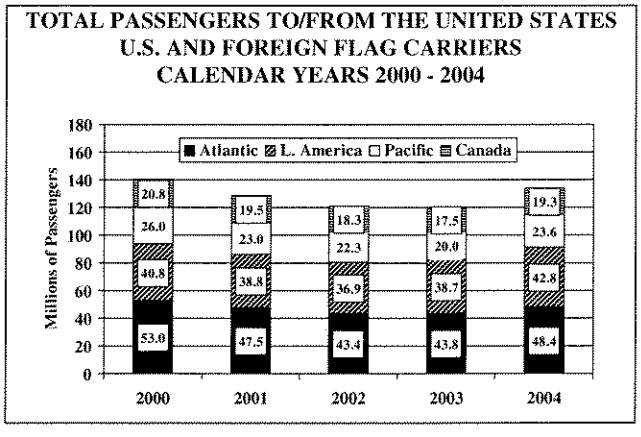
[8] All references of comparison to the pre-September 11th period use fiscal or calendar year 2000 as the base year.

the March to May 2004 time period, passengers were up 9.3 percent, RPKs up 15.5 percent, and ASKs up 9.1 percent.

The Association of Asian Pacific Airlines (AAPA) reported increases of 18.6 percent in RPKs and 13.1 percent in ASKs for calendar year 2004. For the 3-month period April to June, the height of the SARS epidemic in 2003, traffic and capacity were up 64.7 and 31.9 percent, respectively.

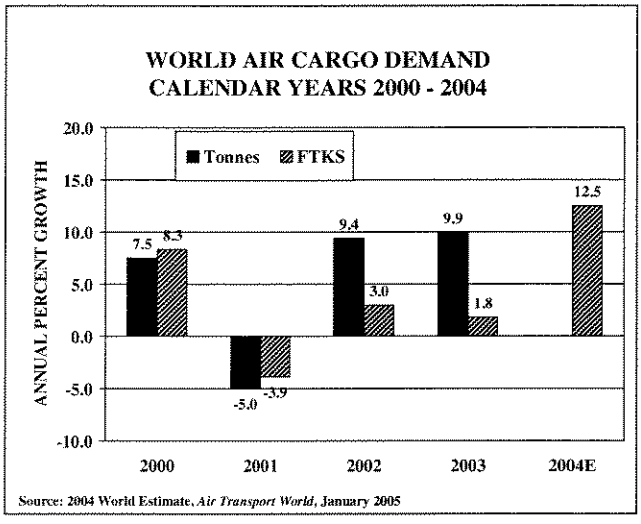


In calendar year 2004, it is estimated that U.S. and foreign flag carriers combined will transport a total of 134.0 million passengers between the United States and the rest of the world, an increase of 11.7 percent over 2003.



Passenger traffic is projected to increase in all four world travel regions in 2004--Atlantic markets, 48.4 million (up 10.4 percent); Latin American markets, 42.8 million (up10.5 percent); Asia/ Pacific markets, 23.5 million (up 17.7 percent); and Canadian transborder markets, 19.3 million (up 10.5 percent). Latin America is the only international travel market projected to return to pre-September 11th levels by the end of 2004.

Worldwide freight tonnes and freight tonne kilometers (FTKs) declined 5.0 and 3.9 percent, respectively, in 2001. Since then, however, worldwide air cargo demand has responded positively to stronger global economic activity, with freight tonnes and FTKs up 20.2 and 5.1 percent, respectively, over the past 2 years. *Air Transport World* estimates that worldwide FTKs will increase by 12.5 percent in 2004.[9]

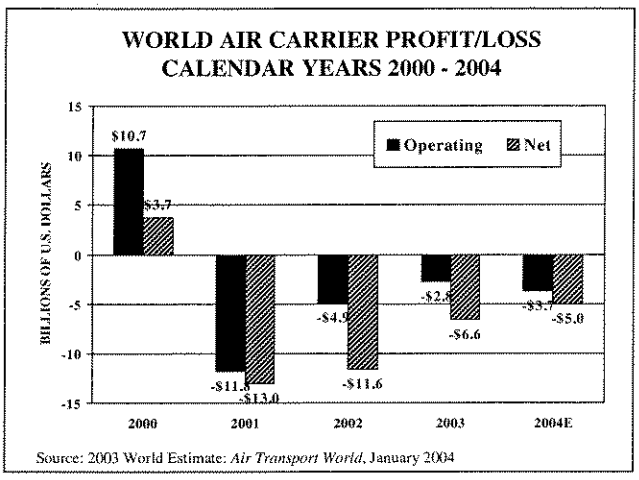


AEA statistics indicate that its member carriers' FTKs were up 9.9 percent in calendar year 2004. AAPA statistics show an increase of 13.8 percent over the same time period.

Based on financial data compiled by ICAO, world air carriers (including U.S. airlines) reported operating and net losses of $2.8 and $6.5 billion, respectively, in 2003. Since 2000, world airlines have incurred cumulative operating losses of $28.0 billion and net losses of $30.8 billion. Air carrier financial results in 2004 were heavily impacted by significantly higher fuel prices during much of the year. In

[9] *Air Transport World*, January 2005.

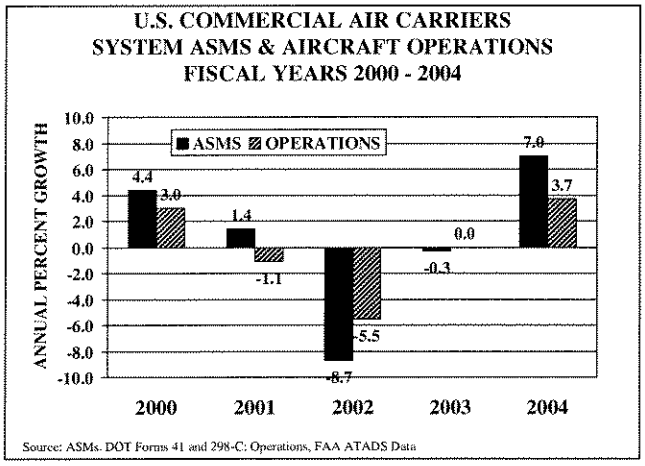
early December, the International Air Transport Association (IATA) estimated that global airline industry losses could top $4.0 billion in 2004.[10] Preliminary estimates by *Air Transport World* indicate that world airline operating and net losses could total $3.7 and $5.0 billion, respectively, in 2004.[11]



U.S. Travel Demand

The U.S. commercial aviation industry consists of 43 mainline air carriers that operate large passenger jets (over 70 seats) and 79 regionals/ commuters that operate smaller piston, turboprop, and regional jet aircraft (up to 90 seats) to provide feed to the larger carriers. Mainline and regional carriers generally provide both domestic and international passenger service between the U.S. and foreign destinations, although regional carrier international service is generally confined to border markets in Canada, Mexico, and the Caribbean. An additional 24 mainline all-cargo carriers provide domestic and/or international air cargo service.

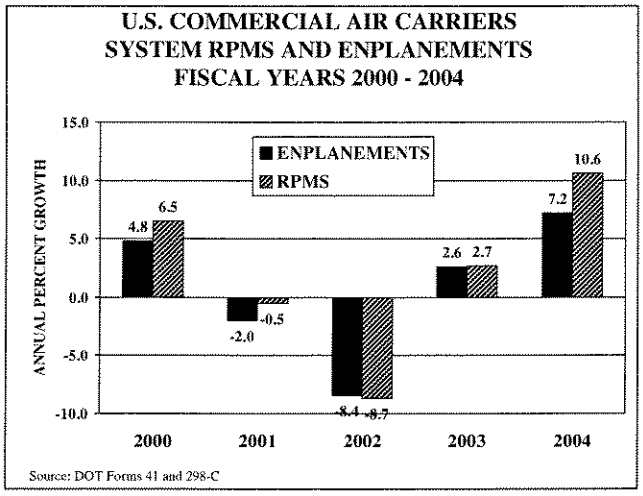
U.S. commercial air carrier system capacity (domestic plus international), as measured by available seat miles (ASMs), grew by 7.0 percent in 2004, while commercial aircraft flights at FAA and contract towers posted a gain of 3.7 percent. Although commercial carrier ASMs exceeded pre-September 11th levels in 2004, commercial activity at FAA facilities remains 2.9 percent below the levels recorded in 2000. The higher growth exhibited by ASMs relative to flights reflects the large increases in average trip length (up 46.4 miles) since 2000.



U.S. commercial air carrier system revenue passenger miles (RPMs) and passenger enplanements grew by 10.6 and 7.2 percent, respectively, in 2004. At the end of 2004, commercial air carrier RPMs exceeded pre-September 11th levels by 3.3 percent while passenger enplanements remain 1.3 percent below levels recorded in 2000. The higher growth exhibited by RPMs relative to enplanements reflects the large increases recorded in load factor (up 3.3 points) and passenger trip length since 2000.

U.S. commercial air carriers achieved an all-time high load factor of 75.2 percent in 2004, up 2.4 points over the previous high recorded in 2003.

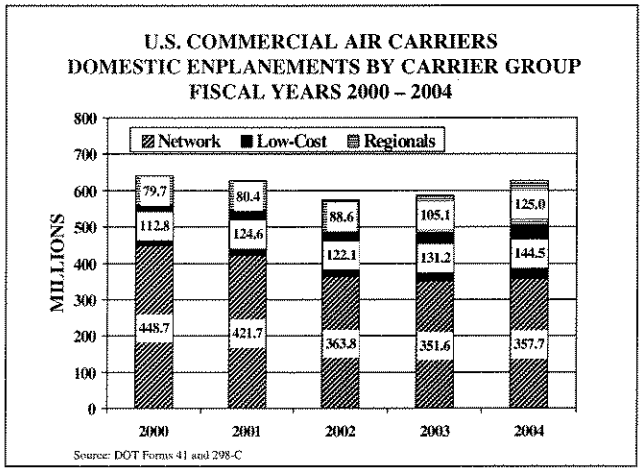
[10] *Aviation Daily*, December 3, 2004
[11] *Air Transport World*, January 2005



In calendar year 2004, it is estimated that commercial air carrier system capacity and traffic will increase as follows: ASMs up 8.4 percent; RPMs up 11.4 percent; and enplanements up 8.1 percent.

Three distinct trends have emerged since the events of September 11th that have helped shape today's U.S. commercial air carrier industry: (1) major restructuring and downsizing among the mainline legacy carriers; (2) rapid growth among low-cost carriers, particularly in nontraditional long-distance transcon markets; and (3) phenomenal growth among regional/commuter carriers. These trends will be discussed more fully in subsequent chapters of the forecast document.

The combined domestic enplanements of the low-cost carriers and regionals/commuters have increased 40.0 percent since 2000, totaling 269.5 million in 2004. In 2004, their combined passenger count represented 43.0 percent of system commercial enplanements, up from 30.0 percent in 2000.

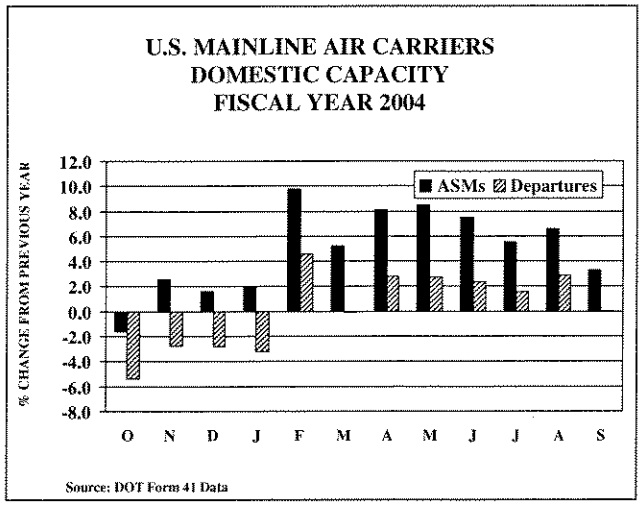


Mainline Air Carriers--Passengers

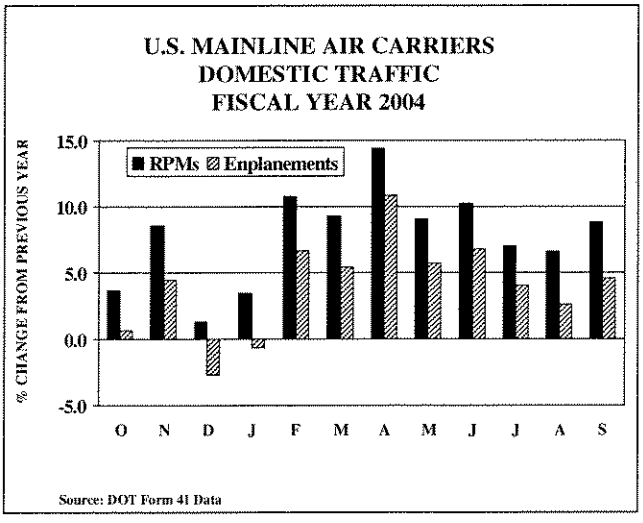
U.S. mainline carriers' system capacity and traffic (the sum of domestic and international services) posted relatively large increases in 2004. System ASMs were up 5.6 percent while system RPMs and enplanements showed gains of 9.2 and 4.9 percent, respectively. The system-wide load factor increased 2.5 points to 75.9 percent in 2004, an all-time high.

Mainline Domestic Passenger Markets

Domestic capacity (50 states, Puerto Rico, and the U.S. Virgin Islands) was up 4.9 percent in 2004 while the number of departures flown was up only 0.2 percent. Some of the growth in capacity reflects the schedule reductions implemented in April 2003 in response to reduced passenger demand resulting from the war in Iraq. Domestic ASMs were up 3.1 percent during the first half of fiscal 2004, but up 6.6 percent over the latter half of the year. Domestic departures declined 1.8 percent during the first half of the year but were up 2,1 percent over the last 6 months of 2004. At the end of 2004, domestic ASMs remain 5.0 percent below pre-September 11th levels, departures 15.4 percent below.



For the most part, domestic traffic demand was relatively strong throughout the year, with the mainline carriers posting gains of 7.7 and 4.0 percent in RPMs and enplanements, respectively, in 2004. As with capacity, part of the increase in 2004 reflects weak passenger demand in 2003 as a result of the start of the war with Iraq. Despite the gains achieved in 2004, domestic enplanements remain 10.6 percent below pre-September 11th levels, domestic RPMs only 0.3 percent below.



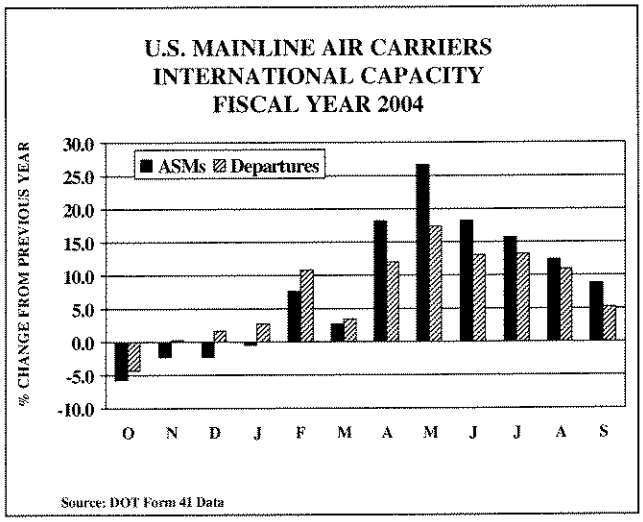
Mainline carriers achieved an all-time high domestic load factor of 74.7 percent in fiscal 2004, an increase of 2.0 points over the previous year.

In calendar year 2004, it is estimated that mainline carrier domestic capacity and traffic will increase as follows: ASMs up 5.6 percent; RPMs up 8.3 percent; and enplanements up 4.9 percent.

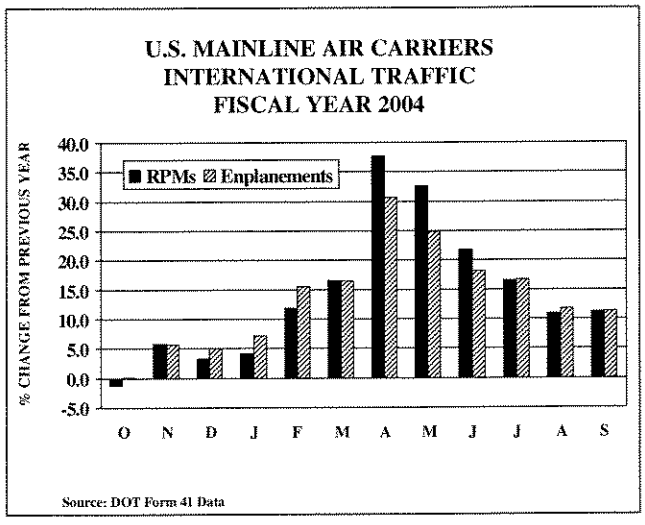
Since 2000, mainline network carriers have reduced their domestic capacity by 14.3 percent while low-cost carriers have reported capacity increases of 40.5 percent. Owing to the large reductions in capacity, network carrier RPMs and enplanements fell 9.8 and 20.3 percent, respectively. During this same time period, low-cost carrier RPMs and enplanements have increased 46.8 and 28.0 percent, respectively. The bottom line result is that the network carriers' share of domestic mainline capacity has fallen from 82.9 percent in 2000 to 74.7 percent in 2004 while their share of RPMs has fallen from 83.2 to 75.3 percent.

Mainline International Passenger Markets

Mainline carriers posted strong gains in international capacity and traffic in 2004, the strong showing during the April to June period reflecting the negative impacts of SARS and the start of the Gulf War in 2003. U.S. carriers' ASMs and departures were up 7.9 and 7.1 percent, respectively, in 2004. ASMs and departures increased in all world travel regions—up 12.1 and 7.9 percent, respectively, in Latin American markets; up 7.3 and 6.4 percent, respectively, in Atlantic markets; and up 5.4 and 5.7 percent, respectively, in Asia/Pacific markets.



International RPMs and passenger enplanements were up 13.7 and 13.4 percent, respectively, in 2004. Asia/Pacific markets posted the strongest gains, with RPMs up 15.8 percent and enplanements up 17.3 percent. RPMs and enplanements grew by 13.7 and 12.9 percent, respectively, in Latin American markets and by 12.3 and 11.7 percent, respectively, in Atlantic markets.



International load factor reached an all-time high of 79.5 percent in 2004, up 4.0 percentage points over the previous year. All three world travel regions recorded record high load factors in 2004: 84.2 percent in Asia/Pacific markets; 81.7 percent in Atlantic markets; and 70.3 percent in Latin American markets.

Despite the relatively strong growth recorded during 2004, U.S. international ASMs and RPMs remain 7.0 and 2.8 percent, respectively, below levels recorded in 2000. However, both departures and enplanements exceeded 2000 levels in 2004. This disparity reflects the stronger growth exhibited in the shorter trip distance Latin American markets for both capacity and traffic since 2000. With the exception of Asia/Pacific passenger enplanements (9.6 percent above 2000 levels[12]), all other capacity and traffic measures for the Atlantic and Pacific markets remain below levels achieved in 2000.

In calendar year 2004, it is estimated that international capacity and traffic will increase as follows: ASMs up 11.8 percent; RPMs up 15.7 percent; and enplanements up 14.9 percent.

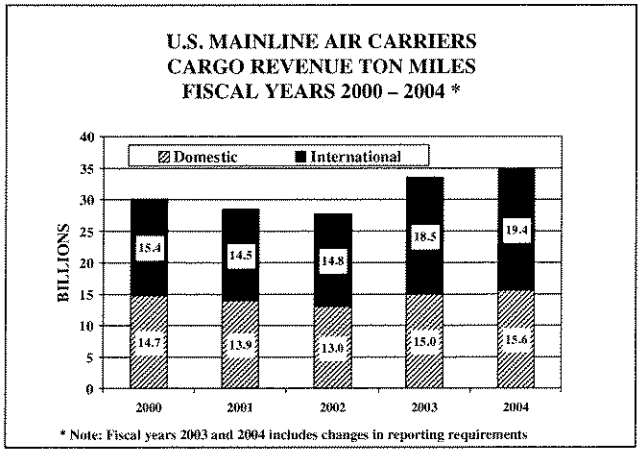
Mainline Air Carriers--Cargo

Since September 11th, both the FAA and the Transportation Security Administration (TSA) have issued a number of security directives aimed at strengthening security standards for transporting cargo on both passenger and all-cargo flights. These directives have had the effect of diverting some portion of the freight and mail cargo from passenger to all-cargo carriers. In November 2004 TSA issued a notice of proposed rulemaking that applies security requirements throughout the supply chain.

The recovery in U.S. cargo activity occurred somewhat earlier and has been stronger than that of passenger traffic, reflecting, in part, the strong growth in both U.S. and world economic activity. U.S. air carrier cargo revenue ton miles (RTMs) increased 4.8 percent in 2004,

[12] ATA's *Monthly Passenger Traffic Reports* show that Pacific enplanements were 6.2 percent below 2000 peak enplanements at the end of fiscal year 2004.

3.8 percent in domestic markets and 5.5 percent in international markets.



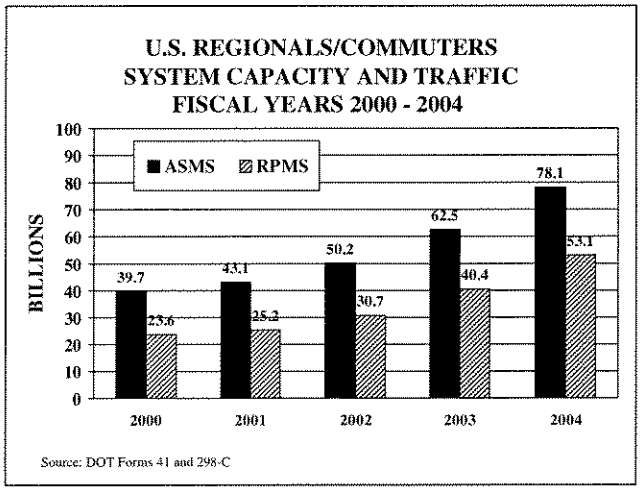
In 2004, all-cargo carriers transported 75.9 percent of domestic RTMs and 59.7 percent of international RTMs, up from 70.0 and 49.3 percent, respectively, in 2000.

Regionals/Commuters

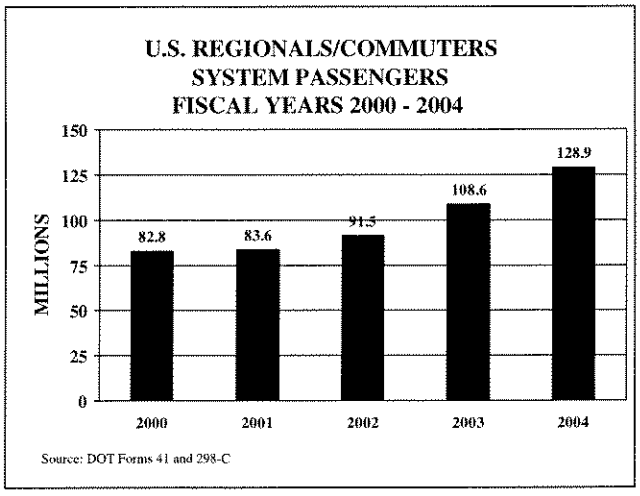
Regionals/commuters continued to benefit from their larger code-share partner's restructuring and downsizing during 2004. Regional/commuter ASMs were up 25.0 percent in 2004 (up 96.9 percent since 2000), 25.1 percent in domestic markets and 20.9 percent in international markets. However, regional/commuter departures have grown at a somewhat slower pace, up 7.0 percent in 2004 and up only 13.6 percent since 2000.

The higher growth in ASMs relative to departures is due, in large part, to the large increases recorded in the average stage and passenger trip lengths since 2000—up 102.0 and 126.1 miles, respectively. The longer stage and trip length increases reflect the fact that most of the routes transferred from the larger partners were in medium-haul, non-traditional regional markets that could be flown more efficiently by smaller regional jets. The slower growth in departures since 2000 also reflects the fact that many of the shorter trip distance piston and turboprop flights have either been replaced by larger regional jets or discontinued altogether.

Regional/commuter passenger traffic also continued to grow strongly in 2004. System RPMs were up 31.2 percent (up 124.5 percent since 2000), 31.2 percent in domestic markets and 33.8 percent in international markets. In addition, regionals/commuters achieved an all-time high load factor of 67.9 percent in 2004, up 3.2 percentage points over the previous year.



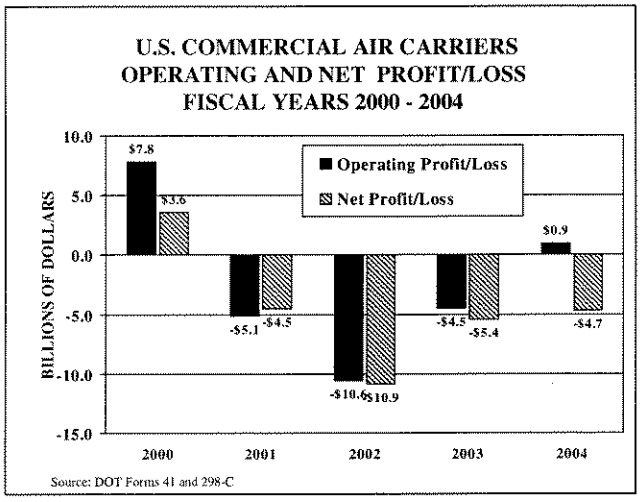
Regionals/commuters enplaned a total of 128.9 million passengers in 2004, up 18.7 percent over 2003 and up 55.7 percent over 2000. Domestic passengers totaled 125.0 million (up 19.0 percent) while international passengers totaled 3.9 million (up 11.0 percent). The large disparity in passenger growth relative to passenger miles is due to the large increases in stage and passenger trip length.



In calendar year 2004, it is estimated that system regional/commuter capacity and traffic will increase as follows: ASMs up 24.5 percent; RPMs up 29.6 percent; and enplanements up 18.9 percent.

U.S. Commercial Air Carriers 2004 Financial Results

Financial results for the U.S. commercial airline industry (including regionals/commuters) were largely mixed in 2004, reflecting large disparities between passenger and cargo carriers, between domestic and international markets, as well as among the various passenger carrier groupings. In fiscal year 2004, U.S. commercial airlines reported an operating profit of $939.2 million and a net loss of $4.7 billion. Since 2000, the industry has posted cumulative operating and net losses of almost $20.0 and $26.0 billion, respectively.



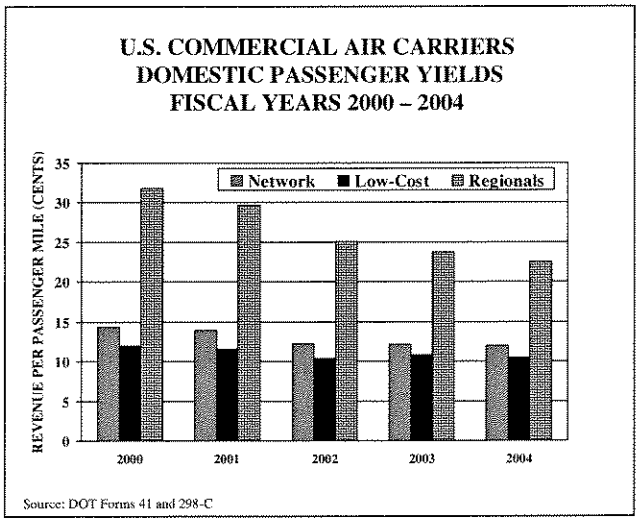
Operating revenues (passenger and cargo) were up 10.2 percent in 2004, reflecting relatively strong passenger and cargo demand. Operating expenses were up only 5.3 percent in 2004, reflecting the tremendous strides made by most mainline carriers in reducing operating costs. Unfortunately, a 22.5 percent spike in jet fuel prices (from $0.833 to $1.021) negated most of these gains. The higher jet fuel costs are estimated to have cost the industry an additional $3.4 billion in operating costs in 2004, effectively wiping out what could have been a reasonably strong year financially.

In 2004, air cargo carriers reported operating and net profits of $1.6 billion and $832.4 million, respectively. FedEx dominated the cargo industry in terms of profits in 2004, accounting for 76.3 and 84.7 percent, respectively, of the group's operating and net profits. However, most of the carriers in this group posted positive results in 2004. On the other hand, passenger carriers reported operating and net losses of $691.4 and $5.5 billion, respectively, in 2004.

International operations were largely profitable for both air cargo and passenger carriers in 2004. Air cargo carriers reported operating and net profits of $980.6 and $540.5 million, respectively, in 2004. Passenger airlines earned $1.3 billion in operating profit and $238.3 million in net profit. While domestic markets were generally profitable for cargo carriers (operating and net profits of $799 and $371 million) they

were an absolute disaster for passenger carriers who incurred an operating loss of $2.3 billion and a net loss of $5.9 billion in 2004.

The seven low-cost carriers reported combined operating and net profits of $642.4 million and $191.5 million, respectively, in 2004. However, these carriers' financial results represent a deterioration from 2003 results and recent trends provide some cause for concern. Three of the 7 carriers posted operating losses, 4 carriers reported net losses, and American Trans Air is currently operating under Chapter 11 bankruptcy protection. In addition, intense competition against the legacy carriers, especially in the transcon markets, has been costly to the carriers in terms of passenger yield. Low-cost carriers' passenger yield declined 2.1 percent in 2004 (compared to a 1.1 percent decline for the network carriers) and is down 12.7 percent since 2000.



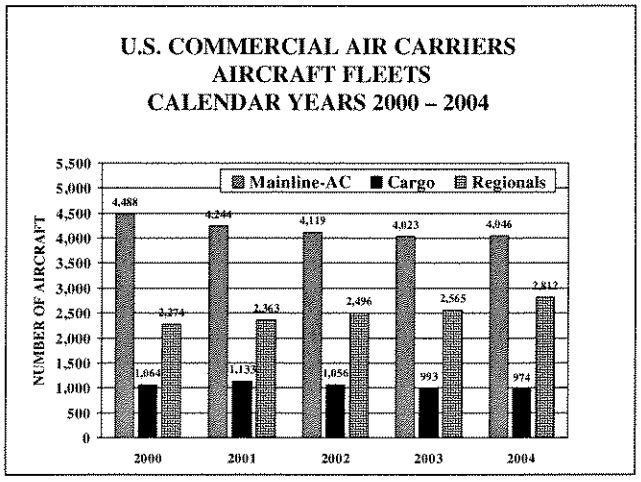
Regional/commuter carriers were also largely profitable in 2004, reporting operating profits of $1.0 billion and net profits of $432.8 million. Although profitable, these carriers' future is closely tied to the fortunes of the larger legacy carriers for whom they provide feed at major air carrier airports. U.S. mainline carrier regional affiliates' passenger yield declined 5.4 percent in 2004 and is down 24.2 percent since 2000. Much of the decline in 2004 reflects the lower fee-per-departure contracts negotiated with their larger partners.

Most of the industry's financial loss is from the seven legacy carriers' domestic operations. Since 2000, these seven carriers have reported combined operating and net losses of $22.9 and $23.4 billion, respectively, on their domestic operations. In 2004 alone, the seven carriers domestic operations incurred operating and net losses of $3.8 and $6.2 billion, respectively. Three carriers—Delta, United, and US Airways—accounted for almost 64 percent of the operating loss and 78 percent of the net loss. Two of the carriers are operating under Chapter 11 bankruptcy protection and several others are on the brink. These seven carriers accounted for 64.9 percent of domestic capacity and transported 55.0 percent of all domestic passengers in 2004.

U.S. Commercial Air Carriers 2004 Aircraft Fleets

In the immediate aftermath of September 11th, many of the mainline airlines grounded large numbers of their older, less efficient aircraft and deferred delivery of many of the new aircraft scheduled for delivery over the next several years. The industry's current weakened financial condition has dictated yet another round of restructuring and cost reduction efforts, the end result being the grounding of additional aircraft and/or the deferring of additional aircraft deliveries.

The number of aircraft in the U.S. commercial fleet (including regionals/commuters) is estimated to total 7,832 in 2004, an increase of 251 aircraft from 2003. This includes 4,046 mainline air carrier passenger aircraft (over 70 seats), 974 mainline air carrier cargo aircraft, and 2,812 regional/commuter aircraft (jets, turboprops, and pistons).



Although the mainline carriers' passenger jet fleet increased slightly (up 23) in 2004, the fleet contains 442 fewer aircraft than in 2000. During this same 4-year period, the legacy carriers' fleet declined by 513 aircraft while the low-cost carriers' fleet increased by 200 aircraft.

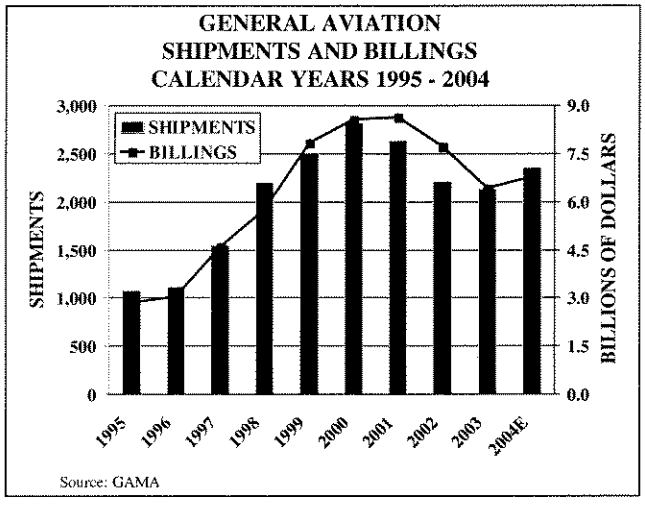
The mainline carrier cargo fleet has declined for 3 successive years—down 77 aircraft in 2002, 63 aircraft in 2003, and 19 aircraft in 2004. On the other hand, the regional/commuter passenger fleet has increased by a total of 538 aircraft since 2000. During this 4-year period, a total of 1,060 regional jets have been added to the regional carriers' fleet while the number of turboprops and pistons has declined by 522 aircraft.

Worldwide orders for commercial jet aircraft totaled 908 in 2004, an increase of 125 aircraft (16.0 percent) over 2003. Orders for narrow-body twins were up 19.0 percent (70 aircraft) while orders for the smaller regional jets were up 1.2 percent (4 aircraft). Orders for the larger Boeing and Airbus jets were up 23.2 percent (121 aircraft) in 2004, including 66 orders for the new Boeing 7E7 and Airbus A-380 aircraft.

A total of 914 commercial jet aircraft were delivered worldwide in 2004, an increase of 2.7 percent over the same period in 2003. This included delivery of 602 large jet aircraft (up 2.7 percent) and 312 regional jets (down 1.0 percent).

GENERAL AVIATION

Based on preliminary numbers released by the General Aviation Manufacturers Association (GAMA), U.S. manufacturers of general aviation aircraft shipped a total of 2,355 aircraft during calendar year 2004. This represents an increase of 10.2 percent over the same period in 2003, and essentially ends 3 consecutive years of declines. All aircraft categories shared in the recovery—piston aircraft, up 10.6 percent; turboprops, up 19.0 percent; and jets, up 4.9 percent. Billings totaled $6.8 billion (up 5.7 percent) in 2004, reversing 2 consecutive years of decline. Worldwide shipments and billings were up 8.8 and 17.2 percent, respectively.

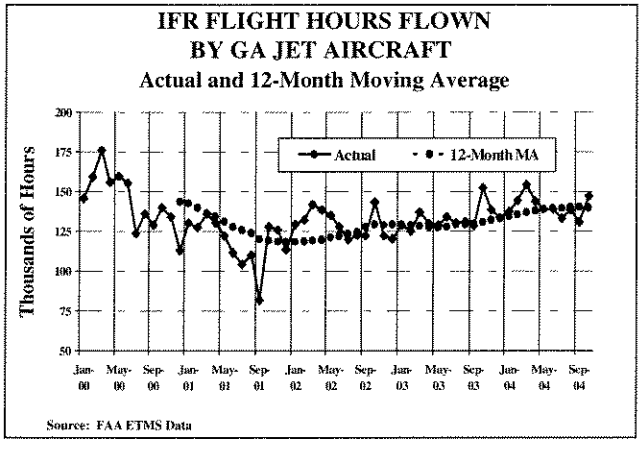


The delivery of 1,758 piston aircraft in 2004 provides additional proof that the array of new aircraft models has stimulated sales in the low end of the market. The Aerospace Industries Association of America (AIA) also foresees an upturn in general aviation shipments and billing in 2004. AIA predicts that general aviation aircraft shipments will total 2,230 (up 4.7 percent) and that industry billings will total $6.2 billion (up 1.2 percent) in 2004.[13]

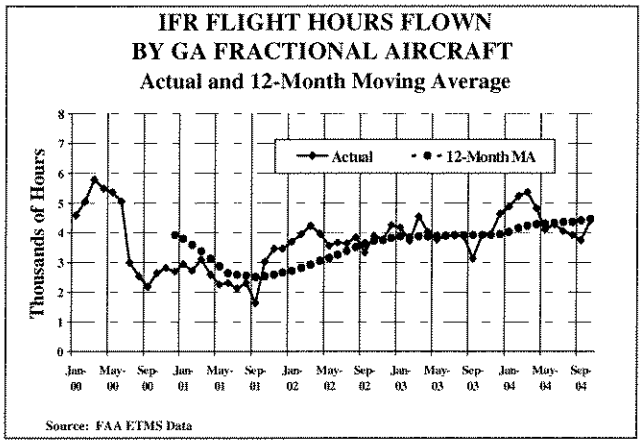
[13] *2004 Year-end Review and 2005 Forecast—An Analysis*, Aerospace Industries Association of America, December 2004.

General aviation activity at FAA air traffic facilities was, for the most part, mixed in 2004. Operations at combined FAA and contract towers declined 1.6 percent in 2004 (down 12.4 percent since 2000) with itinerant and local operations down 1.2 and 2.1 percent, respectively. Instrument activity (IFR) at combined FAA and contract towers was basically flat in 2004 (down 0.2 percent) while the number of general aviation aircraft handled at FAA en route centers was up 4.4 percent.

The generally more positive numbers posted for general aviation IFR activity provides some indication that the slowdown in business/ corporate and fractional ownership flying over the past several years may be turning around. Statistics from the FAA's Enhanced Traffic Management System (ETMS) database also appears to confirm the turnaround in business flying. The data show that the number of general aviation jet flights filing IFR flight plans and the number of flight hours were up 1.6 and 6.2 percent, respectively, during calendar year 2004. It is this segment of the market that appears to offer the greatest potential for future growth in the industry.



The FAA ETMS data also show that general aviation flying by fractional aircraft has continued to outpace the industry, with flights and hours flown up 5.5 and 14.0 percent, respectively, in 2004. The industry is counting on growth in fractional ownership companies and corporate flying to expand the market for jet aircraft.



Based on preliminary results from the 2003 General Aviation and Air Taxi Activity Survey (GA Survey)[14], the active general aviation fleet (210,599 aircraft) declined by 0.3 percent while flight hours (27.1 million) were basically unchanged from 2002. Based on the latest GAMA aircraft shipment statistics and FAA assumptions regarding fleet attrition and aircraft utilization, the active general aviation fleet is estimated to total 211,295 (up 0.3 percent) in 2004. Flight hours are forecast to total 27.3 million (up 0.8 percent) in 2004.

As in previous forecasts, the key to the future of general aviation continues to be increased numbers of student pilots. Based on statistics compiled by the FAA's Mike Monroney Aeronautical Center, the number of student pilots increased by 0.7 percent in 2004, the second consecutive annual increase in this important pilot category. The industry has, over the past several years, instituted a number of industry-wide programs designed to attract new pilots to general aviation. The future of the general aviation industry will depend, in large part, on how successful the industry is in continuing to rebuild and stimulate new interest in these programs.

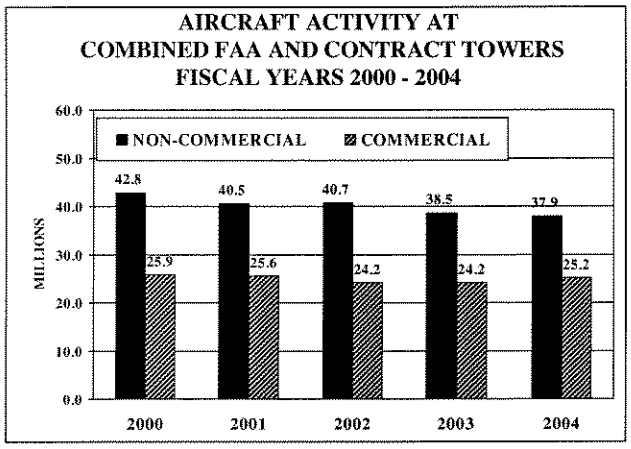
[14] The preliminary results are as of January 10 ,2005 and are subject to change. Surveyed aircraft owners still have 3 weeks remaining to respond to the 2003 GA Survey questionnaire.

FAA WORKLOAD

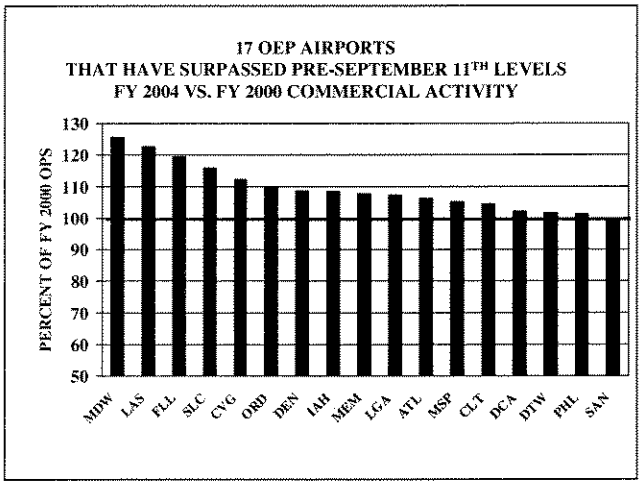
Between 1997 and 2000 the demand for both commercial and general aviation services at FAA air traffic facilities expanded significantly—up 2.6 percent annually at combined FAA and contract towers and up 3.3 percent a year at en route centers. It is this growth that gave rise to the delays that plagued many U.S. commercial airports in 2000 and 2001. Although activity at FAA air traffic facilities declined significantly following the events of September 11th, the demand for air travel has, for all intents and purposes, recovered, which has resulted in increased delays at some U.S. airports during 2004.

Total activity at combined FAA and contract tower airports totaled 63.1 million in 2004, up 0.5 percent over 2003 but still 8.2 percent below the peak activity level recorded in 2000. Commercial activity (the sum of air carrier and commuter/air taxi) at combined FAA and contract towers increased 3.7 percent in 2004. Air carrier operations (12.9 million) were up 0.8 percent in 2004 but remain 14.7 percent below their peak 2000 activity level. Commuter/ air taxi activity was up 7.0 percent in 2004 to 12.2 million--13.6 percent above its 2000 activity level. Since 2000, commuter/air taxi's share of commercial activity has increased from 41.5 to 48.6 percent.

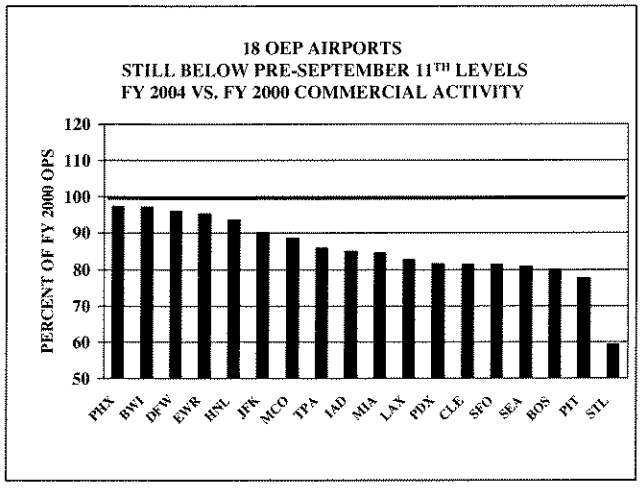
Non-commercial activity (the sum of general aviation and military) at combined FAA and contract towers declined 1.6 percent in 2004, with general aviation activity (34.9 million) down 1.6 percent and military activity (3.0 million) down 1.1 percent. At the end of 2004, non-commercial aircraft activity remains 11.3 percent below the level of activity flown in 2000.



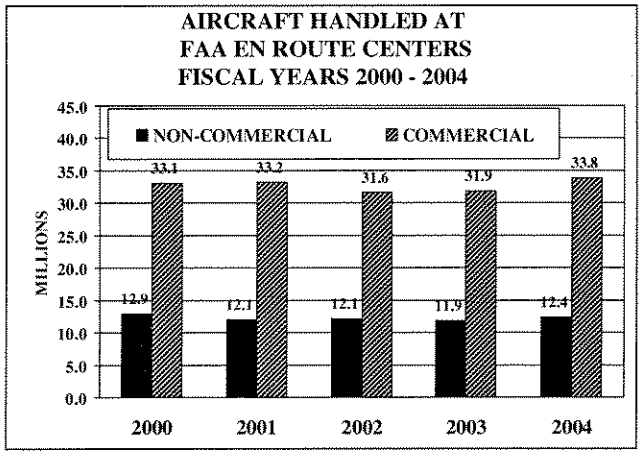
At the end of fiscal year 2004, combined commercial activity at the 35 Operational Evolution Plan (OEP) airports had recovered to within 2.7 percent of the pre-September 11th peak activity level. Seventeen airports now exceed their 2000 peak activity levels while 18 airports remain below 2000 levels.



Chicago Midway (up 25.7 percent), Las Vegas (up 22.7 percent), and Ft. Lauderdale (up 19.3 percent) have made the greatest strides in recovering from the capacity reductions implemented as a result of the events of September 11th. St. Louis (down 40.5 percent) and Pittsburgh (down 23.4 percent) have fared the worst.



During 2004, total activity at FAA en route centers (46.2 million) was up 5.6 percent, surpassing the peak 2000 activity level. Commercial activity was up 6.1 percent, with air carrier (23.9 million) and commuter/air taxi operations (10.0 million) up 4.9 and 9.1 percent, respectively. Non-commercial activity was up 4.4 percent in 2004 with both general aviation (8.4 million) and military activity (4.0 million) recording increases of 4.4 percent. Despite the relatively large growth achieved by all user groups in 2004, only commuter/air taxi exceeded its 2000 activity level--up 13.6 percent. All other user groups remain below their 2000 peak activity levels—air carrier, down 4.5 percent; general aviation, down 4.5 percent; and military, down 4.0 percent.



The number of traditional (non-automated) services provided at FAA Flight Service Stations (FSS) totaled 27.1 million in 2004, a decline of 2.2 percent from 2003. All categories of flight services decreased in 2004: flight plans originated, down 0.5 percent; pilot briefings, down 3.0 percent; and aircraft contacted, down 4.7 percent. Adding Direct User Access Terminal System (DUATS) transactions (up 13.1 percent) increases total flight services to 46.8 million, an increase of 3.7 percent over 2003.

FAA
AEROSPACE FORECASTS
FISCAL YEARS 2005 – 2016

The challenges in developing forecasts of aviation demand and activity levels continue to be daunting while the uncertainties confronting the aviation industry have remained complex and difficult to quantify. Some industry analysts continue to question whether past relationships can be viewed as accurate predictors of the future. Nevertheless, the FAA has developed a set of assumptions and forecasts that is believed to be consistent with the emerging trends and structural changes currently taking place within the aviation industry.

The main assumption in developing this year's forecasts continues to be that there will not be a successful terrorist incident against either U.S. or world aviation. Additionally, the forecasts do not assume a major contraction of the industry through bankruptcy, consolidation, or liquidation.

The commercial aviation forecasts and assumptions have been developed from econometric models that attempt to explain and incorporate emerging trends for three carrier groupings—legacy network carriers, low-cost carriers, and regionals/commuters. Strategies and success levels can be expected to differ for each carrier grouping.

Legacy Network Carriers—This group of carriers has been the most negatively impacted by the series of unanticipated events that have occurred since September 11th and have undertaken massive restructuring efforts in an attempt to redefine themselves in light of the post September 11th operating environment and new industry realities. These carriers generally operate hub-and-spoke networks and have higher operating costs than their competitors. Their strategies since September 11th have been characterized by downsizing and cost cutting so as to lower their operating costs more in line with those of the low-cost carriers. These efforts have, for the most part, been relatively successful in that the cost gap between the legacy carriers and their lower cost competition has narrowed considerably. However, due to the continuing string of external events over which they have little or no control profitability remains elusive to most of the carriers in this group. Two of the carriers (United and US Airways) are currently operating under Chapter 11 bankruptcy protection.

Low-cost Carriers—This group consists of established low-cost carriers, new entrants, as well as former network carriers that have restructured themselves into low-cost operators. Although impacted by the events of September 11th, these carriers have generally prospered and experienced relatively high growth over the past several years. These carriers generally operate point-to-point route systems and have lower operating costs than their main competition. However, several carriers operate what could be considered mini hub-and-spoke networks. Their strategy since September 11th has been one of growth—growth in the number of airports and city-pairs served, growth in nontraditional long distance transcontinental and Florida markets, and growth in the numbers of aircraft in their fleets. Unlike the larger legacy carriers, this group has generally been profitable. However, the recent spike in oil prices has also impacted the bottom line for all carriers in the group. American Trans Air (ATA) is currently operating under Chapter 11 bankruptcy protection and it is too early to determine whether Southwest's recent agreement to purchase some of ATA's assets and code-share at Midway Airport will enable the carrier to return to profitability.

Regionals/Commuters—This group consists of 79 carriers that operate both jet and turboprop aircraft (up to 90 seats) and whose basic mission is to provide feeder traffic to their larger code-share or equity partner's hub networks. However, several of the larger regionals/ commuters now provide point-to-point service that is in direct competition with the larger network carriers. Since September 11th these carriers have benefited

significantly from network carrier route restructuring and cost cutting efforts, taking over service to many medium to long-haul markets previously served by their larger partners. For the most part, these carriers are generally profitable, receiving direct compensation from their partners either through a fixed-fee-per-flight contract or on a prorated fare basis for connecting flights. However, the poor financial health of the larger code-share partners has resulted in most fixed-fee-per-flight contracts being renegotiated at significantly lower rates during 2004.

The starting point for developing the commercial aviation forecasts (air carriers and regionals/ commuters) continues to be the future schedules published in the Official Airline Guide (OAG). Using monthly schedules allows FAA forecasters to develop capacity and demand forecasts for both mainline and regionals/ commuters on a monthly basis for fiscal and calendar year 2005. However, the forecasts for 2006-2016 are based on econometric models that are discussed in subsequent chapters.

The general aviation forecasts once again rely heavily on the assumptions developed at the September 2002 12th FAA/Transportation Research Board (TRB) International Workshop on Future Aviation Activities.[15] These assumptions have been updated by FAA economists to reflect more recent actual data, developing trends, as well as discussions with industry experts.

A final step in the FAA forecast process is the presentation of its forecasts and assumptions to industry staff and aviation associations who are asked to comment on the reasonableness of the assumptions and forecasts. Their comments and/or suggestions have been incorporated into the forecasts contained herein.

[15] Transportation Research Circular Number E-C051, *Future Aviation Activities 12th International Workshop*, Transportation Research Board of the National Academies, January 2003.

ECONOMIC FORECASTS

The economic forecasts used by the FAA to project domestic aviation demand are provided by the Executive Office of the President, Office of Management and Budget (OMB). In addition, the FAA uses the U.S. macro economic projections of the Congressional Budget Office (CBO) as well as those of Global Insight, Inc., a commercial forecasting service. These alternative forecasts provide the FAA with a range of economic forecasts with which to gauge the risk associated with variations from the OMB projections. The FAA uses the world and individual country economic projections provided by Global Insight to forecast the demand for international aviation services.

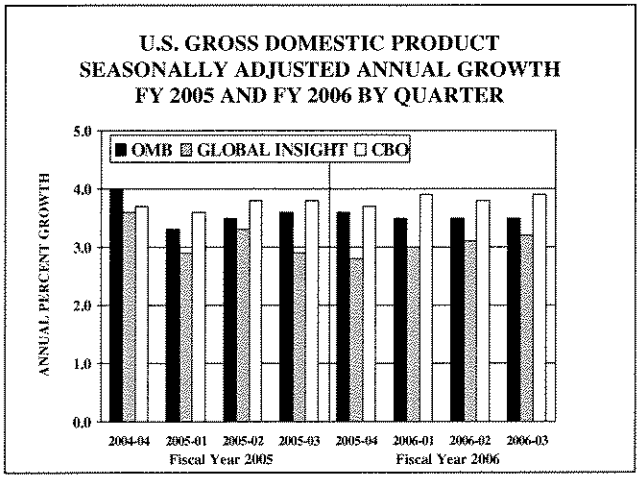
In any given year there are likely to be variations around the long-term trend. None of the current economic models used by the FAA are sufficiently precise to predict interim business cycles. In addition, the impact from unanticipated developments, such as the 2003 war in Iraq and SARS epidemic or the run-up in oil prices in 2004 cannot be predicted with any degree of certainty.

The projected growth of aviation demand discussed in this and subsequent chapters is consistent with the national short and long-term economic growth forecasts discussed in greater detail in Chapter II. Table I-1 (page I-20) summarizes the key U.S. and world economic assumptions used in developing the domestic and international aviation demand forecasts. Annual historical data and economic forecasts are presented in tabular form in Chapter X, Tables 1 through 6.

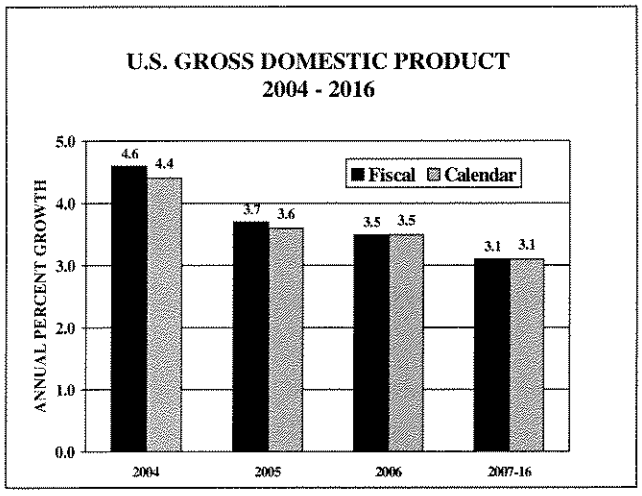
United States Economy

While there is basic agreement among the three economic projections used by the FAA as to the general direction of the U.S. economy—strong growth in the early years of the forecast period and moderate growth thereafter—there are some discernable differences in both short and long-term growth rates. In addition, there are notable differences regarding future energy prices.

The OMB economic forecasts project that the U.S. economic recovery will be in full upswing over the next several years, with real GDP expanding by 3.7 percent in fiscal year 2005, 3.5 percent in 2006, and 3.4 percent in 2006. Global Insight forecasts slower growth in all 3 years--3.4 percent in 2005, 3.0 percent in 2006, and 3.1 percent in 2007. On the other hand, CBO projects higher growth in 2 of the 3 years—3.7 percent in 2005 and 3.8 percent in both 2006 and 2007.



Both OMB and Global Insight project U.S. real GDP to grow at an annual rate of 3.2 percent over the 12-year forecast period. CBO projects slightly slower growth (3.0 percent) over the same period.



OMB projects that energy prices (as measured by the oil and gas deflator) will increase by 21.3 percent in 2005, then decline by 9.6 percent in 2006 and 6.1 percent in 2007. Global Insight is somewhat more optimistic toward short-term oil prices, projecting an 11.5 percent increase in 2005 followed by declines of 11.5 and 1.0 percent over the following 2 years. CBO takes a considerably more pessimistic view, projecting a 17.5 percent increase in 2005 but declines of only 1.3 and 0.8 percent, respectively, in 2006 and 2007.

OMB assumes that nominal energy prices will increase at an average annual rate of 1.5 percent over the 12-year forecast period. Global Insight is more optimistic, with oil prices projected to increase by only 0.5 percent annually over the next 12 years. CBO assumes a more pessimistic long-term view, projecting oil prices to increase at an annual rate of 2.6 percent over the entire forecast period.

Both OMB and Global Insight predict that real energy prices will decline over the 12-year forecast period, down 1.0 and 1.8 percent, respectively. CBO projects that real oil prices will increase by 0.4 percent annually over the forecast period.

TABLE I-1

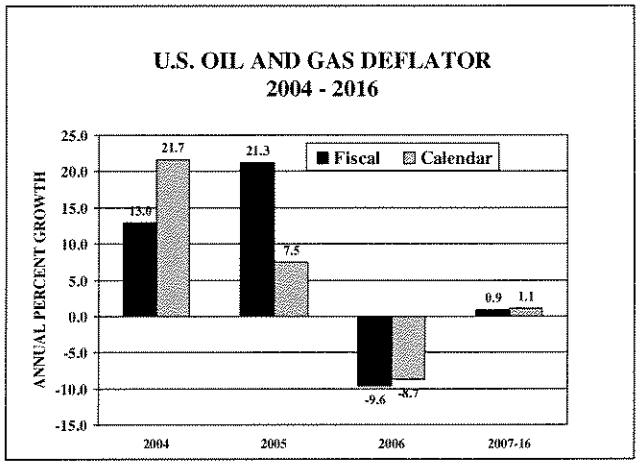
ECONOMIC FORECASTS
UNITED STATES AND WORLD

FISCAL/CALENDAR YEARS 2005-2016

ECONOMIC VARIABLE	HISTORICAL			FORECAST			PERCENT AVERAGE ANNUAL GROWTH				
	2000	2003	2004	2005	2006	2016	00-04	03-04	04-05	05-06	04-16
UNITED STATES--Fiscal Year											
Gross Domestic Product--Chain Weighted (BIL 2000$)	9,762.8	10,270.1	10,738.2	11,136.6	11,528.2	15,646.1	2.4	4.6	3.7	3.5	3.2
Consumer Price Index (1982-84 = 100)	170.7	183.1	187.3	192.5	196.7	250.6	2.3	2.3	2.7	2.2	2.5
Oil & Gas Deflator (2000 = 100)	96.0	103.3	116.8	141.6	127.9	139.4	5.0	13.0	21.3	(9.6)	1.5
INTERNATIONAL--Calendar Year											
Gross Domestic Product (In Billions of U.S. 2000$)											
World	31,513.0	33,423.8	34,830.9	35,980.5	37,141.6	50,825.2	2.5	4.2	3.3	3.2	3.2
United States	9,817.0	10,381.4	10,836.6	11,186.8	11,524.1	15,829.0	2.5	4.4	3.2	3.0	3.2
Canada	724.8	778.7	801.7	826.5	848.7	1,119.2	2.6	3.0	3.1	2.7	2.8
Europe*	10,366.7	10,858.4	11,188.9	11,500.1	11,824.5	15,353.1	1.9	3.0	2.8	2.8	2.7
Latin America/Mexico	1,836.5	1,843.8	1,940.8	2,013.4	2,086.3	3,077.8	1.4	5.3	3.7	3.6	3.9
Pacific**	8,268.6	8,966.0	9,435.2	9,791.4	10,160.7	14,379.1	3.4	5.2	3.8	3.8	3.6
EXCHANGE RATES--Calendar Year											
(U.S.$/Local Currency)											
Canada	0.673	0.714	0.767	0.827	0.823	0.883	3.3	7.5	7.8	(0.5)	1.2
Euro	NA	1.129	1.237	1.327	1.340	1.379	NA	9.6	7.3	1.0	0.9
United Kingdom	1.514	1.637	1.824	1.904	1.889	1.890	4.8	11.4	4.4	(0.8)	0.3
Japan***	9.279	8.625	9.214	9.846	10.182	11.717	(0.2)	6.8	6.9	3.4	2.0

Source: United States: FY 2000-2015; Executive Office of the President, Office of Management and Budget
FY 2016; Consensus growth rate of Global Insight
International: CY-2000-2016, Global Insight

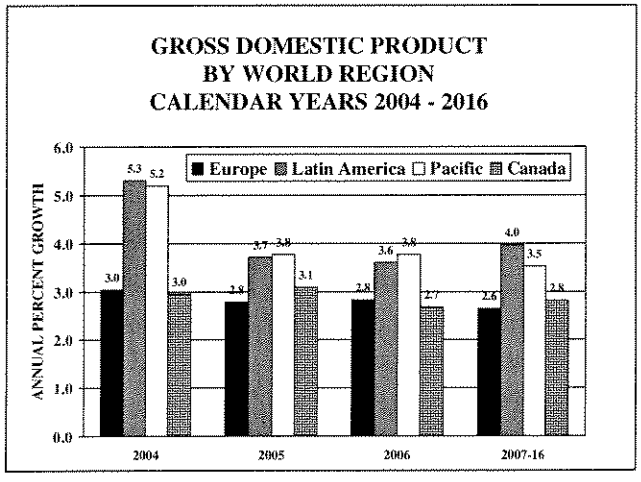
* Sum of GDP for Europe, Africa, and Middle East
** Sum of GDP for Japan, Pacific Basin, China, Other Asia, Australia, and New Zealand
*** U.S.$ per 1,000 Yen



OMB assumes that consumer prices (as measured by the Consumer Price Index) will remain at relatively low rates throughout the forecast period, averaging 2.5 percent annually. CBO and Global Insight both predict slightly lower prices over the 12-year forecast period—up 2.2 and 2.3 percent, respectively.

World Economy

Worldwide economic activity is predicted to expand at rates of 3.3 and 3.2 percent, respectively, in 2005 and 2006. Over the entire 12-year forecast period, worldwide economic growth is forecast to increase at an average annual rate of 3.2 percent, the same at that of the United States.



Long-term economic growth is forecast to be greatest in the Latin American and Asia/Pacific regions, expanding at annual rates of 3.9 and 3.6 percent, respectively. Economic growth in Canada and Europe/Africa/Middle East countries are expected to average 2.8 and 2.7 percent, respectively, over the forecast period.

AVIATION TRAFFIC AND ACTIVITY FORECASTS

Total traffic and activity forecasts for commercial air carriers (the sum of mainline carriers and regionals/commuters) are summarized in Table I-2 (page I-23). Chapter X--Tables 8 through 11--contains year-to-year historical data and forecasts.

Mainline air carrier traffic and activity forecasts are summarized in Table I-3 (page I-26) and the forecast assumptions in Table I-4 (page I-27). Chapter III contains a detailed discussion of the mainline air carrier forecasts and underlying assumptions. Chapter X--Tables 7, 12 through 20, 22, 24, and 25--contains year-to-year historical data and forecasts.

Table I-5 (page I-30) summarizes the regional/commuter forecasts and assumptions. Chapter IV provides a detailed discussion of the forecasts and assumptions. Chapter X--Tables 26 through 30--provides year-to-year historical and forecast data.

Table I-6 (page I-32) summarizes the mainline air cargo carrier forecasts. Chapter III (page III-15, pages III-46 to III-51, and III-53) provides a detailed discussion of the forecasts and assumptions. Tables 21 and 23 (Chapter X) provide year-to-year historical and forecast data.

Table I-7 (page I-35) summarizes the general aviation forecasts. Chapter V provides detailed discussions of the forecasts and assumptions.

Chapter X--Tables 31 through 35--provides year-to-year historical data and forecasts.

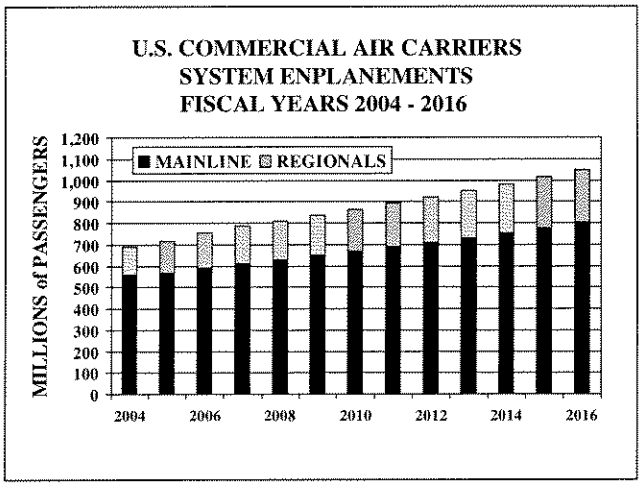
Table I-8 (page I-38) provides summary forecasts of aircraft activity at combined tower facilities. Table I-9 (page I-39) gives summary forecasts of activity at FAA facilities only, including FAA towers, en route centers, and flight service stations. Chapter VII and Tables 36 through 53 in Chapter X provide more detailed forecasts and discussion of aircraft activity at FAA and contract facilities.

Table I-10 (page I-41) provides summary domestic and international traffic forecasts on a calendar year for mainline air carriers, regionals/ commuters, and air cargo carriers, as well as forecasts for IFR aircraft handled at FAA en route centers.

Commercial Aviation Forecasts

In fiscal year 2004, the U.S. commercial aviation industry, consisting of mainline air carriers and regional/commuter airlines, flew a combined 953.6 billion ASMs. These carriers enplaned 688.5 million passengers who flew 717.4 billion RPMs, achieving an all-time high load factor of 75.2 percent. In 2004, the carriers' trip length averaged 1,042.1 miles while their aircraft averaged 135.4 seats.

In 2016, the FAA forecasts that U.S. commercial air carriers will fly a total of almost 1.6 trillion ASMs (up 4.2 percent annually) and transport over 1.0 billion enplaned passengers (up 3.6 percent annually) just under 1.2 trillion passenger miles (up 4.3 percent annually). Load factor is projected to average 76.3 percent in 2016. The passenger trip length is expected to increase to 1,139.4 miles (up 8.1 miles annually) while aircraft size increases to 139.6 seats (up 0.4 seats a year).



The combined RPMs of commercial air carriers returned to pre-September 11th levels in 2004. Passenger enplanements and ASMs are expected to return to 2000 levels in 2005.

Mainline Air Carriers
Domestic Capacity and Traffic

U.S. mainline carrier domestic capacity was up 4.9 percent in fiscal year 2004, the first annual increase in capacity since the events of September 11th. However, at the end of 2004, domestic capacity remains 5.0 percent below 2000 levels. Domestic capacity is forecast to increase 0.6 percent in 2005 and 4.8 percent in 2006, the relatively slow growth in 2005 reflecting legacy carrier capacity reductions implemented during winter 2004/05. Thereafter, capacity is expected to increase at an average annual rate of 3.5 percent over the final 10 years of the forecast period. Domestic capacity is expected to return to pre-September 11th levels in 2006.

TABLE I-2

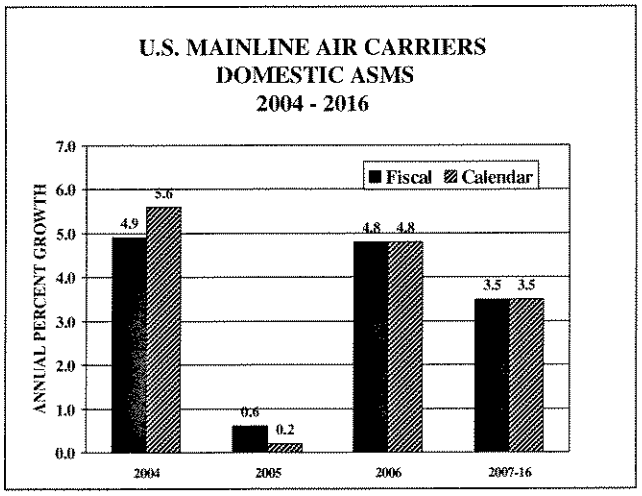
AVIATION DEMAND FORECASTS
TOTAL U.S. COMMERCIAL CARRIERS 1/

FISCAL YEARS 2005-2016

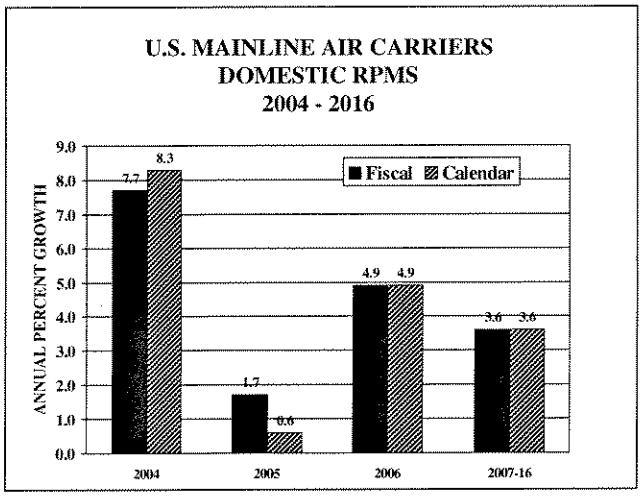
AVIATION ACTIVITY	HISTORICAL			FORECAST			PERCENT AVERAGE ANNUAL GROWTH				
	2000	2003	2004	2005	2006	2016	00-04	03-04	04-05	05-06	04-16
Sum of U.S. Mainline Air Carriers & Regionals/Commuters											
Enplanements (millions)											
Domestic	641.2	587.9	627.2	649.6	682.7	937.3	(0.5)	6.7	3.6	5.1	3.4
International	56.4	54.1	61.3	68.0	72.2	111.2	2.1	13.2	10.9	6.2	5.1
Atlantic	20.9	17.8	19.9	21.8	23.2	32.7	(1.2)	11.7	9.3	6.6	4.2
Latin America	24.3	25.8	29.1	33.0	34.7	55.8	4.6	12.7	13.5	5.2	5.6
Pacific	11.2	10.5	12.3	13.2	14.2	22.7	2.3	17.3	7.4	8.1	5.3
System	697.6	642.0	688.5	717.5	754.9	1,048.6	(0.3)	7.2	4.2	5.2	3.6
RPMs (Billions)											
Domestic	512.8	492.8	540.0	559.7	592.0	858.5	1.3	9.6	3.6	5.8	3.9
International	181.8	155.9	177.4	198.0	213.6	336.3	(0.6)	13.8	11.6	7.9	5.5
Atlantic	87.1	73.2	82.1	90.8	97.3	140.2	(1.5)	12.3	10.6	7.1	4.6
Latin America	36.3	36.5	41.7	48.0	52.1	91.5	3.5	14.4	15.1	8.6	6.8
Pacific	58.4	46.2	53.5	59.1	64.2	104.7	(2.2)	15.8	10.5	8.5	5.7
System	694.6	648.6	717.4	757.8	805.5	1,194.8	0.8	10.6	5.6	6.3	4.3
ASMs (Billions)											
Domestic	726.6	684.4	729.9	749.5	792.2	1,138.9	0.1	6.7	2.7	5.7	3.8
International	239.3	207.0	223.7	250.3	270.3	427.2	(1.7)	8.1	11.9	8.0	5.5
Atlantic	109.9	93.7	100.5	110.1	118.7	170.9	(2.2)	7.3	9.5	7.8	4.5
Latin America	52.8	53.0	59.5	67.6	72.9	127.0	3.1	12.4	13.5	7.9	6.5
Pacific	76.6	60.3	63.6	72.6	78.7	129.2	(4.6)	5.4	14.2	8.4	6.1
System	965.9	891.3	953.6	999.7	1,062.4	1,566.1	(0.3)	7.0	4.8	6.3	4.2
Load Factor (Percent)											
Domestic	70.6	72.0	74.0	74.7	74.7	75.4	0.9	2.0	0.7	0.0	0.1
International	76.0	75.3	79.3	79.1	79.0	78.7	0.8	4.0	(0.2)	(0.1)	(0.0)
Atlantic	79.2	78.1	81.7	82.5	82.0	82.0	0.6	3.6	0.8	(0.5)	0.0
Latin America	68.8	68.9	70.1	71.1	71.5	72.0	0.3	1.2	1.0	0.5	0.2
Pacific	76.2	76.6	84.2	81.5	81.5	81.0	2.0	7.6	(2.7)	0.0	(0.3)
System	71.9	72.8	75.2	75.8	75.8	76.3	0.8	2.5	0.6	0.0	0.1

Source:2000-2004 U.S. Air Carriers, Form 41, U. S. Department of Transportation
2005-2016; FAA Forecasts

1/ Sum of U.S. Mainline Air Carriers and Regionals/Commuters



Domestic mainline air carrier RPMs and passenger enplanements are forecast to increase at average annual rates of 3.6 and 2.8 percent, respectively, over the 12-year forecast period. Domestic RPMs are forecast to increase by 1.7 percent in 2005, 4.9 percent in 2006, and to average 3.6 percent growth over the remaining 10 years of the forecast period. Domestic enplanements are projected to increase by 0.7 percent in 2005 and 3.7 percent in 2006, the slow growth in 2005 reflecting a reduction in the number of seats flown by legacy carriers in that year. Enplanements are forecast to increase by 2.9 annually between 2007 and 2016. Much of the growth over the 12-year forecast period is expected to come from the low-cost carriers. Mainline carrier domestic RPMs are projected to return to pre-September 11th levels in 2005; enplanements not until 2009.



The domestic load factor for the mainline carriers increased to 74.7 percent in 2004 (up 2.0 percentage points), an all-time high. Load factor is expected to increase to 75.5 percent in 2005 and then increase gradually over the remainder of the forecast period, reaching 76.1 percent in 2016.

Domestic passenger yield, which declined 2.2 percent (down 4.4 percent in real terms) in 2004, is forecast to decline an additional 3.1 percent (5.7 percent in real terms) in 2005 before turning upward (0.4 percent) in 2006 and increasing at an annual rate of 1.2 percent over the remaining 10 years of the forecast period. The relatively large decline in 2005 is due, in part, to revenue dilution resulting from the industry's recent move toward fare simplification. In real terms, yields are projected to decline at an annual rate of 1.7 percent over the 12-year forecast period. Nominal domestic yields are not expected to return to pre-September 11th levels during the 12-year forecast period.

Over the past several years, the power to establish fare levels has gradually shifted from the mainline carriers to the low-cost carriers. The decline in real yields over the forecast period is based on the assumption that increased competition from low-cost carriers will continue to exert pressure on the legacy carriers to match their lower fares on competitive routes. Competition in domestic markets will come from established low-fare carriers such as Southwest, as well as smaller low-cost carriers such as AirTran, Frontier, and JetBlue. In addition, the low-cost subsidiaries of the network carriers--Delta's Song and United's Ted—will also exert downward pressure on fares and yields.

Mainline air carrier aircraft operations, which are down 14.7 percent since 2000 (up 0.8 percent in 2004), are forecast to decline by 0.3 percent in 2005, largely due to legacy carrier schedule reductions. Growth resumes in 2006 (up 3.4 percent) and grows at an average annual

rate of 2.5 percent annually over the remaining 10 years of the forecast period. Mainline air carrier operations are not expected to return to pre-September 11th activity levels until 2012.

The slower growth in air carrier activity at FAA air traffic facilities relative to expected passenger traffic growth (2.3 versus 2.8 percent growth in domestic enplanements) reflects increased efficiencies in three operational measures—aircraft size, load factor, and trip length.

The average domestic aircraft size[16] (mainline carriers only) is forecast to increase by 0.4 seats annually, from 149.7 seats in 2004 to 155.0 seats in 2016. Domestic load factors are expected to increase from 74.7 percent in 2004 to 76.1 percent in 2016. The domestic passenger trip length is up 87.1 miles over the past 3 years, due largely to continued legacy carrier restructuring and the transfer of medium distance routes to their regional affiliates. The passenger trip length is forecast to increase by an additional 9.7 miles in 2005 and 11.4 miles in 2006. As demand recovers, the mainline carriers are expected to resume operation of some of their medium distance routes and, as such, the growth in trip length moderates to 6.5 miles annually over the remainder of the forecast period, reaching 1,058.2 miles in 2016.

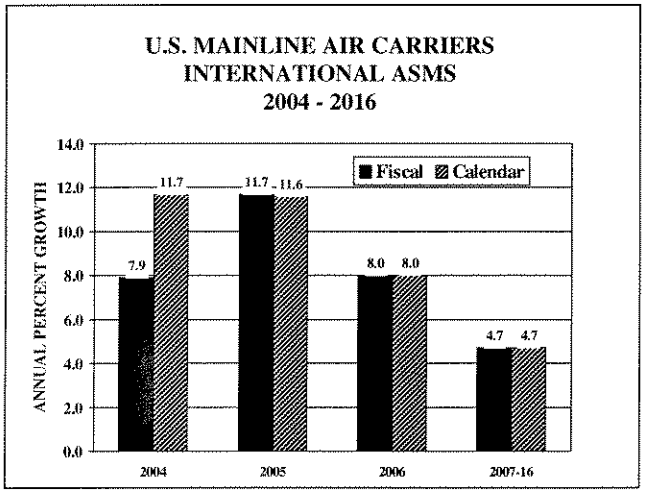
Mainline Air Carriers International Capacity and Traffic

FAA provides forecasts of total international passenger demand (the sum of U.S. and foreign flag carriers) for travel between the United States and three world travel areas--Atlantic, Latin America (including Mexico and the Caribbean), and Asia/Pacific--as well as for U.S./Canadian transborder traffic. These forecasts are based on historical passenger statistics obtained from the United States Immigration and Naturalization Services (INS) and Transport Canada and on regional world historical data and economic projections obtained from Global Insight.

Total passenger traffic between the United States and the rest of the world is estimated to total 134.0 million in calendar year 2004 (up 11.7 percent)—4.7 percent below its peak in 2000. Passenger traffic is expected to increase 8.5 percent in 2005, 6.6 percent in 2006, and to average 4.2 percent over the remaining 10 years of the forecast period, reaching 232.9 million in 2016. Total passenger traffic between the U.S. and the rest of the world is expected to return to pre-September 11th levels in 2005.

Over the entire forecast period, passenger demand is expected to be strongest in Asia/Pacific and Latin American markets, growing at annual rates of 5.5 and 5.1 percent, respectively. Passenger traffic is projected to grow 4.3 percent annually in Atlantic markets and 3.7 percent a year in Canadian transborder markets.

At the end of fiscal year 2004, U.S. air carrier international capacity remained 7.0 percent below pre- September 11th levels. International capacity is forecast to increase 11.7 percent in 2005, 8.0 percent in 2006, and 4.7 percent annually over the final 10 years of the forecast period.



[16] Defined as seats per mile flown and computed by dividing ASMs by miles flown.

TABLE I-3

AVIATION DEMAND FORECASTS
MAINLINE AIR CARRIERS--PASSENGERS

FISCAL YEARS 2005-2016

AVIATION ACTIVITY	HISTORICAL			FORECAST			PERCENT AVERAGE ANNUAL GROWTH				
	2000	2003	2004	2005	2006	2016	00-04	03-04	04-05	05-06	04-16
U. S./Foreign Flag Carriers 1/											
Total Passengers to/from											
United States (Millions)	140.6	120.0	134.0	145.4	155.0	232.9	(1.2)	11.7	8.5	6.6	4.7
Atlantic	53.0	43.8	48.4	52.0	55.2	80.3	(2.3)	10.4	7.6	6.1	4.3
Latin America	40.8	38.7	42.8	46.0	48.8	77.9	1.2	10.5	7.5	6.0	5.1
Pacific	26.0	20.0	23.5	26.3	28.5	44.8	(2.4)	17.7	11.7	8.5	5.5
Canadian Transborder	20.8	17.5	19.3	21.1	22.5	29.8	(1.8)	10.5	9.3	6.7	3.7
U.S. Air Carriers											
Enplanements (Millions)											
Domestic	561.5	482.8	502.2	505.7	524.4	700.0	(2.8)	4.0	0.7	3.7	2.8
International	53.3	50.6	57.3	63.0	66.9	103.0	1.9	13.4	9.8	6.3	5.0
Atlantic	20.9	17.8	19.9	21.8	23.2	32.7	(1.2)	11.7	9.3	6.6	4.2
Latin America	21.2	22.3	25.2	28.0	29.5	47.6	4.4	12.9	11.4	5.3	5.5
Pacific	11.2	10.5	12.3	13.2	14.2	22.7	2.3	17.3	7.4	8.1	5.3
System	614.8	533.4	559.5	568.7	591.4	803.0	(2.3)	4.9	1.6	4.0	3.1
RPMs (Billions)											
Domestic	490.0	453.4	488.4	496.7	521.1	740.7	(0.1)	7.7	1.7	4.9	3.5
International	181.0	154.8	175.9	195.9	211.4	332.6	(0.7)	13.7	11.4	7.9	5.5
Atlantic	87.1	73.2	82.1	90.8	97.3	140.2	(1.5)	12.3	10.6	7.1	4.6
Latin America	35.5	35.4	40.3	46.0	50.0	87.8	3.2	13.7	14.2	8.7	6.7
Pacific	58.4	46.2	53.5	59.1	64.2	104.7	(2.2)	15.8	10.5	8.5	5.7
System	670.9	608.2	664.3	692.7	732.5	1,073.3	(0.2)	9.2	4.3	5.7	4.1
ASMs (Billions)											
Domestic	688.3	623.7	654.1	658.3	689.9	973.8	(1.3)	4.9	0.6	4.8	3.4
International	238.0	205.1	221.4	247.2	267.1	422.1	(1.8)	7.9	11.7	8.0	5.5
Atlantic	109.9	93.7	100.5	110.1	118.7	170.9	(2.2)	7.3	9.5	7.8	4.5
Latin America	51.4	51.1	57.3	64.5	69.7	121.9	2.7	12.1	12.7	8.0	6.5
Pacific	76.6	60.3	63.6	72.6	78.7	129.2	(4.6)	5.4	14.2	8.4	6.1
System	926.2	828.8	875.5	905.5	957.0	1,395.9	(1.4)	5.6	3.4	5.7	4.0
Fleet (Large Jets Only) 1/											
Passenger	4,488	4,023	4,046	4,151	4,320	5,999	(2.6)	0.6	2.6	4.1	3.3
Hours Flown (Millions)* 1/	14.3	13.3	13.7	14.3	14.9	20.8	(0.9)	3.1	4.0	4.2	3.5

Source:2000-2004; U.S. Air Carriers, Form 41, U. S. Department of Transportation; Total Passengers, INS Form I-92, U.S. Department of Commerce
2005-2016; FAA Forecasts

1/ Historical and forecast on a calendar year basis

* Includes both passenger (excluding regional jets) and cargo aircraft.

TABLE I-4

AVIATION FORECAST ASSUMPTIONS
MAINLINE AIR CARRIERS--PASSENGERS

FISCAL YEARS 2005-2016

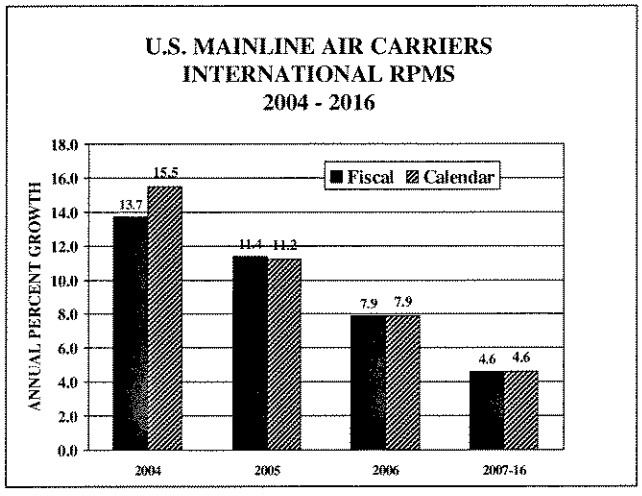
AVIATION ACTIVITY	HISTORICAL			FORECAST			PERCENT/POINT* AVERAGE ANNUAL GROWTH				
	2000	2003	2004	2005	2006	2016	00-04	03-04	04-05	05-06	04-16
Mainline Air Carriers											
Passenger Yields (Cents/RPM)											
(In Current Dollars)											
Domestic	14.03	11.73	11.46	11.11	11.15	12.54	(4.9)	(2.3)	(3.1)	0.4	0.8
International	10.46	9.92	10.42	10.51	10.65	12.80	(0.1)	5.0	0.9	1.3	1.7
Atlantic	9.73	9.60	10.15	10.15	10.27	12.44	1.1	5.7	0.0	1.2	1.7
Latin America	13.00	12.40	12.28	12.45	12.66	15.34	(1.4)	(1.0)	1.4	1.7	1.9
Pacific	9.99	8.53	9.44	9.57	9.68	11.15	(1.4)	10.7	1.4	1.1	1.4
Average Aircraft Size											
(Seats per Aircraft Mile)											
Domestic	148.8	148.5	149.7	150.2	150.5	155.0	0.2	1.2	0.5	0.3	0.4
International	236.6	224.9	224.1	225.1	225.9	229.5	(3.1)	(0.8)	1.0	0.8	0.5
Atlantic	233.7	231.5	231.6	233.0	234.0	239.0	(0.5)	0.1	1.4	1.0	0.6
Latin America	179.5	171.7	174.6	175.0	175.5	180.5	(1.2)	2.9	0.4	0.5	0.5
Pacific	307.8	287.6	281.6	282.6	283.0	288.0	(6.6)	(6.0)	1.0	0.4	0.5
Average Trip Length (Miles)											
Domestic	872.6	939.1	972.6	982.3	993.6	1,058.2	25.0	33.5	9.7	11.4	7.1
International	3,397.3	3,061.0	3,068.3	3,112.2	3,157.9	3,228.5	(82.2)	7.4	43.8	45.8	13.3
Atlantic	4,168.1	4,105.4	4,125.7	4,174.7	4,194.3	4,288.5	(10.6)	20.3	49.0	19.6	13.6
Latin America	1,675.2	1,588.3	1,599.7	1,639.5	1,692.4	1,843.2	(18.9)	11.5	39.8	52.9	20.3
Pacific	5,219.8	4,419.5	4,365.8	4,491.2	4,508.0	4,607.6	(213.5)	(53.7)	125.4	16.8	20.2
Average Load Factor (Percent)											
Domestic	71.2	72.7	74.7	75.5	75.5	76.1	0.9	2.0	0.8	0.1	0.1
International	76.0	75.5	79.5	79.3	79.2	78.8	0.9	4.0	(0.2)	(0.1)	(0.1)
Atlantic	79.2	78.1	81.7	82.5	82.0	82.0	0.6	3.6	0.8	(0.5)	0.0
Latin America	69.0	69.3	70.3	71.3	71.7	72.0	0.3	1.0	0.9	0.5	0.1
Pacific	76.2	76.6	84.2	81.5	81.5	81.0	2.0	7.6	(2.7)	0.0	(0.3)

Source:2000-2004; U.S. Air Carriers, Form 41, U. S. Department of Transportation.
2005-2016 FAA Forecasts

* Passenger Yield, annual percent change; all other series, annual absolute change.

The relatively strong growth in 2005 and 2006 reflects projected strong growth in U.S. and world economic activity as well as the realization by U.S. mainline carriers that international markets represent their best, if not only, source of profitable operations.

U.S. mainline carrier international RPMs increased 13.7 percent in 2004 while enplanements were up 13.4 percent. International RPMs are forecast to increase 11.4 percent in 2005, 7.9 percent in 2006, and 4.6 percent annually over the remainder of the forecast period. Enplanements are projected to grow 9.8 percent in 2004, 6.3 percent in 2006, and 4.4 percent annually over the final 10 years of the forecast period, reaching 103.0 million in 2016. U.S. carrier international enplanements exceeded pre-September 11th levels in 2004 and international RPMs are expected to follow suit in 2005.



The faster growth in U.S. carrier international passenger traffic compared to total international traffic (including foreign flag carriers) over the 12-year forecast period (5.0 versus 4.7 percent) reflects gains in market share for U.S. airlines. Despite these gains, U.S. carriers are expected to continue to shift flying to their foreign flag code-share and alliance partners. These shifts enable U.S. carriers to continue to promote and sell travel to foreign travel destinations without incurring the costs of actually operating aircraft on these routes.

The forecasts of international demand assume that U.S. air carriers will benefit from the strong economic activity in both the United States and world markets. The stronger growth in international travel relative to domestic markets is being driven by the strong passenger demand projected in the Asia/Pacific and Latin American markets.

International load factors are forecast to decline slightly from the all-time high load factor (79.5 percent) achieved in 2004, fluctuating around 79.0 percent throughout the forecast period and averaging 78.8 percent in 2016.

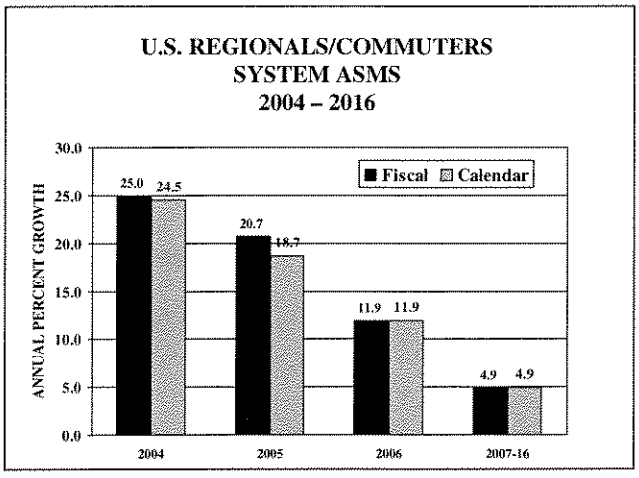
International passenger yields were up 5.0 percent in 2004, due in large part to strong yield recovery in Asia/Pacific (up 10.7 percent) and Atlantic markets (up 5.7 percent) as traffic rebounded from the impacts of the SARS epidemic and war in Iraq in 2003. International yields are expected to increase by 0.9 percent in 2005 and 1.7 percent annually over the entire forecast period, reflecting strong passenger demand in all world travel regions. In real terms, international yields decline at an annual rate of 0.7 percent over the forecast period. The decline in real yields is based on the assumption that competitive pressures will continue to exert pressure on carriers to hold the line on fare increases. In international markets, this takes the form of expanded open sky agreements and new and existing global alliances.

Regionals/Commuters Capacity and Traffic

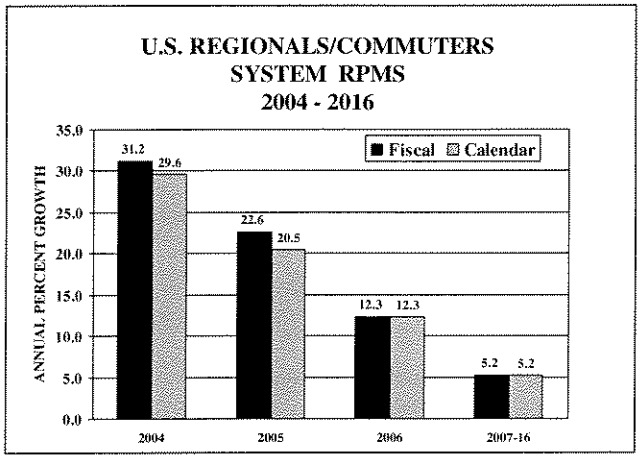
Regionals/commuters ASMs have almost doubled (up 96.9 percent) since 2000, up 97.8 percent in domestic markets and 70.8 percent in international (largely Caribbean and Mexico) markets. These large increases are due, in large part, to legacy carrier restructuring and the transfer of large numbers of routes to smaller code-share partners. Of course, these

route transfers would have been impossible without the addition of 1,060 regional jets to the fleet over this 4-year period.

Regional/commuter capacity is forecast to increase an additional 20.7 percent in 2005 and 11.9 percent in 2006, the large increases due to the projected delivery of an additional 439 regional jets over this 2-year period. Growth in capacity is expected to slow to 4.9 percent annually over the remainder of the forecast period and to average 6.7 percent over the 12-year forecast period.

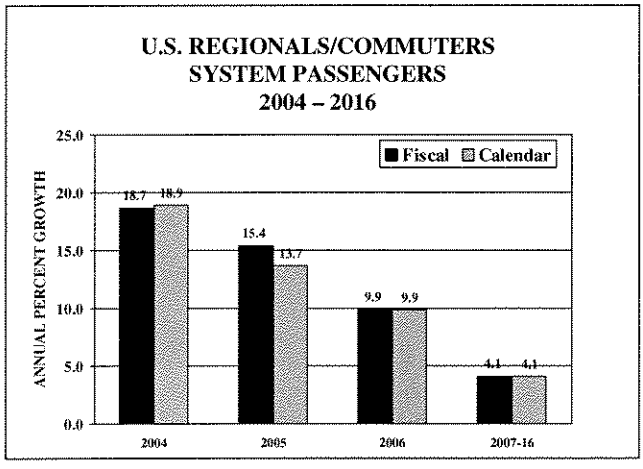


Regional/commuter RPMs have more than doubled (up 124.5 percent) since 2000, up 126.0 percent in domestic markets and 82.1 percent in international markets. RPMs are projected to increase 22.6 percent in 2005, 12.3 percent in 2006, and to average 5.2 percent over the remaining 10 years of the forecast period.



Regional/commuter carriers achieved an all-time high load factor of 67.9 percent in 2004, up 3.2 percentage points over the previous year. Load factor is projected to increase throughout the forecast period, reaching 71.3 percent in 2016.

Passenger growth is expected to be less than that forecast for RPMs, growing by 15.4 percent in 2005 and 9.9 percent in 2006. Over the 12-year forecast period, regional/commuter passengers are forecast to increase 5.5 percent a year, from 128.9 million in 2004 to 245.5 million in 2016. In 2016, regionals/commuters are expected to transport 23.4 percent of all passengers in scheduled commercial air service (domestic and international), up from 18.7 percent in 2004. In purely domestic markets, regionals/commuters are projected to transport 25.3 percent of all passengers in 2016, up from 19.9 percent in 2004.



Despite the almost doubling of capacity over the past 4 years, regional/commuter aircraft operations at FAA air traffic facilities are up only 13.6 percent over the same period. The significantly slower growth relative to ASMs is largely due to an increase in the passenger trip length of 126.1 miles over the 4-year period—from 285.5 to 411.6 miles. This longer trip length is also reflected in the number of regional/commuter aircraft handled at en route centers--up 23.2 percent over the same 4-year period. This increase at en route centers is due, in large part, to a 90.3 percent increase in the

TABLE I-5

AVIATION DEMAND FORECASTS AND ASSUMPTIONS
REGIONALS/COMMUTERS

FISCAL YEARS 2005-2016

AVIATION ACTIVITY	HISTORICAL			FORECAST			PERCENT/POINT* AVERAGE ANNUAL GROWTH				
	2000	2003	2004	2005	2006	2016	00-04	03-04	04-05	05-06	04-16
REGIONAL/COMMUTERS											
Enplanements (Millions)											
Domestic	79.7	105.1	125.0	143.8	158.3	237.3	11.9	19.0	15.1	10.0	5.5
International	3.1	3.5	3.9	5.0	5.2	8.2	5.9	11.0	27.2	4.4	6.3
System	82.8	108.6	128.9	148.9	163.5	245.5	11.7	18.7	15.4	9.9	5.5
RPMs (Billions)											
Domestic	22.8	39.3	51.6	63.0	70.9	117.7	22.6	31.2	22.1	12.5	7.1
International	0.8	1.1	1.5	2.1	2.2	3.7	16.2	33.8	39.7	5.4	7.9
System	23.6	40.4	53.1	65.1	73.0	121.4	22.4	31.2	22.6	12.3	7.1
ASMs (Billions)											
Domestic	38.3	60.6	75.8	91.2	102.3	165.1	18.6	25.1	20.2	12.2	6.7
International	1.3	1.9	2.3	3.1	3.2	5.1	14.3	20.9	34.7	4.6	6.9
System	39.7	62.5	78.1	94.3	105.5	170.2	18.5	25.0	20.7	11.9	6.7
Fleet (As of December 31) 1/											
Turboprops/Pistons	1,704	1,216	1,182	1,156	1,130	1,001	(8.7)	(2.8)	(2.2)	(2.2)	(1.4)
Jets	570	1,349	1,630	1,857	2,069	2,960	30.0	20.8	13.9	11.4	5.1
Total	2,274	2,565	2,812	3,013	3,199	3,961	5.5	9.6	7.1	6.2	2.9
Block to Block Hours (000) 1/	5,359	6,087	6,677	7,181	7,642	10,246	5.7	9.7	7.5	6.4	3.6
Average Aircraft Size (Seats per Aircraft Mile)											
Domestic	38.4	44.1	46.3	48.1	49.2	54.9	2.0	2.2	1.8	1.1	0.7
International	41.8	46.4	47.5	51.2	51.7	56.7	1.4	1.1	3.7	0.5	0.8
System	38.5	44.2	46.3	48.2	49.3	54.9	2.0	2.1	1.9	1.1	0.7
Average Trip Length (Miles)											
Domestic	286.5	374.4	412.7	437.9	447.7	496.0	31.6	38.4	25.2	9.7	6.9
International	260.0	312.2	376.4	413.3	417.3	451.3	29.1	64.2	36.9	4.0	6.2
System	285.5	372.3	411.6	437.1	446.7	494.5	31.5	39.3	25.5	9.6	6.9
Average Load Factor (Percent)											
Domestic	59.5	64.9	68.0	69.1	69.3	71.3	2.1	3.1	1.1	0.2	0.3
International	60.8	58.6	64.9	67.3	67.8	72.8	1.0	6.3	2.4	0.5	0.7
System	59.6	64.7	67.9	69.0	69.2	71.3	2.1	3.2	1.1	0.2	0.3

Source: Regionals/Commuters; 2000-2004, Forms 298-C and 41, U.S. Department of Transportation; 2005-2016, FAA Forecasts

1/ Historical and forecast data on a calendar year basis

* Enplanements, RPMs, Fleet, and Hours Flown: annual percent change; all other series, annual absolute change.

number of overflights, that is, flights that traverse one or more en route center.

Regional/commuter activity is expected to increase 13.6 percent over the next 2 years. Thereafter, regional/commuter operations are forecast to grow at an average annual rate of 2.5 percent over the remainder of the forecast period. Slower growth in activity at FAA air traffic facilities relative to ASMs (3.2 versus 6.7 percent) and passengers compared to and RPMs (5.5 versus 7.1 percent) results from higher load factors, longer trip lengths, and the operation of larger aircraft.

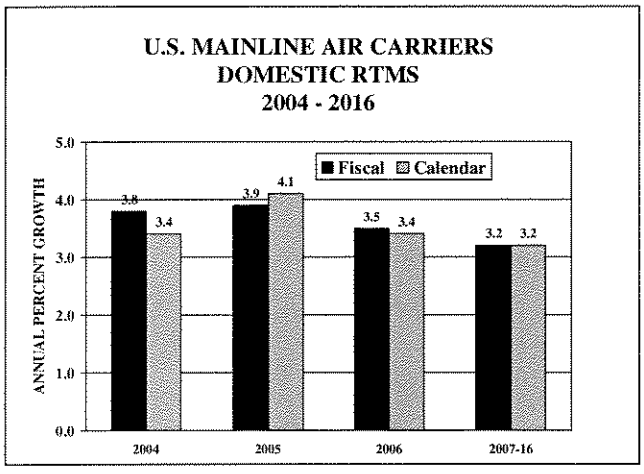
Over the 12-year forecast, the average passenger trip length is forecast to increase from 411.6 miles in 2004 to 494.5 miles in 2016, an average increase of 6.9 miles annually. However, much of the growth occurs during the first 3 years of the forecast period--up an average 14.5 miles a year. The relatively large increases during this period result from two factors--the integration of large numbers of regional aircraft into the fleet and the expected continuation of the transfer of medium- to long-haul routes from their larger code-share partners. Thereafter, the passenger trip length increases 4.4 miles annually over the remainder of the forecast period.

The operation of greater numbers of the larger 70 and 90 seat regional jets also increases the average seating capacity of the regional fleet--from 46.3 seats in 2004 to 54.9 seats in 2016.

Mainline Air Carriers
Air Cargo

Total air cargo traffic is projected to increase at somewhat faster rates than those for projected for passenger traffic, with mainline carrier system RTMs and RPMs projected to increase at average annual rates of 5.1 and 4.1 percent, respectively, over the 12-year forecast period. Domestic RTMs are forecast to increase 3.3 percent annually (versus 3.5 percent for domestic RPMs) while international RTMs are projected to increase 6.3 percent a year (versus 5.5 percent for international RPMs).

Domestic RTMs are forecast to increase 3.9 percent in 2005, 3.5 percent in 2006, and to average 3.2 percent over the final 10 years of the forecast period. Most of the growth in the demand for domestic cargo services is forecast to occur among all-cargo carriers due to the inherent advantages of the integrated carriers. All-cargo carrier domestic RTMs are projected to increase 3.7 percent a year over the entire forecast period, compared with growth of only 1.7 percent annually for passenger carriers. All-cargo carriers' share of domestic RTMs is forecast to increase from 75.9 percent in 2004 to 80.0 percent in 2016.



International RTMs are forecast to increase 6.7 percent in 2005, 6.5 percent in 2006, and to average 6.3 percent annually over the rest of the forecast period. This relatively strong growth is due to trade expansion and new U.S. carrier route authority to fly to China. All-cargo and passenger carrier international RTMs are projected to increase at annual rates of 6.9 and 5.4 percent, respectively, over the 12-year forecast period. All-cargo carriers' share of international RTMs is projected to increase from 59.7 percent in 2004 to 63.6 percent in 2016.

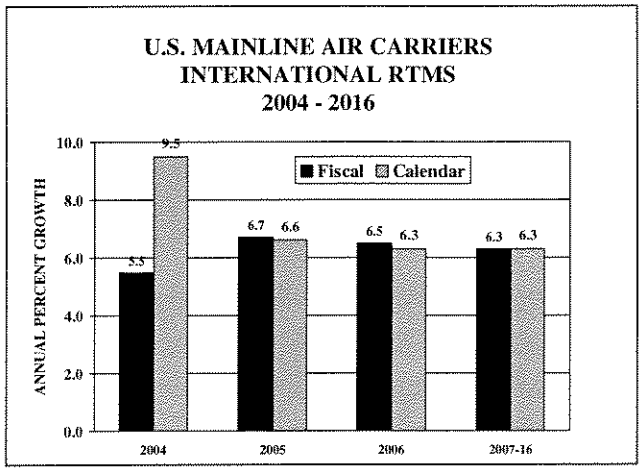
TABLE I-6

AVIATION DEMAND FORECASTS
MAINLINE AIR CARRIERS--AIR CARGO

FISCAL YEARS 2005-2016

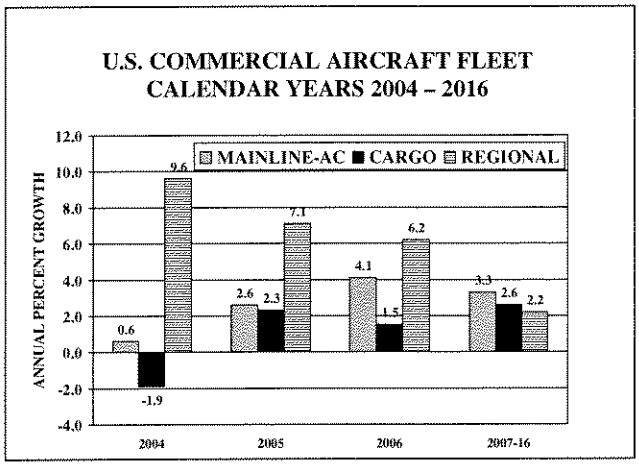
AVIATION ACTIVITY	HISTORICAL			FORECAST			PERCENT AVERAGE ANNUAL GROWTH				
	2000	2003	2004	2005	2006	2016	00-04	03-04	04-05	05-06	04-16
Total Cargo RTMs (Millions)											
Domestic	14,699	14,972	15,542	16,143	16,707	22,884	1.4	3.8	3.9	3.5	3.3
International	15,358	18,542	19,567	20,881	22,248	40,940	6.2	5.5	6.7	6.5	6.3
System	30,057	33,514	35,108	37,024	38,954	63,824	4.0	4.8	5.5	5.2	5.1
Total RTMs--Passenger Airlines											
Domestic	4,415	3,819	3,752	3,842	3,918	4,577	(4.0)	(1.8)	2.4	2.0	1.7
International	7,790	6,775	7,884	8,346	8,820	14,902	0.3	16.4	5.9	5.7	5.4
System	12,205	10,594	11,636	12,187	12,738	19,479	(1.2)	9.8	4.7	4.5	4.4
% RTMs--Passenger Airlines											
Domestic	30.0	25.5	24.1	23.8	23.5	20.0					
International	50.7	36.5	40.3	40.0	39.6	36.4					
System	40.6	31.6	33.1	32.9	32.7	30.5					
Total RTMs--All-Cargo Airlines											
Domestic	10,284	11,153	11,790	12,302	12,789	18,307	3.5	5.7	4.3	4.0	3.7
International	7,568	11,767	11,683	12,535	13,428	26,038	11.5	(0.7)	7.3	7.1	6.9
System	17,852	22,920	23,472	24,837	26,216	44,345	7.1	2.4	5.8	5.6	5.4
% RTMs--All-Cargo Airlines											
Domestic	70.0	74.5	75.9	76.2	76.5	80.0					
International	49.3	63.5	59.7	60.0	60.4	63.6					
System	59.4	68.4	66.9	67.1	67.3	69.5					
Cargo Aircraft 1/	1,064	993	974	996	1,011	1,312	(2.2)	(1.9)	2.3	1.5	2.5

Source:2000-2004; U.S. Air Carriers, Form 41, U. S. Department of Transportation.
2005-2016; FAA Forecasts
1/ Historical and forecast data on a calendar year basis



Commercial Aircraft

The number of commercial aircraft is forecast to grow from 7,832 in 2004 to 11,272 in 2016, an average annual growth rate of 3.1 percent or 287 aircraft annually. The commercial fleet grows by 328 aircraft in 2005 and 370 aircraft in 2006; however, most of this growth occurs among regional/commuters and low-cost carriers.



The number of large passenger jets (over 90 seats) increased by 23 aircraft in 2004 and is expected to increase by an additional 105 in 2005 aircraft and 169 aircraft in 2006. Over the remaining 10 years of the forecast period, the mainline air carrier passenger fleet increases by an average of 168 aircraft a year, reaching a total of 5,999 aircraft in 2016. The narrow-body fleet (including JetBlue's regional jets) is projected to grow by 153 aircraft annually over the 12-year forecast period; the wide-body fleet grows by less than 10 aircraft a year.

The regional/commuter passenger fleet is forecast to increase by 543 aircraft over the next 3 years--201 in 2005, 186 in 2006, and 156 in 2007. Thereafter, the regional/commuter fleet is expected to increase by an average of 67 aircraft (1.9 percent) over the remaining 9 years of the forecast period, reaching a total of 3,961 aircraft in 2016. The number of regional jets (up to 90 seats) in regional/commuter service is projected to grow from 1,630 in 2004 to 2,960 in 2016, an average annual increase of 5.1 percent. Much of the growth in regional jets over the forecast period occurs in the larger 70 and 90 seat aircraft (825 compared to 505 aircraft with 50 or less seats), reflecting the relaxation of scope clauses. The turboprop/ piston fleet is expected to decline from 1,182 in 2004 to 1,001 in 2016. Turboprop/piston aircraft are expected to account for just over a quarter of the regional fleet in 2016, down from a 42.0 percent share in 2004.

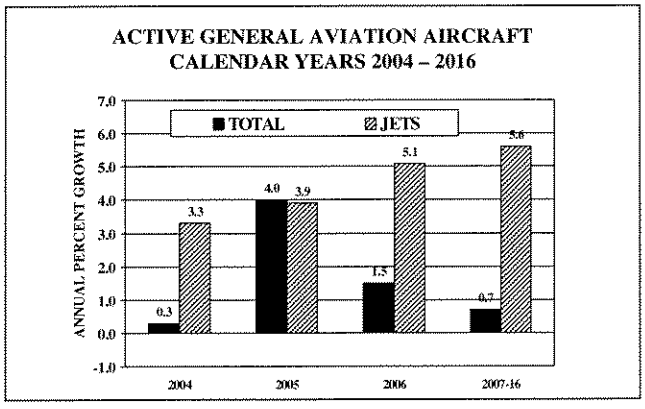
Cargo large jet aircraft are forecast to increase by 58 aircraft over the next 3 years (from 974 to 1,032 aircraft in 2007), and total 1,312 aircraft in 2016. The narrow-body jet fleet is projected to decline by almost 2 aircraft per year over the 12-year forecast period. The wide-body jet fleet, including the Airbus A-380 jumbo jet, is projected to increase by 30 aircraft yearly.

General Aviation

Despite a slowdown in the demand for business jets over the past several years, the current forecast assumes that business use of general aviation aircraft will expand at a more rapid pace than that for personal/sport use. The business/corporate side of general aviation should continue to benefit from a growing

market for new microjets. In addition, corporate safety/security concerns for its corporate staff, combined with increased processing times at some U.S. airports have made fractional, corporate, and on-demand charter flights viable alternatives to travel on commercial flights. The extension of the bonus depreciation provision to December 31, 2005 should also help stimulate business jet sales.

The active general aviation fleet is projected to increase at an average annual rate of 1.1 percent (0.5 percent excluding the new light sport aircraft) over the 12-year forecast period, growing from an estimated 211,295 in 2004 to 240,070 aircraft in 2016. The more expensive and sophisticated turbine-powered fleet (including rotorcraft) is projected to grow at an average annual rate of 3.2 percent over the 12-year forecast period. However, the jet fleet is responsible for most of this growth, increasing from 8,425 in 2004 to 15,900 in 2016, an average annual increase of 5.4 percent.



At the September 2002 TRB/FAA workshop, the Business Aviation Panel suggested that the market for new microjets could add an additional 5,000 aircraft to the active fleet by 2010. The relatively inexpensive twin-engine microjets (priced between $1 and $2 million) are believed to have the potential to redefine the business jet segment by expanding business jet flying and offering performance that could support a true on-demand air-taxi business service. This year's forecast assumes that microjets will begin to enter the active fleet in 2006 (100 aircraft) and grow by between 400 to 500 aircraft a year thereafter, reaching a total of 4,500 aircraft by 2016.

The numbers of piston-powered aircraft (including rotorcraft) are projected to increase from 163,940 in 2004 to 167,805 in 2016, an average increase of only 0.2 percent annually. This slow growth is due to declining numbers of multi-engine aircraft and the attrition of approximately 1,500 single engine aircraft annually. In addition, it is assumed that the relatively inexpensive microjets and new light sport aircraft could dilute or weaken the replacement market for piston aircraft. Single engine pistons and piston rotorcraft are forecast to increase at annual rates of 0.2 and 1.2 percent, respectively, over the 12-year forecast period.

Starting in 2005, owners of ultralight aircraft (not currently included in the FAA's aircraft registry counts) can begin registering these aircraft as "light sport" aircraft. The forecast assumes registration of 10,000 aircraft over a 2-year period beginning in 2005. In addition, it is projected that approximately 300-500 newly manufactured light sport aircraft will enter the active fleet on an annual basis beginning in 2007. This new aircraft category is expected to total 15,410 in 2016.

The number of general aviation hours flown is projected to increase by 1.6 percent (1.4 percent excluding the new light sport aircraft) annually on the 12-year forecast period. Much of the increase reflects increased flying by business and corporate aircraft as well as increased utilization rates on most general aviation aircraft.

Hours flown by turbine aircraft (including rotorcraft) are forecast to increase 4.1 percent yearly over the forecast period, compared with only 0.3 percent for piston-powered aircraft. Jet aircraft are forecast to account for the majority of the increase, expanding at an average annual rate of 6.7 percent over the 12 years. The large

TABLE I-7

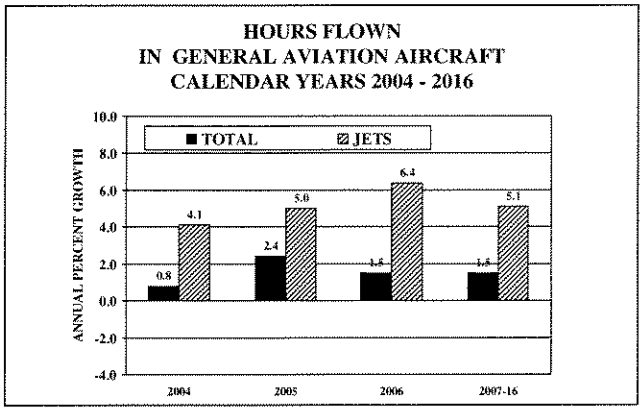
AVIATION DEMAND FORECASTS AND ASSUMPTIONS
GENERAL AVIATION

CALENDAR YEARS 2005-2016

AVIATION ACTIVITY	HISTORICAL			FORECAST			PERCENT AVERAGE ANNUAL GROWTH				
	2000	2003	2004	2005	2006	2016	00-04	03-04	04-05	05-06	04-16
GENERAL AVIATION											
Total Active Fleet (000)	217.5	210.6	211.3	219.8	223.1	240.1	(0.7)	0.3	4.0	1.5	1.1
Total less Sport Aircraft (000)	217.5	210.6	211.3	212.1	213.1	224.7	(0.7)	0.3	0.4	0.5	0.5
Pistons	170.5	161.6	161.7	161.8	162.0	165.2	(1.3)	0.0	0.1	0.1	0.2
Single Engine	149.4	143.9	144.0	144.2	144.4	148.0	(0.9)	0.1	0.1	0.2	0.2
Multi-Engine	21.1	17.7	17.7	17.6	17.6	17.2	(4.3)	(0.1)	(0.3)	(0.2)	(0.2)
Turbine	12.8	15.4	15.7	16.2	16.7	24.3	5.4	2.4	2.7	3.4	3.7
Turboprops	5.8	7.2	7.3	7.4	7.5	8.4	6.1	1.4	1.4	1.4	1.2
Turbojets	7.0	8.2	8.4	8.8	9.2	15.9	4.7	3.3	3.9	5.1	5.4
Rotorcraft	7.2	6.8	6.9	7.0	7.1	7.9	(0.9)	1.5	1.4	1.4	1.2
Experimental	20.4	20.6	20.8	21.0	21.2	21.4	0.5	1.0	1.0	0.9	0.2
Sport Aircraft	NA	NA	NA	7.7	10.0	15.4	NA	NA	NA	29.9	NA
Other	6.7	6.2	6.2	6.2	6.1	5.8	(2.0)	(0.5)	(0.5)	(0.5)	(0.5)
Total Hours Flown (Mil)	30.0	27.0	27.3	27.9	28.3	32.8	(2.3)	0.8	2.4	1.5	1.6
Total less Sport Aircraft (Mil)	30.0	27.0	27.3	27.5	27.9	32.3	(2.3)	0.8	0.9	1.4	1.4
Pistons	21.5	18.8	18.8	18.9	18.9	19.5	(3.3)	0.2	0.2	0.3	0.3
Single Engine	18.1	16.5	16.5	16.6	16.6	17.3	(2.2)	0.2	0.3	0.3	0.4
Multi-Engine	3.4	2.3	2.3	2.3	2.3	2.2	(9.3)	(0.3)	(0.4)	(0.2)	(0.3)
Turbine	4.6	4.5	4.6	4.8	5.0	8.3	0.0	3.2	3.7	4.6	5.0
Turboprops	2.0	1.8	1.8	1.9	1.9	2.2	(2.2)	1.8	1.6	1.6	1.4
Turbojets	2.6	2.7	2.8	3.0	3.2	6.2	1.6	4.1	5.0	6.4	6.7
Rotorcraft	2.2	2.2	2.2	2.3	2.3	2.6	0.4	1.5	1.8	1.3	1.3
Experimental	1.3	1.3	1.3	1.3	1.3	1.4	0.4	0.3	1.2	1.1	0.4
Sport Aircraft	NA	NA	NA	0.4	0.5	0.8	NA	NA	NA	29.9	NA
Other	0.4	0.3	0.3	0.3	0.3	0.3	(7.0)	(1.8)	0.0	0.0	(0.3)
Total Aircraft Utilization (Hrs)	137.7	128.4	129.0	126.9	127.0	136.7	(1.6)	0.4	(1.6)	0.0	0.5
Total less Sport Aircraft (Hrs)	137.7	128.4	129.0	129.7	130.9	143.8	(1.6)	0.4	0.5	0.9	0.9
Pistons	126.0	116.2	116.4	116.5	116.7	118.0	(2.0)	0.1	0.1	0.1	0.1
Turbine	363.1	292.8	295.1	297.8	301.2	342.2	(5.1)	0.8	0.9	1.1	1.2
Rotorcraft	306.4	322.8	322.9	324.3	324.2	328.5	1.3	0.0	0.4	(0.0)	0.1
Total Active Pilots (000)	631.6	625.0	618.6	635.0	647.6	750.3	(0.5)	(1.0)	2.7	2.0	1.6
Total less Sport Pilots (000)	631.6	625.0	618.6	627.5	637.7	738.4	(0.5)	(1.0)	1.4	1.6	1.5
Instrument Rated Pilots (000)	315.1	315.4	313.5	318.5	324.0	379.2	(0.1)	(0.6)	1.6	1.7	1.6

Source: Fleet and Hours: 2000-2003, FAA General Aviation and Air Taxi Activity Survey; 2004-2016, FAA Forecasts
Pilots: 1995-2004, FAA Aeronautical Center; 2005-2016, FAA Forecasts

increases in jet hours are due to expected increases in the fractional ownership fleet and its activity levels. Fractional ownership aircraft average approximately 1,200 hours annually compared to only 360 hours for all business jets. In addition, the introduction of the new microjets will increase the number of flights and hours flown by on-demand air taxis.



The number of active general aviation pilots (excluding air transport pilots) is projected to total 575,790 in 2016, an increase of almost 100,000 (up 1.6 percent annually) over the forecast period. A large part of this growth is due to the certification of 11,900 new sport pilots over the forecast period. However, almost two-thirds of the expected growth (64,564 pilots) is projected to occur in the private and commercial categories, reflecting the expected increase in the demand for pilots among fractional ownership companies, business corporations, and on-demand charter operations. The number of private pilots is projected to total 273,600 (up 1.2 percent annually) in 2016. Commercial pilots are forecast to increase from 122,592 in 2004 to 149,550 in 2016, an average annual increase of 1.7 percent. Almost 21,000 new student pilots are projected to be certificated over the 12-year forecast period. The number of student pilots increase from 87,910 in 2004 to 108,800 in 2016, an average annual rate of 1.8 percent.

FAA Workload Forecasts

There were 489 towered airports at the end of September 2004--266 FAA towers and 223 contract towers. While the number of FAA towers is expected to remain constant at 266 in 2005, the number of FAA contract towered airports is forecast to increase by 11 brand new towers to 234. In 2004, aircraft activity at these 11 airports totaled approximately 1.1 million operations, with general aviation accounting for 87.2 percent of the total activity.

FAA and Contract Towers

Activity at the combined FAA and contract towers totaled 63.1 million operations in 2004, an increase of 0.5 percent over 2003. Activity is expected to increase 2.6 percent in 2005, 2.8 percent in 2006, and 1.7 percent annually over the remaining 10 years of the forecast period, reaching 78.9 million operations in 2016. Total activity at combined FAA/contract towers is not expected to return to pre-September 11th levels until 2008.

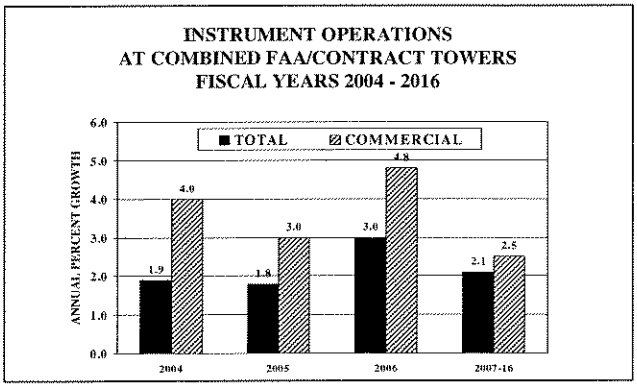
Most of the growth over the 12-year forecast period results from increased commercial aircraft activity (up 2.8 percent annually). Air carrier activity is projected to increase 0.9 percent in 2005, 2.2 percent in 2006, and average 2.5 percent annually over the remaining 10 years of the forecast period. Commuter/air taxi operations are expected to increase by 6.9 percent in 2005, 6.3 percent in 2006, and by 2.5 percent annually over the remainder of the forecast period.

General aviation activity (down 1.7 percent in 2004) is forecast to increase by 1.8 percent in both 2005 and 2006 and then grow at an annual rate of 1.2 percent over the remainder of the forecast period, reaching 40.9 million operations in 2016. Much of the growth in 2005 and 2006

results from additional activity at the 11 new contract towers that was not in the previous database. General aviation activity at combined FAA/contract towers is not expected to return to pre-September 11th levels until 2014.

Military activity, which declined by 1.1 percent in 2004, is expected to increase by 1.8 percent in 2005. This increase is also due to activity at the 11 new contract towers. Military activity is held constant at the 2005 activity level (3.0 million) throughout the remainder of the forecast period.

Combined instrument operations counts at FAA and contract towered airports (49.1 million) was up 1.9 percent in 2004. Instrument activity is expected to increase 2.0 percent in 2005 and 2.8 percent in 2006, the slower growth in 2005 reflecting schedule reductions implemented by some legacy carriers in winter 2004/2005. Thereafter, instrument operations increase at an average annual rate of 2.1 over the remainder of the forecast period, totaling 63.4 million operations in 2016. Instrument activity at combined FAA/contract towers is expected to return to pre-September 11th levels in 2008.

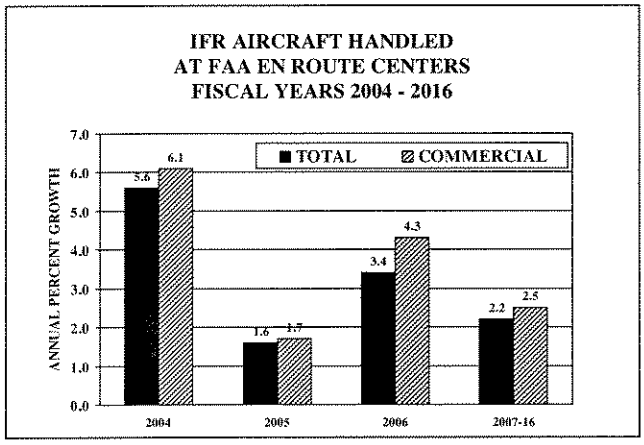


Commercial aircraft instrument operations are forecast to increase at almost double the rate of general aviation instrument operations, up 2.7 versus 1.5 percent over the forecast period. Military activity is expected to remain constant at its 2004 level of activity throughout the forecast period.

En Route Centers

The number of IFR aircraft handled at FAA en route traffic control centers increased 5.6 percent to 46.2 million in 2004. All user groups shared in the growth in 2004--commuter/air taxi up 9.1 percent; air carrier up 4.9 percent; and general aviation and military both up 4.4 percent. Activity at en route centers is forecast to increase by 2.5 percent in both 2005 and 2006. En route activity then increases by 2.3 percent annually over the remainder of the forecast period, reaching a total of 60.2 million aircraft handled in 2016. Activity at FAA en route centers exceeded pre-September 11th levels in 2004.

The number of commercial aircraft handled is projected to increase 2.6 percent annually while general aviation en route activity increases 1.7 percent a year over the forecast period. Military activity is held constant at the 2004 activity level throughout the forecast period.



Activity at FAA en route centers is growing faster than at FAA towered airports because more of the activity in en route centers is from the faster growing commercial sector. Much general aviation activity, which is growing more slowly, is local in nature and does not impact the centers.

TABLE I-8

AVIATION ACTIVITY FORECASTS
COMBINED FAA AND CONTRACT TOWERS

FISCAL YEARS 2005-2016

ACTIVITY MEASURES (In Millions)	HISTORICAL			FORECAST			PERCENT AVERAGE ANNUAL GROWTH				
	2000	2003	2004	2005	2006	2016	00-04	03-04	04-05	05-06	04-16
NUMBER OF TOWERS											
FAA Towers	288	266	266	266	266	266					
FAA Contract Towers	165	218	223	234	234	234					
TOTAL	453	484	489	500	500	500					
AIRCRAFT OPERATIONS											
Air Carrier	15.2	12.8	12.9	13.0	13.3	17.1	(3.9)	0.8	0.9	2.2	2.3
Commuter/Air Taxi	10.8	11.4	12.2	13.1	13.9	17.8	3.2	7.0	6.9	6.6	3.2
General Aviation	39.9	35.5	34.9	35.6	36.2	40.9	(3.3)	(1.6)	1.8	1.8	1.3
Itinerant GA	22.8	20.2	20.0	20.3	20.7	23.7	(3.3)	(1.2)	1.8	1.9	1.4
Local GA	17.0	15.3	14.9	15.2	15.5	17.2	(3.2)	(2.3)	1.8	1.7	1.2
Military	2.9	3.0	3.0	3.0	3.0	3.0	0.7	(1.1)	1.8	0.0	0.1
Itinerant MIL	1.4	1.5	1.5	1.5	1.5	1.5	0.9	(2.1)	2.4	0.0	0.2
Local MIL	1.4	1.5	1.5	1.5	1.5	1.5	0.5	(0.1)	1.2	0.0	0.1
TOTAL	68.7	62.8	63.1	64.7	66.5	78.9	(2.1)	0.5	2.6	2.8	1.9
INSTRUMENT OPERATIONS											
Air Carrier	16.5	14.0	14.2	14.2	14.6	18.7	(3.8)	1.3	0.3	2.8	2.3
Commuter/Air Taxi	11.6	12.3	13.2	14.1	14.9	19.1	3.2	7.1	6.5	6.3	3.1
General Aviation	21.2	18.6	18.6	18.7	18.8	22.3	(3.3)	(0.2)	0.5	0.7	1.5
Military	3.5	3.3	3.2	3.2	3.2	3.2	(2.6)	(3.6)	0.0	0.0	0.0
TOTAL	52.9	48.2	49.1	50.1	51.6	63.4	(1.8)	1.9	2.0	2.8	2.1

Source: FY 2000-2016, FAA Data and Forecasts

TABLE I-9

AVIATION ACTIVITY FORECASTS
FAA FACILITIES

FISCAL YEARS 2005-2016

ACTIVITY MEASURES (In Millions)	HISTORICAL			FORECAST			PERCENT AVERAGE ANNUAL GROWTH				
	2000	2003	2004	2005	2006	2016	00-04	03-04	04-05	05-06	04-16
AIRCRAFT OPERATIONS											
Air Carrier	14.9	12.6	12.7	12.8	13.1	16.8	(3.9)	0.8	0.9	2.2	2.3
Commuter/Air Taxi	9.2	9.9	10.6	11.3	12.1	15.4	3.7	7.7	6.5	6.3	3.1
General Aviation	27.0	22.6	21.7	21.8	21.9	24.8	(5.3)	(3.8)	0.4	0.5	1.1
Itinerant GA	16.3	13.6	13.2	13.2	13.3	15.3	(5.2)	(3.0)	0.5	0.7	1.2
Local GA	10.7	9.0	8.6	8.6	8.6	9.6	(5.5)	(5.1)	0.2	0.3	0.9
Military	2.0	1.9	1.8	1.8	1.8	1.8	(2.4)	(4.4)	0.0	0.0	0.0
Itinerant MIL	1.1	1.1	1.0	1.0	1.0	1.0	(2.3)	(6.7)	0.0	0.0	0.0
Local MIL	0.9	0.9	0.8	0.8	0.8	0.8	(2.5)	(1.6)	0.0	0.0	0.0
TOTAL	53.2	47.0	47.0	47.8	49.0	58.9	(3.1)	(0.2)	1.9	2.3	1.9
INSTRUMENT OPERATIONS											
Air Carrier	16.4	13.9	14.1	14.1	14.5	18.6	(3.8)	1.3	0.3	2.8	2.3
Commuter/Air Taxi	11.2	12.0	12.8	13.7	14.5	18.6	3.4	7.2	6.5	6.3	3.1
General Aviation	20.9	18.3	18.3	18.4	18.5	22.0	(3.3)	(0.3)	0.5	0.8	1.5
Military	3.5	3.2	3.1	3.1	3.1	3.1	(2.7)	(3.8)	0.0	0.0	0.0
TOTAL	52.1	47.4	48.3	49.3	50.7	62.3	(1.9)	1.9	2.0	2.8	2.1
IFR AIRCRAFT HANDLED											
Air Carrier	25.0	22.7	23.9	24.2	24.6	31.5	(1.2)	4.9	1.5	1.6	2.3
Commuter/Air Taxi	8.1	9.1	10.0	10.6	11.3	14.5	5.4	9.1	6.5	6.3	3.1
General Aviation	8.7	8.0	8.4	8.5	8.6	10.2	(1.1)	4.4	1.7	1.5	1.7
Military	4.2	3.9	4.0	4.0	4.0	4.0	(1.0)	4.4	0.0	0.0	0.0
TOTAL	46.0	43.7	46.2	47.4	48.5	60.2	0.1	5.6	2.5	2.5	2.2
FLIGHT SERVICES											
Pilot Briefs	7.7	7.0	6.8	6.7	6.7	7.6	(3.1)	(3.0)	(2.1)	0.6	0.9
Flight Plans Originated	5.9	5.4	5.4	5.3	5.3	5.6	(2.3)	(0.5)	(1.2)	(0.6)	0.3
Aircraft Contacted	3.2	2.8	2.7	2.6	2.6	3.0	(4.3)	(4.7)	(2.3)	0.2	0.9
TOTAL	30.5	27.7	27.1	26.6	26.6	29.3	(2.9)	(2.2)	(1.7)	0.1	0.7
DUATS	15.0	17.5	19.8	21.1	22.1	28.4	7.1	13.0	6.8	4.6	3.1
TOTAL (w/DUATS)	45.5	45.1	46.8	47.7	48.7	57.7	0.7	3.7	1.8	2.1	1.8

Source: FY 2000-2016, FAA Data and Forecasts

Flight Service Stations

Total flight services (non-automated) originating at traditional FAA flight service stations declined by 2.2 percent in 2004. Flight services are forecast to decline 1.7 percent in 2005, and then increase at an annual rate of 0.9 percent over the remainder of the forecast period. The number of flight plans originated is expected to decline over the first 3 years of the forecast period (down 1.9 percent), then increase by 0.6 percent annually over the remainder of the forecast period to 5.6 million in 2016. The number of pilot briefs and aircraft contacted both decline in 2005 (down 2.1 and 2.3 percent, respectively), then grown at an annual rate of 1.2 percent a year increase over the balance of the forecast period.

The number of Direct User Access Terminal System (DUATS) services (up 13.0 percent in 2004) is projected to grow at an average annual rate of 3.1 percent over the forecast period, from 19.8 million in 2004 to 28.4 million in 2016. Combined FSS and DUATS services are expected to total 57.7 million in 2016, an annual increase of 1.8 percent.

RISKS TO THE FORECASTS

The FAA is once again "cautiously optimistic" that its current outlook for aviation demand and activity can be achieved. A has been the case for the past several years, terrorism remains the greatest risk to achieving the forecasts contained herein. Tighter security measures have restored the public's confidence in the integrity of U.S. and world aviation security systems. However, because of aviation's high visibility and global reach, it is likely to continue to be a target for international terrorism. Any terrorist incident aimed at aviation would have an immediate and significant impact on the demand for aviation services

Terrorist concerns notwithstanding, this year's forecast is driven, at least in the short-term, by the weakened financial health of the commercial aviation industry, which, in turn, is inextricably tied to what appears to be a permanent shift to considerably higher jet fuel prices.

Economists and economic forecasting services no longer predict, as many did last year, that oil prices will decline to the $20-$25/barrel range. Oil prices peaked at $55/barrel in October 2004 and then fell to $41/barrel in December. However, prices have risen to $48/barrel in late January, partially in response to OPEC's decision in December to reduce oil production by 4.0 percent so as to prop up oil prices. Most economic projections now assume that oil prices will remain in the $35-$45/barrel range over the next several years, with $35/barrel being touted as the new floor for future oil prices.

Higher fuel costs cost U.S. commercial air carriers $3.4 billion in fiscal year 2004, essentially wiping out the tremendous inroads made by the legacy carriers in reducing their operating costs. If oil prices had stayed at $35/barrel (as forecast) in 2004, most carriers, including several legacy carriers, would have been profitable. This year's forecast assumes $46/barrel oil in 2005, falling to $41/barrel in 2006 and $38/barrel in 2007. With oil prices in the $40-$45 range, it is unlikely that the industry will return to profitability in either 2005 or 2006. If prices rise to $50/barrel or higher, the likelihood of the liquidation of one or more carriers increases substantially.

The legacy carriers, which currently account for 65 percent of the industry's domestic capacity and carry 55 percent of the industry's domestic passengers, are most at risk from higher fuel prices. While no carrier is immune to higher jet fuel prices, some of the more profitable carriers are able to hedge a large percentage of their fuel costs. In addition, the legacy carriers are

TABLE I-10

FAA AVIATION FORECASTS
SELECTED AVIATION DEMAND MEASURES

CALENDAR YEAR 2005-2016

SELECTED FORECASTS	HISTORICAL			FORECAST			PERCENT AVERAGE ANNUAL GROWTH				
	2000	2003	2004	2005	2006	2016	00-04	03-04	04-05	05-06	04-16
U.S. Economy											
GDP (Bil 2000$)	9,817.0	10,381.3	10,842.2	11,232.7	11,626.3	15,762.5	2.5	4.4	3.6	3.5	3.2
Oil & Gas Deflator (2000 = 100)	100.0	105.2	127.9	137.6	125.6	140.1	6.4	21.7	7.5	(8.7)	0.8
Total U.S. Commercial Enplanements (Mil)											
Domestic	644.1	593.1	637.7	652.6	686.0	942.5	(0.3)	7.5	2.3	5.1	3.3
Mainline Air Carriers	563.1	483.7	507.5	505.2	523.9	699.4	(2.6)	4.9	(0.5)	3.7	2.7
Regionals/Commuters	81.0	109.4	130.2	147.4	162.2	243.1	12.6	18.9	13.3	10.0	5.3
International	57.2	54.6	62.7	69.9	74.2	114.3	2.3	14.9	11.4	6.2	5.1
Mainline Air Carriers	54.0	51.0	58.5	64.6	68.6	105.6	2.0	14.8	10.3	6.3	5.0
Regionals/Commuters	3.2	3.6	4.2	5.3	5.6	8.7	6.7	16.7	27.1	4.4	6.3
System	701.4	647.7	700.4	722.5	760.2	1,056.8	(0.0)	8.1	3.2	5.2	3.5
Total U.S. Commercial RPMs (Bil)											
Domestic	517.4	500.3	550.6	564.7	597.4	867.1	1.6	10.1	2.6	5.8	3.9
Mainline Air Carriers	493.8	458.1	496.0	499.2	523.7	744.7	0.1	8.3	0.6	4.9	3.4
Regionals/Commuters	23.7	42.2	54.6	65.5	73.7	122.4	23.2	29.4	20.0	12.5	7.0
International	185.5	156.9	181.6	202.2	218.2	343.4	(0.5)	15.7	11.4	7.9	5.5
Mainline Air Carriers	184.6	155.7	179.9	200.0	215.8	339.5	(0.6)	15.5	11.2	7.9	5.4
Regionals/Commuters	0.9	1.2	1.6	2.2	2.3	4.0	16.7	37.2	36.9	5.4	7.7
System	702.9	657.2	732.2	766.9	815.5	1,210.5	1.0	11.4	4.7	6.3	4.3
Air Cargo RTMs (Bil)											
Domestic	14.7	15.1	15.7	16.3	16.9	23.3	1.6	3.4	4.1	3.4	3.4
International	15.4	18.2	20.0	21.3	22.6	40.8	6.7	9.5	6.6	6.3	6.1
System	30.1	33.4	35.6	37.6	39.5	64.1	4.3	6.8	5.5	5.0	5.0
IFR Aircraft Handled (Mil)											
Commercial	33.2	32.1	34.3	35.1	36.3	46.4	0.8	6.9	2.3	3.3	2.6
Non-Commercial	12.8	11.9	12.4	12.6	12.7	14.3	(0.7)	4.2	0.9	1.1	1.2
Total Aircraft Handled	46.1	44.0	46.7	47.7	49.0	60.7	0.4	6.2	2.0	2.7	2.2

Source: CY 2000-2004, Economic data, OMB; Air Carrier/Regional data, DOT; FAA Workload, FAA.
CY 2005-2016, FAA Forecasts

saddled with large amounts of long-term debt and pension obligations that many of the low-cost airlines do not share. In a high oil price scenario, the potential exists for major supply disruptions/dislocations and/or increased passenger inconveniences, either of which could significantly reduce capacity and passenger demand and lessen competition in many markets. In a $50/barrel plus scenario, supply disruptions would most likely occur through liquidation and/or further contraction of mainline carrier route structures. Under this scenario, several large U.S. airports could lose their major service provider. In a $40-$45/barrel scenario, supply disruptions could occur through industry consolidation and/or contraction of legacy carrier route networks. However, it is unlikely that any airport would lose its major airline tenant.

Low-cost carriers are forecast to continue to increase their share of domestic traffic over the forecast period. However, with the exception of Southwest and JetBlue, the 2004 financial performance of these carriers was, at best, mixed. Although most of the current low-cost carriers appear to have greater financial stability and access to funding than previous start-ups, continued high fuel prices, a prolonged slump in travel demand, and/or a prolonged fare war could cause these carriers to scale back planned growth and/or cease operations. Any loss of competition could lead to increased fares and a loss of passenger demand.

Additionally, the forecast assumes continued rapid traffic and capacity growth among regionals/commuters, including the addition of large numbers of regional jets into their fleets. However, these carriers' future is closely tied to those of the larger legacy carriers. Should one or more of these large carriers cease to exist (two are currently operating under Chapter 11 bankruptcy protection), several regional carriers could find themselves either saddled with excess capacity or lack of sufficient capacity to accommodate future growth, the nature of the risk depending upon whether the regional carrier or the legacy carrier owns or leases the aircraft. Either scenario could result in a loss of capacity and passenger demand at small and medium sized airports.

The industry's recent introduction of fare simplification (capping the one-way walk-up fare at under $500 and elimination of the Saturday night stay-over) has perhaps lowered the probability of the industry returning to profitability in 2005. The intent of the new fare structure is to induce business passengers to book away from low-cost airlines. Unfortunately, the fares would appear to have, at least in the short-term, a negative revenue impact on all carriers. The legacy carriers would have revenue dilution from business travelers who would have booked at previous higher fares. Regional/commuter carrier revenue is diluted through lower prorated fares on connecting flights. The impact to low-cost carrier revenues depends on the magnitude of any share loss to legacy carriers. If large, the likely low-cost carrier competitive response would be further fare reductions to regain lost share, further reducing revenues for all carriers. In the short-term the industry's financial viability could be seriously eroded, significantly increasing the probability of the liquidation of one or more carriers.

The economic projections used to develop this year's aviation forecasts assume strong economic growth in 2005 and 2006. Global Insight's optimistic scenario--a stronger U.S. dollar, lower oil prices, and a continuation of the information-driven technology boom--projects a 20 percent probability that U.S. economic growth could exceed current projected growth. Higher economic growth would lead to increased demand for aviation services and speed the industry's return to profitability.

However, Global Insight pessimistic scenario—a rapidly declining dollar, rising oil prices, higher inflation, and rising unemployment--projects an equal 20 percent probability that the U.S. economy will be less than predicted.

Slower economic growth would not only slow the recovery in the demand for aviation services but would also hamper and slow the industry's return to profitability.

The global economy recovered from 5 years of weak and uneven growth in 2004, posting fairly strong gains throughout the world. Although the current forecast calls for a return to higher historical growth rates throughout the forecast period, there are numerous downside risks inherent in these forecasts. The fate of the global economy will continue to depend on the sustainability and strength of U.S. economic growth, with most world regions counting on strong export growth to the United States as a major contributor to their future economic growth. If, as predicted, the U.S. dollar continues to fall, strong U.S. economic growth may not translate into strong U.S. import growth. If this occurs, global economic growth could remain sluggish for some time into the future.

In addition, there are potential geopolitical risks that could slow global economic growth, i.e., the uncertain political situations in several major oil exporting countries. Doubts also remain over the strength of domestic demand in both Japan and the Eurozone as these countries continue to be constrained by structural economic problems, political gridlock, institutional constraints, and the authorities' reluctance to take decisive action. The current forecasts assume strong passenger growth for travel between the United States and other world regions. Any slowing of global economic activity could seriously inhibit the growth in world passenger demand.

Historically, international markets have been subject to a series of bilateral agreements that have, for the most part, severely restricted competition. However, if current negotiations between the U.S. and the European Union are successful, additional U.S. carriers could gain access to new markets and introduce new competition in the North Atlantic market. Greater competition could lead to lower fares and higher growth in these markets.

The demand for general aviation products and services, including business jets, appears to be recovering. How quickly the industry recovers depends, in large part, on the strength of the market for business jets and microjets. How quickly this flying segment responds to the predicted economic rebound will go a long way in determining whether general aviation achieves the predicted increases in the demand for its products and services.

The current forecast assumes the introduction of low priced micro jets starting in 2006, with the market growing to 4,500 by 2016. This is a relatively conservative assumption compared to some industry estimates. If the higher industry estimates are correct, the general aviation active jet fleet and hours flown could be considerably higher than forecast.

The mix of aircraft operating at most large hubs is also expected to become increasingly more complex over the forecast period. The expected large increases in the numbers of smaller regional jets and new microjets will certainly increase the complexities of the national airspace system and make the FAA's job considerably more challenging.

The current FAA workload forecasts assumes that commercial activity (air carrier and regionals/commuters) will exceed pre-September levels in 2005. Delays occurred at a number of U.S. airports in 2004 and could become a critical limit to growth over the forecast period. Based on the 2004 FAA Terminal Area Forecasts, 17 of the 35 Operational Evolution Plan (OEP) airports currently exceed pre-September 11th activity levels. In addition, another seven airports are

expected to reach or exceed pre-September 11th levels over the next 2 years.[17]

The U.S. and world economic scenarios presented in this document assume strong growth in both 2005 and 2006 and moderate sustained growth throughout the remainder of the forecast period. If these economic forecasts are realized, the demand for commercial general aviation products and services should fully recover to pre-September 11th levels during the 2005/2006 time frame and continue to expand throughout the remainder of the forecast period.

[17] Baltimore/Washington, New York Newark, Washington Dulles, New York Kennedy, Orlando, and Phoenix in 2005; Honolulu in 2006.

CHAPTER II

ECONOMIC ENVIRONMENT

This chapter discusses the economic background and data used to forecast aviation demand. The data used in the FAA forecast come from several sources. U.S. economic data, derived from annual and quarterly statistics, come from the Office of Management and Budget (OMB), Congressional Budget Office (CBO), and a private forecasting service—Global Insight, Inc. (GII). Quarterly data for the three data series used to develop the aviation demand forecasts--Gross Domestic Product (GDP), the Consumer Price Index (CPI), and the Oil and Gas Price Index--are presented as seasonally adjusted, annualized rates.

Federal fiscal year (FY) estimates are calculated by averaging the 4 quarters for the period October through September. GII international economic forecasts provide a basis for the international aviation forecasts. The U.S. economic data are presented on a fiscal year basis, while international economic data are specified on a calendar year (CY) basis, unless otherwise indicated.

REVIEW OF 2004

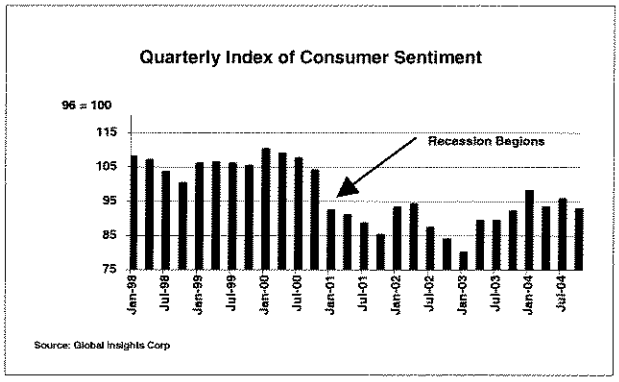
The U.S. economy experienced its 12th consecutive quarter of growth in fourth quarter 2004, an expansion marked by the tensions of the Iraq war and the pervasive threat of terrorism. Although the recovery appears well in progress, the sluggish performance in the labor markets has raised concerns related to the strength of this expansion. The world economic recovery has continued with an expansion particularly brisk in Asia, but somewhat slower in most other regions. However, all major regions of the world showed signs of improving economic conditions.

UNITED STATES

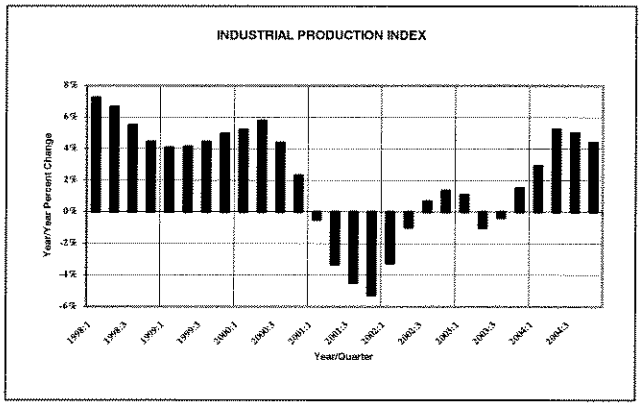
U.S. GDP continued to expand throughout 2004. The economy grew at 4.2 and 4.5 percent in the first 2 quarters; the tempo slowed to 3.3 percent in the third quarter and climbed again to 4.0 percent to end the year.

Consumer confidence, as measured by the University of Michigan's Index of Consumer Sentiment provides a means to view the buying psychology of American consumers who

currently account for about two thirds of the U.S. GDP. The index rose steadily from its recent low point in the second quarter 2003 through the second quarter 2004. However, this leading indicator has remained sluggish through 2004, reaching 95.7 in summer 2004.

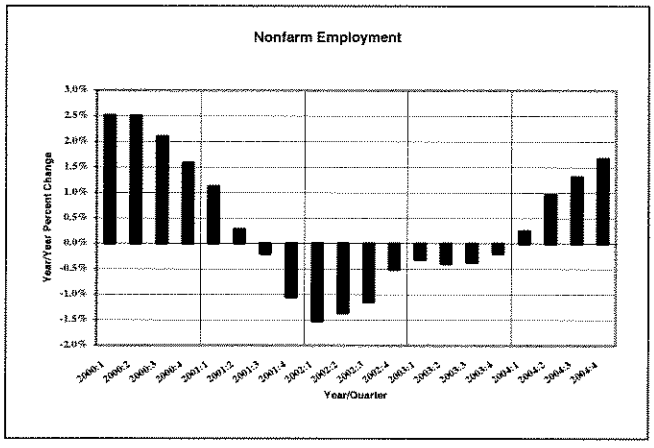


The Industrial Production Index measuring industrial output further illustrates the pattern of recovery in 2004. The chart below shows strength in industrial production in 2004 reversing the recent downward trend since mid-2002. After an up-and-down style recovery since mid-2001, the index has risen for the past 5 quarters. Although the gains are not as high as the late 1990's, industrial production appears growing and stable.



The consumer price index (CPI), a measure of overall price inflation, increased modestly in 2004 with prices rising 2.3 percent, a slightly smaller increase than a year earlier. Highly volatile energy prices rose 13.0 percent following an even larger rise, 18.5 percent, a year earlier.

The chart below shows that nonfarm employment has begun to make gains after 10 consecutive quarters of decline following the recession and terrorist attacks of 2001. Employment rose for every quarter of 2004 with each quarter adding more jobs than the previous. The rise in employment is reflected in the drop in the unemployment rate. The unemployment rate dropped throughout 2004 from 6.0 percent in October 2003 to 5.4 percent in September 2004.



After bringing the Federal Funds rate—the rate on overnight loans between banks—down to its lowest level in two generations, the Federal Reserve Board (FED) began raising interest rates this year. The FED's Federal Open Market Committee raised the federal funds rate to 2.00 percent from 1.75 percent on November 10, 2004; and once more to 2.25 percent on December 14. These were the fourth and fifth consecutive quarter-point increases since July. These increases in the Federal Funds rate caused a rise in the prime rate that banks charge their best customers from 4.75 to 5.25 percent. Prior to the raising of rates this past summer, the FED had lowered interest rates 13 times since the beginning of 2001 as the economy struggled its way out of the recession. The last rate cut was on June 25, 2003 when the Federal Funds rate was lowered to 1.00 percent--a 45-year low.

WORLD

World economic growth grew by 4.2 percent in 2004 up from the much slower 2.8 percent growth in 2003 and an even slower 1.7 percent gain in 2002. Worldwide, in major regions, growth ranged from 5.2 percent in Asia (including Japan) to 2.4 percent in Western Europe.

Although stopping its slide in GDP growth, Western Europe's economic growth continues to lag the rest of the world even with the rise in GDP from 1.0 (2003) to 2.4 percent (2004). Germany and Italy, making up a third of the Western European economy, grew at 1.4 and 1.1 percent, respectively. The German recovery from a recession in 2003 remains weak with domestic demand remaining sluggish and consumer confidence low. Italy likewise, suffers from relatively low consumer confidence.

Eastern Europe grew at a rapid 7.1 percent in 2004, up slightly from last year's 5.8 percent. Several factors are spurring growth, including expanding exports, increased direct foreign investment, and relatively low labor costs. Additionally, rising household incomes and accommodating fiscal and monetary policies have helped to fuel strong growth in public and private demand.

The commodity rich region of the Middle East and North Africa grew by 5.8 percent in 2004, a substantial rise from 3.9 percent a year earlier. Although the Iraqi war and the Israeli-Palestinian conflict continue to enflame discord throughout the region, the rise in oil prices has provided a windfall for this oil rich region.

Asia led the world's major regions in economic growth with a healthy 5.2 percent expansion in 2004, up from 4.0 percent a year earlier. Even Japan, Asia's largest and slowest growing economy over the past decade, grew by 4.1 percent in 2004, up from 2.5 percent last year. China remains the driver among the economies of the orient. Growth in this dynamic region reached 9.1 percent for the second year in a row in 2004.

Latin America economies recovered from their prolonged slump in 2004. The combined economies of South America grew by 5.9 percent in 2004, up from a decline of 2.0 percent in 2002 and growth of only 1.5 percent in 2003. Several factors have worked in favor of the Latin economies, including strong commodity prices, especially in oil, soybeans, and copper; and a depreciation of currencies, particularly in Brazil and Argentina.

G-7 countries[1] make up two-thirds of the world's GDP. GDP growth among these countries ranged from a low of 1.1 percent in Italy to a high of 4.4 percent in the U.S. Japan broke out of its slump by expanding 4.1 percent in 2004. Canada grew by 3.0 percent while the U.K, France, and Germany expanded by 3.2, 2.5, and 1.4 percent, respectively.

Price inflation has remained modest in all the G-7 countries. In 2004, inflation measured by a consumer price index, showed the U.S. having the highest inflation rate among the G-7 with a 2.6 percent rise in prices; Japan experienced a relatively mild deflation of prices, declining by 0.2 percent. Price changes in the other G-7 nations ranged from 1.7 percent in Germany to 2.3 percent in Italy.

Among G-7 nations, short-term interest rates ran from a high of 4.6 percent in the United Kingdom (UK) to a low of zero in Japan. Germany, France and Italy had a 2.1 percent rate in line with European Union (EU) policy. The U.S and U.K. raised their short-term rates by 30 and 40 basis points, respectively. EU nations lowered their rates by 20 basis points, while the Japanese rate remained unchanged at zero.

[1] United States, Canada, the United Kingdom, Germany, Italy, France, and Japan.

Once again all six of the G-7 nations appreciated their currencies against the dollar in 2004. The UK appreciated its currency most with the Pound increasing its value 11.1 percent relative to the dollar. The Euro, Japanese yen, and the Canadian dollar appreciated by 8.9, 6.8, and 7.5 percent, respectively. Hence, U.S. purchases of goods and services from other G-7 countries have become more costly, while visits to the U.S. from abroad have become less expensive.

U.S. ECONOMIC OUTLOOK

The economic assumptions used to develop FAA's baseline aviation forecasts are derived from estimates provided by the Office of Management and Budget (OMB). GDP is measured using Bureau of Economic Analysis (BEA) 2000 chain-weighted estimates.[2] Forecasts for the Congressional Budget Office (CBO) and Global Insight Inc. (GII) are also shown.

SHORT-TERM ECONOMIC OUTLOOK

Graphics on the following page show a favorable forecast for economic growth during the next 2 years. Although not as robust as the 4.6 percent growth in 2004, OMB projects GDP to grow at 4.0 percent for the first half of the 2005, falling to 3.3 and 3.5 percent for the last two quarters. For 2005 growth is pegged at 3.6 percent for the first quarter and then leveling off to 3.5 percent. GII views 2005 somewhat less confidently with growth at about 3.6 percent in the first quarter of 2004, but dropping rapidly to 2.9 in the second quarter and fluctuating between 3.3 and 2.8 percent to the end of 2006. CBO predicts somewhat more rapid growth over the next 2 years with growth rates between 3.6 and 3.8 for 2005 and between 3.7 and 3.9 during 2006.

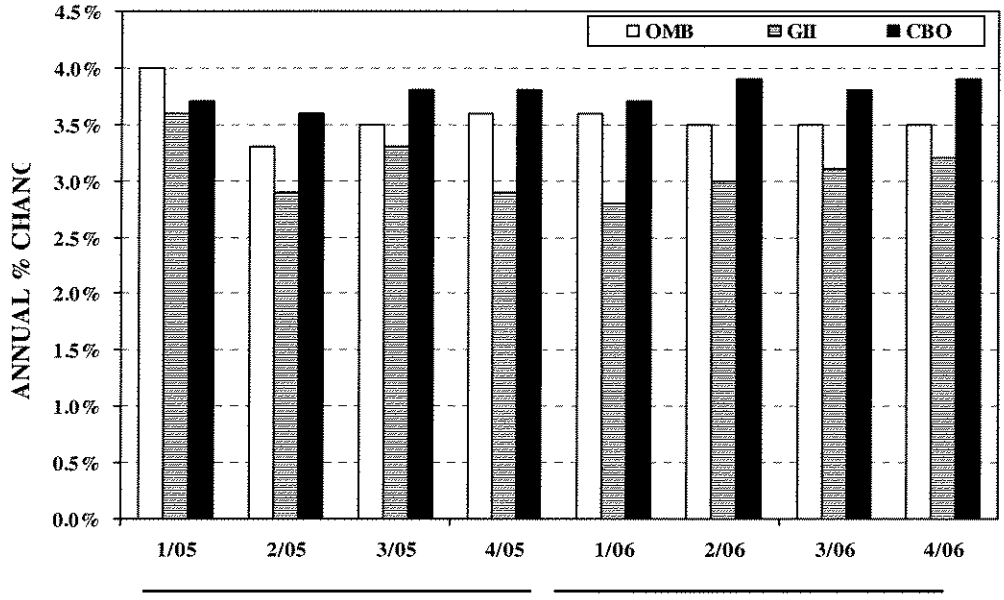
Moderate price inflation is expected to continue to complement the continued economic growth in 2005 and 2006. OMB projects price inflation, as measured by the CPI, to rise from 1.9 percent in the first quarter to 3.6 percent, fall to 1.7 percent in the third quarter, and then rise to 2.3 percent over the next 6 quarters. GII and CBO each project price increases at more moderate levels than OMB over the next 2 years.

Fuel prices, as measured by the oil and gas price index, were up 13.9 percent in 2004 and are expected to rise sharply (21.3 percent) in 2005 based on the OMB forecast. Fuel prices are expected to spike sharply in the first-quarter and decline for the next three quarters of the fiscal year. GII anticipates an 11.5 percent rise in oil prices for 2005; CBO projects a 17.5 percent rise in this volatile commodity. OMB, GII, and CBO each expect oil prices to decline during 2006.

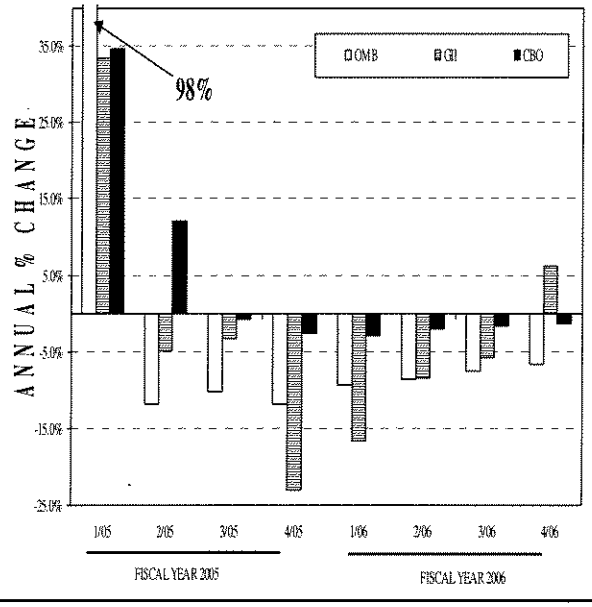
[2] The Bureau of Economic Analysis (BEA) released its revised estimates of GDP and other national income and product accounts on December 10, 2003. Quantities, or "real" measures, and prices were rebased to calendar year 2000.

U.S. SHORT-TERM ECONOMIC FORECASTS

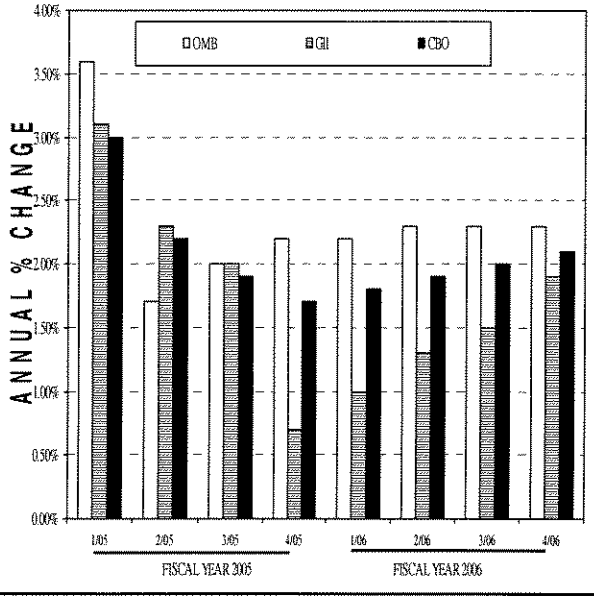
REAL GROSS DOMESTIC PRODUCT
(1996 DOLLARS, CHAIN-WEIGHTED)



OIL AND GAS PRICE INDEX
1996=100

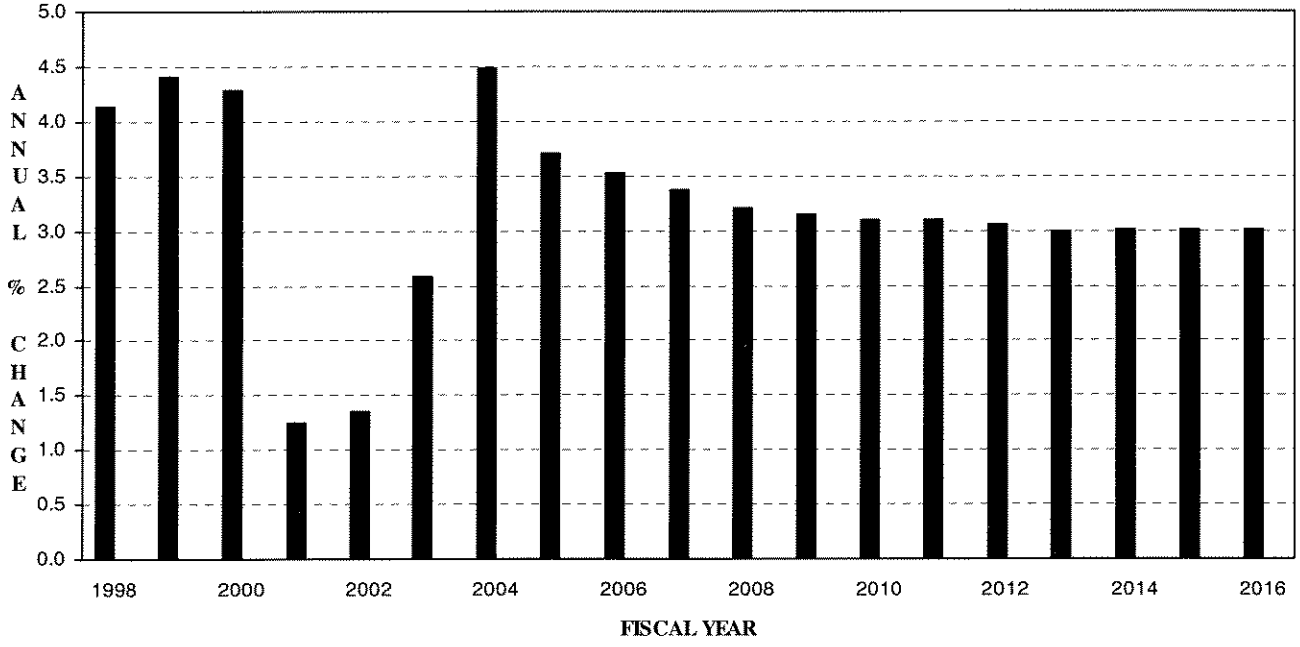


CONSUMER PRICE INDEX
(1982-84 = 100)

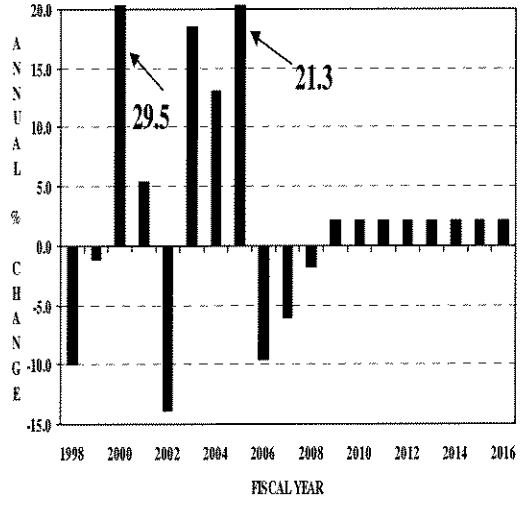


U.S. LONG-TERM ECONOMIC FORECASTS

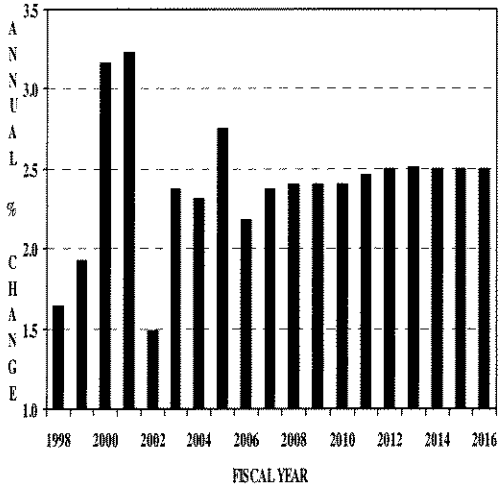
GROSS DOMESTIC PRODUCT
(2000 DOLLARS, CHAIN-WEIGHTED)



OIL AND GAS PRICE INDEX
(2000 = 100)



CONSUMER PRICE INDEX
(1982-84=100)



LONG-TERM ECONOMIC OUTLOOK

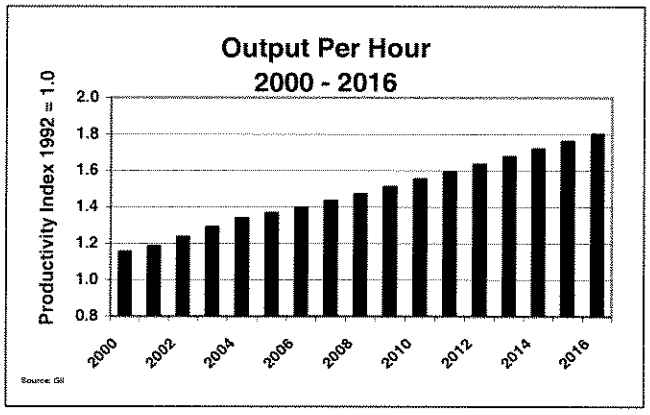
The long-term economic outlook for the U.S. economy shows real GDP growth averaging 3.2 percent over the 12-year forecast. (See graphics on page 6.) Long-term economic growth depends on growth in the workforce, production capital, and the technology that drives production. The size of the workforce depends on population growth, its composition, and the willingness to work. Capital accumulation depends on savings. Technology expands the productive power of labor and capital.

With the economic recovery well underway, the U.S. economy appears poised for relatively strong long-term income growth. While the labor supply will expand moderately during the forecast period, other factors such as low interest rates, continued capital investment, and productivity improvements from computers and the Internet will provide the fuel for a strong expansion.

The U.S. population is expected to expand at 0.9 percent annually over the forecast period according to GII. The U.S. labor force is projected to grow at the same pace over the period. Employment, based on the Bureau of Labor Statistics (BLS) establishment survey, is projected to increase 1.1 percent annually, from 131.2 million in 2004 to 150.0 million in 2016. Improved technology and more physical and human capital explain the increase in GDP over and above the growth in employment.

Continued growth in business investment over the forecast period implies further productivity increases. Therefore, wages will continue to rise over the forecast period. U.S. companies are projected to increase capital stock over the forecast period an average of 4.4 percent a year.

Productivity, as measured by output per hour, is forecast to rise 2.6 percent annually over the next 12 years. The following graph presents historical and forecast output per hour between 2000 and 2016.



Inflation is forecast to remain moderate during the forecast period with OMB projecting a 2.5 percent annual price increase through 2016. Fuel prices are forecast to rise by 21.3 percent in 2005, decline by 9.6 percent in 2006, and then increase at an average annual rate of 0.9 percent over the remainder of the forecast period. In real terms, oil prices are expected to decline at a 1.0 percent annual rate over the forecast period.

ALTERNATIVE FORECASTS

Alternative short-term U.S. economic forecasts are given in Chapter X, Table 1, as prepared by OMB, Global Insight, and CBO; Tables 2 and 3 present their long-term forecasts. Over the 12-year forecast period, both GII and CBO forecast long-term growth rates for the U.S. economy similar to OMB—up 3.2 and 3.0 percent, respectively. GII and CBO each expect prices to rise over the forecast period somewhat less than OMB, with forecasts of 2.3 and 2.2 percent, respectively. GII projects fuel prices to increase by only 0.5 percent over the 12-year forecast period, a third of the rate projected by OMB. CBO, on the other hand projects fuel prices to rise at 2.6 percent annually over the forecast period.

WORLD ECONOMIC OUTLOOK

The primary economic issues related to FAA's international traffic forecasts are discussed next. International economic data are presented in tabular form in Chapter X, Tables 4 through 6. GDP data are presented on a calendar year basis and are expressed in 2000 U.S. dollars. These data were obtained from GII.

WORLD GDP

The graphics on the following page depict both the historical trend and projected GDP growth for major economic regions of the world. Worldwide GDP is projected to increase by nearly $1.1 trillion to a level of $36.0 trillion in 2005, a 3.3 percent annual increase. Over the 12-year forecast period, world output is projected to reach $50.8 trillion, an annual growth rate of 3.2 percent.

Canada

Canada had stronger growth than the United States in each year during 1999–2002, but fell behind in 2003 and 2004. Strong appreciation of the Canadian dollar has driven down the forecast for Canada's exports. Canada's GDP is projected to increase by 3.1 and 2.7 percent in 2005 and 2006, respectively. Remaining highly dependent on the U.S. trade, Canada's economy is projected to grow 2.8 percent a year over the forecast period.

Despite increases by the FED in recent months, interest rates remain higher in Canada than in the United States. The Canadian short-term rate averaged 2.3 percent in 2004 compared to the U.S. rate of 1.5 percent. The Canadian Central Bank began its tightening cycle with a 25-basis-point increase September 8, and continued with another October 19.

Canada had both a fiscal surplus and a current account surplus last year, and should again this year and for several years to come. The prospects for significant debt and tax reduction at the federal level over the next several years have become brighter.

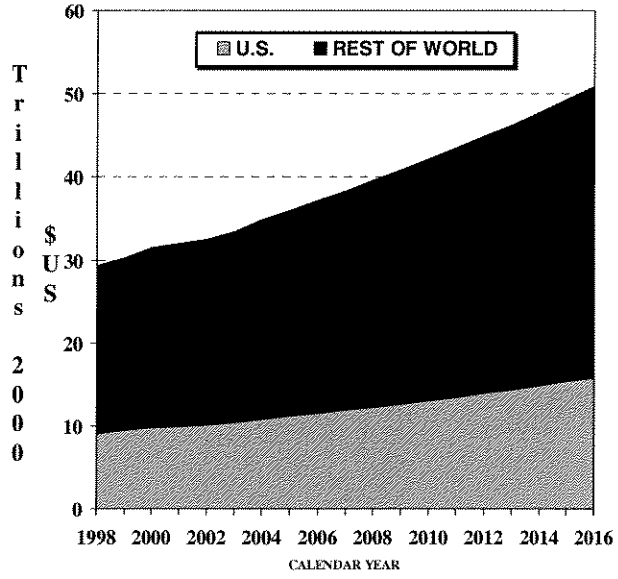
Canada's competitiveness will be challenged by the strength of its dollar now that it has climbed to the US$0.80 level. As well, labor productivity has been much stronger in the United States than in Canada over the past year, which will likely continue to provide a competitive challenge for Canada.

There are two significant risks to Canadian economic growth over the forecast period: exchange rate appreciation makes it more difficult to sell Canadian goods abroad and the sustainability of the U.S. recovery. The Canadian dollar appreciated 12 percent in 2003 and 7.5 percent in 2004, and is forecasted to move up 7.8 percent in 2005. Over the remainder of the forecast period, the Canadian dollar is expected to rise about 0.7 percent annually. This appreciation will continue to make Canadian goods more expensive to U.S. citizens and companies.

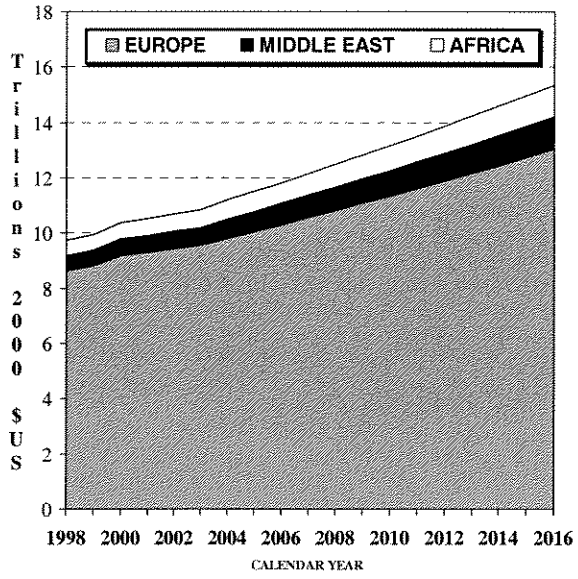
The U.S. recovery finally seems on solid footing. However, a faltering of the U.S. recovery would have a substantial impact on Canada. The importance of the U.S. economy to Canada is shown by the fact that 76 percent of Canadian total trade is with the U.S.

GROSS DOMESTIC PRODUCT BY WORLD REGION

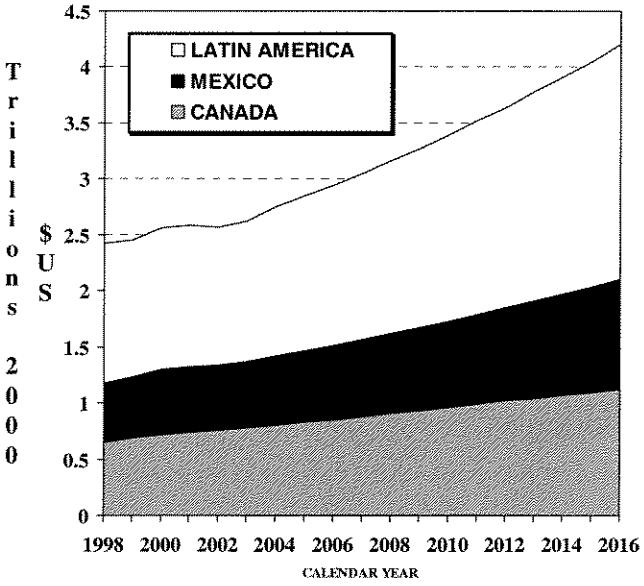
WORLD



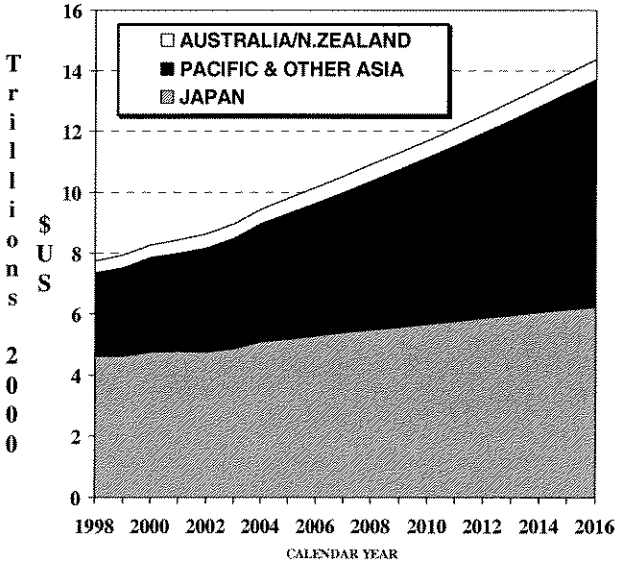
EUROPE/MIDDLE EAST/AFRICA



CANADA/MEXICO/LATIN AMERICA



JAPAN/PACIFIC & OTHER ASIA/AUSTRALIA & NEW ZEALAND



Pacific/Far East

The GDP of Asia and Oceania (Japan, the developing Asia Pacific, China, India, and Pakistan, along with Australia and New Zealand) grew by 5.2 percent in 2004, a significant gain relative to the 4.0 percent increase of a year earlier. GII projects Asian GDP growth to slow to 3.8 percent in both 2005 and 2006. Over the forecast period, the combined Asian GDP is projected to grow 3.6 percent annually, from $9.4 to $14.4 trillion.

The Asian economic machine is in high gear once more. However, growth in Asia is set to slow. And for some of the region's economies, the slowdown has already begun. Exports are expected to trend down, as growth in both the United States and China decelerate in 2005. Asian domestic demand still shows momentum and this will provide support as export growth slows. Record high oil prices have not yet been able to significantly slow Asia's growth momentum but cast a large shadow over the region's short-term growth prospects.

A combination of high oil prices and loose monetary policy has caused inflation to begin accelerating in parts of the region. Asian central banks are expected to begin measured monetary tightening. The deflation that has haunted much of Asia in the past few years has eased somewhat. However, falling prices remain a challenge in Hong Kong and Japan.

Japan's GDP, which makes up 54 percent of Asian economic output, grew by 4.1 percent in 2004, up from 2.5 percent growth in 2003 and the recessionary dip of –0.3 percent in 2002. The world's second largest economy is projected to grow by 2.0 and 2.1 percent, respectively, in 2005 and 2006. Over the forecast period, GII projects that Japan's GDP will expand by 1.7 percent annually.

The Japanese economy has shown some sluggishness recently, but the risk of a recession remains low. Exports and capital expenditures have flattened. The rise in oil prices has had little effect on the economy to this point. Most importantly, consumption continues to grow. Several factors support consumer spending: a stable labor market, high liquidity, and the perception that the most serious problems—recession and deflation—are unlikely to return. The uptrend in consumption as a share of the economy shows a resilient consumer market. Exports face a slightly higher risk. External demand has already flattened; and if the yen continues to appreciate exports will continue to become more costly, lowering their demand. Rising productivity will mitigate this trend.

Japan has instituted some banking and business practice reforms over the past few years. For instance, requiring greater transparency and more honest accounting from firms and allowing *de facto* bankrupt companies to be shut down. But major restructuring of the private sector has been slow. Japan remains overly dependent on exports to generate growth, and has only begun to locate plants offshore to produce goods for re-import back into Japan.

Also, the government's attempts to stimulate the economy have relied on massive public works spending. This has tended to prop up the construction industry, perhaps the most bloated and inefficient sector in the country. It also led to large budget deficits that have pushed government debt toward 160% of GDP.

The Pacific and developing Asia--the Pacific Basin, China, India, and Pakistan—continues strong and rapid growth. This set of countries grew at an average 6.6 percent during the 1990's. After a short slump in 2001 through 2003, this region grew by 6.9 percent in 2004. Developing Asia's economies are projected to climb 6.2 and 6.0 percent, respectively, in 2005 and 2006. Over the forecast period, GDP is forecast to rise by 5.6 percent annually.

China's output makes up approximately 16 percent of Asia's GDP and this share is projected to grow to 23 percent by the end of the forecast period. This rapidly growing economy expanded by 9.1 percent in 2004 and is forecast to grow 7.4 and 7.3 percent over the next 2 years. Over the next 12 years, China is forecast to grow by 6.8 percent annually.

Although China's economic prospects appear very bright, its future is ladened with risk of both an economic and political nature. China has an enormous and inefficient state sector that requires reform.

Latin America

Mexico and Latin America have recovered from their economic slump during the early years of this decade. Mexico's GDP grew by 4.0 percent in 2004 after rising only 1.3 percent a year earlier; and Mexico is expected to continue its robust expansion at rates of 3.7 and 3.5 percent over the next 2 years. Over the forecast period, Mexico is forecast to grow at a 3.9 percent pace.

The countries of Latin America and the Caribbean, led by Brazil and Argentina, increased by 5.9 percent in 2004; a substantial improvement over last year's 1.5 percent growth and the 2.0 percent recessionary dip in 2002. Latin America is expected to grow by 3.7 percent in both 2005 and 2006. Over the forecast period, this region is projected to grow at 3.9 percent annually.

Mexico, a NAFTA partner with the U.S. and Canada, is heavily dependent on trade with the U.S. Eighty percent of Mexican exports go to the U.S. To the extent that the U.S. continues its strong recovery, this will keep Mexico on the upswing. The increase in world oil prices has substantially improved Mexican's fortune. However, the maquiladora-manufacturing sector has received considerable competition from China. GII expects Mexican manufacturing exports to improve significantly in 2005 (up 11.3 percent) and to average 13.4 percent annually over the forecast period.

As in the past, Mexico's largest risk is its heavy dependency on trade with the U.S. Hence, the fate of the Mexican economy lies in the performance of the U.S. economy. Another risk is the price of oil. A rapid decline in the price of oil would substantially impair Mexico's economic growth.

Latin America's largest economy, Brazil recovered strongly from the 2003 recession (down 0.2 percent), expanding by 4.3 percent in 2004. GII projects Brazil to continue its recovery with growth of 3.8 and 3.6 percent in the next 2 years. The long-term growth target for Brazil is 4.0 percent.

Argentina is in the second year of its recovery after a deep (10.9 percent) recession in 2002. The economy grew by 6.2 percent in 2004 and is expected to grow by 2.7 and 2.8 percent over the next 2 years. Over the next 12 years, growth will average 3.4 percent. Much of the high risks of inflation and high government spending in Argentina appear to be past.

Europe/Middle East/Africa

The combined economic output of all Europe, the Middle East, and Africa make up a third of the world's economy. This region grew by 3.0 percent in 2004, doubling the 1.5 percent growth of a year ago. This European dominated region is forecast to grow by 2.8 percent annually over the next 2 years. Over the 12-year forecast period, this region is expected to grow 2.7 percent a year.

Western Europe, responsible for 81 percent of the region's output, grew by only 2.4 percent in 2004. The European Union (EU), made up of

25 countries but dominated by Germany, France, Italy, and the United Kingdom, makes up the bulk of this region. This region is forecast to increase by 2.1 and 2.3 percent in 2005 and 2006, respectively. Over the forecast period, Western Europe is projected to grow 2.2 percent annually.

Germany, the largest economy in Western Europe has several economic burdens to tackle. Among its disadvantages are high labor costs, rigid labor market regulations, a complex tax system with relatively high corporate and income tax rates, a large public sector, and a costly "pay-as-you-go" pensions system that will come under increasing pressure from an aging population. Germany is expected to grow an anemic 1.7 percent over the forecast period.

The UK, EU's second largest economy grew by a healthy 3.2 percent in 2004 and is expected to grow 2.6 and 2.4 percent over the next 2 years. Over the forecast period, growth will average 2.5 percent. The United Kingdom is the only large European economy not included in the European Monetary Union (EMU). The U.K. is not opposed to participation in principle and is expected to become a member once it has met the appropriate criteria. However, when the decision is finally made to join the single currency, the U.K. could experience undue inflationary pressures if the entry level is too low or a reduction in exports is too high.

Emerging Europe, which includes the countries of Eastern Europe and former Soviet Republics, expanded its combined GDP by 7.1 percent in 2004. This flourishing region is projected to grow 5.9 and 5.4 percent in 2005 and 2006. In the next 12 years, this region's GDP is projected to grow 4.6 percent a year.

Relatively low wage rates have fueled the region's growth in exports and consequently economic growth. Economic risks in this region relate to overly expansionary fiscal policies of many of the countries, the slower-than-expected restructuring of heavy industries, and largely un-restructured agricultural sectors, mainly in Poland, Romania, and Turkey.

The oil and commodity exporting regions of the Middle East grew 7.0 percent in 2004. This region is forecast to grow 6.9 and 5.0 percent over the next 2 years. Over the forecast period this region is projected to grow 4.3 percent.

DOLLAR EXCHANGE RATE

Graphics on the following page present historical and forecast values for the U.S. trade-weighted nominal exchange rate index with selected other developed countries.[3] The trade-weighted exchange rate measures the relative purchasing power of the U.S. dollar against other developed countries and accounts for trade differences. The graph also displays the historical and projected dollar exchange rates against the Japanese yen and the European euro. Table 6 in Chapter X displays the historical and forecast exchange rates from 1998 to 2016 for the Canadian dollar, the British pound, the Japanese yen, and the European euro.

The U.S. dollar on trade-weighted terms continued to fall against its major trading partners in 2004. The dollar is forecast to continue to decline against trading partner's currencies through the end of the first decade of this century and then appreciate for the remainder of the forecast period. On average, the dollar will decline 0.1 percent annually.

The U.S. dollar continued to fall against the Canadian dollar in 2004 to the point that a Canadian dollar cost $0.767 compared with $0.714 a year earlier--a 7.4 percent decrease in the value of the U.S. dollar. The appreciation of

[3] Note: A fall in the index implies a depreciation of the dollar against other currencies; a rise in the Euro and yen also implies a depreciation of the dollar.

the Canadian dollar is expected to continue, increasing to $0.883 by 2016.

The Japanese yen too continued to appreciate against the dollar in 2004, rising 6.8 percent to $9.21 per ¥1,000. Over the forecast period the yen is forecast to rise by an average of 2.0 percent per year, reaching $11.72 per ¥1,000 in 2016. The euro continued its strong gains against the dollar with a 9.6 percent gain in 2004 following a 19.6 percent rise in 2003. Over the next 12 years, the euro is projected to continue to rise 0.9 percent a year to 1.38 to the dollar in 2016.

U.S. REGIONAL ECONOMIC GROWTH

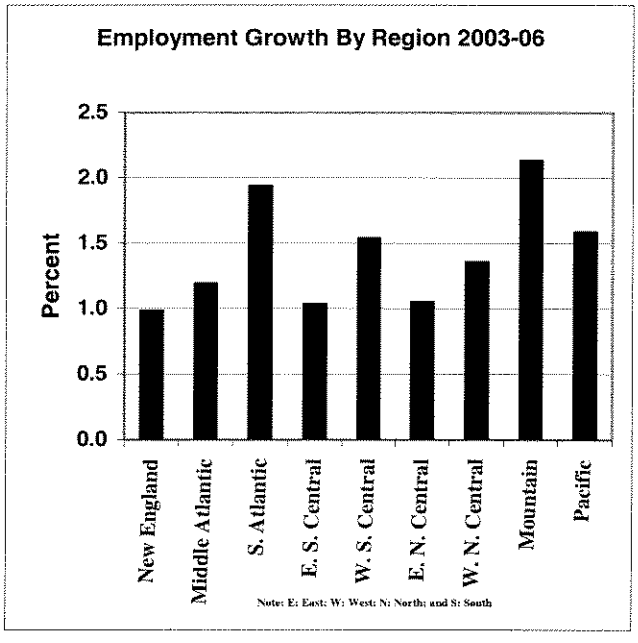
Although growth is well underway, the strength of regional economies varies substantially. Two regions are clearly growing more rapidly than others--Mountain and South Atlantic--with employment growth of 2.1 and 1.9 percent annually. The New England region is expected to grow slowest at just under 1.0 percent.

The chart below shows GII's forecast for employment growth by region for 2003 to 2006. Each region has its own character and faces its own challenges. The South Atlantic--Delaware, Florida, Georgia, Maryland, North and South Carolina, Virginia, and West Virginia—shows relatively strong growth.

Part of the region's economic strength lies in its most southern state—Florida's economy is one of the hottest in the nation. Florida's tourism industry continues its recovery, with visitor levels in the second quarter of 2004 up 3.8 percent from a year earlier. Hotel occupancy rates have also continued to rise in all major markets, although remaining below their late-1990s peak. Virginia is another of the region's fast growing states, its growth driven primarily by the technical and service industries in northern Virginia.

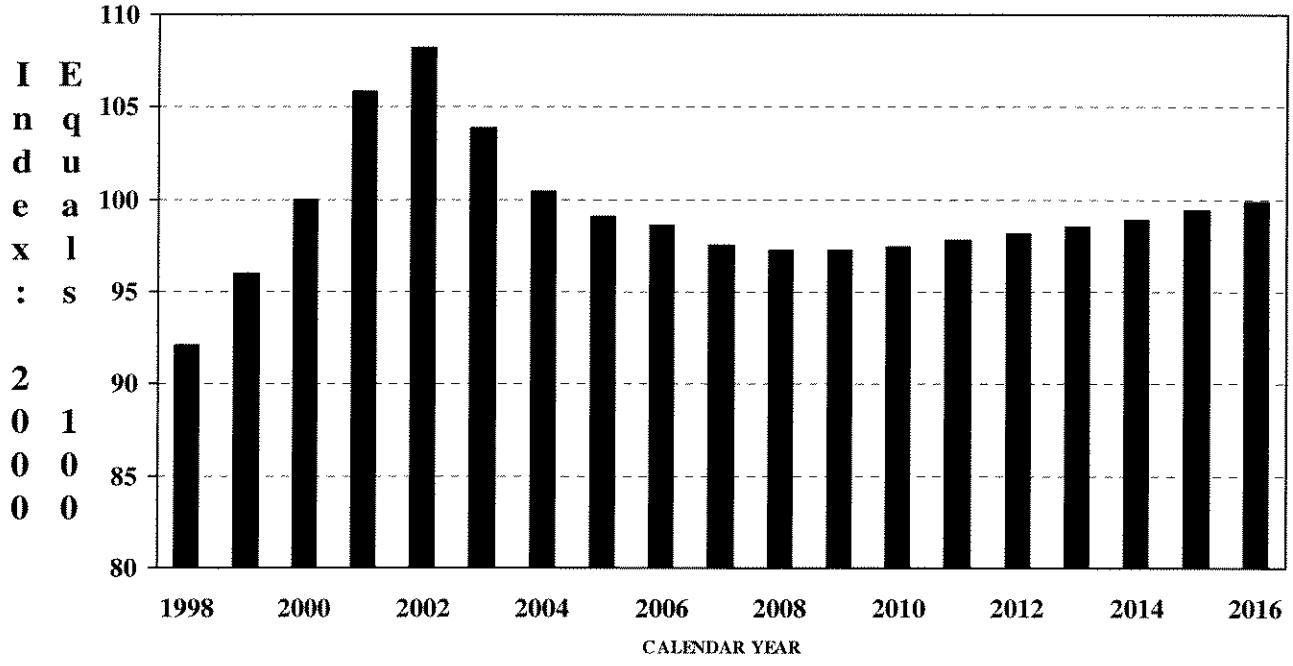
Florida's red-hot economy was stymied momentarily by the four hurricanes the swept through the state during August and September (Charley, Frances, Ivan, and Jeanne). Economic loss is estimated at about $20 billion. In the short-term, the two primary effects in the aftermath of these storms are the displacement of so many families (18,500 houses destroyed and 37,000 with major structural damage) and the expected boom in the construction industry. The construction industry in Florida is expected to hire an additional 5,000 workers in the fall of 2004 through 2005. Long-run growth in this dynamic state economy is unlikely to be affected by the storms.

The Mountain region, including Arizona, New Mexico, Colorado, Nevada, Montana, Idaho, and Utah, is the second fastest in terms of growth. The best-performing sector in the region was professional and business services, which expanded 4.7 percent in 2004. Idaho, New Mexico, and Utah led the way in this sector, up 8.0, 7.2, and 7.2 percent, respectively.

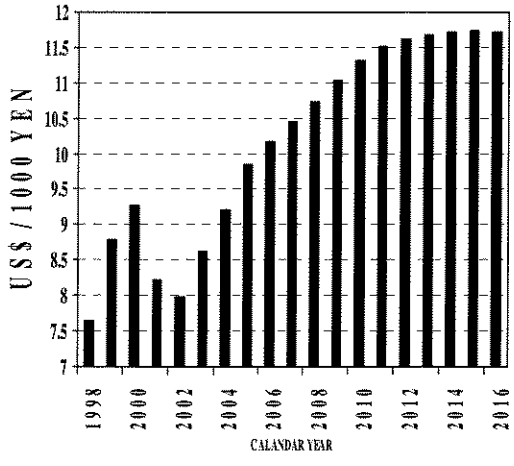


EXCHANGE RATE TRENDS AND FORECASTS

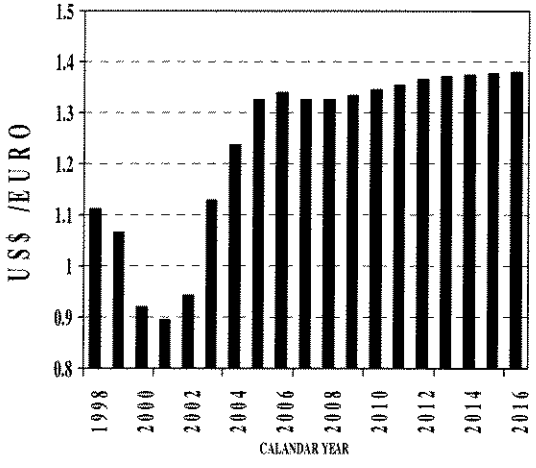
U.S. TRADE-WEIGHTED EXCHANGE RATE
(NOMINAL RATE WITH OECD COUNTRIES)



JAPANESE YEN



EUROPEAN UNION EURO



The New England Region—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut--has weathered a succession of layoffs and mergers during the past few years. However, the region's financial services sector should begin to recover during the coming year. In particular, recent news shows that the Bank of America is moving around 100 jobs to Boston and locating a call center in Rhode Island, creating nearly 900 jobs.

The following table shows the 10 fastest growing metropolitan areas ranked by annual employment growth from 2003 to 2006. Las Vegas continues to lead the list. This gaming center offers a leading tourist destination as well as a rapidly growing retirement community. All but one of the cities on this list is in the four Sunbelt states: Florida (3), Nevada (2), California (1), Arkansas (1), and Arizona (1). The one exception is Boise, Idaho. The recent boom in high-tech employment prompted many manufacturing firms to relocate to Idaho, in part to take advantage of the state's favorable business climate.

TOP 10 METROPOLITAN AREAS IN EMPLOYMENT GROWTH 2003 – 06

Metropolitan Area	2003 Employment (000s)	2003-06 Growth (%)
Las Vegas, NV	820.1	4.2
Boise City, ID	229.1	3.0
McAllen, TX	175.2	3.0
Fayetteville, AR	172.2	2.7
Reno, NV	199.8	2.6
Orlando, FL	925.7	2.6
Riverside, CA	1087.7	2.4
West Palm Beach, FL	527.5	2.4
Sarasota, FL	283.5	2.4
Phoenix, AZ	1616.7	2.4

RISKS TO THE FORECAST

The U.S. and world economic growth appears stable and positive at this time. The recessionary period during the early years of the decade appears over. However, important economic and terrorist related threats remain. Both the U.S. and world economic forecasts face substantial risks.

The U.S. economy may be in for a soft patch as the leading indicators have fallen for 5 consecutive months. Consumer spending growth is at its weakest rate since the 2001 recession. Higher oil prices are expected to take a bigger bite out of the consumer dollar. The cumulative effect of these risks could reduce U.S. economic growth substantially.

Although worldwide risks are substantially lower than they were at the beginning of the Iraq conflict, important risks remain for the world economy. A major reason for the currently high global risk levels is the super-stimulative monetary and fiscal policies of the authorities in industrialized countries and Asia, which have boosted debt-to-GDP ratios across the globe and created potentially dangerous economic imbalances and asset bubbles.

Most regions of the world have seen debt levels rise over the past decade. In the developed world and, more recently, in Asia, both the private and the public sector have contributed to this rise. In the rest of the emerging markets, the growth in debt has been exclusively a public-sector phenomenon. While higher debt levels do not pose a large threat to the current global recovery, they heighten the vulnerability of the world economy to future increases in interest rates and could exacerbate the next global downturn.

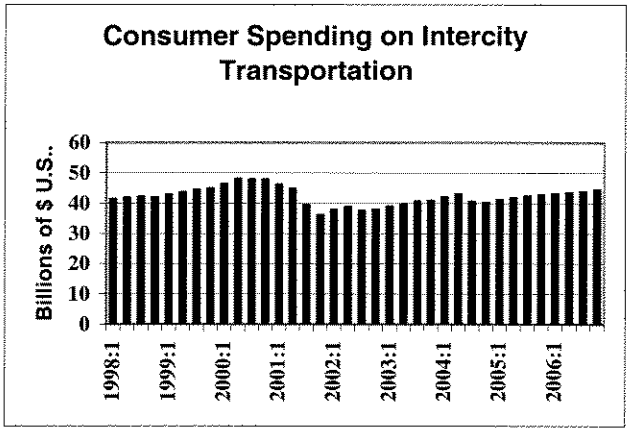
Although the outlook for oil prices appears sanguine at this time, a spike in oil prices is

possible. A shortage of one or two million barrels of OPEC oil would boost oil prices by as much as $10–20 per barrel and lower world GDP growth by roughly 0.5–1.0%, but would be unlikely to cause a global recession. In fact, the more dynamic regions of the world economy (such as Asia-Pacific) should be able to weather even a $20 spike in oil prices.

This possibility arises from the uncertain political situations of many of the major oil exporters, such as Saudi Arabia, Nigeria, Venezuela, Iran, Iraq, Algeria, Libya, and Angola. Fortunately, the global economy's momentum is strong enough that it should be able to cope with most likely disruptions. Although an oil price spike would reduce global GDP, it is unlikely to cause a global recession.

SUMMARY AND IMPACT ON AVIATION

The recovery in the travel industry is moving along despite a brief lull in expenditures during mid-2004. Expenditures on intercity travel slipped a bit in the third and fourth quarters of 2004 but are expected to resume growing in 2005. The following chart shows expenditures on intercity travel in the U.S. from the first quarter 1998 to the projected fourth quarter 2005. Although the rise in expenditures on city-to-city travel will continue in 2005, expenditures will reach their 2000 levels sometime beyond 2006.



The aviation industry continues to face risks beyond those faced by most other industries. Although the FAA expects traffic to improve substantially in the near-term, airline finances remain at risk. The legacy carriers continue to struggle toward profitability. As the low-cost carriers, which now carry about a quarter of U.S. airline passengers, continue to gain market share, profitability by the legacy carriers will remain difficult.

CHAPTER III

MAINLINE AIR CARRIERS

In fiscal year 2004 there were 67 U.S. mainline air carriers (both scheduled and nonscheduled) reporting traffic and financial data to the Bureau of Transportation Statistics (BTS), U.S. Department of Transportation (DOT), on the Form 41 schedules. There were 43 passenger airlines (operating aircraft with over 70 seats) and 24 all-cargo carriers.

Twenty-seven of the airlines provided scheduled passenger service and constitute the focus of the air carrier forecasts (both domestic and international) discussed in this chapter. Twenty-eight of the carriers provided scheduled domestic service (within the 50 States, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands), while 17 of the carriers provided scheduled international service. Of the carriers providing scheduled international service, 7 served Atlantic routes, 13 served Latin American routes, and 7 served Pacific routes.

Air carrier traffic forecasts and assumptions discussed here are presented in Chapter X (Tables 7 through 25). FAA air carrier workload forecasts are discussed in Chapter VII and presented in Chapter X (Tables 36 through 53).

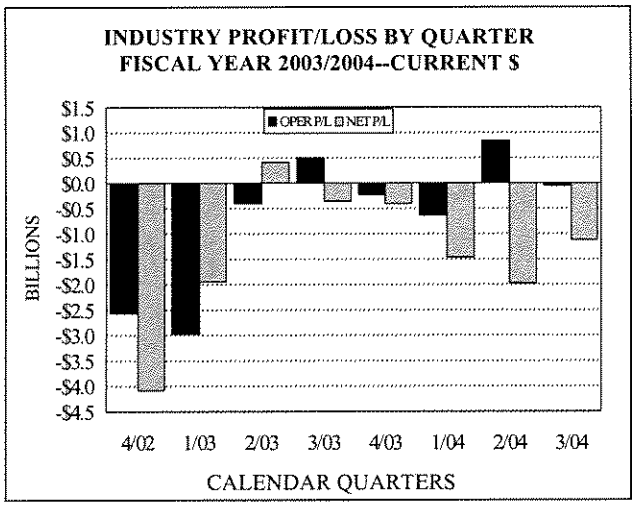
It should be noted that all specified years in the remainder of this chapter are fiscal years (October 1 through September 30), and specified quarters are fiscal year quarters, unless designated otherwise.

REVIEW OF 2004

FINANCIAL RESULTS

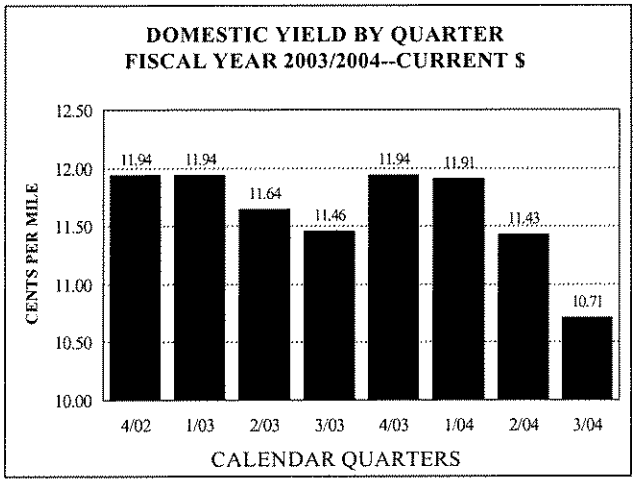
For the fourth year in a row, U.S. mainline air carriers posted an operating loss. Operating revenues increased by 10.3 percent while operating expenses increased by 5.1 percent, driven by escalating costs for fuel resulting from rising oil prices. The operating loss for U.S. mainline air carriers was only $85.1 million in 2004, but after losses totaling $20.7 billion in the prior three years, the narrow operating loss was welcome news. The industry posted operating losses in all quarters except for the third quarter of the year.

The increase in operating expenses in 2004 was largely due to rising fuel costs. After increasing 18.7 percent in 2003, fuel prices rose

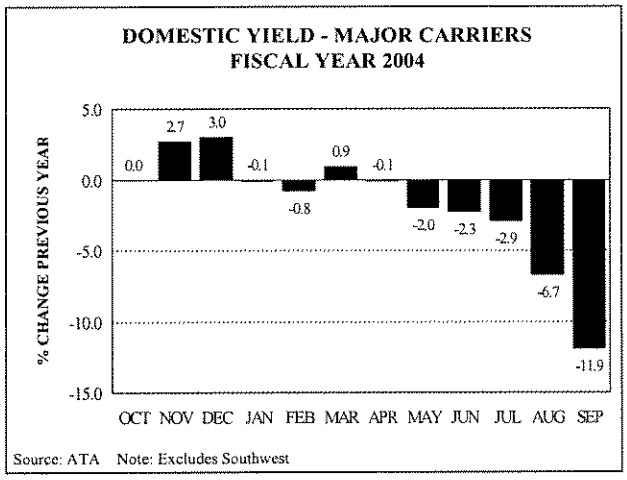


another 22.2 percent in 2004, increasing operating expenses by $3.3 billion. Industry labor costs, accounting for 32 percent of total operating expenses, fell 4.3 percent to $37.7 billion.

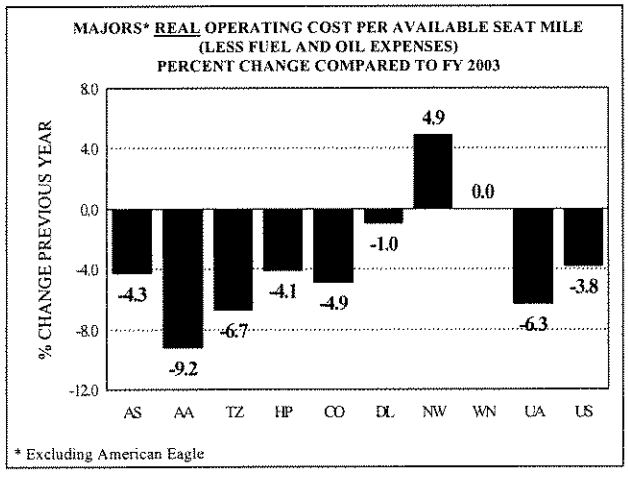
Domestic nominal yield for the mainline air carriers fell 2.2 percent, while yield, adjusted for inflation decreased 4.4 percent. Yield fell in the latter half of the year as carriers discounted fares in order to fill expanded capacity. Competition in the industry is intense as low fare carriers continue to expand their market share, and they are expected to continue to increase their share in domestic markets throughout the forecast period.



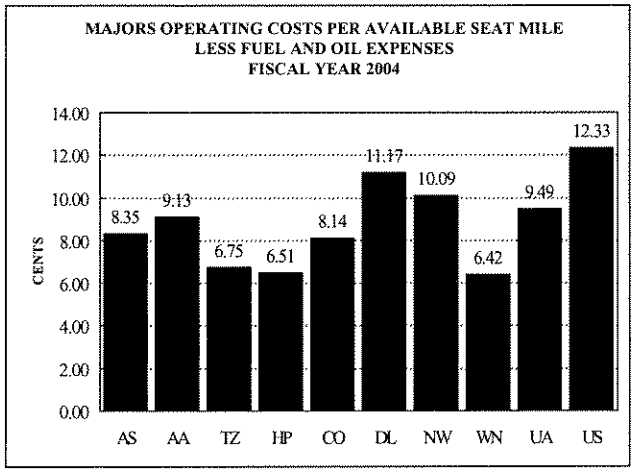
Nominal international yield increased 5.0 percent as increases in the Atlantic and Pacific markets offsetting a decline in the Latin market. Real yield increased 8.2 percent and 3.3 percent in the Pacific and Atlantic markets, respectively, but declined 3.2 percent in Latin markets. The increase in the Pacific market was driven by a strong rebound in demand following the Severe Acute Respiratory Syndrome (SARS) episode in 2003 coupled with a fall in the U.S. dollar.



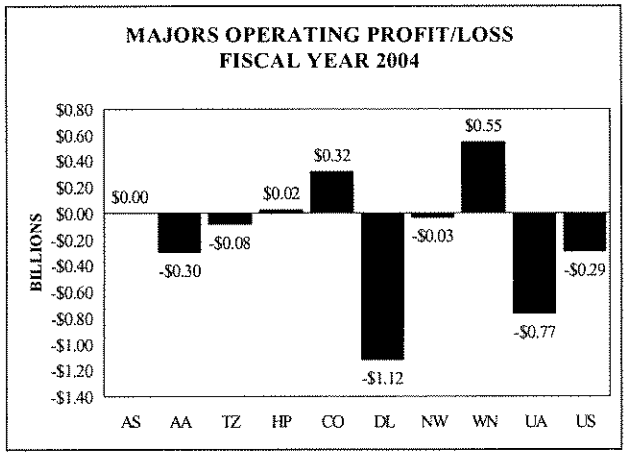
During 2004, eight of the ten major passenger carriers reduced their real unit costs (estimated without fuel and oil expenses). American had the largest decline--down 9.2 percent, followed by American Trans Air with unit costs declining 6.7 percent. Northwest had the largest increase, with unit costs up 4.9 percent.

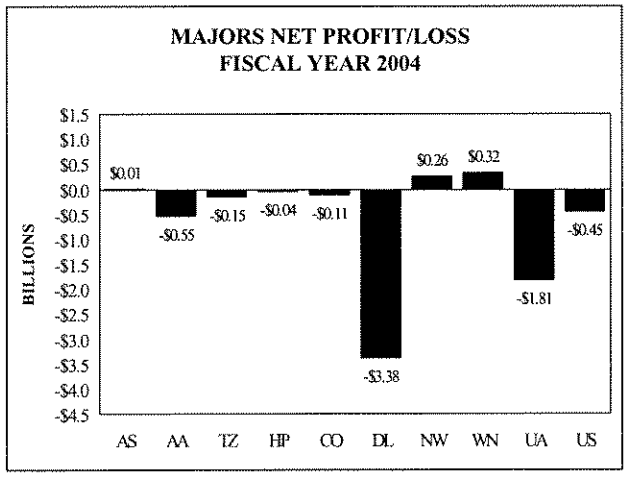


System average real operating cost per available seat mile (excluding fuel and oil) for the major passenger carriers was 9.48 cents in 2004, down 2.3 percent from 2003. System real unit costs (including fuel and oil) decreased 2.2 percent. In 2004, Southwest had the lowest operating cost (excluding fuel and oil) per available seat mile (6.42 cents). The highest unit cost among the major network carriers was US Airways with 12.33 cents.[1]



In 2004, U.S. mainline commercial carriers posted a net loss of $5.1 billion, a $0.9 billion improvement from the net loss of $6.0 billion recorded in 2003. The next two graphs show operating and net profit and loss for the 10 major passenger air carriers.[2] Of the 10 carriers, 9 had operating losses in 2004. Only Southwest reported operating profits while Delta recorded the largest operating and net loss of any of the major passenger carriers.





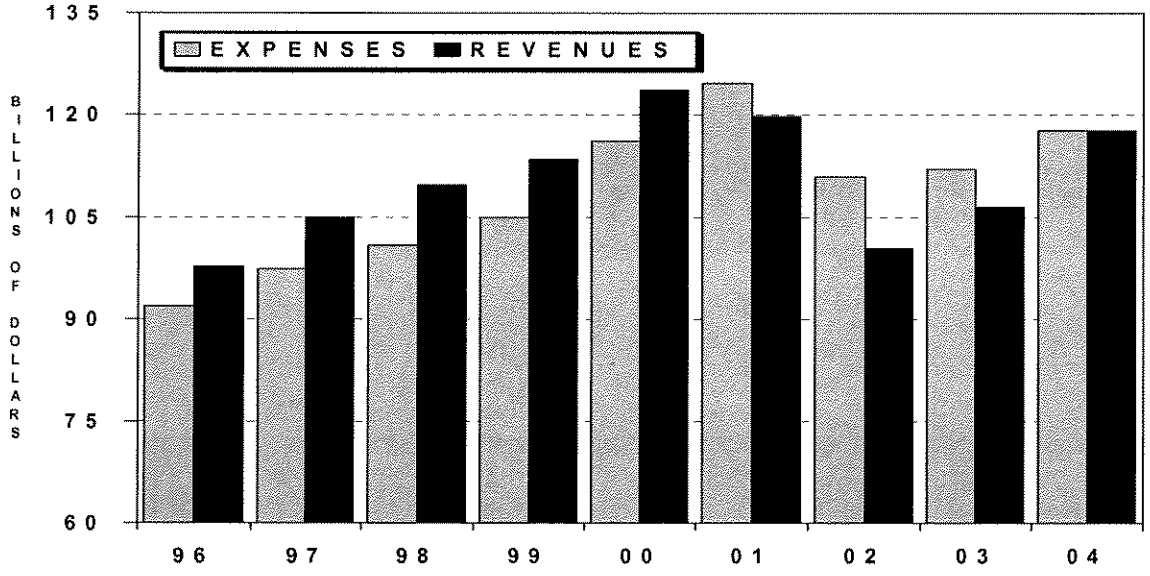
Controlling costs remains the key for the major passenger carriers' ability to return to sustained profitability. Fuel costs are expected to remain high, and insurance and security costs are expected to increase with higher outlays for security enhancements and infrastructure improvements. Major carriers will need to lower their non-security and infrastructure related costs in order to return and sustain profitability throughout the forecast period. After 2005 revenues are projected to rise at a modest rate over the balance of the forecast period through a combination of slowly rising yield and economic growth expanding activity.

[1] Operating cost comparisons may be skewed by individual carrier accounting practices regarding the treatment of writedowns of equipment following September 11th attacks.

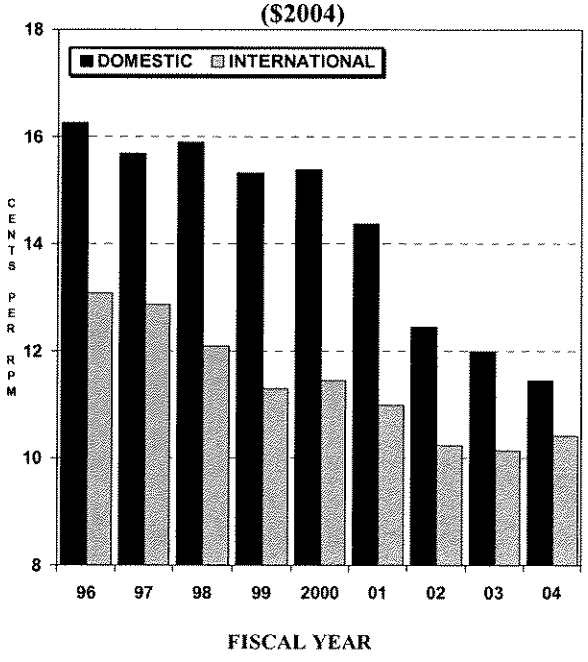
[2] A Major carrier by definition is one that has annual operating revenues in excess of $1B. American Eagle, considered a regional carrier, has been excluded from this analysis.

U.S. MAINLINE AIR CARRIERS: REVENUE AND COST TRENDS

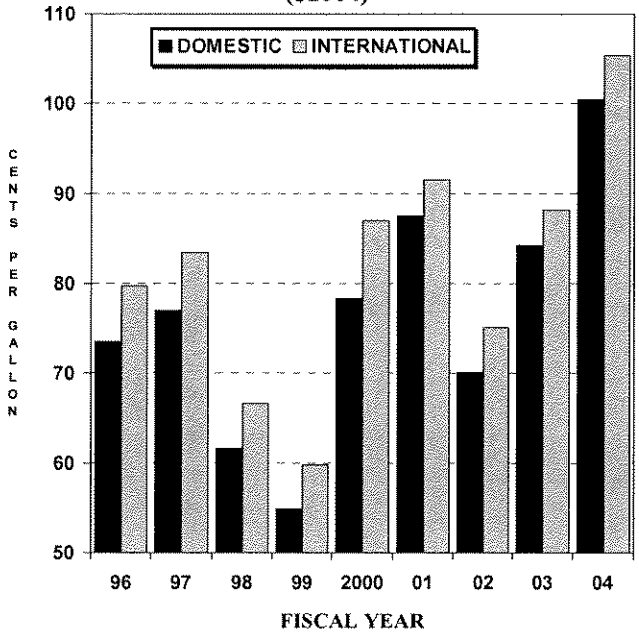
OPERATING REVENUES AND EXPENSES
(CURRENT DOLLARS)



PASSENGER YIELDS
($2004)

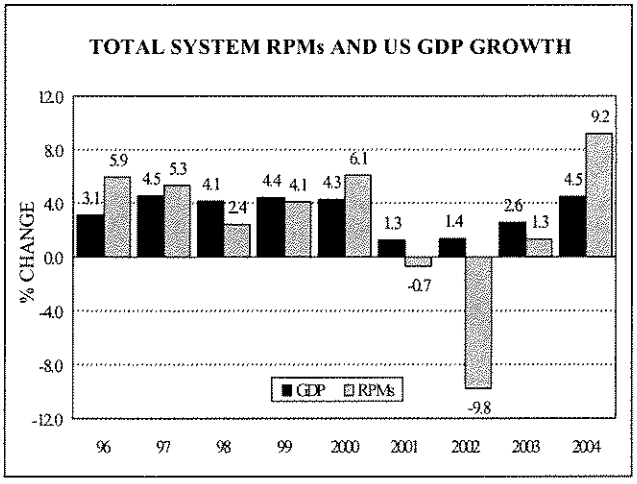


JET FUEL PRICES
($2004)



SCHEDULED PASSENGER TRAFFIC AND CAPACITY

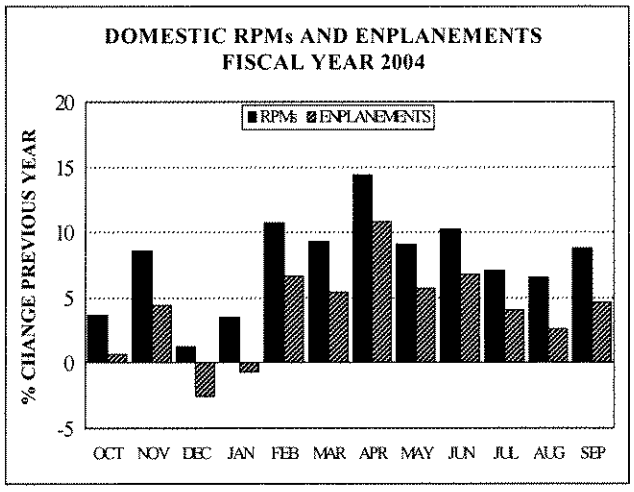
In 2004, total (domestic plus international) scheduled U.S. mainline carrier revenue passenger miles (RPMs) increased 9.2 percent as enplanements increased by 4.9 percent. Despite rapid growth in 2004, system RPMs are 1 percent lower than in 2000, despite a 10% increase in real U.S. Gross Domestic Product (GDP).

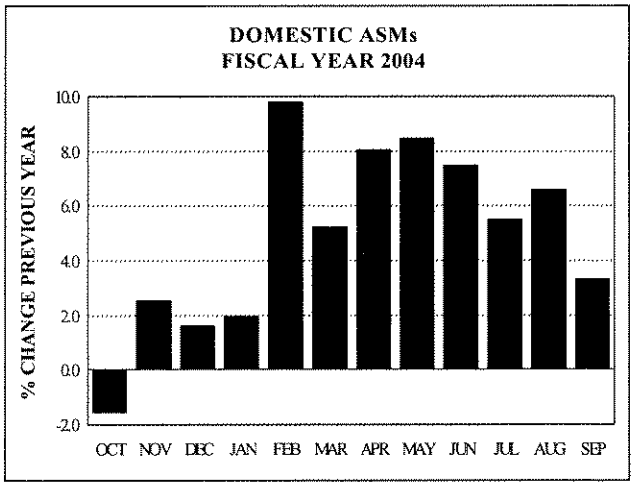


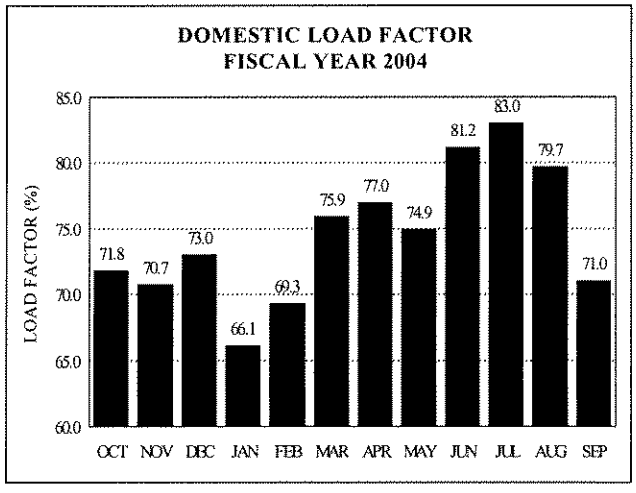
System available seat miles (ASMs) increased for the first time since 2001, up 5.6 percent. System load factor increased 2.5 points to a record 75.9 percent.

Domestic Passenger Traffic and Capacity

In 2004, a strong economy, stronger consumer confidence in flying, and falling fares resulted in domestic RPMs increasing 7.7 percent, the highest annual growth since 1987. Enplanements rose for the first time since 2000, up 4.0 percent. Traffic was up year-over-year in all quarters with the highest growth recorded in the third quarter. Capacity grew by 4.9 percent resulting in load factor rising 2.0 points to a record 74.7 percent.

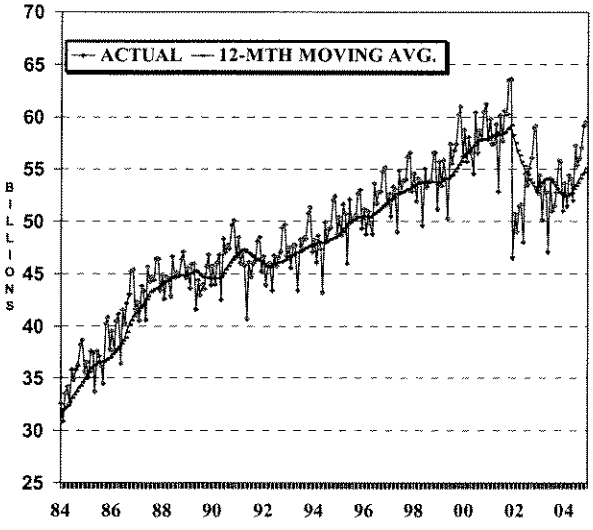






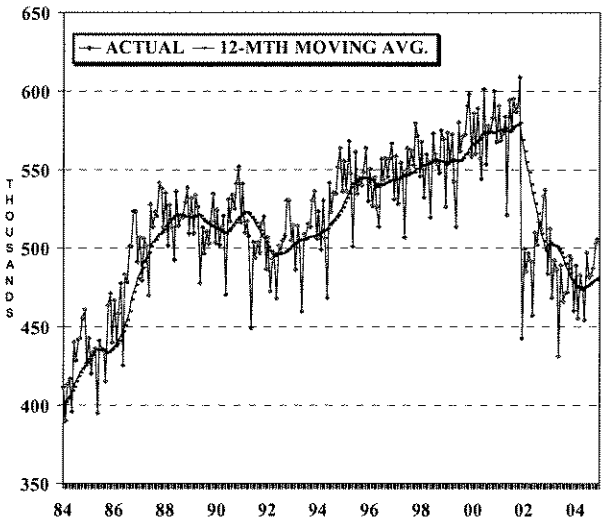
U.S. MAINLINE CARRIER DOMESTIC TRAFFIC TRENDS (Data through August 04)

AVAILABLE SEAT MILES



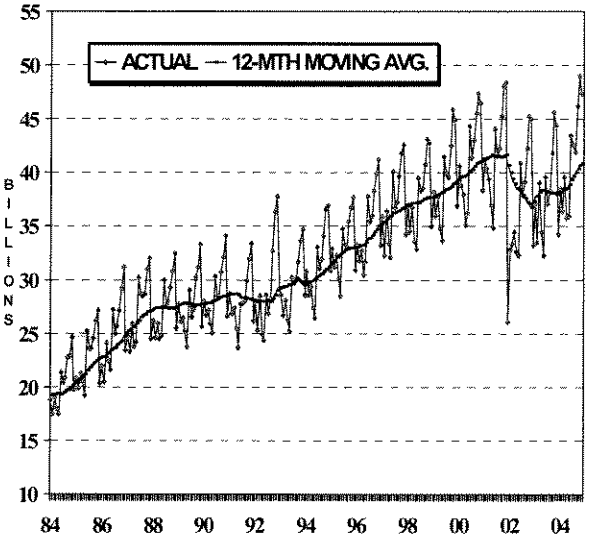
FISCAL YEAR BY MONTH

AIRCRAFT DEPARTURES



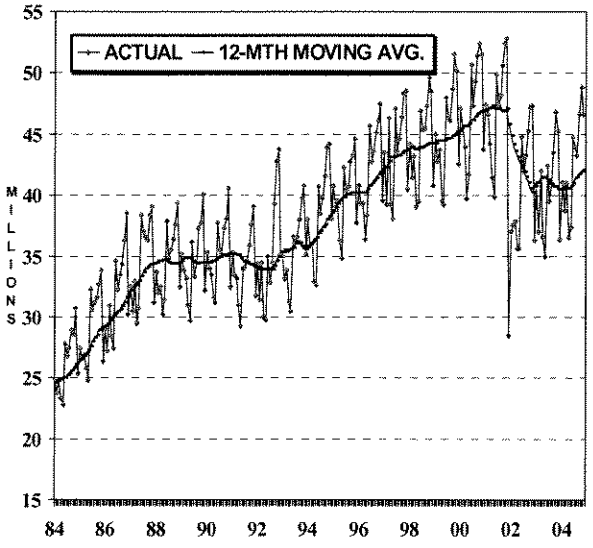
FISCAL YEAR BY MONTH

REVENUE PASSENGER MILES



FISCAL YEAR BY MONTH

ENPLANEMENTS

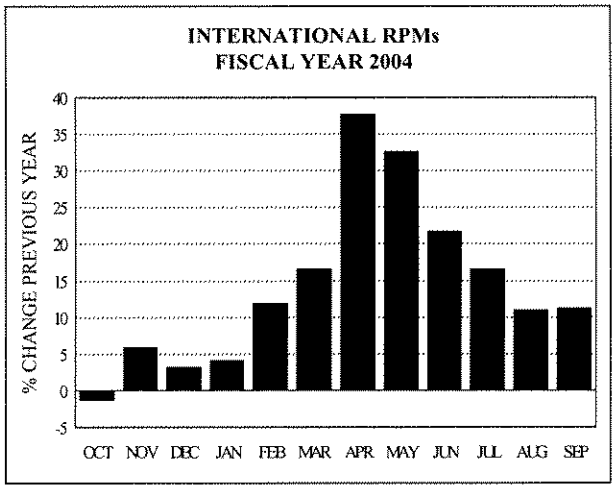


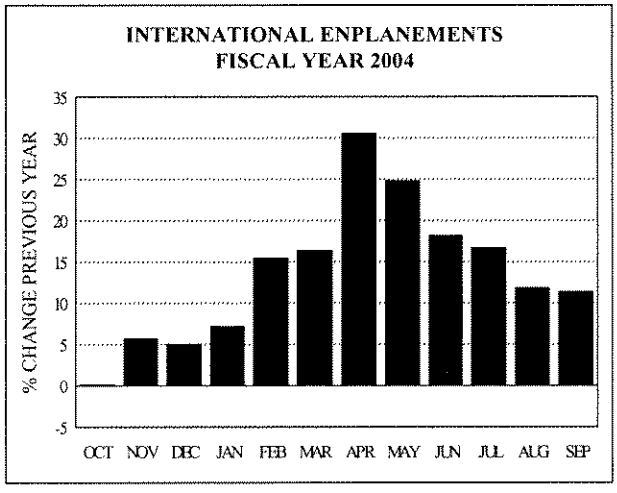
FISCAL YEAR BY MONTH

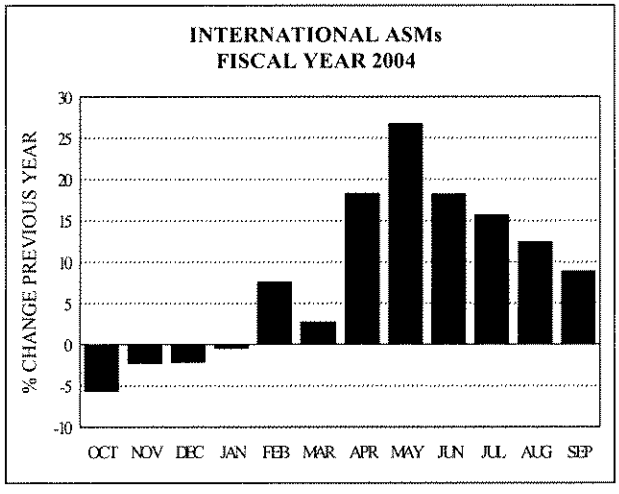
U.S. Mainline Air Carriers' International Passenger Traffic and Capacity

In 2004, total international RPMs increased for the first time since 2001, rising 13.7 percent. Enplanements increased by 13.4 percent, the fastest since 1988. Both RPMs and enplanements were up throughout the year with the highest growth occurring in second and third quarters, in part due to depressed year earlier figures resulting from the outbreak of SARS and beginning of the war in Iraq.

Total international ASMs rose 7.9 percent in 2004. Capacity was down year-over-year in the first 4 months of the year then was up 13.6 percent from February thru September. Despite the large increase, international capacity was still 7 percent below the levels recorded in 2000. Capacity increased fastest in the Latin market, up 12.1 percent, while increases in the Atlantic and Asia/Pacific markets were 7.3 and 5.4 percent, respectively.

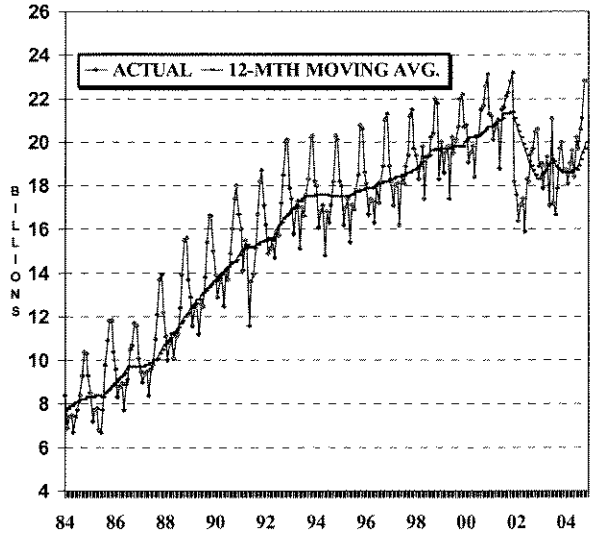






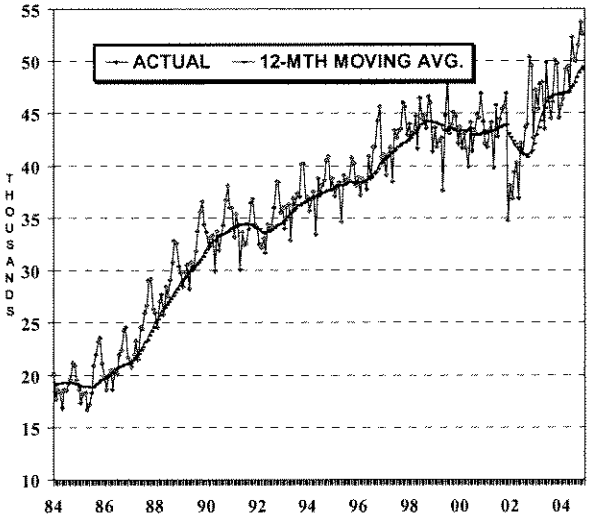
U.S. MAINLINE CARRIER INTERNATIONAL TRAFFIC TRENDS (through August 04)

AVAILABLE SEAT MILES



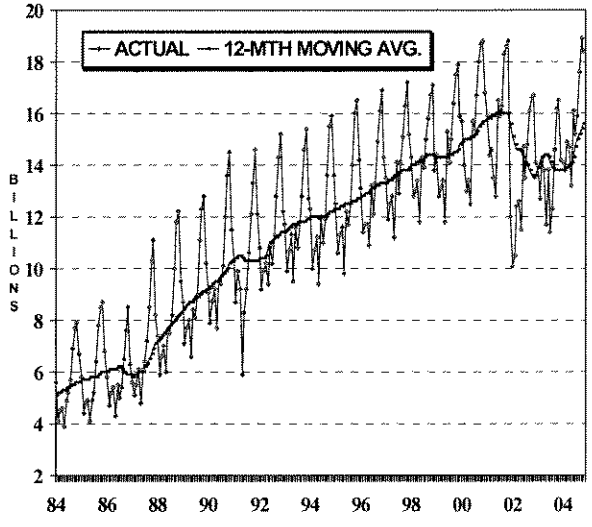
FISCAL YEAR BY MONTH

AIRCRAFT DEPARTURES



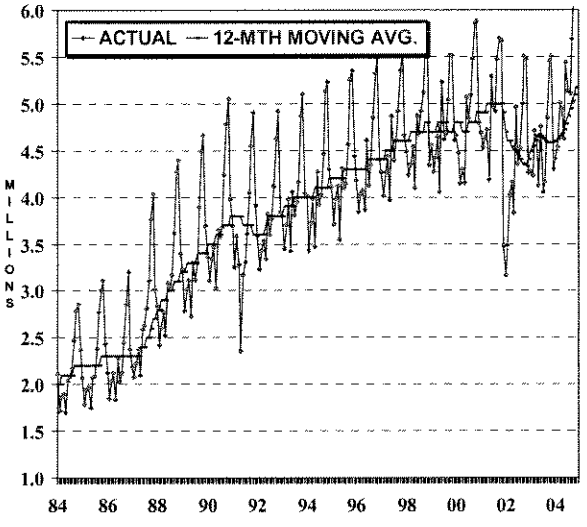
FISCAL YEAR BY MONTH

REVENUE PASSENGER MILES



FISCAL YEAR BY MONTH

ENPLANEMENTS



FISCAL YEAR BY MONTH

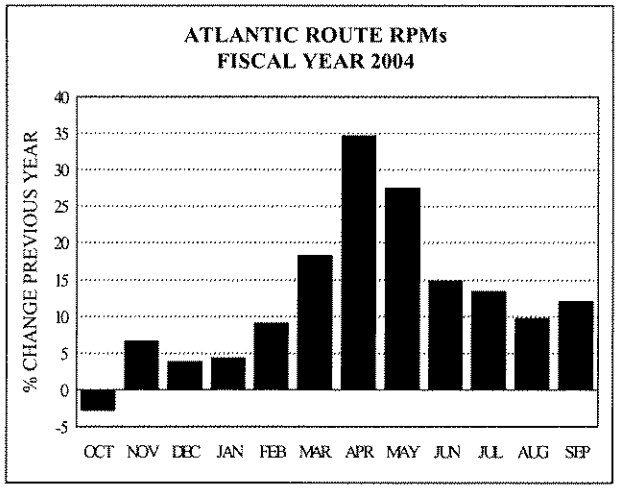
Atlantic Routes

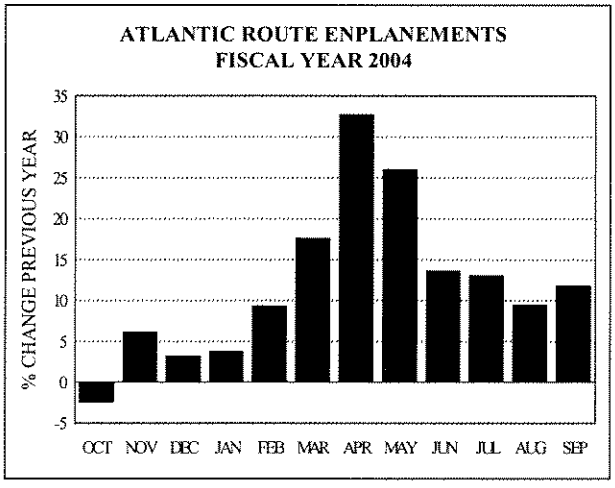
In 2004, marking the first time since 2000, scheduled transatlantic RPMs grew. RPMs rose by 12.3 percent to 82.1 billion. Enplanements also grew for the first time since 2000, up 11.7 percent. After being down year-over-year in October, traffic growth turned positive for the remainder of the year with the greatest increases occurring in March through May.

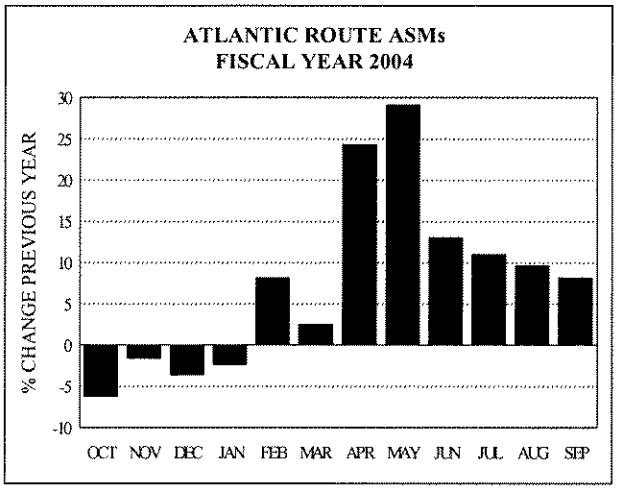
Capacity in Atlantic markets followed a similar pattern to traffic. Despite being down for the first 4 months of the year, capacity in 2004 grew 7.3 percent with the largest increases in April and May, followed by double-digit increases throughout the summer season. Load factor increased 3.6 points to a record 81.7 percent with year-over-year gains occurring in every month except May.

Immigration and Naturalization Service (INS) data, compiled by the U.S. Department of Commerce, showed that in CY 2003 U.S. flag carrier market share in the region fell for the first time in three years, down 2.8 points to 39.3 percent. However, data through June 2004 indicate that U.S. flag carrier market share was up modestly (less than 1 point) in 2004.

In 2004 U.S. scheduled passenger carriers posted an operating profit of $970.7 million on routes in the market, the first operating profit since 2000. This result is a $1.3 billion improvement over the $324.8 million operating loss recorded in 2003. Revenues were up 16.0 percent as the large gains in traffic were coupled with higher yields while costs rose only 1.5 percent.

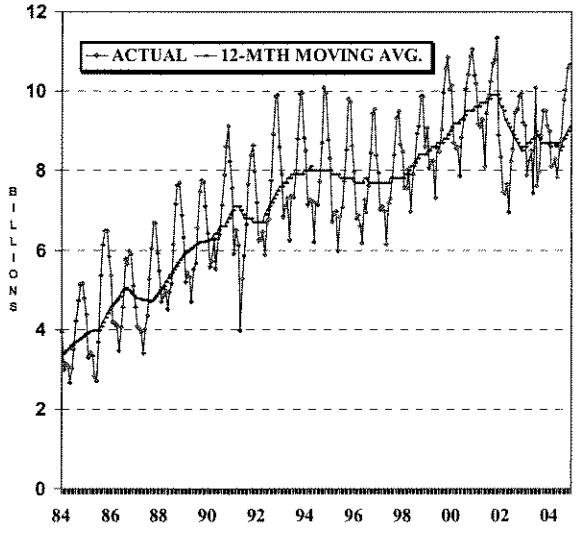






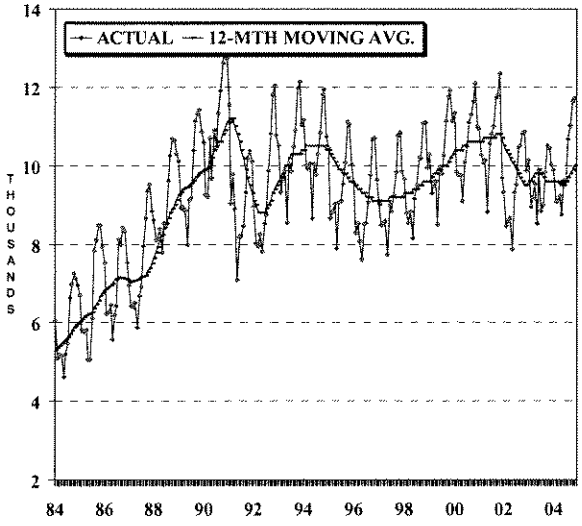
U.S. MAINLINE CARRIER TRAFFIC TRENDS: ATLANTIC ROUTES (through August 2004)

AVAILABLE SEAT MILES



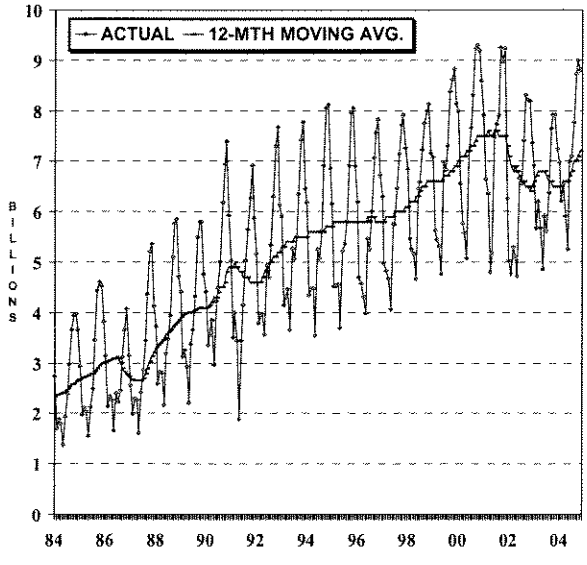
FISCAL YEAR BY MONTH

AIRCRAFT DEPARTURES



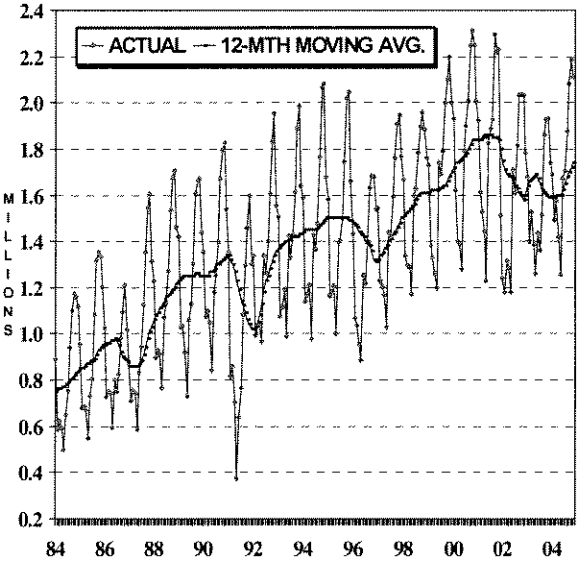
FISCAL YEAR BY MONTH

REVENUE PASSENGER MILES



FISCAL YEAR BY MONTH

ENPLANEMENTS



FISCAL YEAR BY MONTH

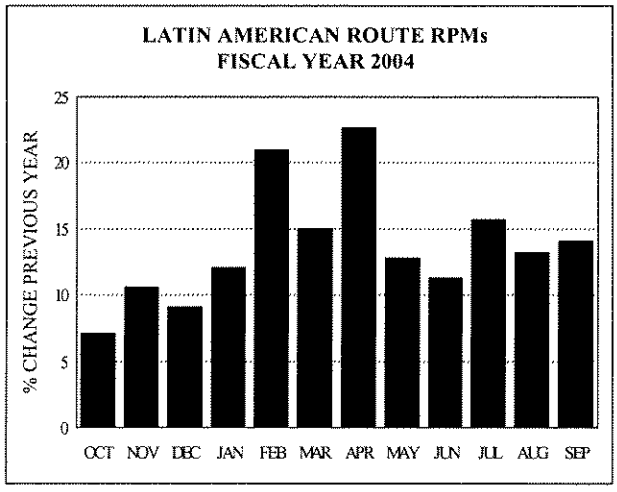
Latin American Routes

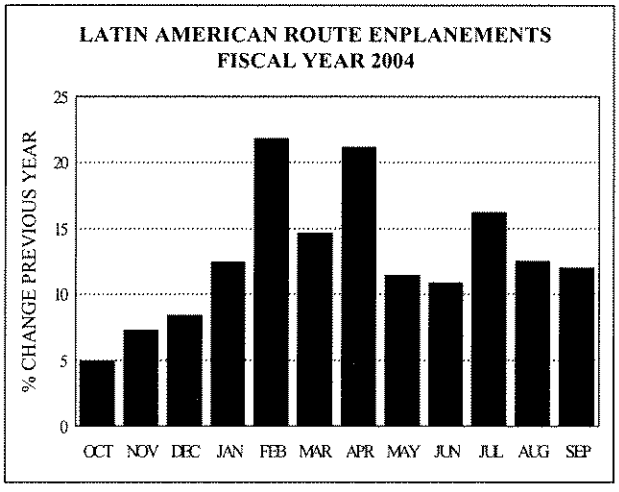
Similar to other international markets, traffic to Latin America (destinations in South America, Central America, Mexico, and the Caribbean) grew in 2004. In 2004, scheduled RPMs and passenger enplanements were up 13.7 and 12.9 percent, respectively.

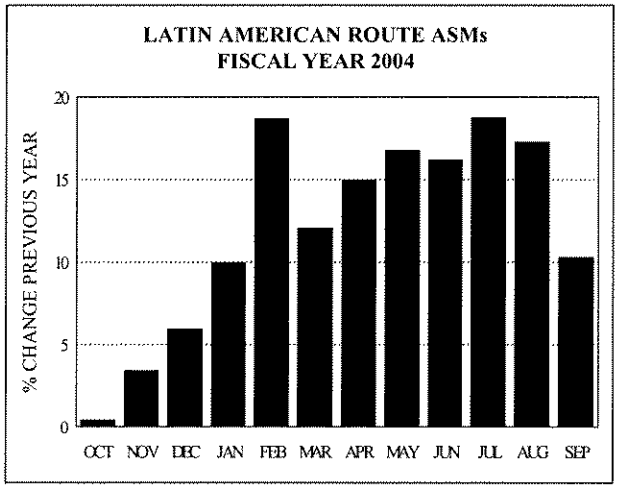
After increasing 9 percent in the first quarter, traffic growth picked up, averaging over 15 percent for the remaining three quarters of the year. Scheduled capacity increased less than traffic in the first two quarters and a little faster (about 0.5 percent) than traffic in the second half of the year. As a result load factor for the year increased 1 point to 70.3 points, although it was down year-over-year during the last 2 quarters.

For the first time since 2001, the average trip length rose in the region. Trip length increased 0.7 percent (11.5 miles) in 2004 to 1,599.7 miles, as carriers expanded service to Caribbean and Central American markets, and restored previously cut service to South American markets.

As a result of the higher traffic, scheduled U.S. passenger carriers posted an operating profit of $350.8 million in Latin markets in 2004. This represented a $354.2 million improvement over the $3.4 million operating loss in 2003.

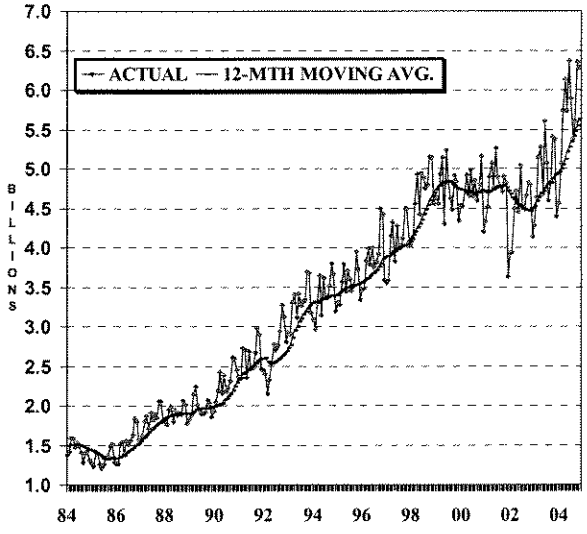






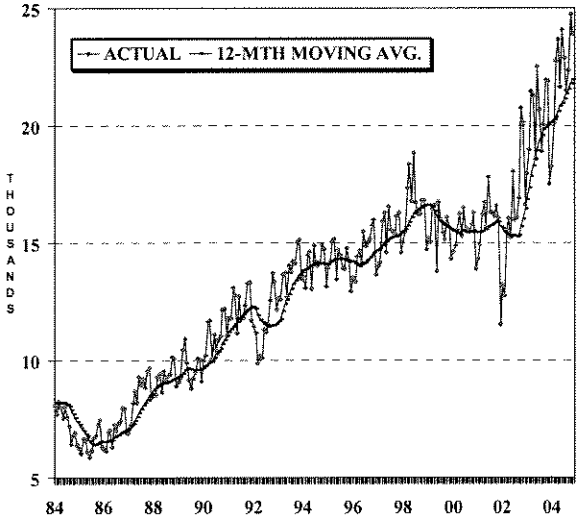
U.S. MAINLINE CARRIER TRAFFIC TRENDS: LATIN AMERICAN ROUTES (through August 2004)

AVAILABLE SEAT MILLES



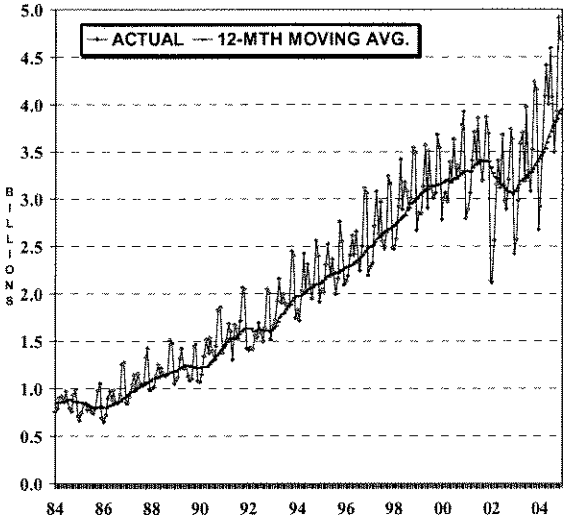
FISCAL YEAR BY MONTH

AIRCRAFT DEPARTURES



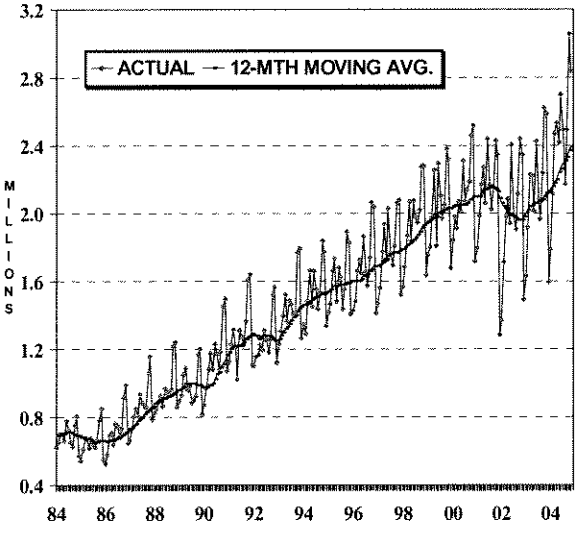
FISCAL YEAR BY MONTH

REVENUE PASSENGER MILES



FISCAL YEAR BY MONTH

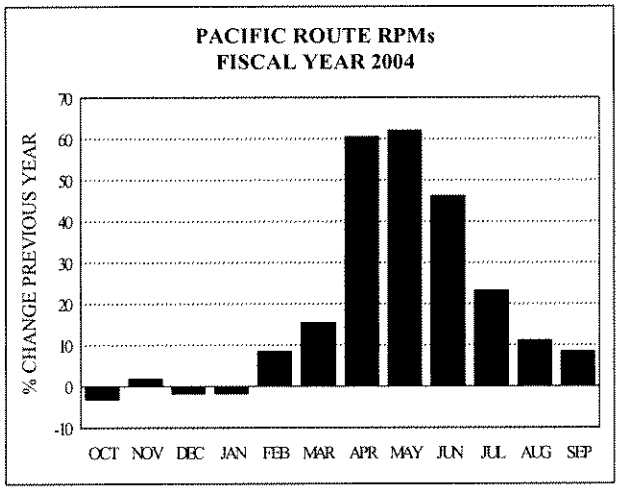
ENPLANEMENTS



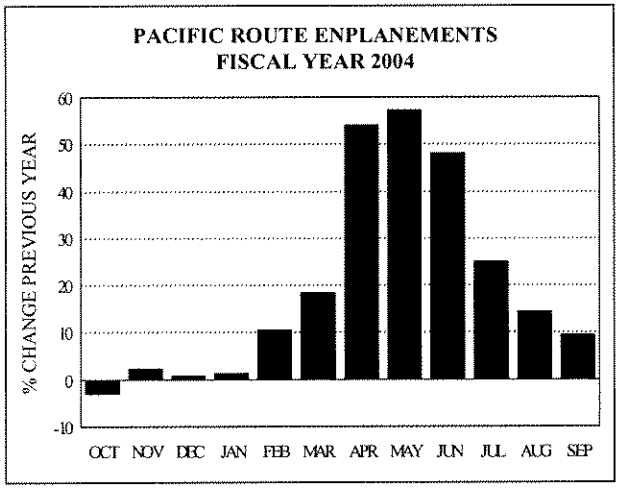
FISCAL YEAR BY MONTH

Pacific Routes

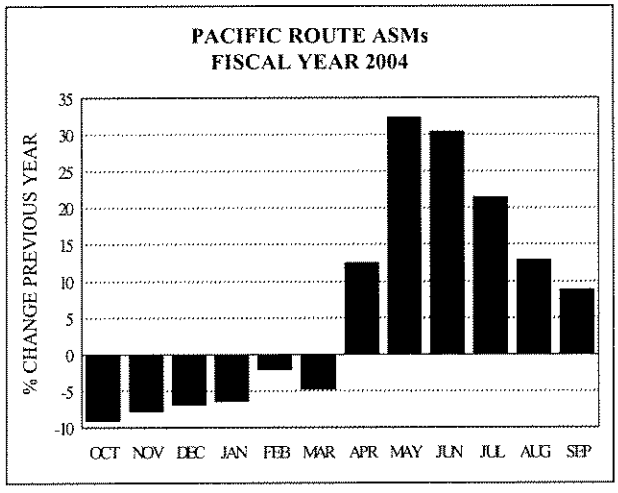
Following declines in 2002 and 2003, scheduled traffic in Asia/Pacific markets rose in 2004, with RPMs up 15.8 percent versus 2003. After being down in the first quarter of the year, traffic growth shot up in the last two quarters of the year due, in large part, to the collapse in traffic in 2003 with the outbreak of the SARS epidemic and the beginning of the war in Iraq. For the March- September period, RPMs were up 28.6 percent on a year-over-year basis with a peak increase of 62.1 percent in May. Enplanements, following a similar pattern to RPMs, ended the year up 17.3 percent, with the highest growth rates recorded during the second half of the year.



After declining in each of the first 6 months of the year, U.S. flag carrier ASMs finished the year up 5.4 percent versus 2003. Prior year capacity had been cut significantly in the March-September period with the SARS outbreak and the war in Iraq. Load factor for the region increased 7.6 points to a record 84.2 percent. Load factor was up in every month from October to July, with the largest gains recorded in March, April, and May.



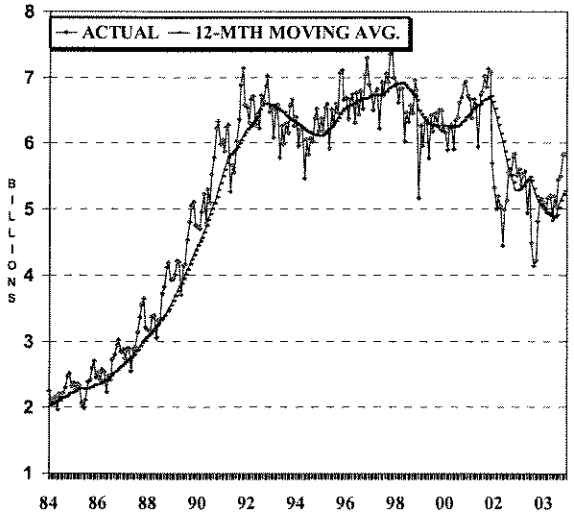
The huge increase in traffic coupled with a large increase in yield led a 23 percent increase in operating revenue in 2004 while operating expenses increased 7.1 percent. Following an operating loss of $746.7 million in 2003, U.S. passenger carriers posted a modest $31.5 million operating profit in 2004, an improvement of $778.1 million, and the first operating profit for U.S. passenger carriers in region since 2000.



Restructuring of the Pacific market continues as carriers consolidate routes and rationalize fleets. Over the long-term U.S. flag carriers should benefit from the open-skies agreements and liberal bilateral agreements with the countries of the region. These agreements will stimulate aviation growth by providing travelers with service to more cities and lower fares.

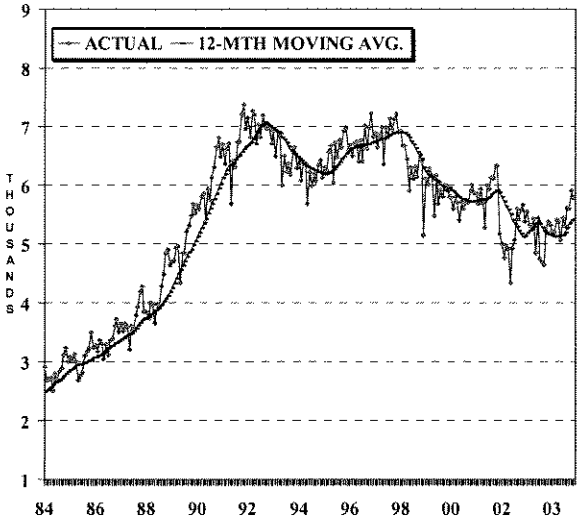
U.S. MAINLINE CARRIER TRAFFIC TRENDS: PACIFIC ROUTES (through August 2004)

AVAILABLE SEAT MILES



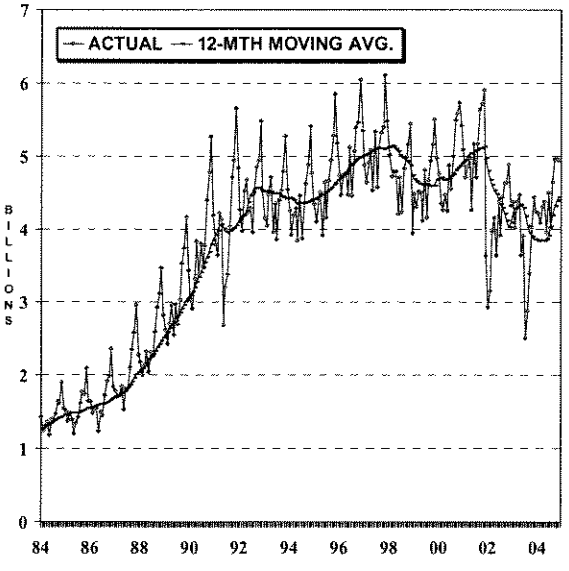
FISCAL YEAR BY MONTH

AIRCRAFT DEPARTURES



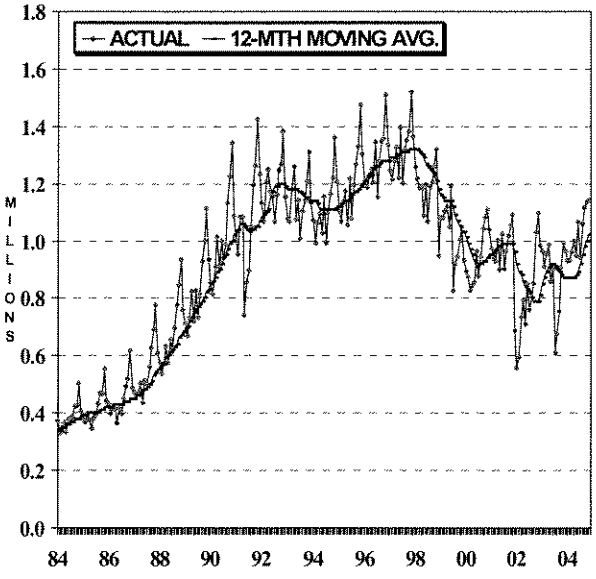
FISCAL YEAR BY MONTH

REVENUE PASSENGER MILES



FISCAL YEAR BY MONTH

ENPLANEMENTS



FISCAL YEAR BY MONTH

NONSCHEDULED TRAFFIC AND CAPACITY

The number of nonscheduled (charter) passengers flying on U.S. commercial air carriers rose an estimated 20.7 percent in 2004, to a total of 9.3 million. Domestic enplanements increased 38.0 percent, while international enplanements grew 8.2 percent. Nonscheduled RPMs increased 28.3 percent while ASMs rose 15.3 percent, which resulted in an increase in the load factor from 59.3 to 65.9 percent.

AIR CARGO TRAFFIC

U.S. air carriers flew 35.1 billion revenue ton miles (RTMs) in 2004, up 4.8 percent from 2003. Domestic cargo RTMs (15.5 billion) increased 3.8 percent, while international RTMs (19.6 billion) were up 5.5 percent. The increase in total cargo RTMs reflects domestic and worldwide economic growth.

Air cargo RTMs flown by all-cargo carriers were 66.9 percent of total RTMs in 2004; passenger carriers flew the remainder, or 33.1 percent of the total. Total RTMs flown by all-cargo carriers increased 2.4 percent in 2004, from 22.9 billion to 23.5 billion. Total RTMs flown by passenger carriers were 11.6 billion in 2004 (up 9.8 percent).

INDUSTRY STRUCTURE AND RISK

The present forecasts (2005 to 2016) are based upon a set of assumptions concerning changes in the economy, structural changes in the air carrier industry, and changes in the market for air transportation. The probability of achieving these forecasts depends on realizing the economic projections discussed in Chapter II and industry assumptions discussed in the following section.

STRUCTURAL CHANGES

Significant structural changes in both domestic and international markets were underway well throughout the later part of the 1990's and have continued following the September 11th attacks. The changes resulted in intensified competition and moved carriers to increase efficiency and productivity, reduce operating costs, and lower fares. As the industry continues to recover from the unprecedented set of events that have occurred during the past few years, the pieces are in place for the most significant structural change in the industry since deregulation.

Encouraged by their own financial success, large profit margins on many routes, and the weakened financial condition of the larger network carriers, low-cost carriers are expanding rapidly in the domestic market. The benefits to the American consumer brought about by low-cost, low-fare airlines have been substantial and are well documented. Low-cost, low-fare carriers such as Southwest, JetBlue, Airtran, American Trans Air, America West, and Frontier continued to add routes and planes in FY 2004, even while the larger network carriers cut routes and shrank their fleets. What is striking about the expansion is that it is taking place in longer-haul markets that had previously been the domain of the network carriers. In the 12 months ended in June 2004, the low-cost carriers increased their capacity in markets over 750 miles by 14.2 percent, compared to an increase of 9.5 percent overall. Passenger growth was similar with markets over 750 miles in length growing by 15.9 percent compared to

domestic growth for these carriers of 10.1 percent. Since 1998 low-cost carriers have increased their capacity in markets over 750 miles by 180 percent, compared to an increase of 97.1 percent overall.

The expansion of the low-cost carriers accelerated in 2004 as JetBlue began service in Boston in January while Southwest began service in Philadelphia in May. As the low-cost carriers continue to expand their networks, it is increasingly likely that not only will they compete against the network carriers, but they will also begin to compete among themselves. The expansion of these low-cost, low-fare carriers will help to ensure that competitive forces remain strong in the industry.

With net losses of $6.0 billion in FY 2004, network carriers remain under intense pressure to reduce their unit costs and narrow the gap between themselves and the low-cost carriers. Since September 11th, the network carriers have laid off thousands of employees, negotiated significant wage reductions, eliminated unprofitable routes and transferred others to aligned commuter carriers, negotiated work rule changes, deferred aircraft deliveries, and adjusted schedules at key hubs to smooth out the flow of departures and arrivals. While profitability has not occurred yet, the cost gap between the network carriers and the low-cost carriers appears to be narrowing. A recent report by JP Morgan estimated the unit cost gap between the two to be the lowest since 2000.[3] All of the network carriers are seeking reductions in labor costs, though they are taking different paths to achieve them. The two network carriers that are currently operating under bankruptcy protection, United and US Airways, are using the bankruptcy court to forge new agreements with labor groups. Delta used the threat of imminent bankruptcy to reach a new wage agreement with its pilots. Other carriers such as Continental and Northwest, have been able to conduct labor negotiations without the threat of imminent bankruptcy, and have achieved some success, as evidenced by Northwest's recently concluded agreement with its pilots (resulting in $300M per year in savings). Attention has been given to Delta's Song and United's TED subsidiary as a way to address the cost gap. Both Delta and United expect the unit costs of their subsidiaries to be competitive with the low-cost carriers primarily through higher utilization and flexibility in work rules.

While the network carriers seek ways to reduce their unit costs, many obstacles will make their task more difficult. Massive debt and large unfunded pension obligations threaten the future viability of these carriers. Network carriers have had to borrow large amounts of money just to remain operating since the events of September 11th. On June 30, 2001, the 6 largest network carriers[4] had a total of $31.2 billion in debt outstanding. As of September 30, 2004, that figure had risen to $48.5 billion, an increase of 55.3 percent. Thus, despite falling interest rates, the increase in the volume of debt has resulted in higher interest payments for these carriers. Not only do the carriers face higher interest payments in the future, but they will need to divert resources in the future to service the higher level of debt, resources that could have been used instead for new equipment (both aircraft and machines) that could have lowered unit costs.

In addition to having large amounts of debt that will need to be paid off, network carriers also have huge unfunded pension liabilities. The current pension plans of the network carriers and their future cash obligations limit the amount of funds these carriers can generate to shore up their heavily leveraged balance sheets and continue to acquire the equipment needed to sustain capacity growth and productivity gains. While Congress in FY 2004 passed legislation reducing the threat of higher cash pension

[3] JP Morgan report issued Nov 11, 2004

[4] American, Continental, Delta, Northwest, United, US Airways

outlays over the next 2 years, eventually network carriers may need to terminate these plans as part of their ultimate survival strategy. Already United and US Airways have asked their bankruptcy judges for permission to terminate their existing defined benefit plans.

With discussions underway between the U.S. and the European Union, the possibility exists for the most significant change in international markets since the sale of the Pan Am and TWA Atlantic route networks in the late 1980's. Historically, international markets have been subject to a series of bilateral agreements. Such agreements, which started back in the 1940s, have severely restricted competition. History has demonstrated that competition improves efficiency, productivity, and worldwide economic growth. The current negotiations were prompted by a ruling by the European Court of Appeals that essentially voided the open skies agreements that had been negotiated with individual countries within the European Union. The talks are focusing on wider access for U.S. carriers to London's Heathrow airport and U.S. limits on foreign airline ownership. If an agreement is reached, carriers such as Continental, Delta, or Northwest could gain access to new markets and introduce new competition. The expansion of "open skies" agreements over the next several years could significantly increase the level of activity of the more efficient U.S. carriers vis-à-vis foreign flag carriers.

The industry is expected to continue toward globalization, through the use of code-sharing agreements and alliances. Four large alliances have formed and continue to seek members and add network connections. The four are SkyTeam (Delta-Air France), Star Alliance (United-Lufthansa), Oneworld (American-British Airways), and Northwest-KLM. The alliances have been able to reduce costs through economies of scale. They have also increased revenues and passenger traffic by expanding the reach of the networks and providing seamless travel for their passengers.

To summarize, the industry continues to be dynamic, in the face of uncertainty following the September 11th attacks and the bankruptcy of United and US Airways. Some trends that were taking place prior to September 11th have been accelerated, while others will not proceed as rapidly as before. The outcome could fundamentally alter the structure of the industry. Although some of these changes could result in decreased short-term demand, in the long run the net effect will be reduced unit costs and fares, increased air carrier efficiency, and increased demand for air travel.

MARKET TRENDS

As the U.S. airline industry continues to recover from the devastating effects of the events of September 11, 2001, a number of important trends have emerged. Among these are: 1) the more widespread use of simplified fare structures that reduce the ability of network carriers to more closely adjust the number of discounted seats to maximize revenues and profits; 2) the growth of competition by low-cost carriers in long-haul markets; 3) an increase in routes being transferred from mainline to regional operators; 4) a continued shift in capacity from domestic markets to international markets where there is less low-cost carrier competition and more profits; and 5) declining real fares. In the near-term, continuing concerns about the increased passenger processing time and the cost of new security measures will offset some of the benefits of the trends mentioned above. In the long run we see the cost of business travel falling, reducing the sensitivity of business travelers to the cost of air trips. It is also expected that consumers will continue to prefer travel by air versus other modes and a long-term expansion of the economy.

The trends that have made the demand for business air travel more price elastic should continue in the future. Technology continues to expand choices for business travelers (fractional ownership for example), and has made it easier for business travelers to find low fares using internet search engines. Low cost carrier networks continue to expand allowing more and more business travelers to take advantage of the lower business fares the low cost carriers offer without having to utilize more remote or in many cases, more inconvenient airports to depart from. In addition, as network carriers lower their cost structures, they are increasing their use of simplified fare structures leading to greater offering of lower business fares.

However, security concerns continue to reduce the propensity for business travel, especially over shorter distances. Since the September 11th attacks, the advantages of air travel versus other modes of transport for short-haul travel has been reduced due to concerns about the increased processing time. For shorter haul trips this processing time is a significant percentage of the total travel time and as this percentage increases, more business travelers will use substitutes.

Despite the events of September 11th, the war in Iraq and high oil prices, the demand for leisure travel has continued to grow. According to the Travel Institute of America (TIA), domestic leisure travel volume was up 1.9 percent in 2003 and an estimated 2.9 percent in 2004.[5] In addition, international demand has begun to rebound. According to U.S. Office of Travel and Tourism Industries, preliminary data through September indicate that U.S. citizen air traffic to overseas destinations was up 15 percent in 2004 over 2003.[6]

As international travel demand has rebounded, carriers have been dedicating an increasing share of their capacity to international markets. International capacity as a share of mainline system capacity peaked at 26.2 percent in 2001 and then fell to 24.7 percent by 2003, reaching a low point of 23 percent in May. Since May 2003, the share of capacity flying to international markets has increased to 26.3 percent in July 2004. International markets are increasingly viewed as more attractive growth markets by mainline carriers as there is generally less competition from traditional low cost carriers and greater profitability. Carrier announcements and OAG schedules indicate that the rapid growth of international capacity will continue into 2005. On December 10, 2004 United announced a 14 percent reduction in domestic capacity beginning in January 2005 while simultaneously increasing international capacity.[7]

While the relative price of flying has decreased consistently since deregulation, the airline industry has, for the most part, been profitable, albeit marginally. However, the events of September 11th and the ensuing financial turmoil has resulted in fewer airlines, and record losses. While many carriers have been able to increase worker productivity in recent years through a variety of means (bankruptcy, contract renegotiation, layoffs), the competitive nature of the industry has resulted in yield declines in excess of productivity increases. It is not clear that future increases in productivity, capacity growth, and competition will be sufficient to keep relative fares declining. These market conditions would make it difficult for the industry to achieve acceptable rates of return on capital.

[5] Travel Industry of America forecast summary, October 29, 2004

[6] U.S. Department Of Commerce, Office of Travel and Tourism website (http://tinet.ita.doc.gov/view/m-2004-O-001/index.html)

[7] Associated Press article, Dec 10, 2004

GLOBAL RISKS AND UNCERTAINTIES

The forecasts of scheduled commercial air carrier demand are based on a specific set of assumptions concerning economic growth in the United States and abroad, Government tax policy, and changes in industry structure. The uncertainties surrounding these assumptions are large and could cause outcomes to be significantly different from those forecast. Developments that could alter the forecasts include:

- additional terrorist attacks utilizing commercial aircraft in the U.S. or abroad;
- the movement of future oil prices;
- the impact of regional jets
- the impact of additional security measures on costs and travel convenience;
- the continued recovery of consumer confidence in flying commercial airlines;
- the strength of the United States and world economic recovery;
- the number of business cycles that occur over the forecast period;
- the degree of competition in both the domestic and international markets;
- the potential for consolidation within the industry;
- how far network carriers can reduce unit costs;
- how fast yields decline due to increased competition and cost reductions.

In addition, the network of bilateral pacts that the United States currently has in place in Europe, the Far East, and South America could significantly inhibit the expansion plans of air carriers operating in these international regions and restrain traffic growth. On the other hand, the move towards deregulation, privatization of national carriers, and expansion of open-skies agreements could result in significantly greater traffic growth.

DOMESTIC TRAFFIC: ASSUMPTIONS, MODELS AND FORECASTS

During the past several years the FAA has adopted a decision-theoretic forecasting system. The approach is generally accomplished in two stages. Initially, projections are made with the use of econometric and time series models. The model equations and outcomes are then adjusted based upon "expert industry opinion" to arrive at subsequent forecasts for use in the decision-making process. As was done last year, the forecast for 2005 has been developed utilizing a set of assumptions regarding capacity and demand. Forecasts for the years 2006 and beyond were based on results derived from the models described below.

In developing the short-run demand forecasts it was assumed that: 1) no new terror attacks against U.S. airlines will occur; and 2) U.S. large carriers will not reach pre-September 11^{th} levels of capacity until after 2005. In addition, it was assumed for the long-run demand forecasts that: 1) industry improvements in efficiency and productivity continue but at less than recent historical rates; 2) taxes and fees on airline tickets remain at current levels; 3) competitive forces remain strong; and 4) capacity is continuously adjusted so that demand and supply are in equilibrium.

Since models are relatively simple descriptions of very complex systems, they cannot account for all the political, social, psychological, and economic factors and their interactions that will lead to a particular set of outcomes. Therefore, it is essential to use judgment to account for the complexities of the operating environment. This can be accomplished by adjusting the exogenous variables, adjusting the model outputs, or revising the models initial parameter estimates.

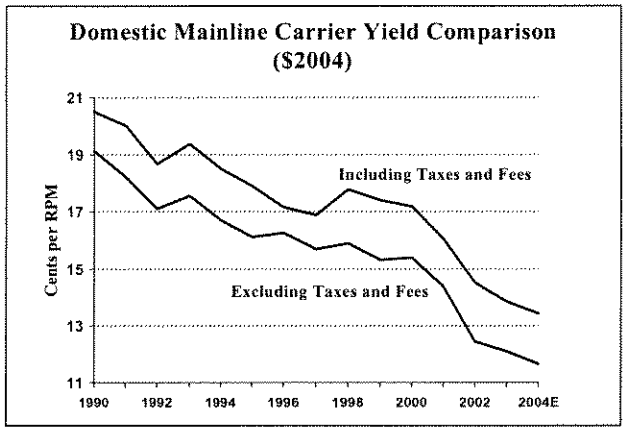
FAA periodically reviews and adjusts its projections based on forecasts and discussions with analysts outside FAA. Some important outside sources for adjusting FAA's projections are forecasts developed by: 1) the International Civil Aviation Organization's (ICAO) Asia/Pacific Area Traffic Forecasting Group (May 2003); 2) ICAO's North Atlantic Traffic Forecasting Group (April 2004); and 3) the National Academy of Sciences' Transportation Research Board Future Aviation Activities International Workshop (September 2002).

MODELING DOMESTIC RPMS AND ENPLANEMENTS

The model used to develop the FAA's domestic commercial air carrier forecasts relies upon a system of statistical and deterministic equations. The pivotal equations of the system relate RPMs and enplanements to two primary independent variables—income (measured by GDP, Personal Consumption Expenditures (PCE), or Disposable Personal Income (DPI)) and yield--both adjusted for inflation. This analytical framework for forecasting enplanements ties the domestic forecast model closer to projected changes in economic activity and reduces the number of subjective inputs. This approach is expected to reduce the standard errors of the forecasts.

Market forces quickly took hold following deregulation of the industry in 1978. To adjust for the jointly dependent variables in the demand and supply equations, three-stage least squares is used to estimate the demand equations.

In recent years the amount of excise taxes and fees added on to the base price of a ticket has increased significantly and may influence the modal choice of travelers. In addition, as more and more consumers have access to low base fares, the percentage of the average ticket price that taxes and fees account for is increasing. For example, the $200 round trip ticket to Florida may actually cost the customer $250-$260 after all the taxes and fees are levied. If airline demand is becoming increasingly leisure oriented and price sensitive, ignoring the tax impacts on behavior may lead to an overestimation of the level of demand in the future. The traditional definition of yield does not include the amount of taxes that the consumer paid and may represent a misspecification of the price variable that should be used in models estimating aviation demand. In order to address this problem, the FAA has constructed a measure of yield that incorporates the tax and fees paid by consumers. Both yield series move in similar fashion over time but in recent years the gap between the two series has widened. Although the excise taxes that provide funding for the Aviation and Airway Trust Fund expire in 2007, it is assumed that they will be reauthorized in the same format for the purposes of this forecast.



Although it is aggregate demand that we forecast, it would be preferable to use different models to estimate the two distinct components of each market--business and personal travel. A further refinement would distinguish the long-haul from the short-haul market. This approach would provide important information for developing public policy and would most likely improve the accuracy of the forecasts. Clearly, these markets are affected by different sets of variables, and adjust at different rates to them.

For example, most experts in the industry would agree that the price elasticity of demand for business travel differs from the price elasticity of demand for pleasure travel. Furthermore, theory would suggest that business profits are a factor in determining business travel, and that some measure of personal or family income is an important variable affecting pleasure travel.

At this time, however, the lack of an adequate database subdivided into these four components precludes the development of forecasts for each market at the national level. Additional research and data collection is necessary to advance this approach.

U.S. MAINLINE AIR CARRIER YIELD AND OPERATIONAL VARIABLES

Domestic Capacity

Between 1978 and 1990, domestic capacity grew an average of 5.5 percent annually, matching the growth of traffic during the same period. From 1991 through 1997, capacity grew 2.4 percent annually. During this period, the carriers developed the capability to rapidly adjust capacity to changing conditions in domestic demand while pushing up load factors. For the first time in 3 years, mainline carrier domestic capacity increased, up 4.9 percent. Capacity was up in the first quarter by 0.8 percent and was up in excess of 5 percent for the balance of the year, with peak growth of 8.0 percent in the third quarter.

In 2005, capacity is forecast to increase 0.6 percent, as network carriers continue to shrink while low-cost carriers continue to grow rapidly with deliveries of new aircraft fueling expansion of their own networks. The capacity decrease by the legacy carriers is a result of cuts by United, American, and Delta. For the balance of the forecast, domestic capacity is forecast to grow 3.5 percent a year. Over the 12-year forecast period, the average annual increase in domestic ASMs is forecast to be 3.4 percent, with domestic ASMs totaling 973.8 billion in 2016.

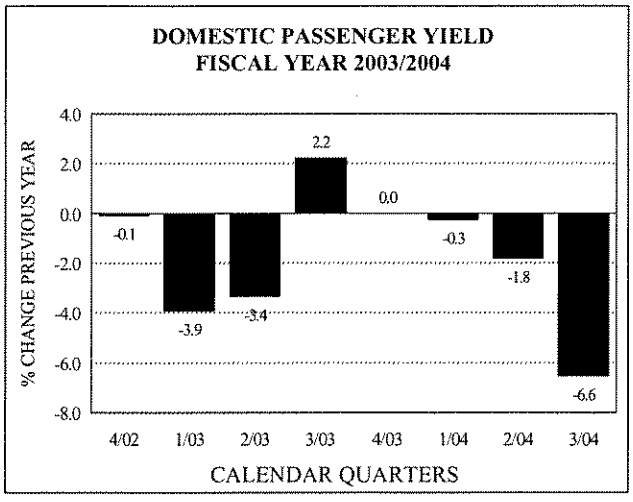
Passenger Yield

Between 1978 (when the industry was deregulated) and 2000, domestic real yield declined an average of 2.0 percent per year. In the 1980s the decline resulted from the airlines adjusting to deregulation by rationalizing their route structures and increasing labor productivity. In the 1990's, financial weakness in the early part of the decade along with excess capacity, and the growth of low-cost carriers into new markets increased fare competition. Increased competition led to restructuring of the high-cost carriers resulting in higher productivity and lower unit costs.

In 2003 nominal yield declined 1.1 percent with decreases during the first 3 quarters of 2003 as increased competition from low-cost carriers and discounting by the network carriers to attract traffic in the wake of the war in Iraq prevented fares from rising. In the fourth quarter of 2003, nominal yield finally rose year-over-year for the first time since the second quarter of 2001 as surging demand

coupled with tight capacity led to higher fares. In 2004, nominal yield fell 2.2 percent, as the rebound in yield was short-lived. Year-over-year decreases were recorded beginning in the second quarter of 2004 and by the 4th quarter, year-over-year nominal yield fell 6.6 percent, due to heavy discounting of summer leisure fares in combination with the effects of the four hurricanes that hit Florida in August and September.

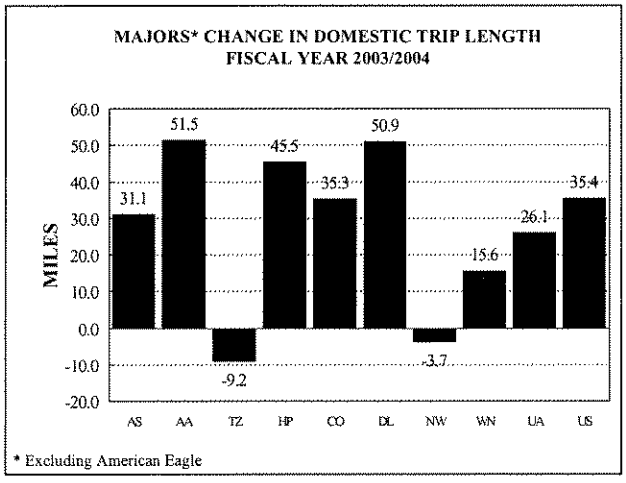
Nominal yield is forecast to decline 3.1 percent in 2005 as the low fares that were prevalent in the fourth quarter of 2004 continue to plague the industry in the first half of 2005. The continued expansion of low-cost carrier networks and the growth of the network carriers low fare subsidiaries will limit the prospects for quick rebound. However, by the third quarter of 2005, yield is projected to be up modestly versus 2004.



In the long run, the effects of continued competition (especially from low-cost carriers), productivity increases, and expanding capacity more than offset higher jet fuel and security costs. It is also assumed that the air carriers will optimally adjust their capacity to meet future demand. During the period 2006 through 2016, nominal yield increases 1.2 percent a year, while real yield declines 1.2 percent annually. Over the 12-year forecast period, nominal yield increases from 11.46 cents in 2004 to 12.54 cents in 2016, with real yield falling 1.7 percent a year.

Passenger Trip Length

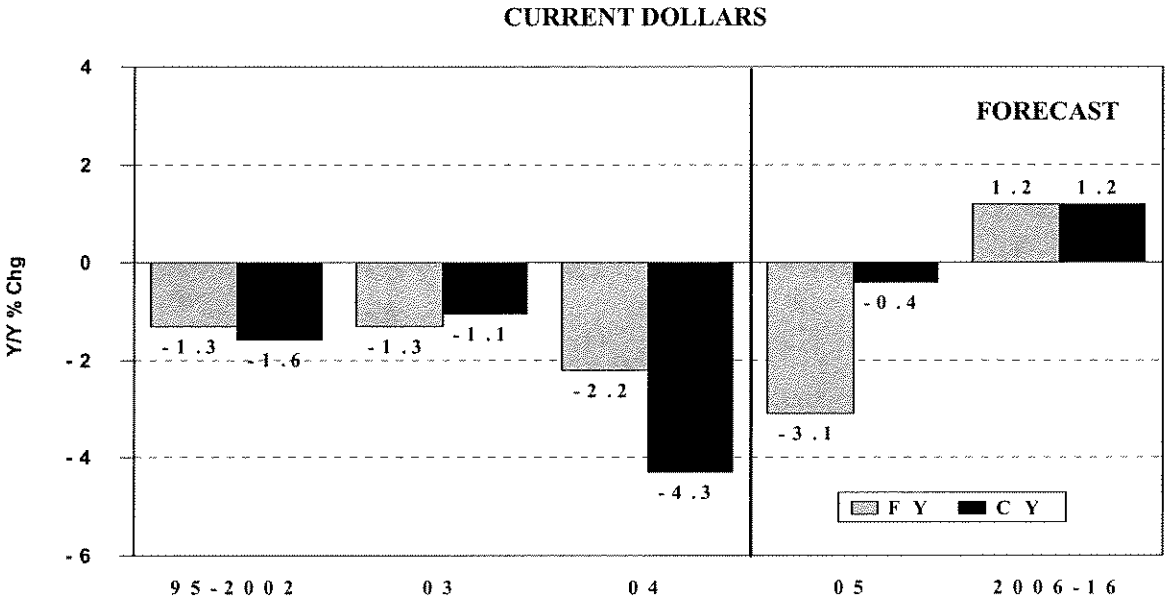
In 2004 the average domestic passenger trip length for U.S. mainline carriers increased 33.5 miles. This was due largely to the continued transfer of medium and short-haul routes to code-sharing regional partners and the expansion of Southwest and other low-cost carriers into longer-haul markets.

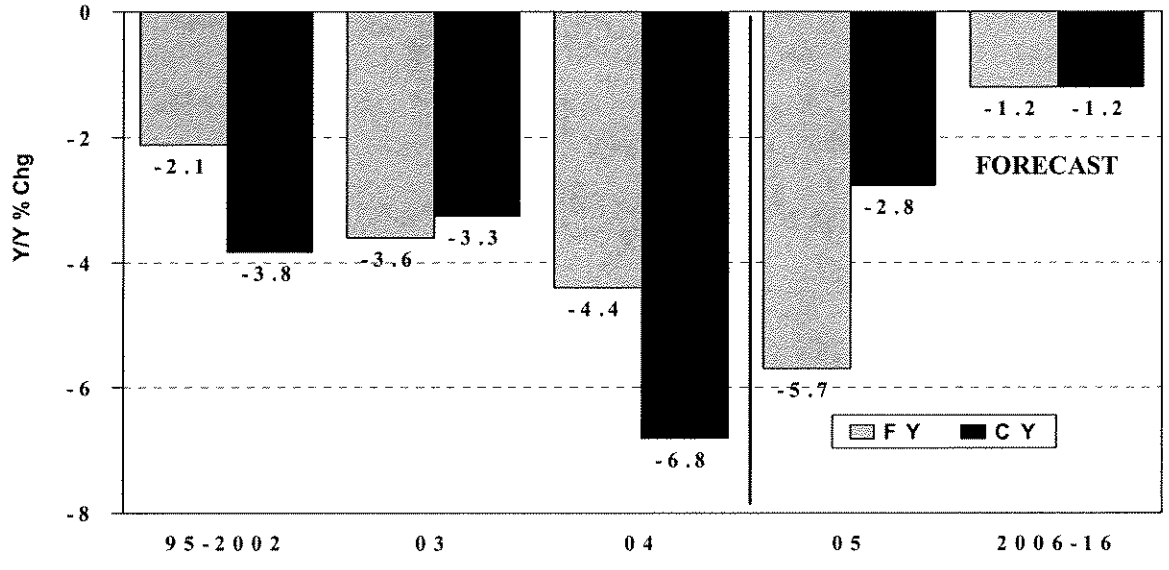


The rapid integration of new state-of-the-art aircraft into the regional/commuter fleet--especially regional jets with ranges of up to 1,500 miles—has significantly altered the route system of the industry. These new aircraft have enabled regional/commuters to greatly expand the number and types of markets they serve.

In 2005, the turnover of short-haul markets by the network carriers to their code-sharing regional partners is expected to continue, albeit not as rapidly as in previous years. In addition, it is expected that low-cost carriers will continue to add capacity in transcontinental and Florida markets. As a result, domestic trip length is projected to increase 9.7 miles in 2005. During

U.S. MAINLINE AIR CARRIERS: DOMESTIC PASSENGER YIELD





the period from 2006 to 2016, expansion of low-cost carriers into longer-haul markets, restructuring of the regional/commuter fleets, and expansion of point-to-point service, are expected to increase the domestic trip length modestly. For the entire forecast period, the average trip length increases 7.1 miles per year, increasing from 972.6 miles in 2004 to 1,058.2 miles in 2016.

Average Aircraft Size

After rising by 0.5 seats in 2003, average seats per aircraft mile for domestic U.S. mainline carriers rose another 1.2 seats in 2004. The increase was driven by increases at American and Continental as they retired their MD-80's (Continental) and F-100's (American).

Current fleet plans by the mainline air carriers show that the average seats per aircraft mile is flat to slightly increasing. However, most network carriers have deferred taking delivery of new aircraft until 2006 at the earliest. Thus increases in aircraft size will be very small in the near term. Those aircraft that will enter the fleet are larger than those in the existing fleet. The result will be a modest increase in the average seats per aircraft mile throughout the forecast period.

Average seats per aircraft mile for domestic mainline air carriers are forecast to increase 0.5 seats in 2005 and increase an average of 0.5 seats per year for the balance of the forecast. In 2016, the average seats per aircraft mile will be 155.0 seats, up from 149.7 seats in 2004.

Passenger Load Factor

From 1993 through 2000, domestic load factor rose from 61.4 percent to 71.2 percent. During this period carriers developed the capability to adjust capacity to changing conditions in the domestic market to meet demand while increasing load factor. However during the last few years of the 1990's, load factor remained relatively stagnant and declined in the aftermath of the events of September 11th.

In 2004, domestic load factor rose 2.0 points from 2003 to an all-time record of 74.7 percent. Year-over-year load factor was up in every quarter, ranging between 1.5 to 2.4 points higher. Traffic increases (in excess of 5 percent year-over-year after the first quarter) outpaced increases in capacity throughout the year.

Although traffic is projected to increase modestly in 2005, domestic load factor is forecast to rise 0.8 points to 75.5 percent as capacity grows slower. Year-over-year load factor is projected to be up during the first half of the year, and then run flat for the balance of the year.

For the remainder of the forecast period, domestic load factor is projected to rise slowly as the industry returns to a more stable operating environment, resulting in a load factor of 76.1 percent in 2016.

FORECASTS

Revenue Passenger Miles

During the economic expansion of the 1990's, domestic RPMs grew an average of 4.0 percent per year over the 10-year period. In the 2 years following their peak in 2000, scheduled domestic RPMs for U.S. mainline carriers declined 9.6 percent. RPM growth returned in 2003 and continued on into 2004 with domestic RPMs up 7.7 percent versus 2003. Traffic grew at a 6.1 percent rate during the first half of the year and then accelerated to a 9.2 percent rate

during the second half of the year as demand in the prior year fell in the wake of the war in Iraq. RPM growth was 11.2 percent in the third quarter before slowing to 7.4 percent in the fourth quarter.

Traffic growth is projected to slow substantially in 2005, rebound in 2006, and then return to modest rates for the balance of the forecast. In 2005, domestic mainline carrier RPMs are forecast to grow 1.7 percent with the highest growth occurring in the first half of the year. Low-cost carrier traffic growth is projected to exceed 10 percent while network carrier capacity reductions will result in traffic declines for those carriers. RPMs are forecast to grow 4.9 percent in 2006 as economic growth remains above its long-term historic average. As the economy returns to its historic long-term growth rate in 2007 and beyond, traffic increases, on average, 3.6 percent a year for the remainder of the forecast period. The average annual increase in domestic RPMs over the 12-year planning horizon is forecast to be 3.5 percent, with domestic mainline carrier RPMs reaching 740.7 billion in 2016.

Passenger Enplanements

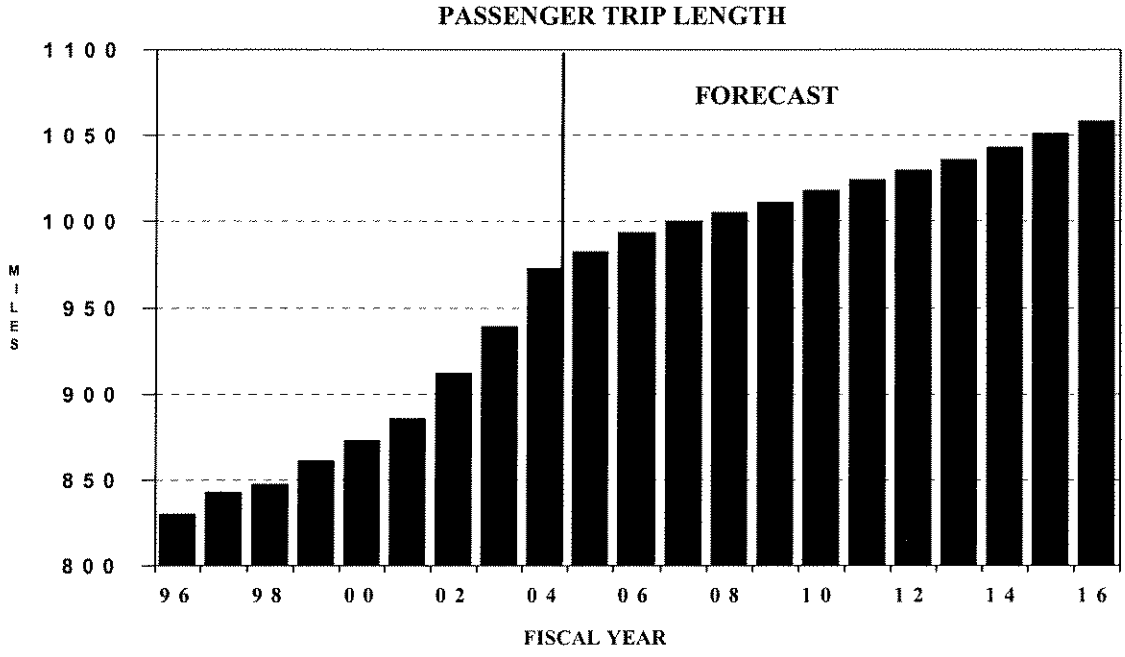
For the first time since 2000, passengers enplaned by U.S. scheduled domestic mainline air carriers increased. A total of 502.2 million passengers were enplaned in 2004, up 4.0 percent from 2003, but 10.6 percent below the 2000 peak. Similar to RPMs, domestic enplanements were up throughout the year with the largest increases occurring in the later half. Enplanements were up 5.7 percent on a year-over-year basis in the second half of the year as the war in Iraq and subsequent capacity reductions curtailed demand. Enplanements are forecast to increase just 0.7 percent in 2005 with growth occurring only in the first half of the year and being concentrated in the low-cost carriers. During the remainder of the forecast period, enplanements are projected to increase 2.9 percent a year. For the 12-year forecast period, enplanements growth is projected to average 2.8 percent annually with the number of domestic mainline carrier enplanements totaling 700.0 million in 2016.

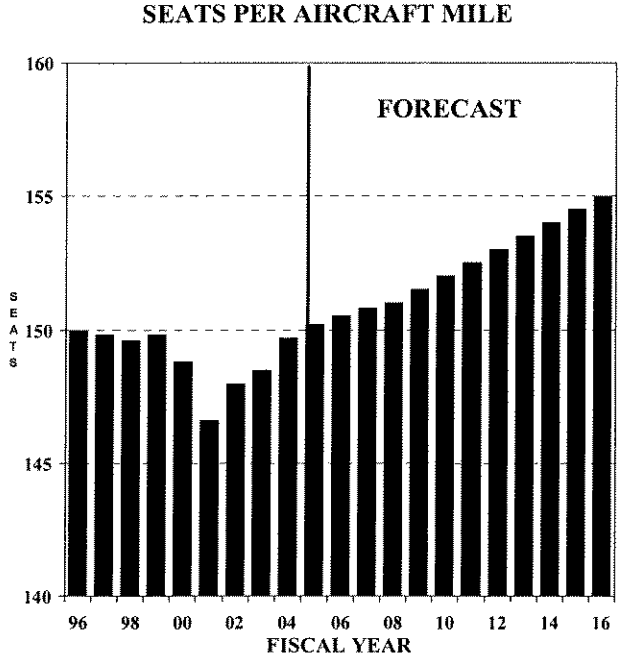
INTERNATIONAL PASSENGERS: METHODOLOGY AND FORECASTS

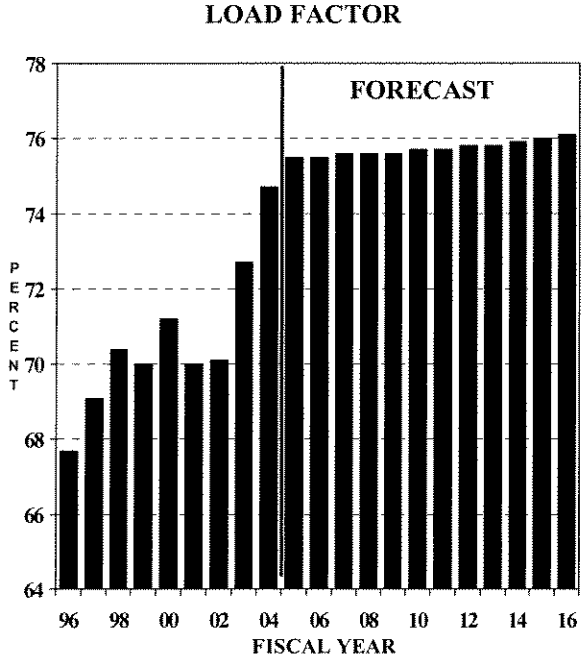
MODELING INTERNATIONAL RPMS AND ENPLANEMENTS

Similar to the forecasts of domestic traffic, forecasts for U.S. flag carriers' international RPMs and enplanements for the three world regions--Atlantic, Pacific, and Latin America, are a combination of near-term expert judgment forecasts coupled with longer term forecasts based on the forecast methodology described below. Forecasts for 2005 were developed using assumptions about capacity and load factor. Forecasts for 2006 and beyond were developed by initially estimating total passengers (U.S. and foreign flag carriers) for each world region based on the economic activity in both the region and in the U.S. These forecasts coupled with assumptions concerning U.S. market share in each region, are used to forecast U.S. flag carrier international enplanements. Models relating U.S. flag carrier RPMs to enplanements are used to derive U.S. flag carrier international RPM projections. This approach ties U.S. flag carrier activity in the international regions to total demand and should, over the long-term, increase the accuracy of the FAA facility workload and trust fund revenue projections.

U.S. MAINLINE AIR CARRIERS: DOMESTIC OPERATIONAL VARIABLES

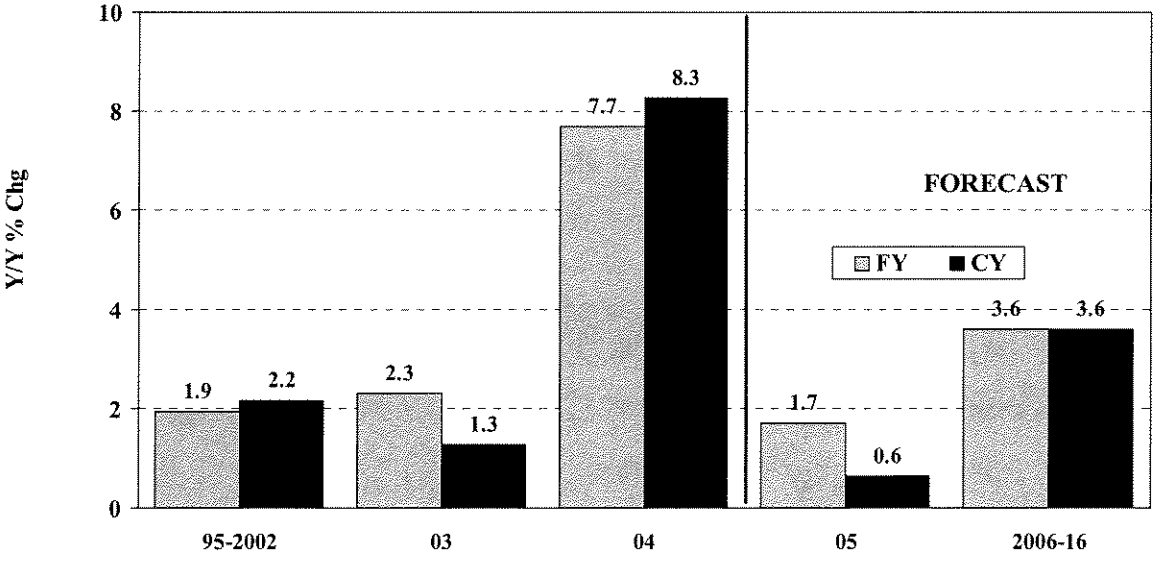




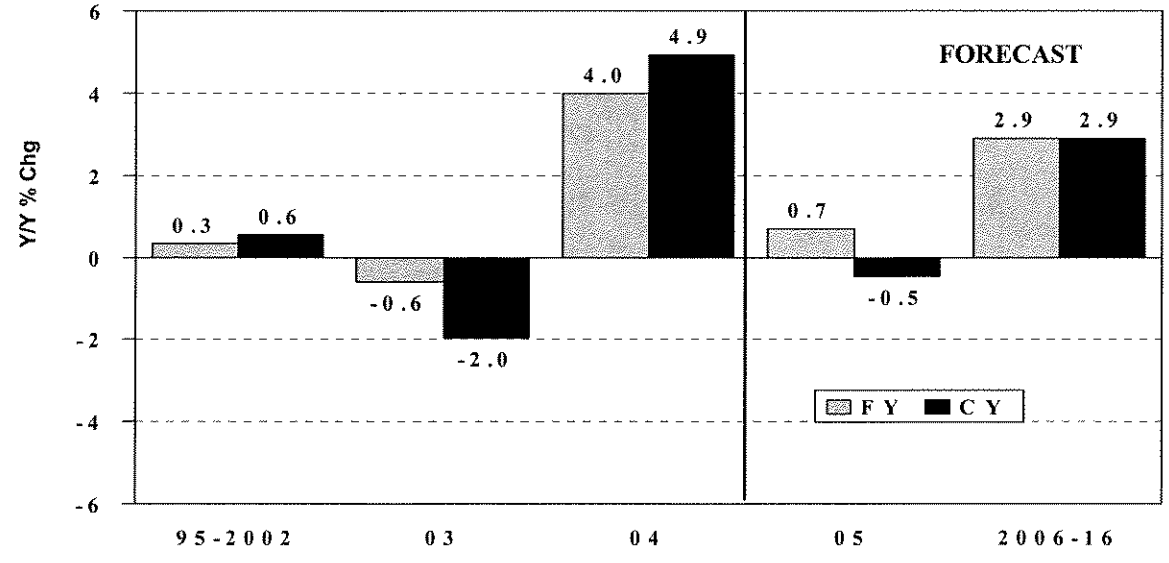


U.S. MAINLINE AIR CARRIERS: DOMESTIC FORECASTS

SCHEDULED REVENUE PASSENGER MILES



SCHEDULED PASSENGER ENPLANEMENTS



Although economic theory suggests that fares, exchange rates, and relative country consumer prices should be important arguments in an international demand equation, the analyses clearly demonstrate that aggregate economic activity explains a large percentage of the variability in demand and is sufficient to develop accurate macro international forecasts. However, these aggregate results may differ significantly from micro-analyses of individual markets categorized by distance, type of flying, and level of competition.

ATLANTIC MARKET

U.S. Mainline Air Carrier Yield and Operational Variables

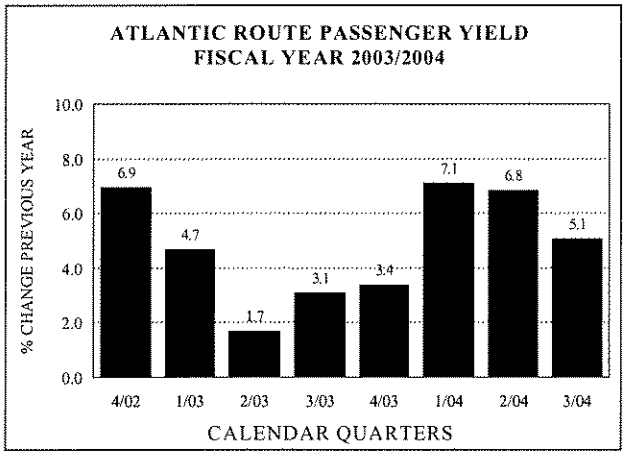
Capacity

After falling 3.4 percent in 2003, U.S. carrier capacity in Atlantic markets rose 7.3 percent in 2004. Year-over-year capacity was down through January but was positive for the balance of the year with the largest increases occurring in April and May (the height of the Iraq conflict in 2003). Based on published OAG schedules and discussions with carriers, capacity is projected to increase 9.5 percent in 2005 with growth fairly consistent throughout the year. By the summer, U.S. carrier capacity in Atlantic markets is projected to be roughly 9 percent up from the summer of 2004.

For the period 2006 through 2016, forecast capacity growth averages 3.7 percent per year with the rates of growth diminishing over the course of the forecast. The average annual growth over the 12-year forecast period is 4.5 percent with Atlantic ASMs totaling 170.9 billion in 2016.

Passenger Yield

In 2004 current dollar yield (10.15 cents) increased 5.7 percent, while real yield in the market rose 3.3 percent. This followed an increase in real yield in 2003 of 1.0 percent. Yield was up in every quarter with the largest gains occurring in the second and third quarters. In 2005, yield is forecast to be up on a year-over-year basis in the first half of the year before capacity increases result in falling fares. For all of 2005, yield in Atlantic markets is forecast to remain unchanged from 2004 in nominal terms, but fall 2.7 percent in real terms.



For the balance of the forecast period, real yield is projected to decline 0.5 percent a year, while nominal yield is expected to increase at an annual rate of 1.9 percent. For the period 2004 through 2016, nominal yield increases from 10.15 to 12.44 cents.

Passenger Trip Length

Reversing a two-year decline, average passenger trip length in the Atlantic market increased 20.3 miles. Increases in trip length occurred at Continental, Northwest, and United, with American recording the largest decrease. Although the passenger trip length in the Atlantic market is still below the peak recorded in 2001, the general trend over the past dozen years is increasing. The increase in average passenger trip length since 1993 has been primarily due to more direct flights from non-East Coast U.S. gateways and expanded service into Central and Eastern Europe. In the future, we expect that trip length will increase with continued expansion of service from non-East Coast U.S. gateways.

The average trip length is forecast to increase 49.1 miles in 2005 as capacity additions by the industry will lead to a greater share of the traffic flying on longer haul routes. Increases in passenger trip length are then projected to moderate and increase an average 9.4 miles annually for the balance of the forecast period. For the period 2004 through 2016, trip length in Atlantic markets increases from 4,125.7 miles to 4,288.5 miles--up 162.8 miles.

Average Aircraft Size

The average seats per aircraft mile in the Atlantic market continuously increased during the 1970s and early 1980s as the widebody trijets (DC-10s/L-1011s) and B-747s dominated the market, peaking at 332.0 seats in 1985. The introduction of the B-767 and other aircraft flying Extended-Range Twin-Engine Operations (ETOPS) in the mid 1980s resulted in the average seats per aircraft mile falling by 100 seats to 231.9 by 1993. Although the average seats per aircraft mile has fluctuated since 1993, the number of seats averaged 231.6 seats in 2004—0.3 seats below the 1993 level. Over the 12-year forecast period, the average seats per aircraft mile in the Atlantic market gradually increases as the major carriers expand the number of non-stop city-pair services and use of larger two-engine widebody aircraft. Average seats per aircraft mile in the Atlantic market increases 0.6 seats per year to 239.0 seats by 2016.

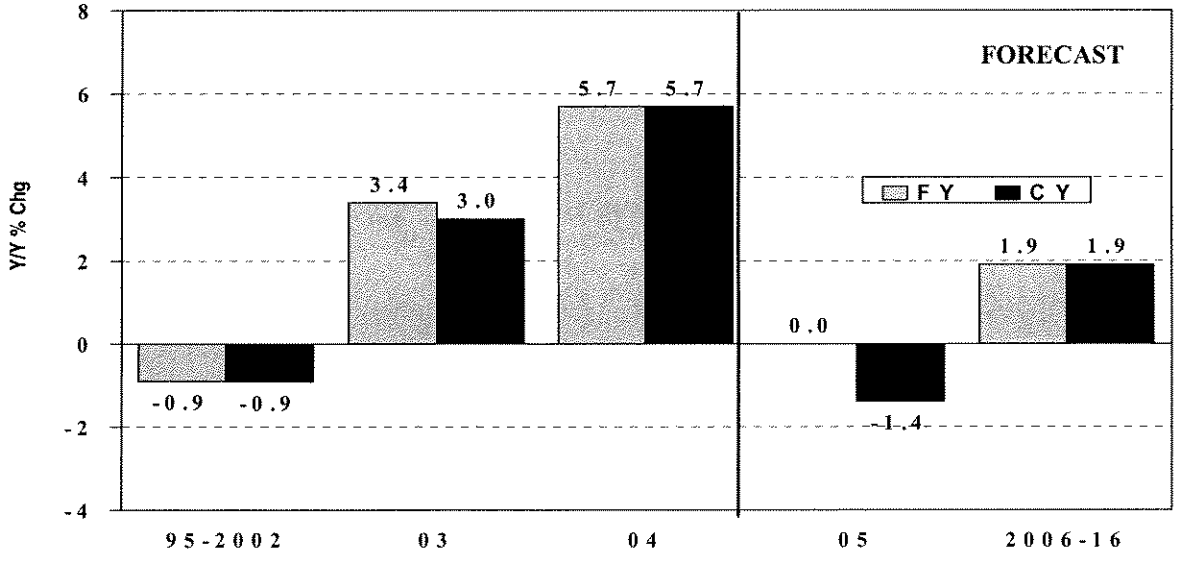
Passenger Load Factor

In 2004, the Atlantic market load factor rose 3.6 points to a record 81.7 percent as RPMs grew 12.3 percent while capacity rose by 7.3 percent. Year-over-year load factor was up 4.8 points in the first quarter of the year and 5.6 points in the second quarter before trailing off to 1.9 and 1.6 points respectively in the third and fourth quarters when prior year capacity was cut following the conflict in Iraq.

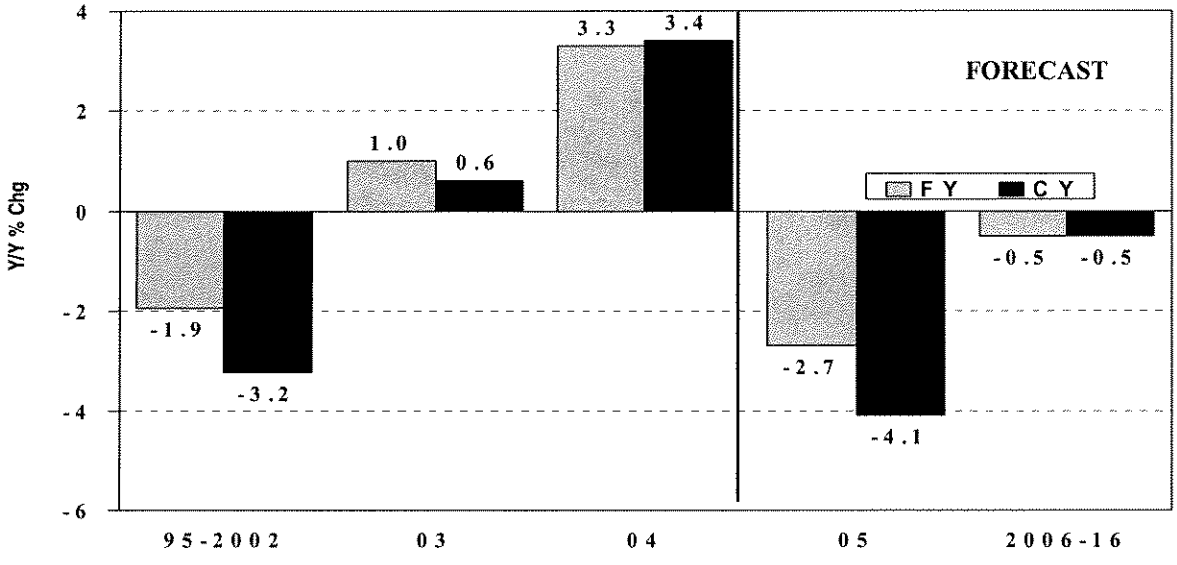
Despite the capacity increase forecast for the Atlantic market, the load factor is projected to rise 0.8 points to 82.4 percent in 2005 as traffic increases faster than capacity. After being down in the first quarter, year-over-year increases in load factor are forecast for the balance of the year. A slight decline to 82 percent is forecast for 2006, and load factor remains at that level for the balance of the forecast.

U.S. MAINLINE AIR CARRIERS: ATLANTIC PASSENGER YIELD

CURRENT DOLLARS



2004 DOLLARS



Forecasts

Total Passengers: U.S. and Foreign Flag Carriers

Based on Immigration and Naturalization Service (INS) data, compiled by the Department of Commerce, passengers in the Atlantic market increased 0.4 percent in CY 2003 (the latest full year for which data is available), following declines of 10.5 and 9.4 percent, respectively, in CY 2001 and CY 2002. Data for the first half of 2004 indicate that the increase in traffic that began in the summer of 2003 has continued into 2004.[9]

After falling steadily through the 1990's, U.S. air carrier market share for the Atlantic region increased from 38.6 percent in 1999 to 42.1 percent in 2002. U.S. carrier market share fell to 39.3 percent in 2003, as U.S. flag carriers did not experience a rebound in traffic following the end of major combat in Iraq in May 2003. Preliminary data through June 2004 indicate that some of the decrease in U.S. flag carrier share has been reversed. Based on the available data, U.S. carrier market share is projected to rise to 39.9 percent.

Total passengers traveling in the Atlantic market are forecast to grow slower than the rate of U.S. flag carriers for CY 2005. In CY 2005, passengers are forecast to increase 7.6 percent with the highest rates of growth occurring in the first half of the year. For the remainder of the forecast period, total passengers increase an average of 3.8 percent per year. Over the entire forecast period, total passengers increase an average of 4.3 percent per year, from 48.4 million in 2004 to 80.3 million in 2016.

The International Civil Aviation Organization (ICAO) North Atlantic Traffic Forecasting Group (Canada, U.S., U.K., and Portugal) was formed with the primary objective of developing forecasts of air traffic over the North Atlantic and between North American and the Caribbean. Annual forecasts are provided for both total passengers and aircraft movements to support air navigation systems planning activity for ICAO and its member states.

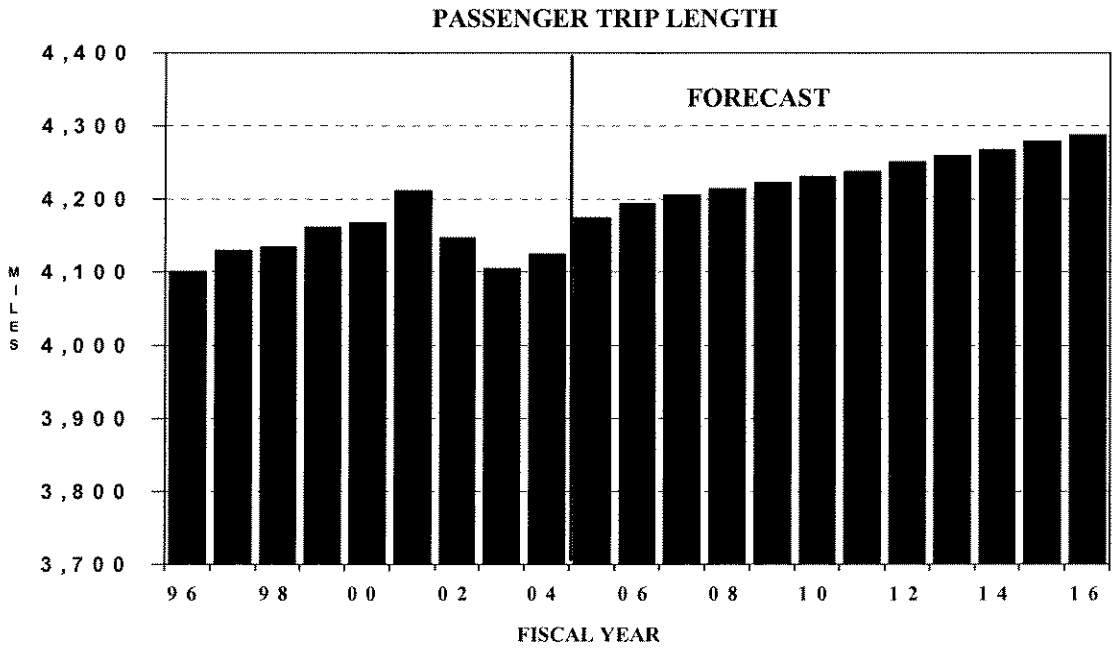
The Group met in April 2004 and updated its forecasts. Copies of the 2004 report entitled, "*North Atlantic Air Traffic Forecasts for the Years 2004-2010, 2015 and 2020,*" can be obtained from the FAA's Statistics and Forecast Branch, Office of Aviation Policy and Plans, phone (202) 267-3355.

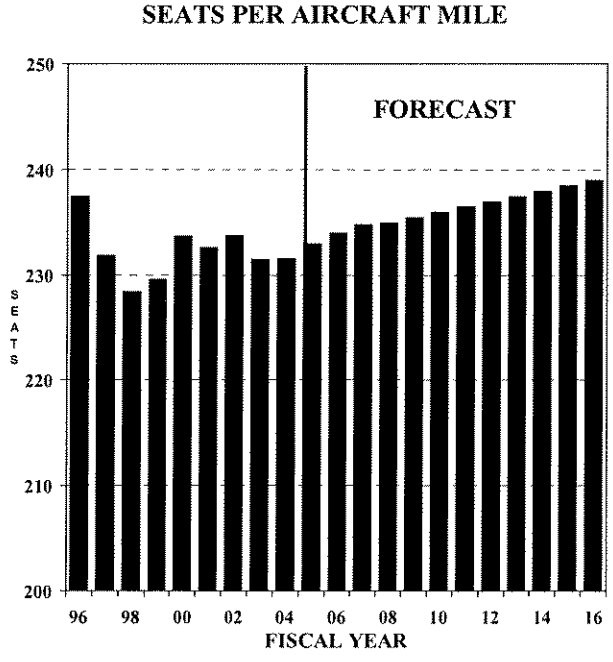
U.S. Mainline Carrier Passenger Enplanements

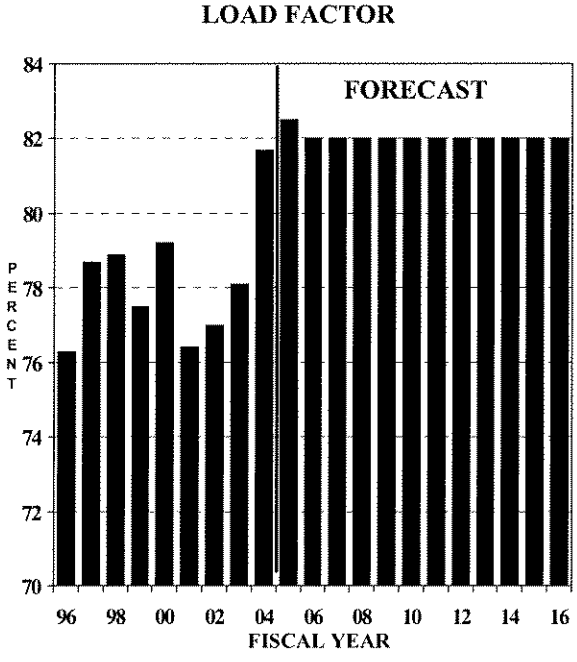
U.S. scheduled air carriers in the Atlantic market enplaned a total of 19.9 million passengers in 2004, up 11.7 percent, the first increase since 2000. Enplanement growth was positive every month of the year after October, with the highest growth rates occurring from March through May, when prior year figures were impacted by the conflict in Iraq. Atlantic passenger enplanements are forecast to continue to grow rapidly in 2005, with the largest year-over-year increases occurring in the second half of the year. For the year, enplanements are forecast to increase 9.3 percent. During the period 2006 through 2016, enplanements are forecast to increase 3.5 percent per year on average, stimulated by economic growth and declining real yields. For the entire 12-year forecast period, enplanements grow an average of 4.2 percent annually. The number of Atlantic market enplanements reaches 32.7 million in 2016—64.2 percent higher than in 2004.

[9] CY 2004 data is available through July. Estimates for the remainder of the year are based on ATA (thru Nov) and AEA (thru Oct) data

U.S. MAINLINE AIR CARRIERS: ATLANTIC OPERATIONAL VARIABLES

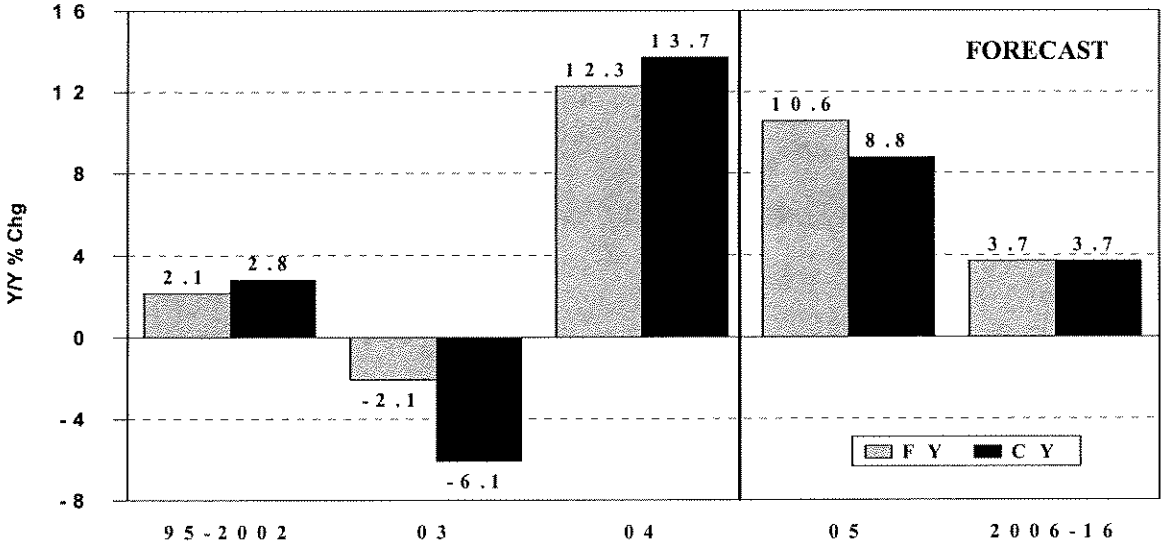




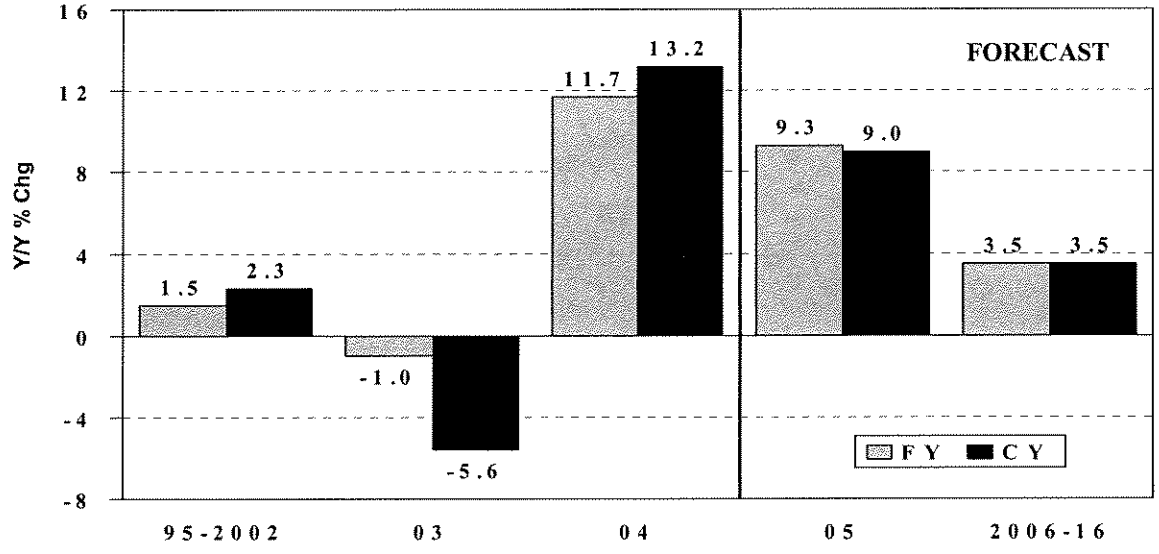


U.S. MAINLINE AIR CARRIERS: ATLANTIC FORECASTS

SCHEDULED REVENUE PASSENGER MILES



SCHEDULED PASSENGER ENPLANEMENTS



U.S. Mainline Carrier Revenue Passenger Miles

During the 1990's, Atlantic market RPMs continuously increased at a rate of 7.1 percent per year, due to strong, steady economic growth in the U.S. and Europe and declining real yields. However the first decade of the 21st century has been a different story. Traffic declined in the first 3 years of the decade, falling a total of 16 percent. In 2004, Atlantic market RPMs grew 12.3 percent to 82.1 billion. Traffic was up on a year-over-year basis in all quarters with the fastest growth rates in the third quarter. Traffic is projected to increase 10.6 percent in 2005, driven by economic growth in the U.S. and capacity additions in the second half of the year. Beyond 2005 for the balance of the forecast period, RPMs are projected to grow an average of 3.7 percent per year. The average annual increase in RPMs over the 12-year forecast horizon is 4.6 percent, reaching 140.2 billion in 2016.

LATIN AMERICAN MARKET

U.S. Mainline Air Carrier Yield and Operational Variables

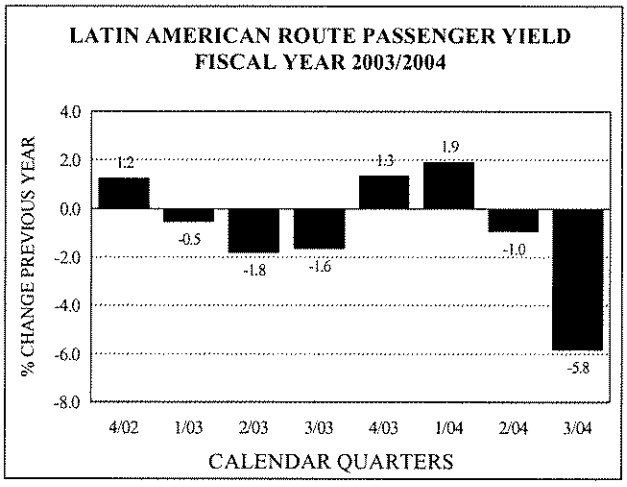
Capacity

In 2004, regional capacity increased 12.1 percent, following an increase of 1 percent in 2003. Capacity was up 3.4 percent year-over-year during the first quarter and up 15 percent for the balance of the year as carriers (especially American and US Airways) added capacity in the region.

Based on OAG schedules and discussions with carriers, capacity growth in the Latin American market is projected to be higher than in other international markets. Capacity is projected to increase about 13 percent on a year-over-year basis in the first half of FY 2005 then slow to about 12 percent during the second half of the year. For the year as a whole, capacity is projected to increase 12.7 percent. For the period 2006 through 2016, capacity in the region is forecast to grow an average of 5.8 percent per year. The average annual growth for Latin American ASMs over the 12-year forecast period is 6.5 percent with Latin American ASMs totaling 121.9 billion in 2016.

Passenger Yield

In 2004 Latin American yield (12.28 cents) fell 1 percent while real yield declined 3.2 percent. This followed declines in 2003 of 0.8 and 3.1 percent for nominal and real yield, respectively. Since 1998, real yield in the market has declined 21.2 percent.



In 2005 real yield is forecast to fall 1.3 percent as competition in Caribbean and Central American markets pushes fares lower. From 2006 through the remainder of the forecast

period, real yield continues its historic decline, falling at a rate of 0.5 percent a year, driven by increasing demand in longer-haul, lower yield markets like Argentina and Brazil. During the 12-year forecast period, nominal yield increases at an annual rate of 1.9 percent, reaching 15.34 cents in 2016.

Passenger Trip Length

After falling for two consecutive years, passenger trip length in Latin America increased 11.5 miles to 1,599.7 miles. While carriers continued to add capacity to relatively shorter haul destinations in the Caribbean and Mexico, capacity was also added to the long-haul South American markets. Despite the increase in 2004, the average trip length in the region is now just 13.0 miles higher than the 1998 level.

From 1990 to 2001, the average trip length in the region increased by 453 miles. The primary reason for the increased trip length during the 1990's was the continued expansion of U.S. carriers into deep South America--Argentina, Brazil and Chile--and the expansion of routes from the Northeast to the Caribbean. We expect this trend to resume over the forecast period. The average trip length is forecast to increase 39.8 miles in 2005 as carriers continue to increase capacity to longer haul destinations in South America. Over the forecast period—2004 to 2016--capacity growth to the longer haul destinations of the region will be faster than that to the Caribbean and Central America. This results in trip length increases averaging 20.3 miles a year, from 1,599.7 to 1,843.2 miles.

Average Aircraft Size

The average seats per aircraft mile in the Latin American market increased during the 1970s and early 1980s as widebody aircraft dominated the market, peaking at 220.2 seats in 1986. With the advent of the B-757 and others flying ETOPS since the mid 1980s, the average seats per aircraft mile has steadily declined, except for a 2-year period from 1994 to 1996. In 2004 average seats per aircraft mile increased 2.8 seats to 174.6 seats, only the 3rd annual increase since 1986. Despite the increase in 2004, average seats per aircraft mile in the region are down 45.6 seats from their 1986 peak.

Average seats per aircraft mile is projected to increase to 175.0 seats in 2005, due, in large part, to the continued increase in capacity to South American markets. For the balance of the forecast, the average seats per aircraft mile in the Latin American market is expected to gradually increase as the major carriers expand the number of non-stop city-pair services into deep South America, and their use of larger two-engine widebody aircraft. The average seats per aircraft mile are forecast to increase approximately 0.5 seats per year to 180.5 seats by 2016.

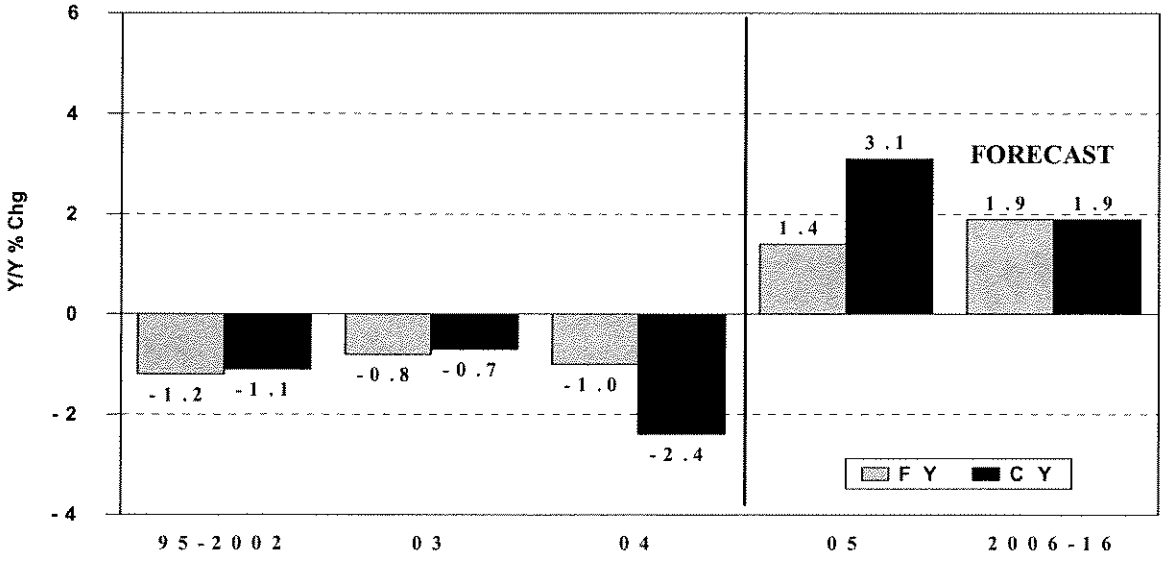
Passenger Load Factor

In 2004, load factor increased by 1.0 points to an all-time high of 70.3 percent as gains in RPMs exceeded the increase in capacity. Year-over-year load factor increases of 1 to 4 points were recorded up to May and then turned negative with decreases ranging 2 to 3 points until September. While the gains in the first half of the year were driven by strong traffic growth, the declines in the later half of the year were a result of accelerating capacity growth.

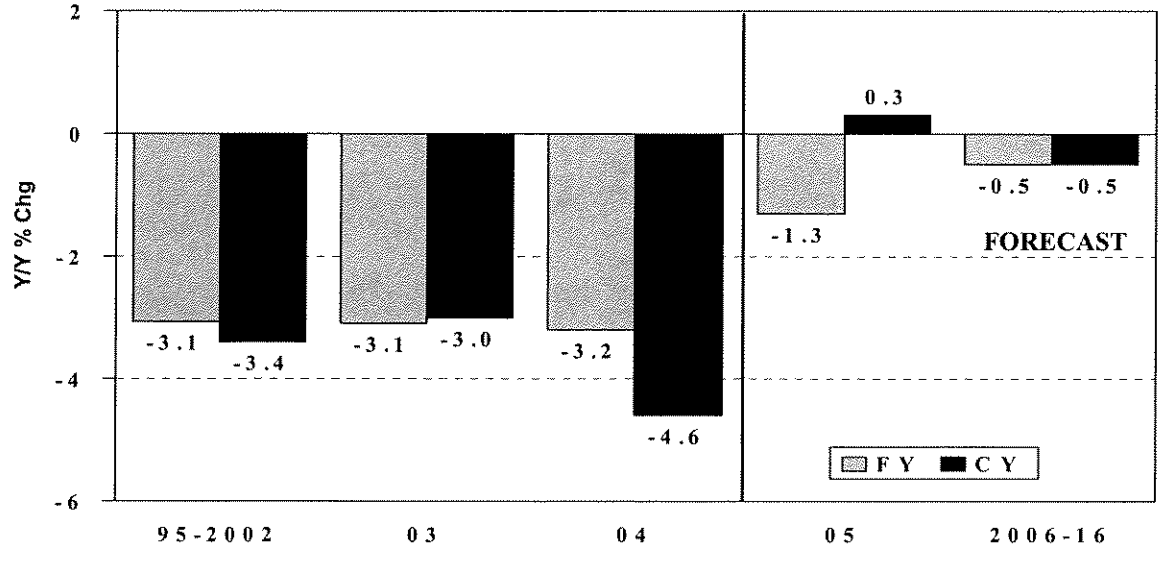
Load factor is forecast to increase 0.9 points to 71.2 percent in 2005 with increases occurring after the first quarter. During the period 2006 to 2013, load factor is forecast to climb gradually to 72 percent. For the duration of the forecast the load factor remains at 72 percent as the market reaches equilibrium.

U.S. MAINLINE AIR CARRIERS: LATIN AMERICAN PASSENGER YIELD

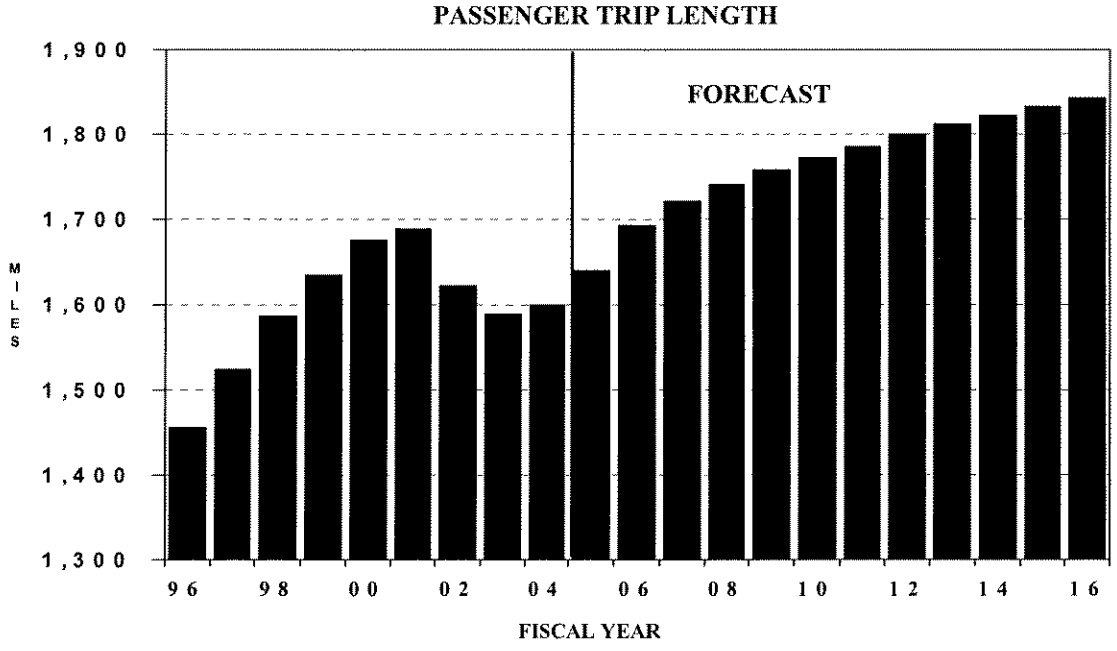
CURRENT DOLLARS

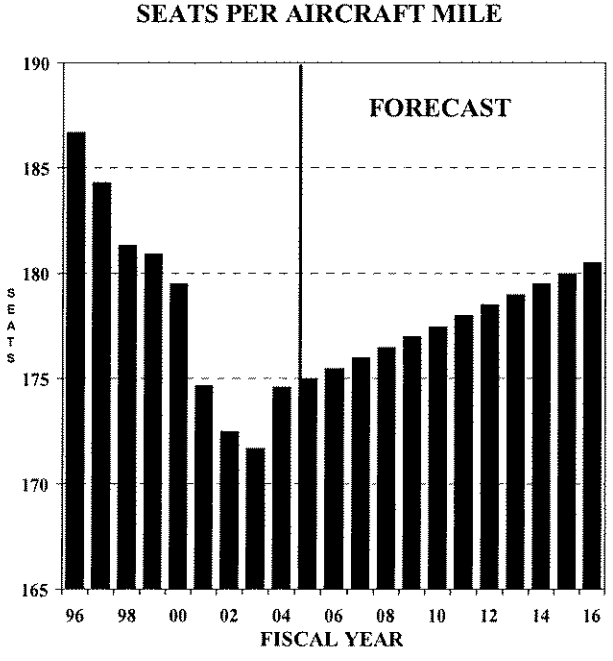


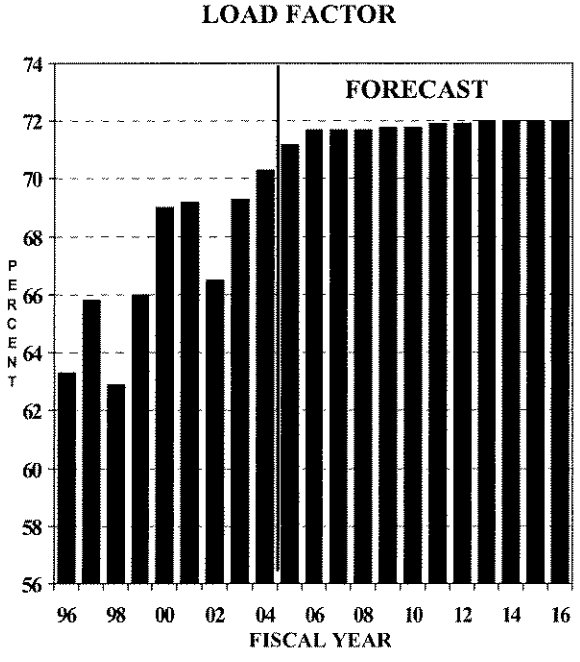
2004 DOLLARS



U.S. MAINLINE AIR CARRIERS: LATIN AMERICAN OPERATIONAL VARIABLES







Forecasts

Total Passengers: U.S. and Foreign Flag Carriers

Based on INS data, total passengers in the Latin American market (South America, Central America/Mexico, and the Caribbean) rose 5.0 percent in CY 2003. The Central America/Mexico region had the fastest growth at 7.1 percent, followed by the Caribbean region at 6.6 percent. The South American region declined 2.0 percent. During the period 1991-2001 the South American region had been the fastest growing with passengers increasing 6.2 percent annually. At the same time, the Central America/Mexico market increased 4.6 percent per annum, while the Caribbean market increased only 2.2 percent a year, reflecting the impact made by cruise traffic in the region.

For the sixth consecutive year, U.S. air carrier passenger share increased in the region, rising 1 point to 66.6 percent in 2003, as gains were recorded in all regions. In CY 2003 U.S. carrier passenger share was 74.0, 65.5, and 61.5 percent, respectively, in the Caribbean, South American, and Central America/Mexico regions.

Throughout most of the 1990's the percentage of total passengers that were U.S. citizens traveling in the Latin American market decreased steadily from 67.3 percent in 1990 to 63.4 percent by 1998. Beginning in 1999 the trend reversed itself and the ratio had increased to 65.2 percent in 2001. After falling by 1.8 points in 2002, the U.S. citizen ratio rose 4 points in 2003 as all regions saw gains in excess of 2.5 points led by a 5.8 point gain in the South America region.

Preliminary data for 2004 indicates that the growth in total passengers traveling in the Latin America market accelerated. Total passengers in the Latin America market are forecast to increase 10.5 percent in 2004, with U.S. carriers posting higher growth rates. In 2005, Latin American market passengers are projected to grow 7.5 percent with growth higher in the first half of the year. For the period 2006–2016, total passengers traveling in the Latin market are projected to increase at an average annual rate of 4.8 percent. Over the entire forecast period, total passengers in the Latin America market are projected to increase 5.1 percent per year, from 42.8 million in 2004 to 77.9 million in 2016.

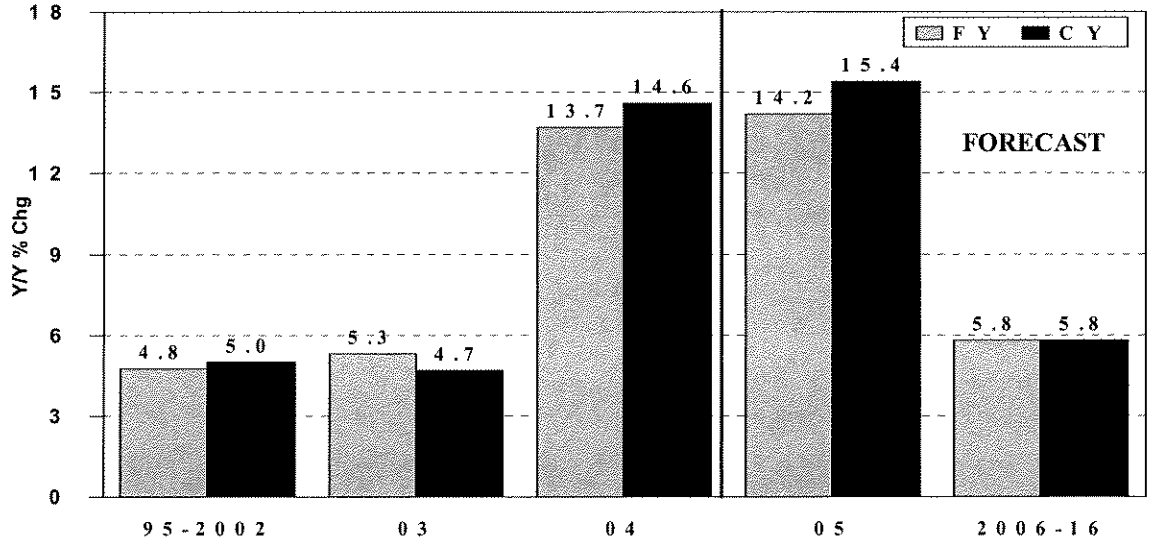
U.S. Mainline Carrier Passenger Enplanements

U.S. scheduled mainline air carriers in the Latin American market enplaned a total of 25.2 million passengers in 2004, up 12.9 percent from 2003. Year-over-year increases occurred in each quarter with the second quarter recording the highest increase at 16.0 percent. For the remaining quarters, year-over-year increases in passengers ranged between 7.0 to 13.8 percent.

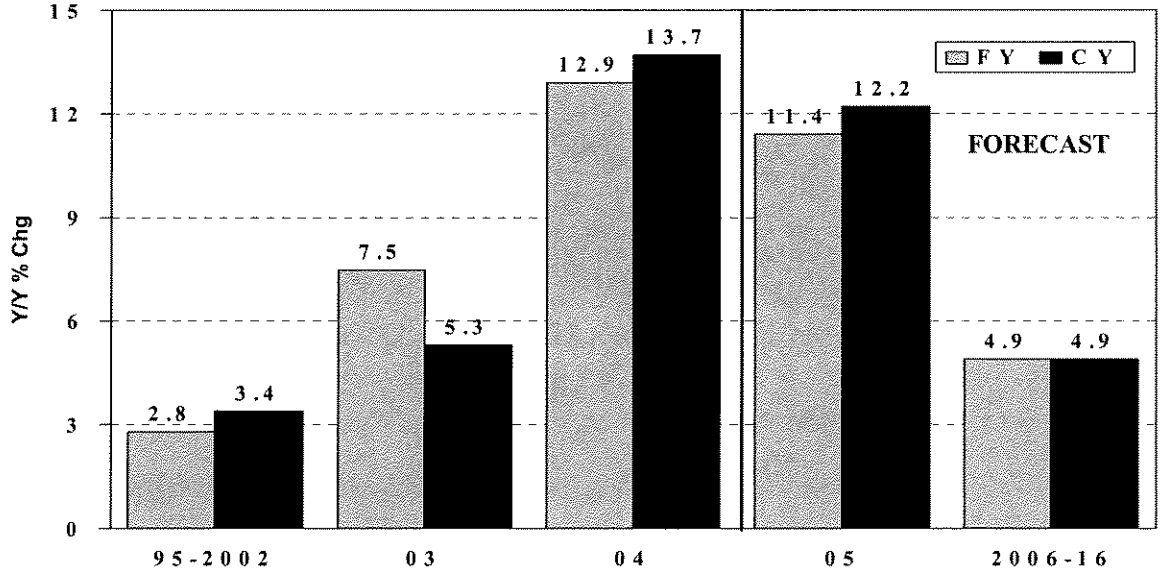
In 2005, passenger growth is forecast to remain robust (up 11.4 percent), with solid gains recorded throughout the year. For the remainder of the forecast, economic growth in both the U.S. and Latin America fuel enplanements upward at a rate of 4.9 percent per year. Enplanement growth is projected to average 5.5 percent annually during the 12-year forecast period, with Latin American market enplanements reaching 47.6 million in 2016.

U.S. MAINLINE AIR CARRIERS: LATIN AMERICAN FORECASTS

SCHEDULED REVENUE PASSENGER MILES



SCHEDULED PASSENGER ENPLANEMENTS



U.S. Mainline Carrier Revenue Passenger Miles

Following a 5.3 percent rise in 2003, U.S. mainline carriers RPMs in the market rose to 40.3 billion in 2004, a 13.7 percent increase. Year-over-year increases were posted in every quarter, with the largest increase in the second quarter.

RPMs are forecast to increase 14.2 percent in 2005 with growth evenly distributed throughout the year. For the balance of the forecast period RPMs are forecast to grow faster than enplanements, at 5.8 percent per year, as it is anticipated that demand in the deep South America markets will increase faster than in the Caribbean or Central American markets. The average annual increase in RPMs over the 12-year forecast horizon is 6.7 percent, reaching 87.8 billion in 2016.

PACIFIC MARKET

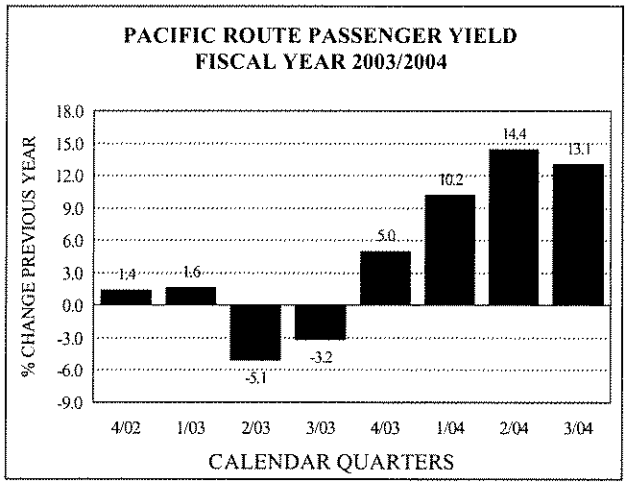
U.S. Mainline Air Carrier Yield and Operational Variables

Capacity

After falling in each of the prior 2 years, U.S. mainline carrier ASMs in Pacific markets grew 5.4 percent in 2004. Despite the rise in capacity in 2004, U.S. carrier capacity in the region is 22.7 percent below its 1997 peak. Capacity was down in the first half of the year as carriers remained hesitant to add back capacity that had been removed with the onset of the war in Iraq and the SARS epidemic. In the second half of the year capacity was up 19.1 percent versus 2003, reflecting the pull down in 2003. In 2005, capacity growth remains high with a projected increase of 14.2 percent. For the balance of the forecast period, capacity growth is projected to be more moderate, increasing an average of 5.1 percent per year. For the 12 year forecast period, average annual capacity growth is forecast to be 6.1 percent with ASMs in Pacific markets totaling 129.2 billion in 2016.

Passenger Yield

Rebounding demand and a weaker dollar led to a nominal yield increase in the Pacific market of 10.7 percent in 2004. Real yield in 2004 rose 8.2 percent following three years of declines. Nominal yield was up 5 percent in the first quarter, and then was up between 10 and 14 percent for the balance of the year.



A modest increase in yield is forecast in 2005. Year-over-year increases are forecast to diminish over the course of the year and turn to declines in the last quarter of the year.

For the year as a whole, nominal yield is forecast to increase 1.3 percent but fall 1.4 percent in real terms. For the balance of the forecast real yield declines averaging one percent per year are projected. Nominal yield reaches 11.15 cents by 2016--an increase of 1.4 percent a year.

Passenger Trip Length

Passenger trip length in Pacific markets fell 53.7 miles in 2004 to 4,365.9 miles. The decline in 2004 follows declines in 2002 and 2003. Decreases in trip length occurred at United, Northwest, and American. In 2005 the average trip length is forecast to increase 125.4 miles as capacity increases in the relatively longer haul markets of the region grow faster than overall regional capacity. For the remainder of the planning period—2006 through 2016--modest increases in trip length are projected with the trip length increasing an average of 10 miles per year, primarily due to more direct flights from non-coastal gateways and expanded service into the Asia/Pacific region. For the 12-year forecast period, the Pacific market trip length increases 241.7 miles from 4,365.9 to 4,607.6 miles.

Average Aircraft Size

For the fourth consecutive year, the average seats per aircraft mile in the Pacific market declined. The 2004 figure of 281.8 is the lowest since 1978. Large decreases in seats per aircraft mile at both Northwest and United occurred in the early part of the year reflecting the reduction in capacity (primarily B747's) that resulted from the outbreak of SARS in the region and the onset of the war in Iraq. The large decreases moderated in the third quarter as the prior year figures reflected the SARS and war in Iraq related capacity reductions.

Based on OAG schedules, average seats per aircraft mile are projected to increase in 2005. Average seats per aircraft mile in 2005 are forecast to increase by 0.8 seats to 282.6 seats and then grow slowly for the balance of the forecast. By 2016 average seats per aircraft mile are forecast to be 288.0 seats, up 6.2 seats from the 2004 figure.

Passenger Load Factor

In 2004 load factor in the Pacific market jumped 7.6 points to a record 84.2 percent as traffic rose 15.8 percent while capacity increased 5.4 percent. Year-over-year increases were recorded during the first 3 quarters of the year with the largest increase (16.8 points) in the third quarter. By the fourth quarter year-over-year gains in load factor had disappeared as the growth in traffic was being matched by increases in capacity.

Load factor is forecast to fall from the 2004 record levels to 81.5 percent as traffic growth slows a bit from 2004's pace while the capacity growth exhibited during the later half of 2004 continues on into 2005. Year-over-year load factor declines are projected for all quarters except the last quarter of the year. As traffic growth slows from its peak in 2004, load factor is projected to decrease to 81.0 percent by 2008, and remain at that level for the balance of the forecast as ASMs and RPMs expand at the same rate.

Forecasts

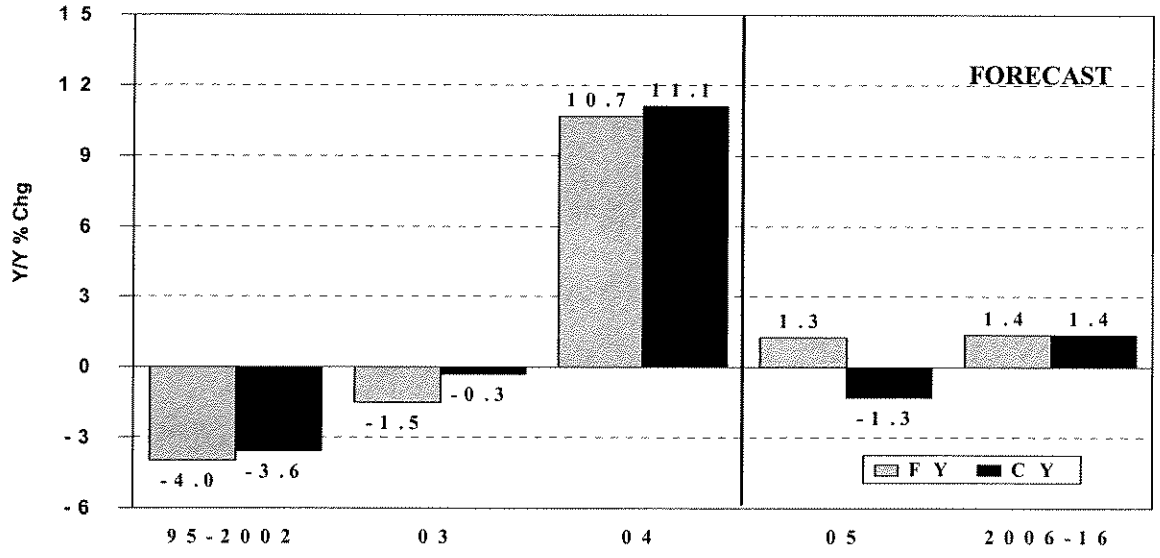
Total Passengers: U.S. and Foreign Flag Carriers

Based on INS data, total passengers in the Pacific market decreased 10.1 percent in CY 2003. This marked the third consecutive year of falling passenger counts in the region. U.S. carrier market share dropped 0.8 points from 36.6 percent to 35.8 percent.

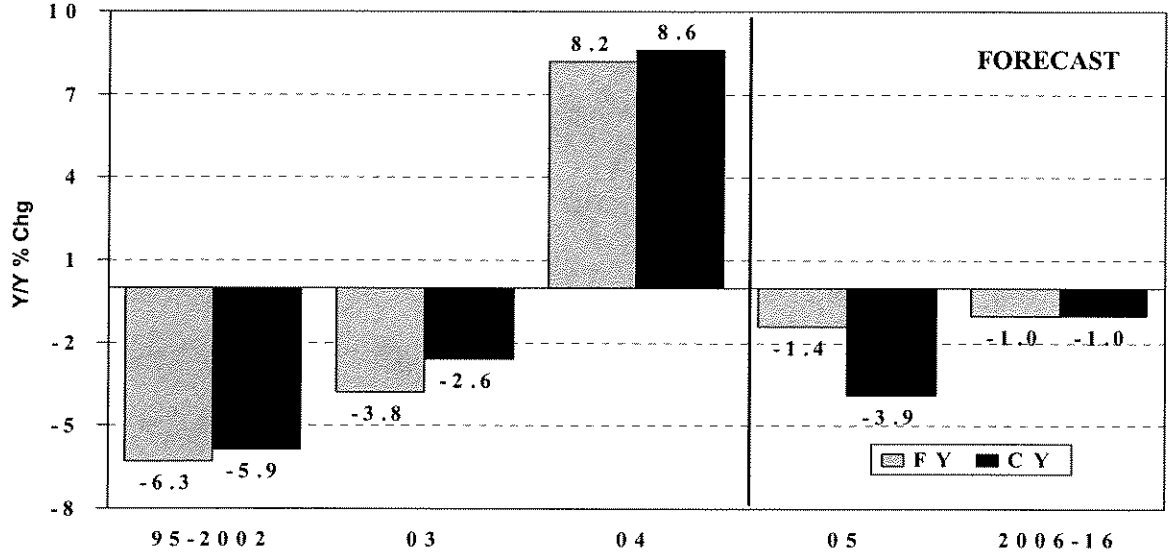
Preliminary data for 2004 indicate that traffic is rising while U.S. carrier share is declining. Passengers are projected to rise 17.7 percent

U.S. MAINLINE AIR CARRIERS: PACIFIC PASSENGER YIELD

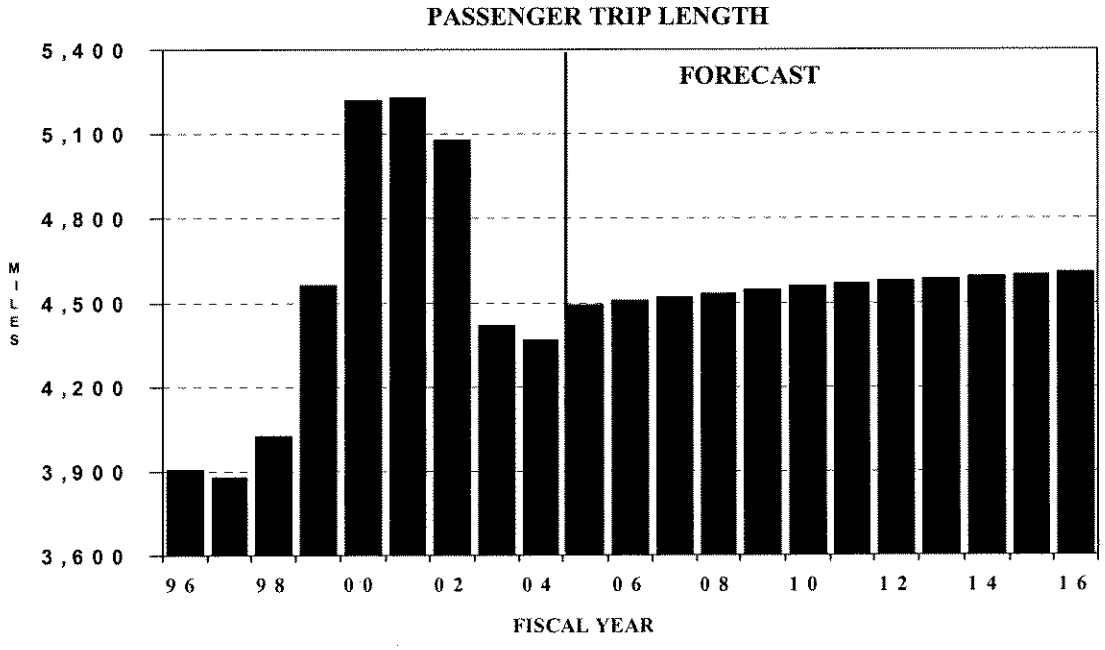
CURRENT DOLLARS

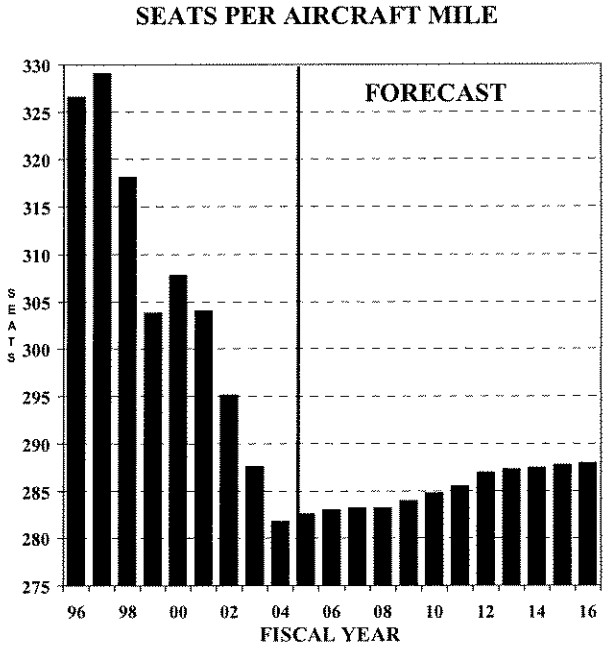


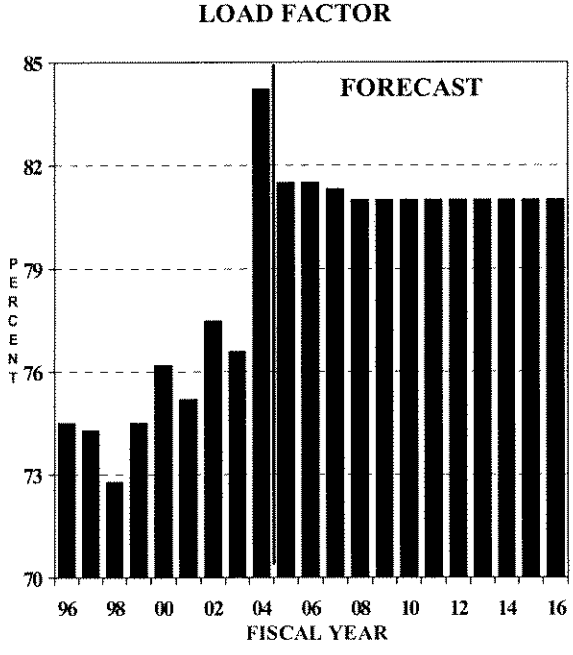
2004 DOLLARS



U.S. MAINLINE AIR CARRIERS: PACIFIC OPERATIONAL VARIABLES







during the year as U.S. carrier share slides another 0.5 points to 35.3 percent. In CY 2005 it is assumed that passenger growth of the U.S. flag carriers will still be below that of the Pacific market. Total Pacific region passengers are forecast to increase 11.6 percent in 2005 with the largest increase occurring in the 1st quarter.

For the period 2006 to 2016, passengers are forecast to increase an average of 4.6 percent per year fueled by strong economic growth in the Pacific region. Total passengers increase from 23.5 million in 2004 to 44.8 million in 2016, an average annual rate of 5.5 percent per year.

U.S. Mainline Carrier Passenger Enplanements

U.S. scheduled mainline air carriers in the Pacific market enplaned a total of 12.3 million passengers in 2004, up 17.3 percent from 2003. Year-over-year enplanements were flat with the prior year in the first quarter and up 9.8 percent in the second quarter before posting a 52.9 percent gain in the third quarter as the outbreak of SARS and the war in Iraq curtailed demand in the prior year. In 2005 passengers are forecast to be up 7.4 percent, with year-over-year increases projected for all quarters. For the period 2006 to 2016, passenger growth is projected to average of 4.8 percent annually. Enplanement growth is projected to average 5.3 percent annually during the 12-year forecast period, with Pacific market enplanements reaching 22.7 million in 2016.

U.S. Mainline Carrier Revenue Passenger Miles

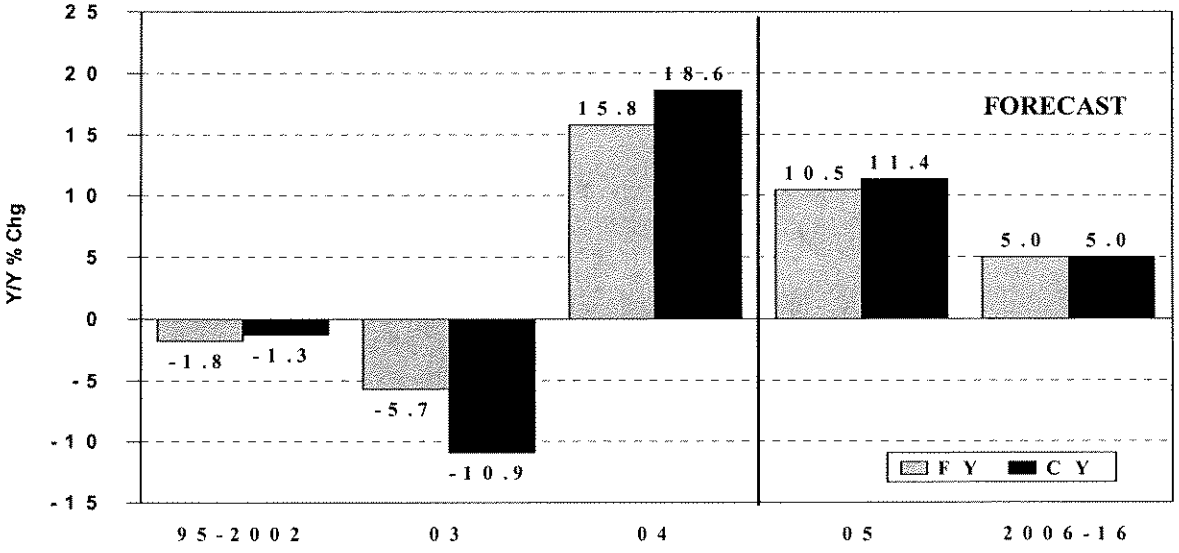
Traffic in the Pacific market increased 15.8 percent in 2004, following a 5.7 percent decrease in 2003. After being down 1.2 percent in the first quarter, year-over-year traffic was up the remaining 3 quarters, highlighted by a 55.4 percent increase in the third quarter. Growth is projected to continue in 2005, although not at the rates exhibited in 2004. RPMs are forecast to increase 10.5 percent with slightly faster growth in the second half of the year. Pacific market RPMs are forecast to increase an average of 5 percent per year from 2006 to 2016 as the economies of the region return to their long-term historical growth. RPMs grow at an average rate of 5.7 percent per year during the forecast, totaling 104.7 billion in 2016.

U.S./CANADA TRANSBORDER TRAFFIC

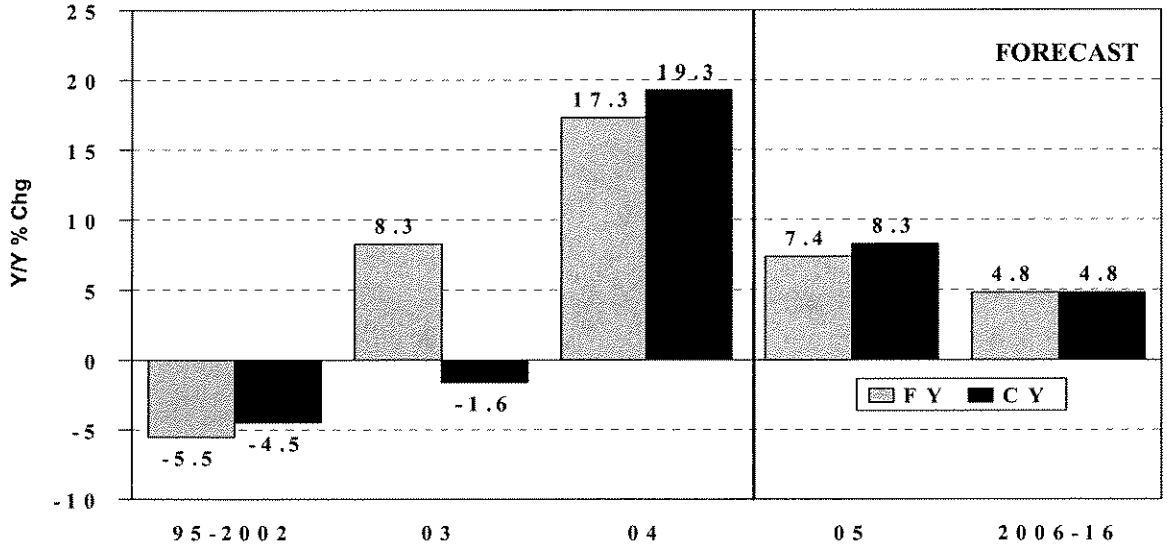
The transborder forecasts shown in this document (Chapter X, Table 7) were developed in conjunction with Transport Canada and FAA's projections of expected growth in this market. In CY 2004, transborder traffic is estimated to have grown for the first time in four years, rising 10.5 percent. The 2004 increase followed a 4.2 percent fall in passengers in 2003 caused by about SARS in Canada and a drop in demand with the war in Iraq. Passenger growth continues in 2005 with passengers up 9.3 percent. Over the balance of the forecast period passenger growth moderates averaging 2.8 percent per year. For the 12-year forecast period transborder traffic increases an average of 3.7 percent a year, totaling 29.8 million by 2016.

U.S. MAINLINE AIR CARRIERS: PACIFIC FORECASTS

SCHEDULED REVENUE PASSENGER MILES



SCHEDULED PASSENGER ENPLANEMENTS



AIR CARGO

Air cargo traffic is comprised of domestic and international revenue freight/express and mail. The demand for air cargo transportation is a derived demand resulting from economic activity. Cargo is moved in the bellies of passenger aircraft and in dedicated all-cargo aircraft, on both scheduled and nonscheduled service.

REVENUE TON MILES

Historic data and forecasts are presented for domestic and international cargo RTMs. In addition, within each of these two components trends and forecasts are presented for all-cargo carriers and passenger carriers. Passenger carriers transport cargo predominantly in the bellies of their aircraft.

The forecast of cargo RTMs could not be further disaggregated into freight/express and mail components due to a continuing reporting problem in the historic data. FedEx is reporting their activity under a contract with the U.S. Postal Service as freight/express, rather than as mail. This reporting, which began in August 2001, affects the consistency of the historic distribution between freight/express and mail RTMs.

In 2003 there were changes in the reporting requirements for cargo activity. The two most significant changes that affect the comparability with reported RTM figures before 2003 were: 1) the inclusion of contract service by U.S. carriers for foreign flag carriers and 2) the inclusion of activity by Airborne Express. The first change affects the consistency of international RTMs by all-cargo carriers and the second change affects the consistency of domestic RTMs by all-cargo carriers.

Industry Structure and Market Assumptions

Historically, air cargo activity has been highly correlated with GDP. Additional factors that have affected the growth in air cargo traffic include declining real yields, improved productivity, and globalization. Ongoing trends that could potentially stimulate demand for air cargo include increased market opportunities from open skies agreements, decreased costs from global airline alliances, and increased business volumes attributable to e-commerce. Ongoing trends that could potentially limit growth include increased use of e-mail, decreased costs of sending documents via facsimile, and the increased costs to airlines in meeting environmental and security restrictions.

Significant structural changes have occurred in the air cargo industry. Among these changes are the following:

- *Security regulations*
  In October, 2001 the FAA issued a new security directive under 14 CFR Part 108 to strengthen security standards for transporting cargo on passenger flights. This directive, which exempts all-cargo flights, was in response to the September terrorist attacks. This significantly impacted air cargo activity in 2002, including a shift from passenger carriers to all-cargo carriers. The Transportation Security Administration (TSA) issued additional security directives in November, 2003 requiring passenger carriers and all-cargo carriers to conduct random inspections of cargo.

  In November, 2004 TSA issued a notice of proposed rulemaking (NPRM) that applies security requirements throughout the supply chain and would impact airports, aircraft operators, indirect air carriers (freight forwarders), and foreign air carriers. The provisions of the NPRM that address aircraft

operators include codifying previous cargo screening requirements; codifying and further strengthening the "Known Shipper" program; and establishing a security program specific to all-cargo operations with aircraft with a maximum certificated takeoff weight of more than 45,500 kg.

- *Market maturation*
  The U.S. domestic express market, which grew rapidly in the 1980's and 1990's, has matured. This type of service represents the majority of domestic cargo activity

- *Modal shift from air to other modes (especially truck) is maturing*
  The majority of this shift, which resulted from improved service and economics of alternative modes, has already happened. The modal shift occurred for the integrated carriers (e.g., FedEx and United Parcel Service) and for the U.S. Postal Service.

- *Increased use of all-cargo carriers (e.g., FedEx) by the U.S. Postal Service to transport mail*
  This initially resulted from the need to improve control over delivery. The trend continued based on security considerations.

- *Increased use of mail substitutes*
  The use of substitutes (e.g., e-mail) affects mail volume. Residual fear of mail because of terrorism has also been a factor in the use of substitutes.

The forecasts of RTMs are predicated on several basic assumptions. These assumptions include the following: 1) security restrictions concerning air cargo transportation will remain in place; 2) there will be no additional terrorist attacks in the U.S. and confidence in flying will return; 3) there will be continued domestic and international economic growth; 4) most of the modal shift from air to ground has occurred; and 5) in the long-term cargo activity will be tied to economic growth. Specific factors and assumptions affecting the domestic and international components of air cargo activity are noted in the following section.

The forecasts of cargo RTMs were prepared by considering the changes in industry structure and market assumptions discussed above. The near-term forecasts were also based, in part, on a consideration of economic conditions and discussions with industry representatives. These discussions included talks with cargo carriers and cargo consultants. The long-term forecasts of RTMs were based primarily on regressions with GDP. Forecasts of domestic cargo RTMs were developed from a regression equation using real U.S. GDP as the independent variable. Projections of international cargo RTMs were derived from an equation based on world GDP, adjusted for inflation. The distribution of RTMs between passenger carriers and all-cargo carriers was forecast based on an analysis of historic trends in shares; the changes in industry structure and market assumptions; and discussions with industry representatives.

Growth in domestic cargo RTMs has been dominated by all-cargo carriers. These carriers have significantly increased their market share, accounting for approximately three-quarters of domestic cargo RTMs in 2004. FedEx and United Parcel Service (UPS) are the two largest domestic all-cargo carriers. Both of these carriers are integrated carriers who provide door-to-door service using intermodal systems. International cargo RTMs have increased more rapidly than domestic cargo RTMs since 1990. This reflects the lower stage of maturation of international air cargo markets and the expansion of trade with open skies agreements.

Revenue Ton Miles Forecast

The total number of air cargo RTMs flown by U.S. commercial air carriers was 35.1 billion in 2004, an increase of 4.8 percent over 2003. This increase reflects the growth in domestic and worldwide economic activity. Furthermore, cargo activity is a leading economic indicator and thus reflects the economic growth projected for 2005.

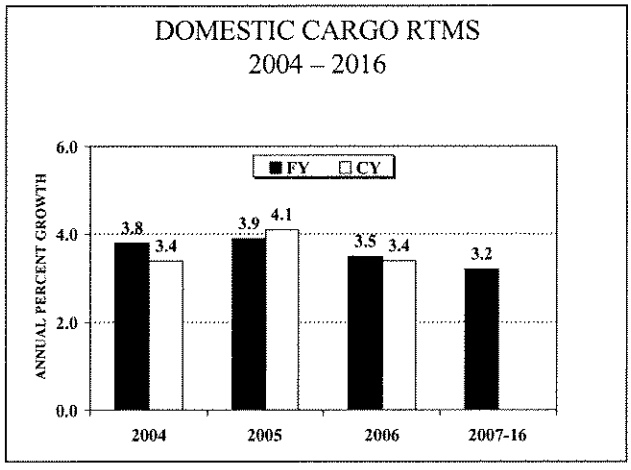
Total RTMs are forecast to increase 5.5 percent in 2005 and 5.2 percent in 2006. Over the 10-year period from 2007 to 2016, total RTMs are forecast to increase at an average annual rate of 5.1 percent, based primarily on economic growth. The forecast level of 63.8 billion RTMs in 2016 represents an average annual increase of 5.1 percent over the entire forecast period.

Domestic Revenue Ton Miles[10]

Domestic cargo RTMs flown by U.S. commercial air carriers were 15.5 billion in 2004, an increase of 3.8 percent. This increase was due to economic growth in the U.S. Domestic cargo RTMs are forecast to increase 3.9 percent in 2005 and 3.5 percent in 2006 based on strong economic activity. Over the 10-year period from 2007 to 2016, domestic cargo RTMs are forecast to increase at an average annual rate of 3.2 percent, based on projected growth in U.S. GDP. The forecast level of 22.9 billion RTMs in 2016 represents an average annual increase of 3.3 percent over the entire forecast period.

The freight/express component of domestic air cargo is highly correlated with capital spending. Consequently, the growth of this component in the future will be tied to improvements in the economy. The mail component of domestic air cargo will be affected by overall mail volume, which is related to the economy. This component will also be impacted by the increased use of substitutes (e.g., e-mail) and possible residual fear related to terrorism.

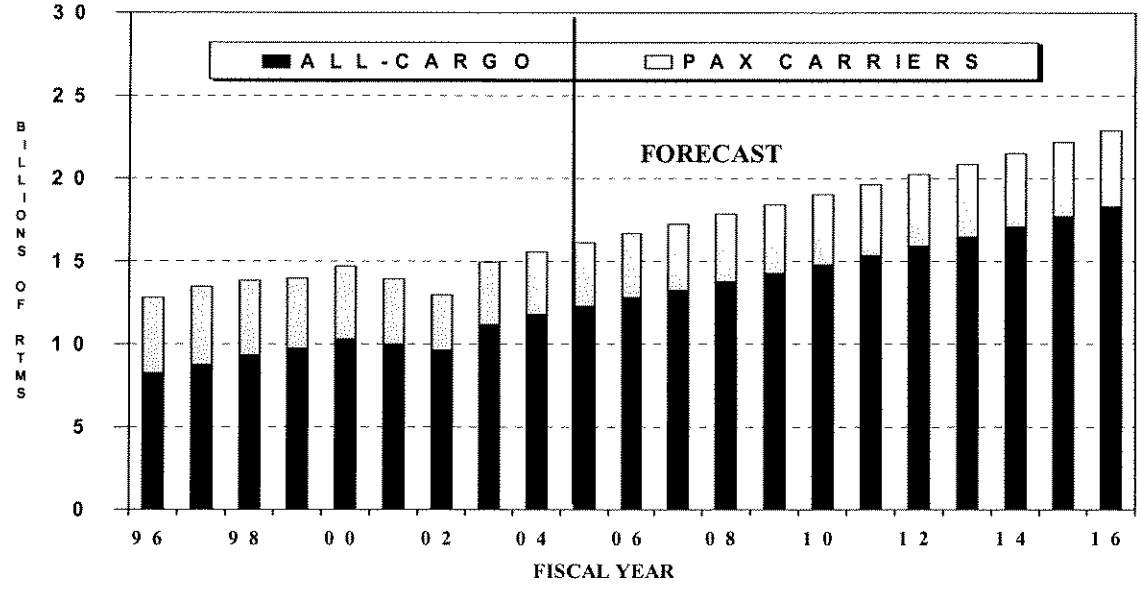
Historically all-cargo carriers have increased their share of domestic cargo RTMs flown, from 64.6 percent in 1996 to 75.9 percent in 2004. This has resulted from the significant growth of express service by FedEx and United Parcel Service and the lack of growth of domestic freight/express business for passenger carriers. In addition, recent factors which account for the relative growth of the all-cargo sector include the October, 2001 FAA security directive for passenger carriers; the U.S. Postal Service use of all-cargo carriers as a means to improve control over mail delivery; and the inclusion of Airborne Express. The all-cargo share is forecast to increase to 80.0 percent by 2016 based on the advantages of the integrated carriers.



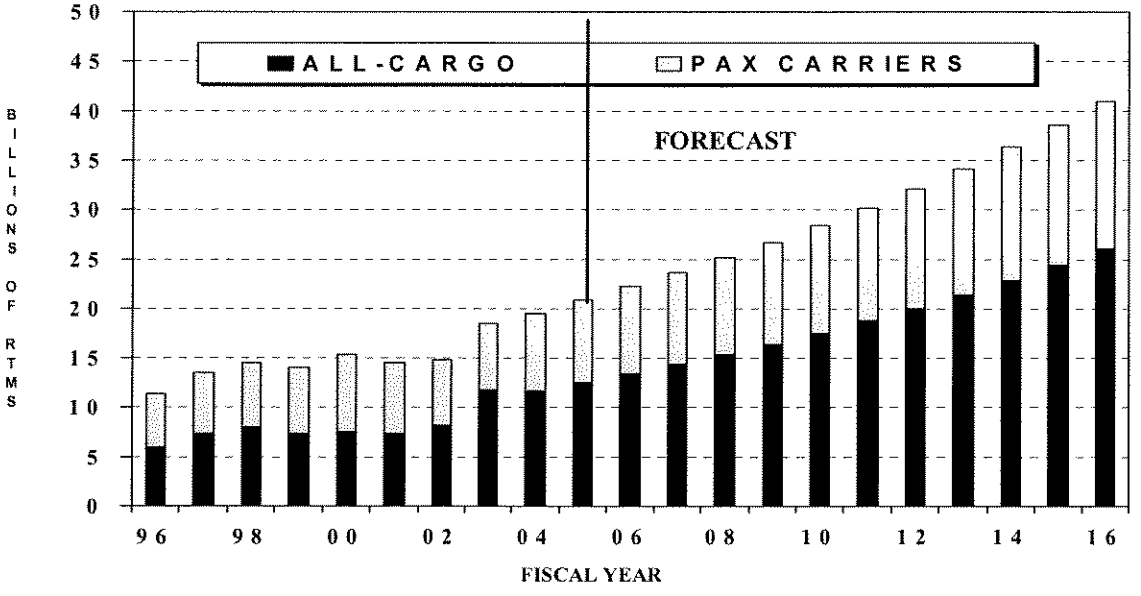
[10] For the 12 months ending July 2001, domestic cargo RTMs were comprised of 83.6 percent freight/express and 16.4 percent mail. Therefore, the domestic cargo RTM forecast discussed below is driven largely by factors that impact domestic freight/express.

U.S. COMMERCIAL AIR CARRIERS: CARGO REVENUE TON MILES *

DOMESTIC



INTERNATIONAL

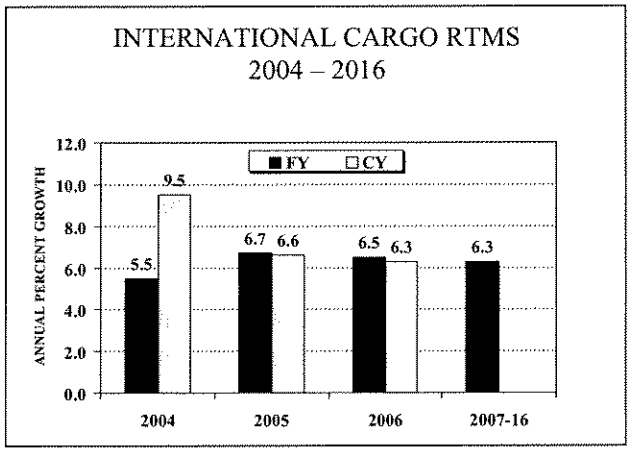


* 2003, 2004, and forecast includes changes in reporting requirements

International Revenue Ton Miles[11]

International cargo RTMs flown by U.S. commercial air carriers were 19.6 billion in 2004, an increase of 5.5 percent over 2003. This increase was due to the economic growth of world GDP. Increases in international cargo activity for 2004 also reflect increased activity from the war in Iraq. International cargo RTMs are forecast to increase 6.7 percent in 2005 and 6.5 percent in 2006 due to improvements in the world economy and expansion in trade with open skies agreements. Over the 10-year period from 2007 to 2016, international cargo RTMs are forecast to increase at an average annual rate of 6.3 percent based on projected growth in world GDP. The forecast level of 40.9 billion RTMs in 2016 represents an average annual increase of 6.3 percent over the entire forecast period. The growth may vary by world region depending on regional economic activity and the predominance of individual carriers.

Both the freight/express and mail components of international cargo will be affected by economic growth. The mail component will also be affected by some residual fear of terrorism as well as improvements in mail delivery services.



[11] For the 12 months ending July 2001, international cargo RTMs were comprised of 96.5 percent freight/express and 3.5 percent mail. Consequently, the international cargo RTM forecast discussed below is overwhelmingly driven by factors that impact international freight/express.

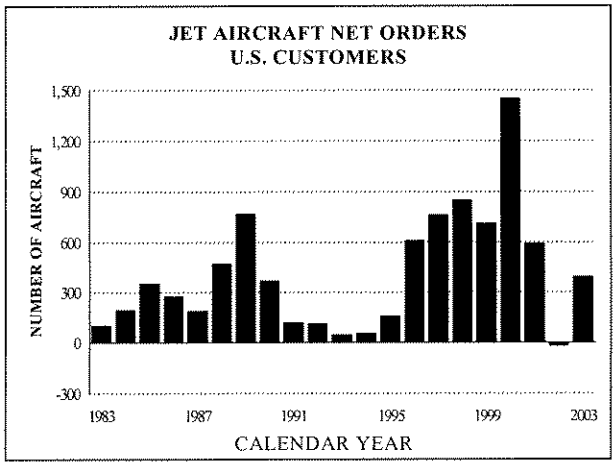
All-cargo carriers increased their share of international cargo RTMs flown from 52.0 percent in 1996 to 59.7 percent in 2004. This increase has resulted from the demand for expedited service and includes the change in reporting of contract services. The all-cargo share is forecast to increase to 63.6 percent by 2016 due to increased capacity.

MAINLINE AIR CARRIER FLEET

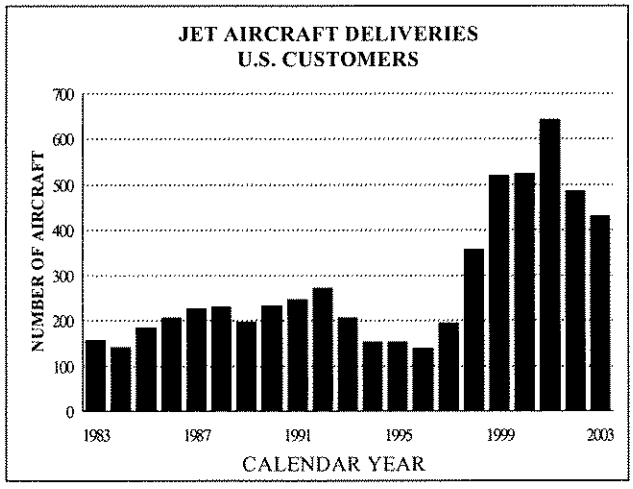
Commercial Orders & Deliveries

In CY 2003, U.S. air carriers placed orders for an estimated net total of 395 jet aircraft, spurred by large orders of regional jets. The 2003 total represents an increase of 405 net orders from the 2002 figure of –12.

In 2003, orders for regional jets (CRJs and EMBs) totaled 246, 62.3 percent of the total orders. Net orders for narrow-body two-engine aircraft (A-318/319/320/321 and B-717/737/757) totaled 141, or 35.7 percent of the total. Net orders for two-engine wide-body aircraft (A-300/330 and B-767/777) were 9 while there was 1 cancellation of an A340.



Aircraft manufacturers delivered 431 jet aircraft to U.S. customers in CY 2003—11.1 percent fewer than in 2002. Of this total, 110 (25.5 percent) were two-engine narrow-body aircraft, 30 (7.0 percent) were for two-engine wide-body aircraft, and 291 were for regional jets (67.5 percent).



Passenger Jet Aircraft

In CY 2004, the fleet of passenger jet aircraft for U.S. mainline air carriers increased by an estimated 23 aircraft to 4,046 aircraft. This marks the first increase in the fleet following 3 consecutive annual declines. Despite the increase, the U.S. mainline air carrier passenger jet fleet remains 416 aircraft (9.4 percent) below the CY 2000 peak of 4,462 aircraft. Two categories had net increases: two-engine narrow-body aircraft (up 20 or 0.6 percent), and the two-engine wide-body aircraft (up 14 or 3.0 percent).

Based on the backlog of aircraft orders and the projections of air carrier traffic, seat capacity, load factors, fleet requirements, and aircraft productivity, the U.S. large commercial air carrier passenger fleet is projected to increase from an inventory of 4,046 aircraft in 2004 to 5,999 aircraft by 2016. This involves a net addition to the fleet (after retirements of obsolete aircraft) of approximately 163 aircraft annually.

The two-engine narrow-body fleet is projected to grow by an average of 136 aircraft annually, spurred on by a large increase in the low cost carrier fleet. By 2016, two-engine narrow-body aircraft are expected to account for 83.8 percent of the fleet. The number of three-engine narrow-body (B-727) aircraft declines from 65 aircraft (1.6 percent of fleet) in 2004 to 58 (1.0 percent of fleet) by 2016. The number of four-engine narrow-body aircraft was zero in 2004 and remains at that level throughout the balance of the forecast.

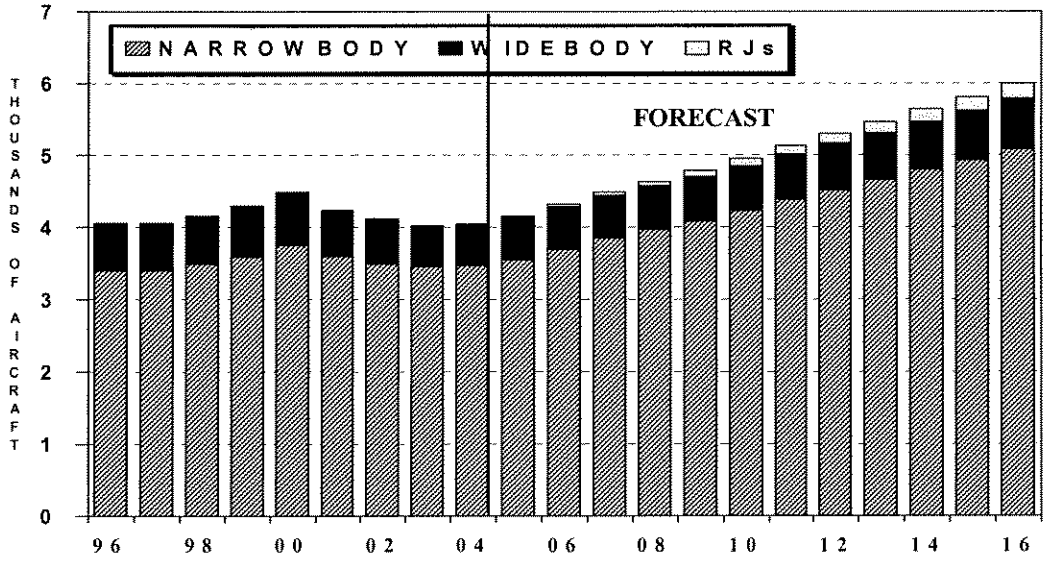
The fleet of two-engine wide-body aircraft (A-300/310/330 and B-767/777) is the fastest growing of the wide-body group. This group is expected to increase by an average of 12 aircraft per year (2.3 percent), expanding from 478 aircraft in 2004 to 627 aircraft in 2016.

The three-engine wide-body fleet (MD-11, DC-10, and L-1011) is projected to shrink at an average annual rate of 11.4 percent, from 34 aircraft in 2004 to just 8 aircraft in 2016.

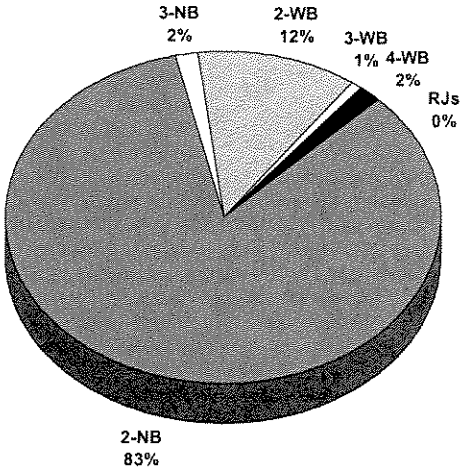
Four-engine wide-body (B-747 and A-340) aircraft are forecast to decline from 66 aircraft in 2004 to 58 aircraft in 2016, an annual average decrease of 1.1 percent.

The regional jet fleet for the mainline air carriers consisting of aircraft ranging in size from 35 to 70 seats, is forecast to expand from 4 aircraft in 2004 to 219 aircraft in 2016, an increase of 39.6 percent a year. By 2016 the regional fleet will account for 3.7 percent of the mainline carrier passenger jet fleet; in 2004 the regional jet fleet accounted for only 0.1 percent of the fleet.

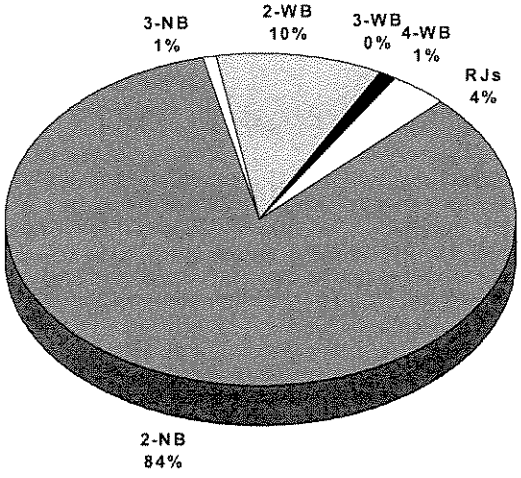
U.S. MAINLINE AIR CARRIERS: PASSENGER JET AIRCRAFT



PERCENT BY AIRCRAFT TYPE



2004



2016

Cargo Jet Aircraft

In CY 2004, the jet fleet of U.S. air carrier cargo aircraft decreased by 1.9 percent to 974 aircraft. Based on the backlog of aircraft orders and the projections of air cargo demand, the U.S. commercial cargo fleet is projected to increase to 1,312 aircraft by CY 2016. This involves an average net addition to the fleet (after retirements of obsolete aircraft) of 28 aircraft annually or 2.5 percent per year.

Narrow-body aircraft, which accounted for 54.2 percent of the cargo fleet in 2004, are projected to account for 38.6 percent in 2016. The fleet of two-engine remains constant over the forecast period at 174. Narrow-body three-engine aircraft decrease from 243 aircraft in 2004 to 231 aircraft in 2016. Narrow- body four-engine aircraft total 111 in 2004 and fall to 101 in 2016.

Wide-body aircraft accounted for 45.8 percent of the cargo fleet in 2004. The fleet of wide-body aircraft is forecast to increase to 61.4 percent of the cargo fleet in 2016. The largest increase in the number of wide-body aircraft is projected to occur in the two-engine wide-body category. This category grows an average of 24 aircraft per year (7.3 percent annually), expanding from 215 aircraft in 2004 to 498 aircraft in 2016.

The three-engine wide-body fleet is projected to increase an average of 5 aircraft annually, or 2.6 percent, over the forecast period from 170 aircraft in 2003 to 232 aircraft in 2016. Conversions of DC-10 passenger aircraft to MD-10's and new MD-11F orders drive the growth in this category. The four-engine wide-body aircraft fleet increases an average of 1.3 percent per year, from 61 aircraft in 2004 to 76 aircraft in 2016. Similar to last year's forecast, the current forecast does assume a number of A380's entering the U.S. fleet beginning in 2008.

AIRBORNE HOURS

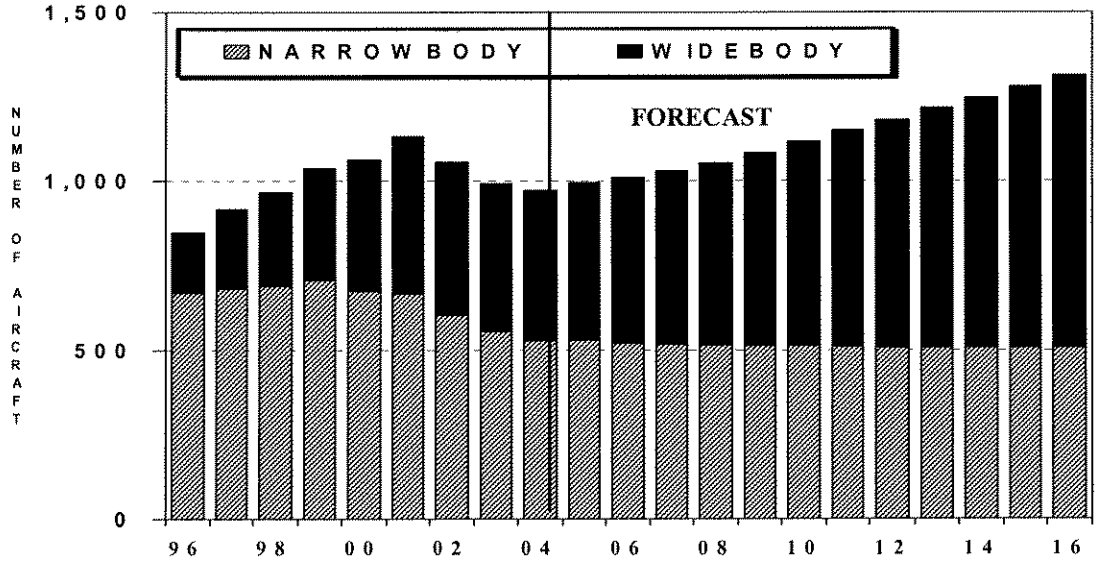
U.S. mainline air carriers (passenger and cargo but excluding regional jets) flew an estimated 13.7 million hours in 2004, up from 13.3 million hours in 2003. The increase in hours was driven by increases in activity spurred by strong passenger demand. Two-engine aircraft accounted for more than 91 percent of total airborne hours: narrow-body (76.5 percent), and wide-body (15.1 percent).

In 2016, the total number of hours is forecast to expand to 20.8 million, an average annual increase of 3.5 percent. Airborne hours are projected to increase 4 percent in 2005 to 14.3 million, and then increase at an average rate of 3.4 percent between 2006 and 2016.

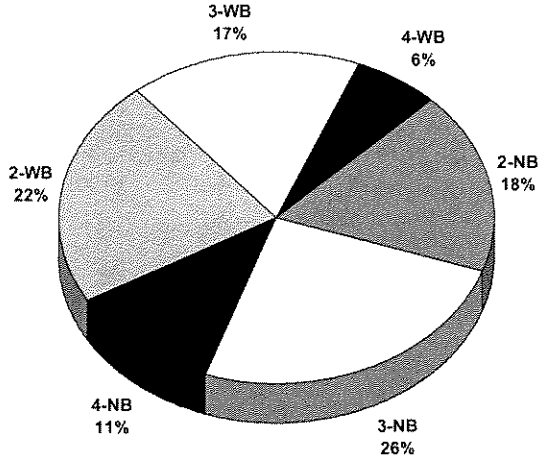
Two-engine aircraft (both narrow-body and wide-body) are expected to account for 94.1 percent of all airborne hours flown in 2016. Narrow-body two-engine aircraft hours, which make up 77.1 percent of total hours in 2016, increase an average of 3.6 percent per year. Wide-body two-engine aircraft hours are forecast to increase 4.6 percent per year and account for 17.0 percent of total hours in 2016. Four-engine wide-body aircraft hours are forecast to increase an average of 0.4 percent.

The number of hours flown by three-engine aircraft is projected to increase slightly through 2016. Three-engine wide-body hours flown are forecast to increase 1.4 percent a year, reflecting the growth in cargo operations. Three-engine narrow-body aircraft hours are forecast to fall 1.5 percent annually, reflecting the retirement of B-727 aircraft and the increasing proportion of cargo aircraft in this fleet. Hours for the four-engine narrow-body fleet, made up primarily of DC-8 cargo aircraft, decrease at a rate of 0.8 percent a year, reflecting the retirement of these aircraft from the fleet.

U.S. MAINLINE AIR CARRIERS: CARGO JET AIRCRAFT



PERCENT BY AIRCRAFT TYPE



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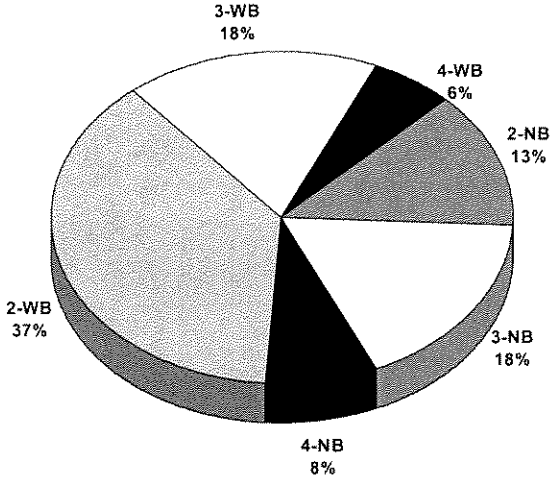
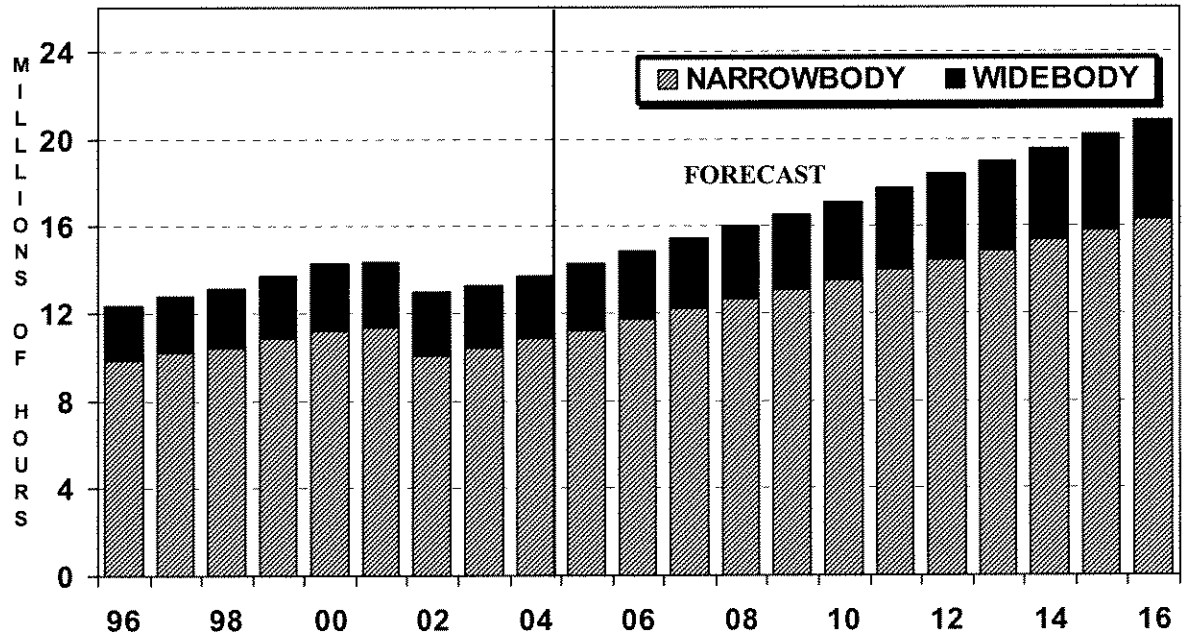
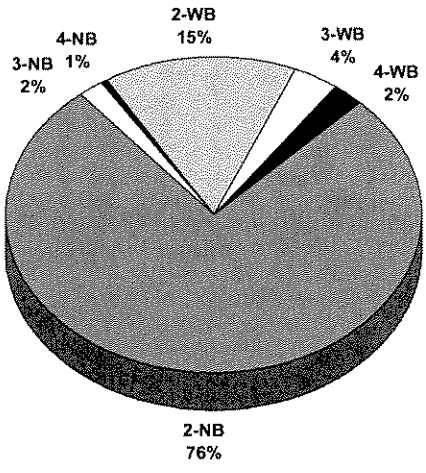


2016

U.S. MAINLINE AIR CARRIERS: AIRBORNE HOURS 1/



PERCENT BY AIRCRAFT TYPE



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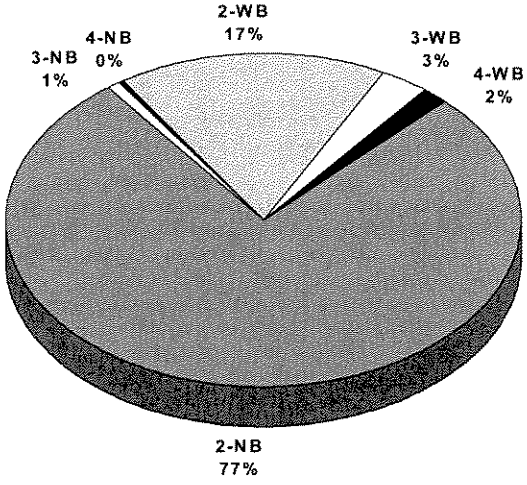


2016

1/Includes both passenger (excluding regional jets) and cargo aircraft.

CHAPTER IV

REGIONALS/COMMUTERS

For purposes of the Federal Aviation Administration (FAA) forecasts, air carriers that are included as part of the regional/commuter airline industry meet three criteria. First, a regional/commuter carrier flies a majority of their available seat miles (ASMs) using aircraft having 90 seats or less. Secondly, the service provided by these carriers is primarily regularly scheduled passenger service. Thirdly, the primary mission of the carrier is to provide connecting service for its code-share partners.

During 2004, 79 reporting regional/commuter airlines met this definition. Monthly traffic data for these carriers is compiled from the Department of Transportation's (DOT) Form 41 and T-100 filings. Smaller certificated and commuter carriers continue to file financial data using Form 298C.

REVIEW OF 2004[1]

The positive results for the regional/commuter industry this year reflect a trend that commenced with the events of September 11, 2001, was followed by the war in Iraq and Severe Acute Respiratory Syndrome (SARS), and further drawn out by the arrival of high oil prices. During this period, the regional/commuter carriers benefited from the continuing financial struggles of the mainline carriers as they shed capacity and turned over many thin routes to their code sharing regional/commuter partners. The failure of the legacy carriers to capture high business fares, in conjunction with their more costly pay structures, has made competition with the low-cost carriers difficult, at best.

The compression of mainline carrier fares is impacting the regional/commuter industry. In order to remain viable competitors, the legacy carriers have renegotiated with their regional affiliates lower "fixed fees per flight" contracts and prorated fare bases for connecting flights. Although still registering strong revenues, the longer trip distances and renegotiated contracts has led to declining yields for the regional/ commuter carriers.

As well, many of the mainline carriers negotiated a "relaxed" scope clause with their pilot unions. These clauses are agreements between mainline carriers and their regional affiliates that define the size and number of regional jets an affiliate may have and/or the amount of flying that the affiliate can undertake.

[1]All specified years in this chapter are fiscal year (October 1 through September 30) unless otherwise designated.

The relaxation of these clauses has led to a shift in both the type and size of aircraft operated by the regional/commuter carriers. As recently as 2000, 75 percent of the regional/commuter fleet (over 2,200 aircraft strong) was composed of piston and turboprop aircraft. At present, over 50 percent of the regional/commuter fleet is comprised of jet aircraft with this percentage expected to grow to just under 75 percent by the end of 2016.

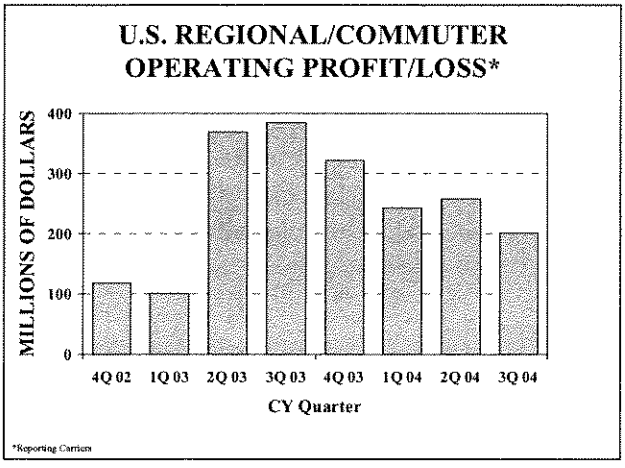
The relaxation of scope clauses is leading to a convergence of the U.S. airline fleet. The regional/commuter operators are moving toward larger jet aircraft (e.g. US Airways' order for Embraer 170 70-seat aircraft, and Independence Air's order for Airbus A-319 132-seat aircraft), while some of the large carriers are shifting toward smaller aircraft (e.g. Jet Blue's order for the Embraer 190 100-seat aircraft). This blending of the fleet is of note for both the users and providers of the national air transportation system. Increasing numbers of regional jets and smaller mainline equipment provides more choices for passengers but will add to congestion as more operations are required to move people.

To demonstrate how the mix of aircraft in the fleet is changing, an analysis of the Official Airline Guide (OAG) for Atlanta Hartsfield International (ATL), Chicago O'Hare International (ORD), and Dallas/Fort Worth International (DFW) was undertaken. A comparison of flights during the year 2000 at these airports shows that turboprop and piston powered aircraft accounted for 13.0 percent of commercial operations at ATL, 8.4 percent at ORD, and 26.3 percent at DFW. By 2004, scheduled commercial operations by turboprop and/or piston powered aircraft had declined to 5.4 percent at ATL and down to 6.3 percent at DFW. ORD no longer received scheduled commercial service from anything other than jet powered aircraft.

FINANCIAL RESULTS

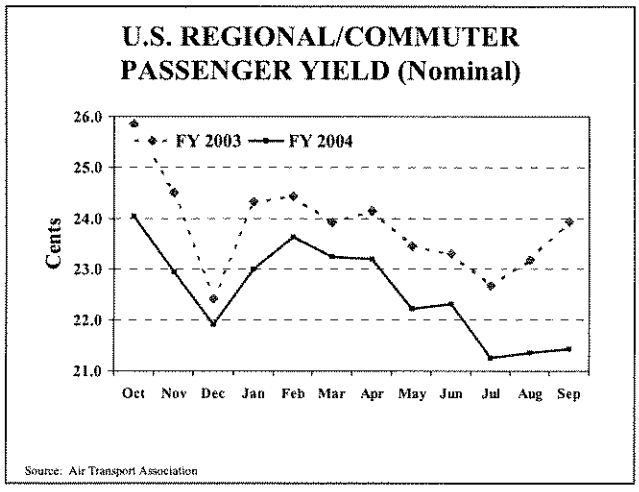
For the 12 months ended September 2004, the reporting regional/commuter carriers posted an operating profit of $1.0 billion. The majority of the profits occurred during the October-December quarter of 2003. During this period, the carriers posted operating profits totaling $321.8 million. Operating profits for fiscal year 2004 are 5.1 percent higher than those for fiscal year 2003.

The regional/commuter carriers have reported 11 consecutive quarters of operating profits (starting with January 2002 and going through September 2004). Prior to January 2002, the regionals/commuters reported four straight quarters of operating losses.



Operating revenues for fiscal year 2004 were $11.2 billion, a 10.4 percent increase over the previous year. Operating expenses during the same period were $10.2 billion, an increase of 7.8 percent over the previous year.

Nominal yield for a select group of the regional/commuter carriers during fiscal year 2004 was 22.5 cents. This is a decline of 5.8 percent from a yield of 23.8 cents during the previous 12-month period.



SCHEDULED CAPACITY AND TRAFFIC

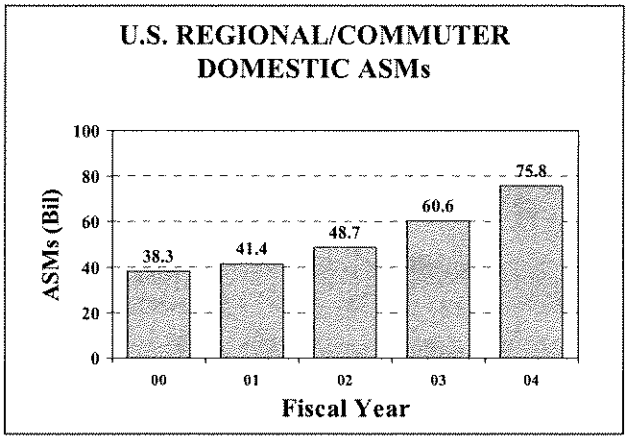
During 2004, system available seat miles (ASMs) increased 25.0 percent to 78.1 billion, while RPMs rose 31.2 percent to 53.1 billion. This resulted in the system load factor increasing by 3.2 points to 67.9 percent. System regional/commuter passengers totaled 128.9 million in 2004, 18.7 percent over 2003 levels. These carriers accounted for 18.7 percent of commercial enplanements in 2004, up from 11.9 percent in 2000 and 8.6 percent in 1991.

Domestic Capacity and Traffic

The domestic regional/commuter database includes activity for all U.S. regionals/ commuters operating in the 48 contiguous states, Alaska, Hawaii, Puerto Rico, and the U.S. Virgin Islands. It also includes transborder traffic into Canada.

Available Seat Miles

Domestic scheduled U.S. regional/commuter ASMs are up 97.8 percent over the last 4 years, and up 25.1 percent in 2004 alone. During the 9-year period prior to 2001, domestic ASMs increased at an average annual rate of 10.1 percent.



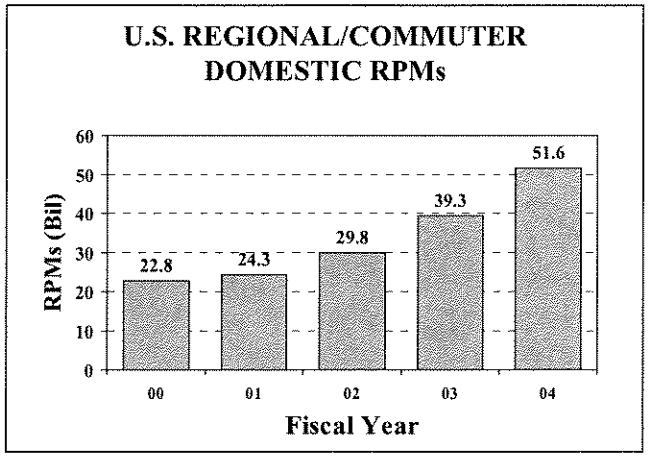
The large increase in domestic ASMs during 2004 is partly due to the continuing transfer of mainline carrier routes to their regional affiliates and code-share partners. During 2002 and 2003, the route transfers could be attributed to two unanticipated events that postponed the recovery of demand for mainline air carrier transportation services—the war in Iraq and SARS. However, during 2004, route transfers resulted as the legacy carriers struggled to survive in spite of high oil prices. Again the regionals/commuters benefited from mainline air carrier schedule reductions, demonstrating that financial struggles in the mainline air carrier industry are often met by strong results for the regionals/commuters.

Revenue Passenger Miles

Domestic RPMs are up 126.0 percent over the last 4 years, and up 31.2 percent in 2004, totaling just under 51.6 billion. This compares to an average annual increase of 13.1 percent during the 9 years prior to 2001. The large growth in RPMs results from the same factors as

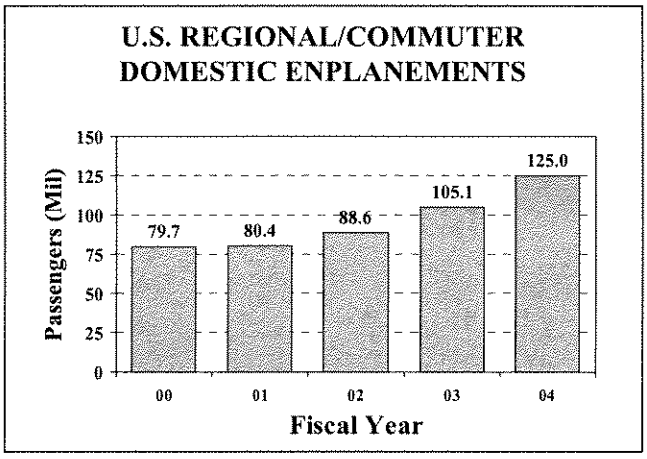
ASM growth, but is also partially due to the number of larger (50-90 seat) regional jet aircraft that have entered the fleet and the longer-haul routes that are being served by these aircraft.

The higher growth in RPMs relative to ASMs (31.2 percent vs. 25.1 percent) increased the domestic load factor 3.1 points to 68.0 percent in 2004. Since 1991, the regional/commuter load factor has increased 21.3 points, from 46.7 percent.



Passenger Enplanements

From 1991-2000, domestic enplanements increased at an average annual rate of 7.9 percent. In 2004, domestic enplanements increased at over twice this rate (19.0 percent) to 125.0 million. Regional/commuter carriers accounted for 19.9 percent of total domestic enplanements in 2004, up from its share of 17.9 percent in 2003, and 12.4 percent in 2000.



The slower growth in passengers relative to RPMs during 2004 (19.0 versus 31.2 percent) is largely due to the fact that the average passenger trip length increased 38.4 miles. This, in part, reflects the longer stage length of the routes being transferred from the larger code-sharing partners and the addition of point-to-point routes that had not been previously served by regionals/commuters or mainline carriers. Since 2000, the average passenger trip length has increased 126.2 miles. The passenger trip length has increased over two fold since 1991, increasing from 185.9 miles to the current 412.7 miles.

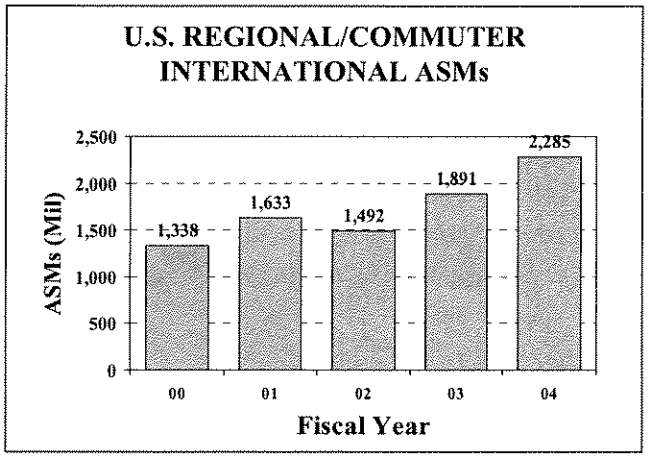
International Capacity and Traffic

The international regional/commuter database includes activity between the United States or its territories, and the Caribbean and Mexico.

Available Seat Miles

Regional/commuter international capacity accounts for only 2.9 percent of the total capacity flown by these carriers in 2004. For the year, scheduled international ASMs totaled 2.3 billion, an increase of 20.9 percent over 2003. Since 2000, the international ASMs flown by the regional/commuter carriers is up 70.8 percent. During the 9 years prior to 2001,

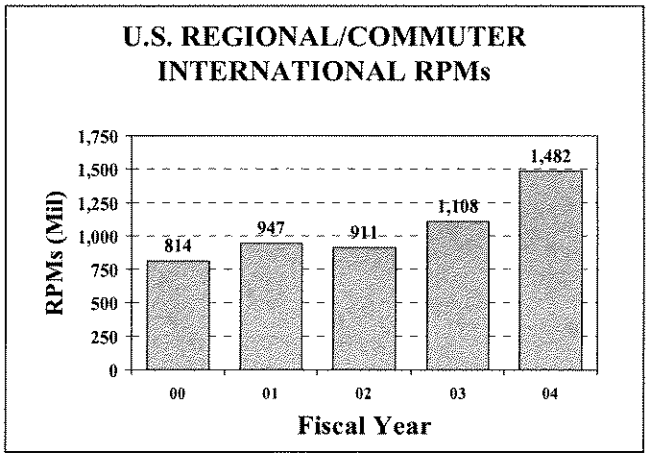
the average annual growth in international ASMs was 15.9 percent. The Official Airline Guide (OAG) indicates that almost 54.0 percent of the regional/commuter international ASMs are flown to Mexico destinations, up from 40.0 percent in 2003.



Revenue Passenger Miles

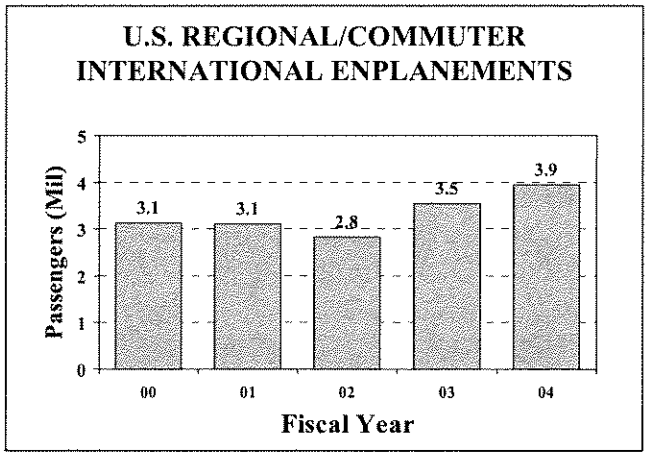
International RPMs for 2004 were up 33.8 percent to 1.5 billion. This compares to an average annual growth rate of 16.0 percent for the period 1991 through 2000. RPMs in the regional/commuter market have increased 82.1 percent since 2000.

The load factor in 2004 was 64.9 percent, up from a load factor of 60.8 percent posted in 2000. The highest load factor in the 9 years prior to 2001 occurred in 1997 (64.7 percent), and the lowest load factor occurred in 1995 (59.2 percent).



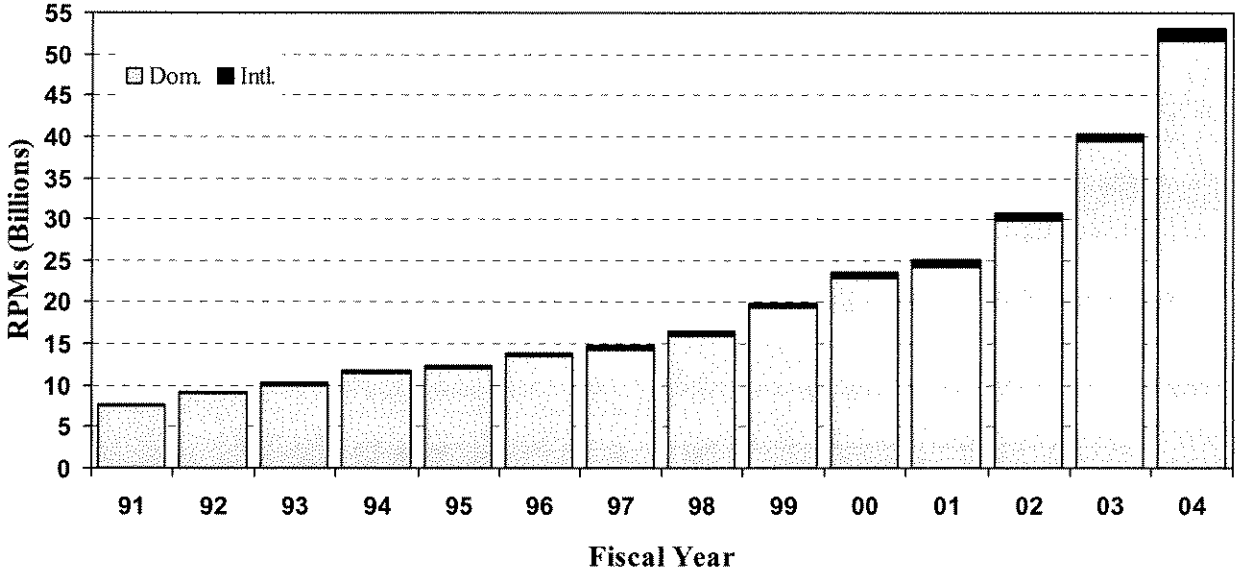
Passenger Enplanements

International enplanements totaled 3.9 million in 2004, up 11.0 percent from the previous year. The average annual growth rate in international regional/commuter passengers for the period 1991-2000 was 12.1 percent. Between the end of 2000 and 2004, international passenger enplanements increased 25.8 percent.

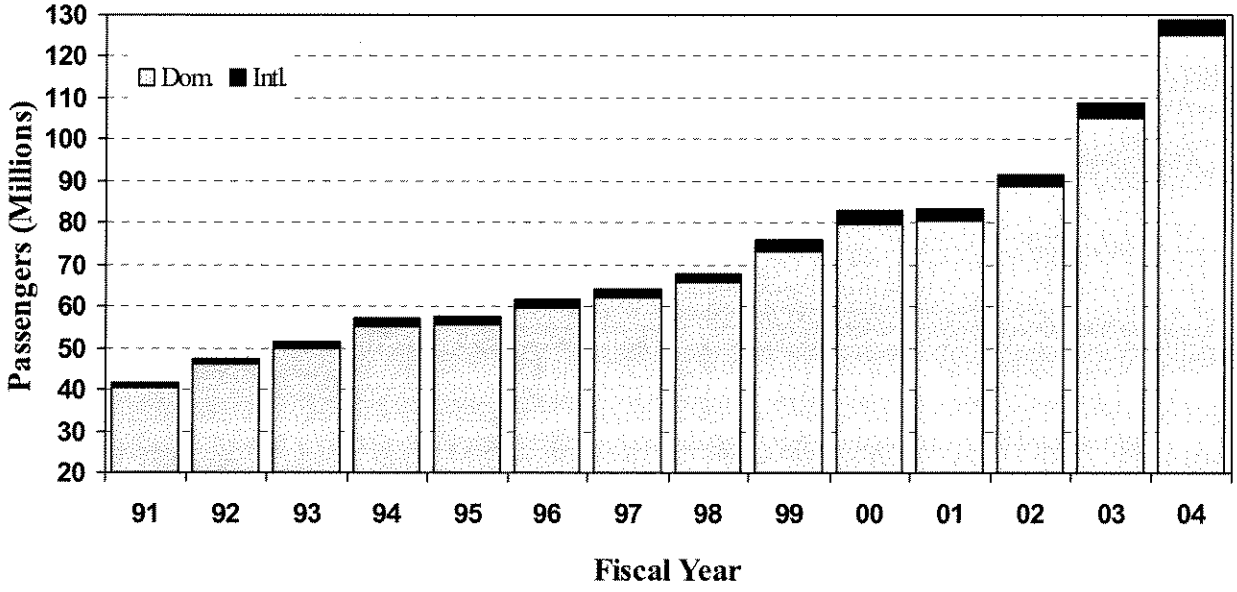


U.S. REGIONALS/COMMUTERS TRAFFIC TRENDS

Scheduled Revenue Passenger Miles



Scheduled Passenger Enplanements



THE METAMORPHOSIS OF THE REGIONAL/COMMUTER INDUSTRY

The fundamental character of the regional/ commuter industry has changed significantly since the mid-1980s. These changes include the relative size and sophistication of airline operations, the carriers involved (especially the dominant industry operators), the aircraft fleet mix, and the industry's relationship with the mainline commercial air carriers.

While the overall number of regional/commuter airlines declined by over two-thirds between 1981 and 2004 (from 250 carriers to 79), one carrier started reporting traffic to the DOT for the first time during 2004—Valley Air Express.[2] It remains to be seen if the coming years will produce more start-up regional/commuter carriers that can fill the void left by the larger regional carriers as they abandoned shorter-haul markets in pursuit of longer-haul ones.

The large decline in the number of carriers over the past two decades results from several factors. First, the dramatic growth in the number of code-sharing agreements with the major air carriers (see Table IV-1 for a current listing of code-sharing agreements) has made it difficult for carriers without such agreements to effectively compete. Secondly, the air carrier acquisitions of or purchases of equity interest in their regional/commuter code-sharing partners has led to a reduction in the number of independent operators. Also, it is believed that the additional costs required to comply with the "one level of safety" commuter rule may have caused some regional/commuter carriers to cease operations.

[2]Valley Air Express currently flies between Henderson, Nevada and Victorville, California.

Today a large number of regionals are owned, totally or in part, by their larger code-sharing partners, and still others are owned by other regionals. Ten regionals are owned totally or in part by 6 of the larger commercial air carriers, and 2 others are owned by 2 other regionals. In 2004, US Airways subsidiaries Allegheny Airlines and Piedmont Airlines merged, and MidAtlantic launched operations. Also during 2004, Aloha Airlines spun off their subsidiary Aloha Island Air.

Corresponding to the shrinking number of regional/commuter carriers in the industry is the increasing share of traffic being flown by the dominant industry carriers. In 1981, the top five regional/commuter carriers accounted for only 20 percent of the passengers flown, and increased to 30 percent by 1991. By the end of 2004 the top five carriers were responsible for flying just under half of all passengers, while the top 10 carriers accounted for 75 percent of all passengers flying regional/commuter carriers.

The present composition of the regional/ commuter airline industry is presented in Table IV-3. This table lists the top 20 corporate structures and their percentage share of 2004 industry enplanements, and more accurately reflects the level of industry consolidation and integration with the larger mainline carriers. In 2004, the top 5 corporate groups accounted for 58.5 percent of industry enplanements, the top 10 for 83.3 percent, and the top 20 for 97.8 percent.

The introduction of the regional jet into the dynamics of the demand for air transportation services has expanded the role of the regional/ commuter industry. The success operating carriers have experienced in markets where the aircraft is deployed has led to its operators moving beyond the boundaries of traditional regional/commuter markets. The regional jets' range and speed has opened up new opportunities, allowing carriers to serve longer-haul markets and to by-pass congested hub airports by providing point-to-point service.

TABLE IV-1

AIR CARRIER/COMMUTER AIRLINES CODE-SHARING AGREEMENTS

AS OF DECEMBER 2004

Air Carrier/Program Name	Designated Carrier	Primary Hubs Served
1. Alaska Airlines	Big Sky Airlines	Seattle
	ERA Aviation	Anchorage
	Horizon Air	Portland, Boise, Spokane, Eugene
	Peninsula Airways	Anchorage
2. Aloha Airlines	Aloha Island Air	Honolulu
3. America West Express	Air Midwest	Phoenix
	Big Sky Airlines	Billings
	Mesa Airlines	Phoenix
4. American Airlines	American Eagle Airlines	Chicago O'Hare, Dallas/Fort Worth, Boston, Los Angeles, New York/LGA
	Executive Airlines	Miami, San Juan
5. American Connection	Chautauqua Airlines	St. Louis
	Corporate Express Airlines	St. Louis
	Trans States Airlines	St. Louis
6. American Trans Air	Chicago Express	Chicago Midway
7. Continental Airlines	American Eagle	Los Angeles
	ExpressJet	Cleveland, Houston Intercontinental, New York/Newark
	Horizon Air	Portland, Seattle
8. Continental Connection	Cape Air	Tampa
	CommutAir	Albany, Cleveland
	Gulfstream International	Fort Lauderdale, Miami
	SkyWest	Houston Intercontinental
9. Delta Connection	American Eagle	Los Angeles
	Atlantic Southeast Airlines	Atlanta, Dallas/Fort Worth
	Chautauqua Airlines	Dallas/Fort Worth, Columbus
	Comair	Cincinnati, Atlanta, New York/LGA
	SkyWest	Salt Lake City, Dallas/Fort Worth

TABLE IV-1 (Continued)

AIR CARRIER/COMMUTER AIRLINES
CODE-SHARING AGREEMENTS

AS OF DECEMBER 2004

Air Carrier/Program Name	Designated Carrier	Primary Hubs Served
10. Frontier Airlines	Great Lakes Aviation	Denver
	Horizon Airlines	Denver
11. Hawaiian Airlines	Horizon Airlines	Portland/Seattle
12. Midwest Express	Skyway Airlines	Milwaukee, Kansas City
13. Northwest Airlines	American Eagle	Los Angeles
	Big Sky Airlines	Billings, Bismarck
	Continental Express	Cleveland, Houston Intercont'l., New York/Newark
	Gulfstream International	Miami, Ft. Lauderdale, Tampa
	Horizon Airlines	Portland, Seattle
	Mesaba	Detroit Metro, Minneapolis/St. Paul, Memphis
	Pacific Island Aviation	Guam
	Pinnacle Airlines	Detroit Metro, Minneapolis/St. Paul, Memphis, Milwaukee, Indianapolis
14. United Express	Air Wisconsin	Washington Dulles, Chicago O'Hare
	Chautauqua	Chicago O'Hare, Washington Dulles
	Great Lakes Aviation	Denver
	Gulfstream International	Miami
	Mesa Airlines	Denver
	Republic	Chicago O'Hare, Washington Dulles
	Shuttle America	Dulles
	SkyWest Airlines	Chicago O'Hare, Denver, Los Angeles, San Francisco
	Trans States	Chicago O'Hare, Washington Dulles
15. US Airways Express	Air Midwest	Kansas City, Pittsburgh
	Chautauqua	New York/LGA, Pittsburgh
	Colgan Air, Inc.	New York/LGA, Pittsburgh
	Mesa	Charlotte, Philadelphia
	MidAtlantic	Pittsburgh
	Piedmont	Charlotte, Philadelphia
	PSA	Charlotte, Washington National
	Trans States	Baltimore, Pittsburgh

TABLE IV-2

TOP 50
REGIONAL/COMMUTER AIRLINES
RANKED BY TOTAL PASSENGER ENPLANEMENTS

FISCAL YEAR 2004
(IN THOUSANDS)

Carrier	Enplanements	Carrier	Enplanements
1. American Eagle	14,012.8	26. ERA Aviation	362.9
2. ExpressJet	13,089.9	27. Aloha Island	354.9
3. SkyWest	12,785.7	28. Eagle Canyon Airlines	291.2
4. Comair	12,486.4	29. Great Lakes Aviation	251.4
5. Atlantic Southeast	9,924.4	30. Cape Air	231.2
6. Mesa	8,796.9	31. Peninsula Airways	195.7
7. Atlantic Coast Airlines*	7,568.7	32. Corporate Airlines	148.5
8. Air Wisconsin	6,929.2	33. Caribbean Sun Airlines	144.2
9. Pinnacle	5,999.7	34. Seaborne Aviation	137.0
10. Chautauqua	5,669.1	35. Hageland Aviation	132.6
11. Horizon	5,625.8	36. Frontier Flying Service	129.0
12. Mesaba	5,483.2	37. Big Sky Airlines	92.2
13. Trans States	3,047.6	38. Kenmore Air Harbor	67.3
14. Executive	2,680.2	39. Pacific Island Air	66.8
15. Piedmont	2,412.7	40. Grant Aviation	66.0
16. PSA	1,768.0	41. Bering Air	60.0
17. Allegheny	1,350.4	42. Flying Boat	56.0
18. Chicago Express	1,098.1	43. Pacific Wings	55.2
19. Skyway	756.1	44. West Isle Air	39.5
20. Gulfstream International	646.9	45. Warbelows Air Ventures	34.8
21. Freedom Airlines	637.7	46. Wings of Alaska	33.4
22. Air Midwest	601.2	47. Cape Smythe Air Service	29.7
23. Shuttle America	580.3	48. Promech	26.2
24. Colgan Air	579.3	49. Vintage Props and Jets	23.0
25. CommutAir	440.9	50. Boston Maine Airways	21.6
Top 25: % of Total Regional/ Commuter Enplanements	**97.5%**	**Top 50: % of Total Regional/ Commuter Enplanements**	**99.9%**

Source: DOT Form 41 and FAA Estimates
*Includes enplanements for Independence Air.

TABLE IV-3

TOP 20 CORPORATE STRUCTURES

FISCAL YEAR 2004

Carrier/ Carrier Group	Industry Enplanements (%)	Carrier/ Carrier Group	Industry Enplanements (%)
1. Delta	17.5	11. Mesaba	4.4
2. American Eagle	13.0	12. US Airways Express	4.3
3. ExpressJet	10.2	13. Trans States	2.4
4. SkyWest	10.0	14. Chicago Express	0.9
5. Mesa	7.8	15. Skyway/Astral Aviation	0.6
Top 5: % of Total Regional/ Commuter Enplanements	**58.5%**	**Top 15: % of Total Regional/ Commuter Enplanements**	**95.8%**
6. Atlantic Coast	5.9	16. Gulfstream International	0.5
7. Air Wisconsin	5.4	17. Shuttle America	0.5
8. Pinnacle	4.7	18. Colgan Air	0.5
9. Chautauqua	4.4	19. CommutAir	0.3
10. Horizon	4.4	20. ERA Aviation	0.3
Top 10: % of Total Regional/ Commuter Enplanements	**83.3%**	**Top 20: % of Total Regional/ Commuter Enplanements**	**97.8%**

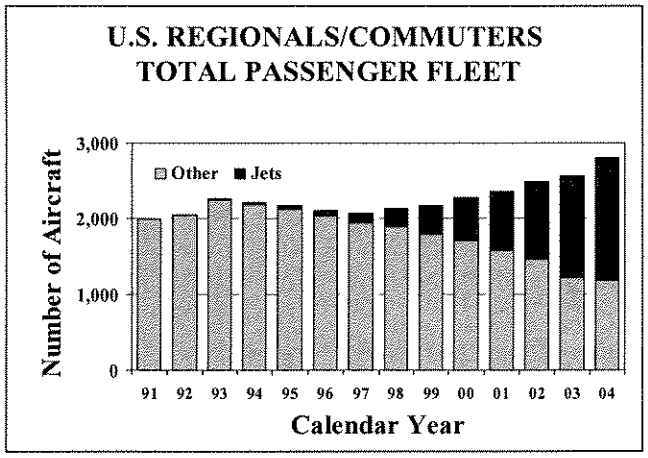
Source: DOT Form 41 and FAA Estimates

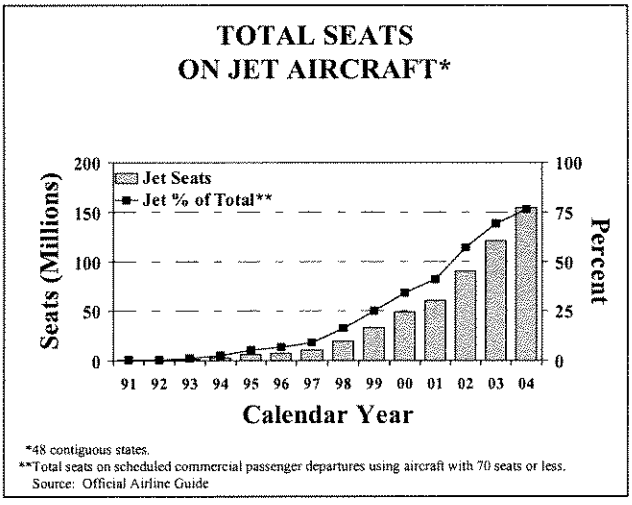
Prior to the events of September 11th, scope clauses prevented many of the regional/commuter carriers from operating anything larger than the 50-seat regional jet. However, the relaxation of scope has led to more of the larger regional jet aircraft entering the fleet. OAG analysis indicates that 3 carriers operated the 70-seat regional jet in 2002 (American Eagle, Mesa, and Atlantic Southeast); another 4 carriers began operating the 70-seaters in 2003 (Horizon, Freedom Air, Comair, and Air Wisconsin); and by 2004, an additional 5 carriers (MidAtlantic, SkyWest, Trans States, Chautauqua, and PSA) were operating the 70-seat aircraft. At present, Mesa Airlines is the only carrier operating Bombardier's CRJ900. It is anticipated that most regional jets entering the fleet over the next few years will be in the 70-90 seat range.

In last year's forecast document, the FAA analyzed 13 years (1991-2003) of schedules from the OAG to assess the growing impact of regional jets on the industry. This analysis has been updated to include data for 2004 and is presented below.

FLEET COMPOSITION

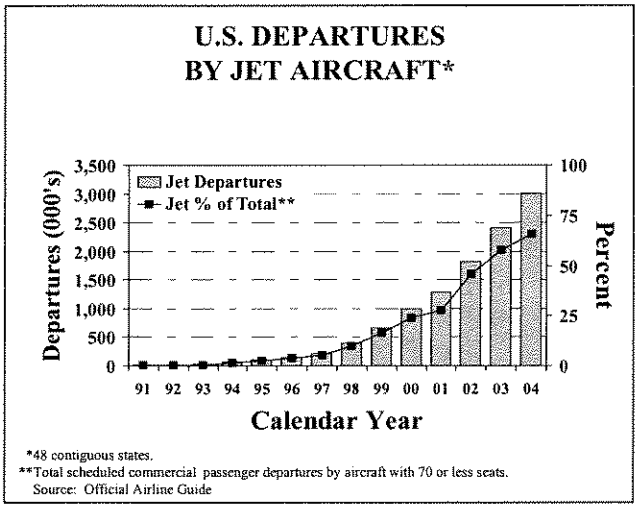
In 1991, three regional/commuter air carriers operated a total of 20 jets, accounting for 1.0 percent of the total fleet and 4.0 percent of seats offered for sale. It was not until 1997 that the introduction of the regional jets started to accelerate, growing from 132 aircraft to 1,630 aircraft in 2004.





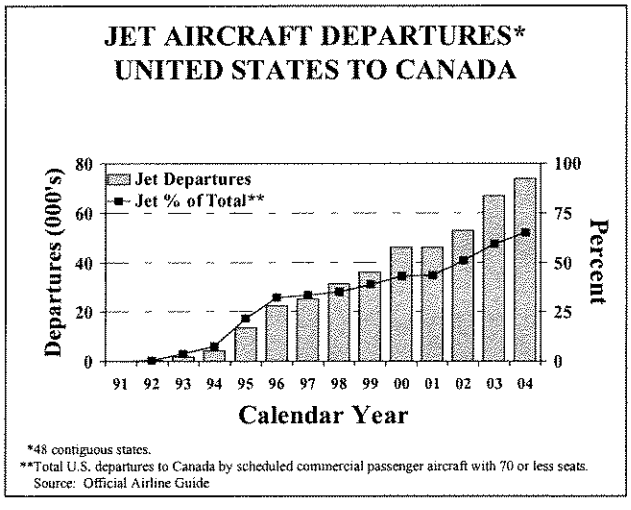
Activity and Operational Measures

The number of scheduled regional/commuter jet departures in the 48 contiguous states has grown from just under 9,100 in 1991 to over 3.0 million in 2004. In 2004, jet departures by regionals/commuters accounted for 65.8 percent of the industry departures, up from just 0.2 percent in 1991. In 2004 alone, regional jet departures increased 24.9 percent from 2.4 million to 3.0 million.



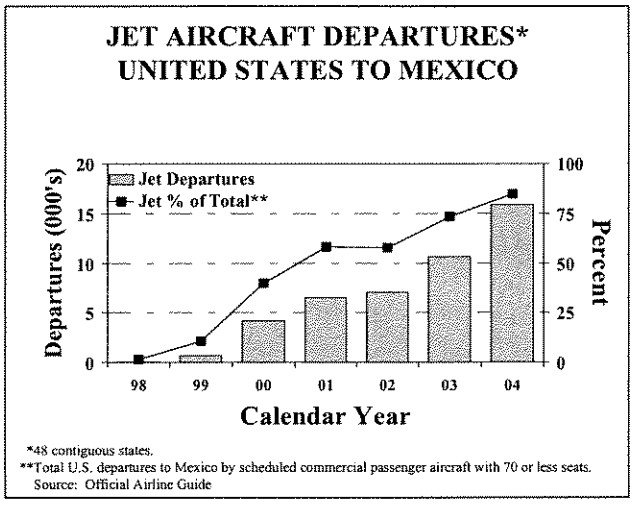
Regional jets accounted for 76.4 percent of regional/commuter seats in 2004. Seat capacity provided by these type of aircraft increased 27.3 percent from 2003, for an additional 33.1 million seats.

Jet aircraft have also penetrated the transborder markets. In 1992, less than 1.0 percent of all regional/commuter flights between the United States and Canada were flown with jet aircraft. In 2004, jets flew 65.2 percent of regional/commuter flights between the two countries. These 73,967 flights provided 3.7 million seats, and accounted for over 74.0 percent of regional/commuter seat capacity between the United States and Canada. Since 2003, jet flights and seats in this market increased 10.3 and 11.3 percent respectively.

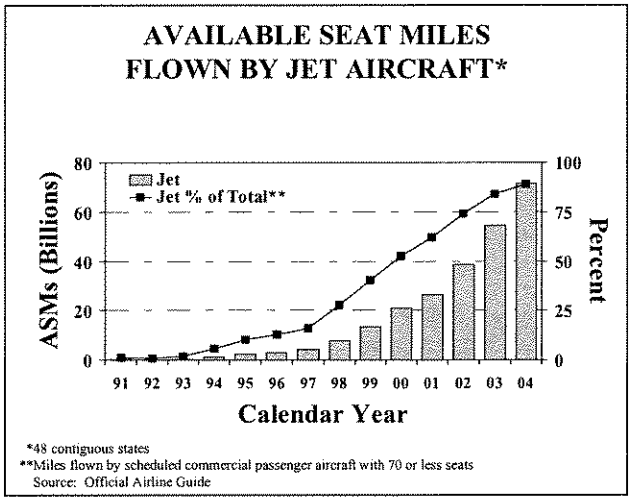


In 2004, 7 years after the introduction of jet service into Mexico, regional/commuter carriers flew over 15,878 jet flights between Mexico and the United States, accounting for 84.8 percent of all regional/commuter flights in these markets. In addition, during 2004 jet seat capacity increased by just over 256,380 seats. By year-

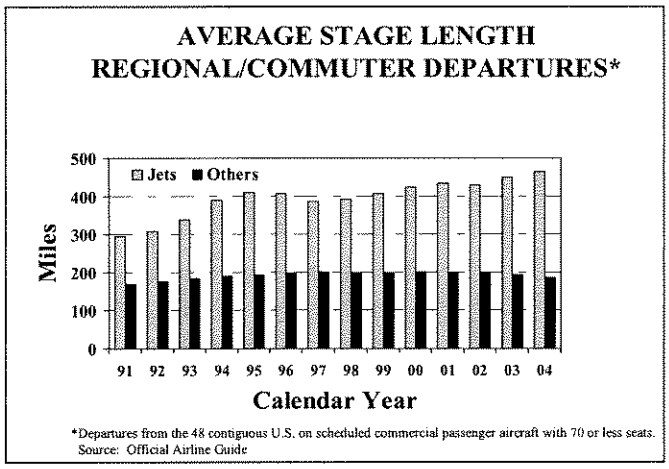
end, 88.9 percent of regional/commuter seat capacity between the United States and Mexico was flown by jet aircraft.



With their higher cruise speed and longer range capabilities, the ASMs flown by jet aircraft are also increasing rapidly, from just 0.9 percent of total industry ASMs flown in 1991 to 90.0 percent in 2004. Between 2003 and 2004, the ASMs flown by jet aircraft increased 31.8 percent.



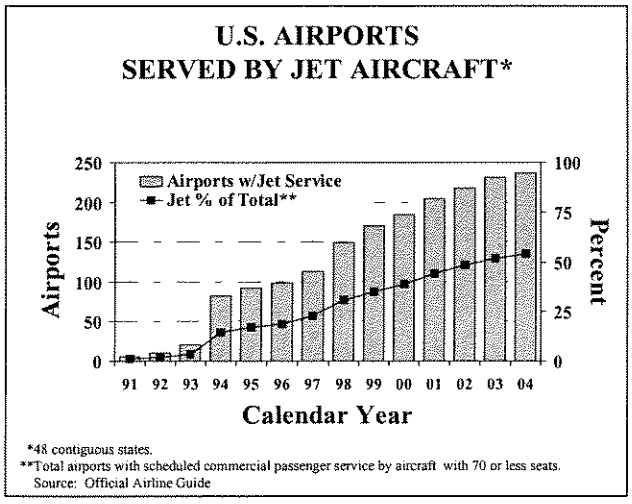
The growth in ASMs flown is indicative of regional jets operating on routes significantly longer, on average, than "traditional" regional/commuter routes. Between 1994 and 1999, following the introduction of the 50-seat regional jet, the average stage length flown by regional jets hovered at 400 miles. Between 2000 and 2004, the stage length steadily increased to 463.9 miles. By comparison, the average stage length for piston and turboprop regional/commuter aircraft during 2004 was 186.4 miles.



MARKETS/ROUTES SERVED

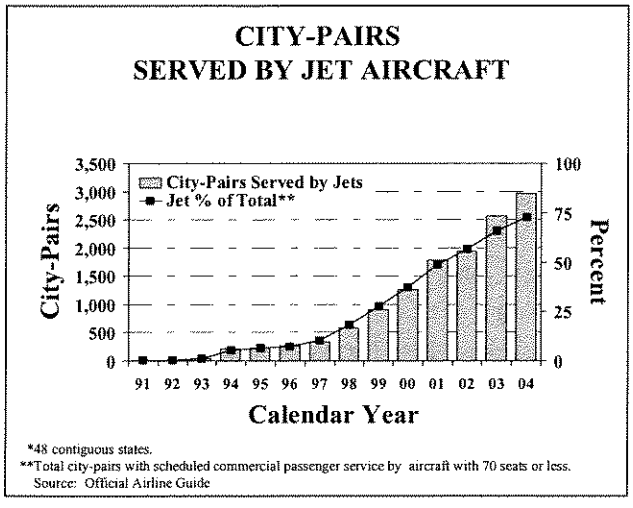
Regional jets provide the flying public with significantly more travel options. As greater numbers of Bombardier and Embraer regional jets enter the fleet, more small- and medium-sized hubs are receiving jet service for the first time. Consequently, the number of airports and city-pairs benefiting from jet service are at an all-time high. At the same time many airports served by turboprop aircraft are losing service.

The number of U.S. airports receiving regional/commuter jet service increased from only 6 in 1991 to 237 in 2004. As a result, 54.0 percent of the airports served by regional/commuter carriers receive jet service, up from 1.1 percent of the airports in 1991. At present only two states, Hawaii and Alaska, are not served by regional jets.



The number of airports in Canada and Mexico served by regional jets continued to increase in 2004. In 2004, regional jets flew to 13 Canadian airports from the United States, up from just 2 airports in 1992. In Mexico, 26 airports are served by regional jets from the U.S.; up from only one airport in 1998.

The number of city-pairs originating from airports in the U.S. has also increased significantly. Regional/commuter city-pairs with jet service grew from 10 in 1991 to 2,969 in 2004. In 2004 alone, an additional 398 city-pairs received regional/commuter jet service, raising the percentage of regional/commuter city-pairs with jet service to over 72.7 percent.



Of the 2,969 city-pairs served by regional jets in 2004, 112 were flown in international service. Between the United States and Canada, regional jets served 72 of 111 regional/commuter city-pairs. Between the United States and Mexico, 40 out of 47 city-pairs were served by regional jets.

TOP 10 REGIONAL/COMMUTER AIRPORTS

The top ranked airport in 2004 with respect to regional jet departures was Chicago O'Hare International (ORD). Scheduled regional jet departures at ORD totaled 194,953 in 2004. ORD did not have scheduled service with turboprop or piston aircraft during this period. Forty-one percent of all commercial departures at ORD (mainline air carrier and regional/ commuter) were performed by regional jet aircraft.

Cincinnati/Northern Kentucky International (CVG), ranked second to ORD, with a total of 170,702 regional jet departures. Dallas/Fort Worth (132,550), Atlanta Hartsfield (124,101), and Dulles International (120,127) round out the list of the top five airports with scheduled jet service from regional/commuter carriers. Dulles International and Salt Lake City International Airport moved into the Top 10 list during 2004, displacing Boston Logan International and New York La Guardia.

Regional jet departures at the top 10 ranked regional/commuter airports accounted for 88.7 percent of total regional/commuter departures and 41.2 percent of total commercial departures at these 10 airports. In the 48 contiguous states, commuter jet departures accounted for 65.4 percent of all regional/ commuter departures and 30.4 percent of all commercial departures during 2004. (See Table IV-4.)

TABLE IV-4

TOP 10 AIRPORTS
RANKED BY COMMUTER JET DEPARTURES

CALENDAR YEAR 2004

ID	Airport	Departures			Regional Jet Departures as a % of Total Commuter Departures	Regional Jet Departures as a % of Total Commercial Departures
		Commuter*		Commercial**		
		Jet	Total	Total		
1. ORD	Chicago O'Hare Int'l.	194,953	194,953	480,581	100.0	40.6
2. CVG	Cincin./N. Kentucky. Int'l.	170,702	174,733	233,820	97.7	73.0
3. DFW	Dallas/Fort Worth Int'l.	132,550	155,643	386,496	85.2	34.3
4. ATL	William B. Hartsfield Int'l.	124,101	147,769	470,780	84.0	26.4
5. IAD	Dulles International	120,127	137,405	196,419	87.4	61.2
6. IAH	Houston Intercontinental	99,297	110,450	241,243	89.9	41.2
7. EWR	Newark Int'l.	79,057	79,453	200,352	99.5	39.5
8. DTW	Detroit Metro Wayne	67,566	95,706	247,844	70.6	27.3
9. CLE	Cleveland-Hopkins Int'l.	67,431	80,883	115,886	83.4	58.2
10. SLC	Salt Lake City Int'l.	64,863	86,292	146,522	75.2	44.3
	Departures – Top 10	1,120,647	1,263,287	2,719,943	88.7	41.2
	Total Departures – 48 U.S.	3,049,413	4,660,945	10,041,828	65.4	30.4

*Scheduled Commercial Passenger Aircraft with seat size >=3 and <71
**Scheduled Commercial Passenger Aircraft with seat size >=3
Source: Official Airline Guide published December 2004

INDUSTRY IMPACT

The past several years have witnessed the rapid development of routes utilizing regional jets, much to the increasing satisfaction of most of the traveling public. However, even with the high traffic growth experienced by the regional/commuter industry, there is still an erosion in the number of shorter-haul city-pairs receiving non-stop regional/commuter service.

The decline in service to shorter-haul markets may be the result of two factors. First, in 1995 an initiative was enacted to bring all air carriers operating aircraft with a capacity between 10 and 30 seats under the same operating rules as those carriers with large aircraft. The initiative called for "one level of safety" and placed stringent safety standards on regional/commuter carriers. The additional costs required to meet the increased safety standards made some smaller aircraft uneconomical to operate. In March of 1997, the initiative became law and is now known as the "commuter rule."

One year after the implementation of the commuter rule (1998), the number of city pairs served by the regional/commuter carriers fell to its lowest level of the decade. Although the trend reversed in 1999 as more regional jets entered the fleet, the number of short-haul markets served (200 miles or less) continues to decline. According to the OAG, between 2001 and 2004, 456 city-pairs in the 0-199 mile range, and 248 city pairs in the 200-499 mile range lost nonstop regional/commuter service (air carrier

service is not offered either). While there have been additional new city-pairs offered in these ranges (316 pairs in the 0-199 mile range, and 158 pairs in the 200-499 mile range), the overall impact is a net loss of 184 and 90 city-pairs, respectively.

The second factor affecting service in short-haul markets is that it is more economical for regional jet aircraft to operate in denser passenger markets. As more regional jet aircraft enter the fleet, the average stage length will rise as carriers pursue markets that are more suitable for the regional jet aircraft to operate in.

Again, analysis of the OAG for the years 2001 and 2004 demonstrates this effect. In 2001, the regionals were flying 699 city-pairs with mileage over 499 miles, with 321 of these pairs served exclusively by regionals/ commuters. By 2004 the number of city-pairs served by regional/commuter carriers grew almost two-fold--to 1,363 city pairs--with 700 city-pairs served exclusively by regionals/commuters. Also, it is interesting to note that 333 of these markets were recipients of point-to-point service that had not previously been served by either regionals/commuters or large air carriers. (See Table IV-5 for a comparison of city-pairs served by regional/commuter and large air carriers.)

Presently, there are 5,775 city-pairs being flown non-stop in the 48 contiguous states by regionals/commuters and/or large air carriers, 56 less pairs than were available in 2001. Of these 5,775 city-pairs, 1,020 were new (not available since at least 2001). Additionally, 1,079 city-pairs have lost non-stop service altogether since 2001.

The changing mix of the regional/commuter aircraft fleet is also affecting service on longer-haul routes. From 2001 to 2004 the number of city-pairs being flown in the range above 1,000 miles increased dramatically. In 2001, only 34 city-pairs posted stage lengths greater than 1000 miles---the longest distance measuring 1,148 miles (New York La Guardia/Dallas Love Field). By 2004, there were 174 city-pairs flying beyond 1,000 miles with the top distance registering 1,495 miles (Austin/San Francisco). It is anticipated that as more of the larger regional jets enter the fleet, stage lengths will continue to rise.

To corroborate the major shift in the stage lengths being flown by the regional/commuter carriers, one year prior to the "one level of safety" initiative (1994), 3,794 city-pairs were being flown. Out of these 3,794 city-pairs, 82 percent of them measured distances less than 300 miles. The year the "commuter rule" was enacted (1997), shorter-haul city-pairs represented only 77 percent of the pairs flown. Six years later, at the end of 2004, only 42.5 percent of the city-pairs being flown by regionals/commuters are less than 300 miles, a 34.5 percentage point drop from the number of city-pairs flown during 1997.

RISKS AND UNCERTAINTIES

As the regional/commuter carriers continue carrying a larger share of the passengers in the system, they are confronted with old issues as well as new. Maintaining cost structure, operating within the confines of scope clauses, and managing airspace and airport congestion continue to be concerns.

The ability of regional carriers to maintain their cost structure is fundamental for their appeal to the larger air carriers. The goal of network carriers is to gain feed from the regionals while providing seamless service to their customers.

However, the increased competition from low-cost carriers has forced network carriers to further reduce costs in order to remain competitive. This directly impacts the

TABLE IV-5

CITY PAIR ANALYSIS
FOR SCHEDULED U.S. FLAG PASSENGER CARRIERS*
DEPARTING/ARRIVING IN THE CONTINENTAL UNITED STATES
CALENDAR YEARS 2001 AND 2004

City Pairs** With Non-Stop Service -- by Aircraft Category

Stage Length (Miles)	0-200	200-500	500 plus	Total Pairs
2001				
Regionals/Commuters	1,309	1,456	699	3,464
Large Air Carriers	298	957	2,234	3,489
System	1,390	1,886	2,555	5,831
2004				
Regionals/Commuters	1,010	1,539	1,363	3,912
Large Air Carriers	201	789	2,246	3,236
System	1,044	1,785	2,946	5,775
Difference between 2001 and 2004				
Regionals/Commuters	(299)	83	664	448
Large Air Carriers	(97)	(168)	12	(-253)
System	(346)	(101)	391	(-56)

City Pairs Served Exclusively by Regionals/Commuters or Large Air Carriers

Stage Length (Miles)	0-200	200-500	500 plus	Total Pairs
2001				
Regionals/Commuters	1,092	929	321	2,342
Large Air Carriers	81	430	1,856	2,367
Jointly Served	217	527	378	1,122
2004				
Regionals/Commuters	843	996	700	2,539
Large Air Carriers	34	246	1,583	1,863
Jointly Served	167	543	663	1,373
Difference between 2001 and 2004				
Regionals/Commuters	(249)	67	379	197
Large Air Carriers	(47)	(184)	(273)	(504)
Jointly Served	(50)	16	285	251

Change in City Pairs Served by Commercial Air Carriers Between 2001 and 2004

Stage Length (Miles)	0-200	200-500	500 plus	Total Pairs
City Pairs Gained/Lost (not served by either category since '01)				
Gained-Regional/Commuter City Pairs	140	158	333	631
Gained – Large Air Carrier City Pairs	10	34	345	389
Lost - Regional/Commuter City Pairs	456	248	95	799
Lost – Large Air Carrier City Pairs	60	51	169	280
Net Change in City Pairs				
Gained	150	192	678	1,020
Lost	516	299	264	1,079
Net Gain/(Loss)	(366)	(107)	414	(59)

Source: Federal Aviation Administration Flight Service Data System (FSDS)

*Regionals/Commuters: flights operated using aircraft with 70 or less seats.
Large Air Carriers: flights operated using aircraft with more than 70 seats.

**For example, LAX/ORD counts as two city pairs.

regional/commuter carriers since they must also cut costs in order to remain profitable, especially in an environment of less lucrative "fees for departure" contracts and reductions in prorated fares.

Scope clauses define routes and services that mainline airlines may subcontract to the regionals. They can place limits on the size and number of aircraft operated by regional airlines, and/or the number of ASMs flown by a regional carrier. The events of September 11th accelerated the relaxation of these clauses, but they can still remain a barrier to matching the right-sized aircraft to market demand.

While the terrorist attacks of September 11th, the war in Iraq, and SARS temporarily sidelined the issue of airport congestion, it has reappeared with the return of traffic to pre-September 11th levels at a number of U.S. airports. As demand recovers at more airports, aviation professionals are increasingly concerned that the rising numbers of regional jets and smaller mainline equipment operating in the U.S. will exacerbate airport and airspace congestion. Unlike turboprop aircraft that operate most efficiently at altitudes half that of the regional jets, regional jet aircraft operate most efficiently and economically in airspace shared with the larger jet aircraft. Consequently, the replacement of turboprop aircraft by regional jet aircraft increases congestion in airspace previously used only by large jet aircraft. It is believed that technology and scheduling improvements will help alleviate some of the congestion that may arise.

FORECAST METHODOLOGY

In normal times, regional/commuter demand is modeled using economic assumptions as inputs. However, the role of regional/commuter carriers in the national transportation system has expanded, thus making economic models misleading, at least in the short-term. Current models underestimate the amount of traffic being carried by the regional/commuter carriers and fail to capture the anticipated growth in capacity expected to occur during the early years of the forecast period.

The starting point for developing regional/commuter capacity for 2005 was the flight schedules published in the December 2004 OAG. The year-over-year change in the scheduled capacity for the first 8 months of 2005 was extrapolated using seasonal trends to account for the remaining months of the fiscal year. To prepare traffic forecasts, insight gained from discussions held with individual carriers, trade associations, manufacturers, and industry analysts from the Transportation Research Board (TRB) Regional/Commuter Subcommittee meetings were taken under consideration, along with emerging trends in average trip lengths and load factors. Using this information, forecasts for RPMs and passengers were developed.

These preliminary estimates of supply and demand were compared with actual capacity and traffic data from trade publications and carrier web sites and adjusted as necessary. Although the forecasts for 2005 contain numerous assumptions developed from expert opinion and analyst expertise, it is believed that the forecasts are reasonable in terms of capturing the anticipated course of events.

To combat the failure of economic models to capture the effects of the large number of regional jets projected to enter the fleet, an alternative method for forecasting traffic was pursued. Forecasts for the period beyond 2005 are a blend of economic models, assumptions regarding capacity, and traditional information regarding average passenger trip length.

For the period beyond 2005, initial estimates for RPMs and enplanements were based on an economic model that assigned Gross Domestic Product (GDP) as the independent variable. Load factor assumptions were then used to derive a forecast for capacity. These three forecasts were labeled the "base case". As expected, based on published information for orders and options of regional jet aircraft, the "base case" model appeared to underestimate the capacity increases expected to occur during the early years of the forecast. Therefore, projected orders and options for regional jet aircraft were used to forecast capacity for the regional/commuter carriers in 2006 and 2007. To complete the forecasts for the 2007-2016 period, conventional assumptions regarding load factor, average trip length and seat size were used to estimate passengers and miles flown.

FORECAST ASSUMPTIONS

Currently, individual air carriers are categorized as either regional/commuter *or* mainline air carrier, with the regionals defined as those carriers flying most of their ASMs using aircraft having 90 seats or less. Separate capacity and traffic forecasts are prepared for the regionals/commuters based on type of travel--domestic or international. Domestic forecasts include travel between the United States, its territories and Canada. International forecasts are based on travel between the United States and its territories and Mexico and the Caribbean.

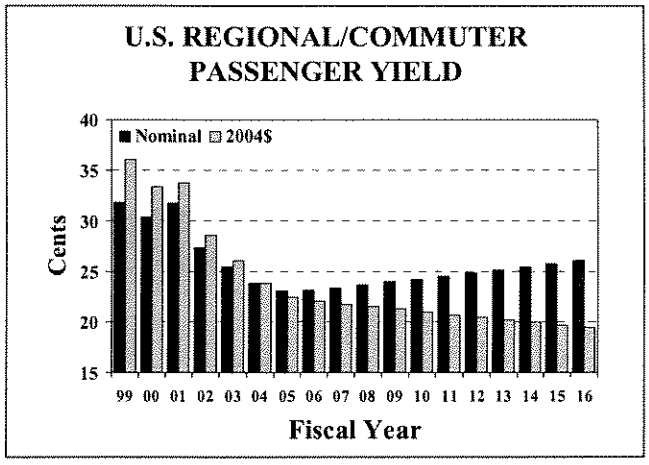
Development of the regional/commuter international database required several sources including: DOT Form's 298C (Table 11A), 41, and T100 as well as the Official Airline Guide. Prior to fiscal year 2003, 298C carriers only reported RPMs and enplanements on Table 11A, therefore the Official Airline Guide was used to backfill history for ASMs, miles flown, seats, and departures for these carriers. Also, not all carriers offering international service report domestic traffic separately from international on Form 41. For these carriers, DOT T100 data was used to obtain international traffic counts. This international traffic was subtracted from the system traffic to arrive at "pure" domestic traffic.

The baseline assumptions for passenger yield, average aircraft seat size, and passenger trip length are presented in tabular form in Chapter X, Table 26.

PASSENGER YIELD

The nominal passenger yield for the reporting regional/commuter air carriers was 23.8 cents in 2004, down 6.4 percent from 2003. Prior to September 11th, regional/commuter yields generally averaged 30 cents or more. Despite the large decline in yield over the past several years, regional/commuter carriers still post yields that are more than double that of the larger air carriers (11.46 cents in 2004).

Several factors are responsible for the drop in nominal yield since September 11th. In 2004, regional/commuter carriers not only faced increased competition from low-cost carriers, but also less lucrative "fees for departure" and pro-rated fare contracts with the network carriers. As well, purchases of higher-fare tickets declined, cutting into revenues made by carriers that were not operating on a contract-flying basis. Also, contributing to the reduction in yields is the increased utilization of regional jets. The regional jets operate at higher load factors and longer passenger trip lengths, both contributing factors to stable or declining yields.

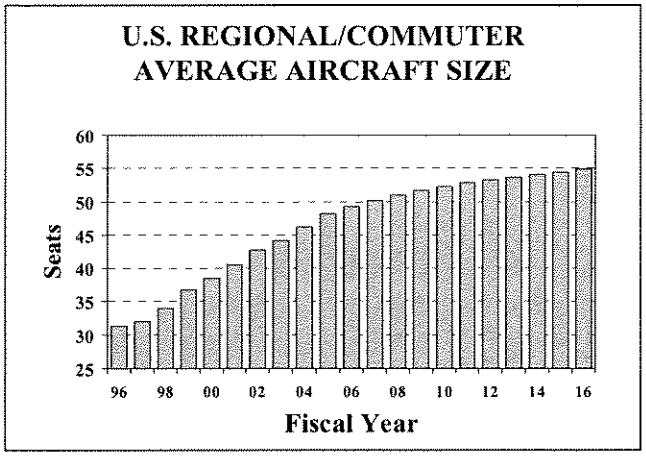


The nominal yield is expected to decline 3.1 percent in 2005, then increase by 0.4 percent in 2006 and 0.9 percent 2007. For the remaining years of the forecast, nominal yield is expected to rise at an average annual rate of 1.2 percent to 26.06 cents in 2016. The real yield is projected to decline by 5.7 percent in 2005, 1.8 percent in 2006, and 1.4 percent in 2007. For the remaining years of the forecast, the real yield is projected to decline at an average annual rate of 0.9 percent, falling to 19.48 cents in 2016.

AVERAGE AIRCRAFT SIZE

The most significant change in fleet composition will result from the integration of large numbers of regional jet aircraft into the fleet, most of which occurs in the 50-70-90 seat category. These aircraft have already increased public acceptance of regional airline service, and offer the greatest potential for replacement service on selected jet routes.

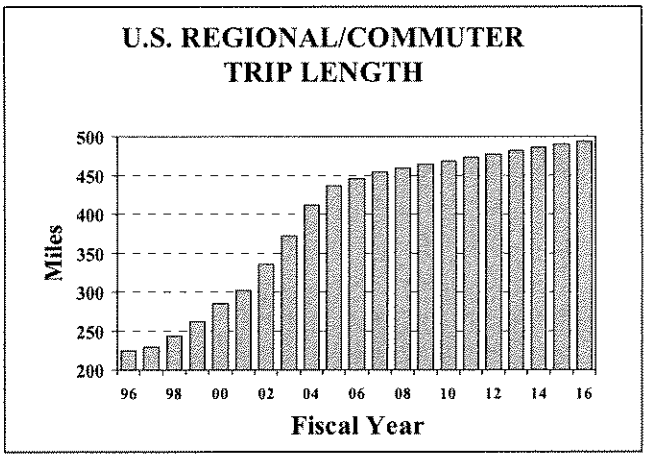
The regional/commuter aircraft fleet is expected to continue to grow rapidly during the first several years of the forecast period. Average seats per aircraft is expected to increase by 1.9 seats in 2005, 1.1 seats in 2006, and 1.0 seats in 2007. For the period 2008-2016, seats per aircraft are projected to increase at an average rate of 0.5 seats annually, to 54.9 seats in 2016. Most of the growth in seat size is expected to come from those carriers operating the larger regional jets.

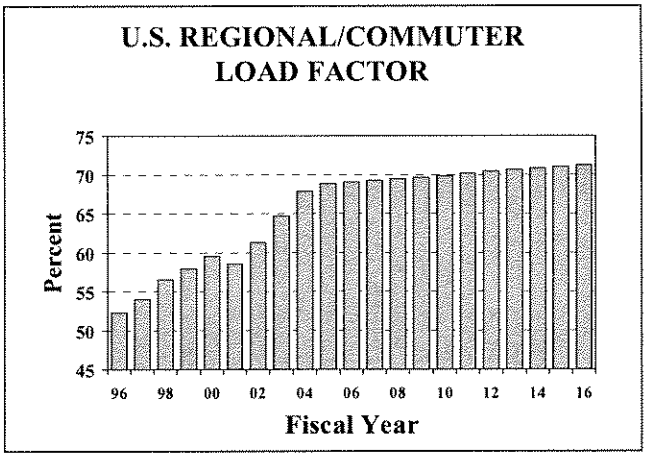


PASSENGER TRIP LENGTH

The impact of the regional jet is reflected in the growth in the average passenger trip length. The introduction of regional jets in large numbers in 1997 coincides with the significantly higher growth in the average passenger trip length.

Over the next 3 years of the forecast, the average trip length is expected to increase 43.5 miles (25.5 miles in 2005, 9.6 miles in 2006, and 8.4 miles in 2007) then slow to an increase of 4.4 miles annually over the remainder of the forecast period. Over the 12-year forecast period the average trip length is projected to increase from 411.6 miles in 2004 to 494.5 miles in 2016.





The domestic trip length is forecast to increase 43.5 miles between 2005 and 2007, and then increase an additional 39.8 miles over the remainder of the forecast period, reaching 496.0 miles in 2016. The international trip length is expected to increase 44.9 miles during the first 3 years of the forecast, and then an additional 3.3 miles per year thereafter, going from 376.4 miles in 2004 to 451.3 miles in 2016.

PASSENGER LOAD FACTOR

The average industry load factor is projected to increase 1.1 points (to 69.0 percent) in 2005, 0.2 points in 2006, and 0.3 points in 2007. For the remainder of the period, the load factor increases at a rate of 0.2 points per year, for a load factor of 71.3 in 2016. It is assumed the regional/commuter industry will continue to emphasize frequency of service and this should keep regional/commuter load factors from reaching the level of the network carriers.

The load factor for domestic travel is forecast to increase from 68.0 percent in 2004 to 71.3 percent in 2016. The international load factor is forecast to increase from 64.9 percent in 2004 to 72.8 percent in 2016.

REGIONALS/COMMUTERS FORECASTS

The increasing number of aircraft, especially regional jets with ranges beyond 1,000 miles, is creating new opportunities for growth in nontraditional regional/commuter markets. However, the primary role of the regional industry will remain that of feeding traffic to the legacy and low-cost carriers, even as they expand into new markets with longer route segments.

For the mainline air carriers, use of their regional partners is an effective way to maintain a market presence when forced to reduce excess capacity in selected markets. Regional partners can backfill with regional jets and provide service in comparable comfort and speed at a lower cost. The events of September 11th heightened the need for the larger commercial air carriers to reduce overall costs and capacity and resulted in the transfer of a large number of markets and routes to their regional partners. This expansion of nontraditional regional/ commuter markets is expected to be one of the major drivers of growth during the early years of the forecast.

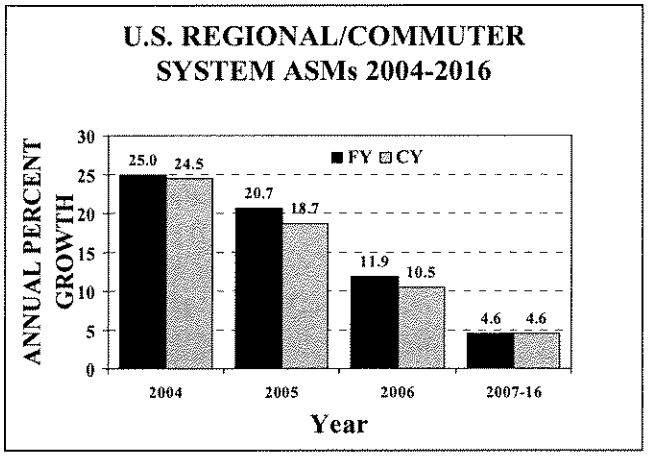
While the transfer of selected routes is expected to continue during the early years of the forecast

period, this phenomenon should diminish considerably during the mid to latter years. Consequently, the rate of growth in traffic will be lower than that experienced in the past.

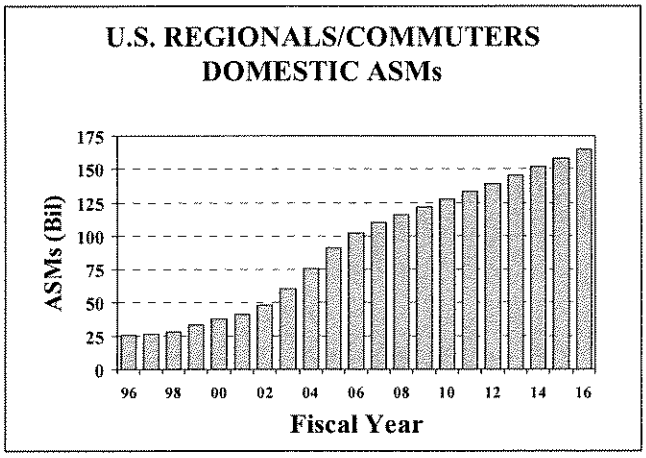
Regional/commuter forecasts of enplanements, ASMs, RPMs, fleet, and hours flown are presented in tabular form in Chapter X, Tables 27 through 30.

AVAILABLE SEAT MILES

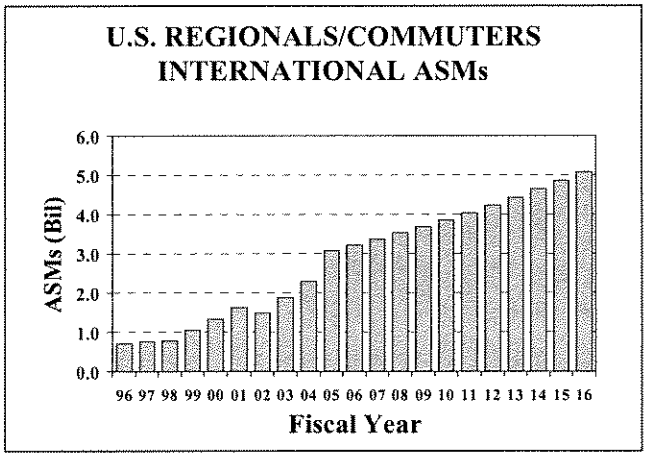
System ASMs are expected to increase 20.7 percent in 2005, 11.9 percent in 2006, and 8.0 percent in 2007. These relatively large increases primarily reflect routes transferred from network carriers along with the delivery of large numbers of regional jet aircraft in the 50-90 seat range. From 2008 through 2016 regional ASMs will increase at an average rate of 4.6 percent annually for a total of 170.2 billion in 2016. Over the 12-year forecast period, ASMs are forecast to increase at an average annual rate of 6.7 percent.



Domestic ASMs are forecast to increase 45.8 percent during the first 3 years of the forecast and total 110.5 billion in 2007. For the period 2008-2016, period, ASMs are expected to increase at an annual rate of 4.6 percent, totaling 165.1 billion in 2016.



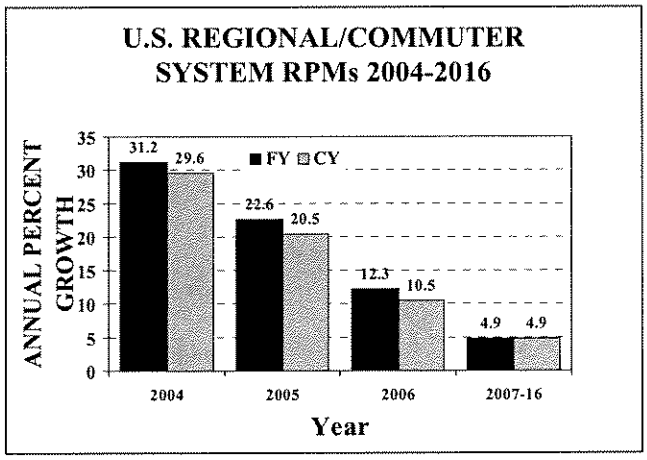
International ASMs are projected to increase 47.4 percent for the first 3 years of the period, for a total of 3.4 billion ASMs in 2007. During the final 9 years of the forecast period, these carriers' ASMs are expected to grow at an average annual rate of 4.7 percent and total 5.1 billion in 2016.



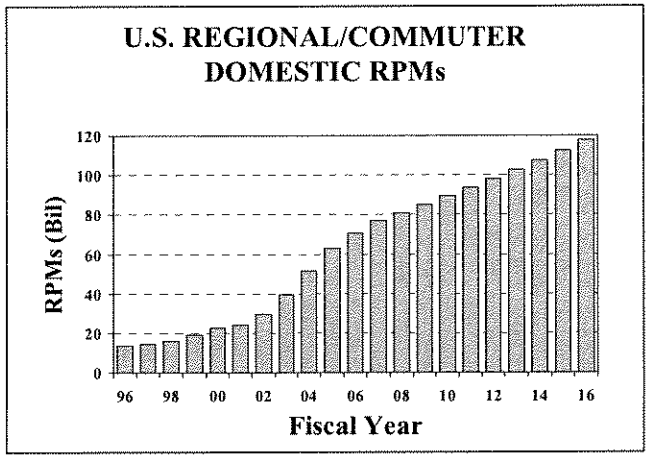
REVENUE PASSENGER MILES

Regional/commuter RPMs are expected to increase 22.6 percent in 2005 (to 65.1 billion), 12.3 percent in 2006 (to 73.0 billion), and 8.3 percent in 2007 (to 79.1 billion). The high growth rates reflect the longer stage lengths being flown by the large numbers of regional jets entering the fleet during these years. From 2008 through 2016 regional RPMs will increase at an average annual rate of 4.9 percent. Over the 12-year forecast period, the average annual

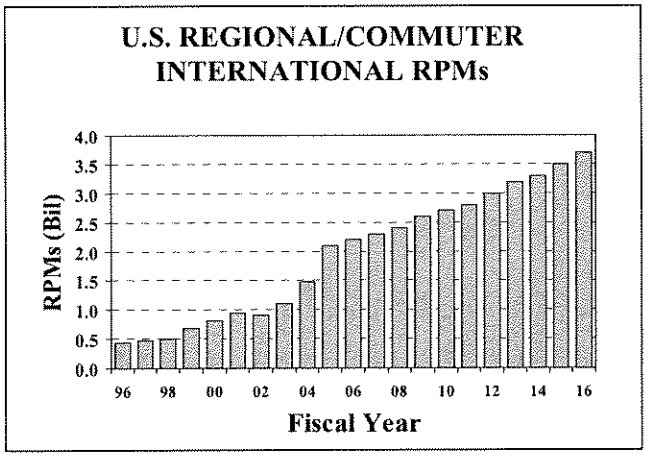
rate of growth in RPMs is 7.1 percent for a total of 121.4 billion in 2016.



Domestic passenger miles are forecast to total 76.8 billion in 2007, a 48.9 percent increase from 2004 levels. Over the latter years of the forecast (2008 through 2016), the average annual growth rate is projected to be 4.9 percent. The average annual increase in RPMs for the 12-year forecast period is 7.1 percent, totaling 117.7 billion in 2016.



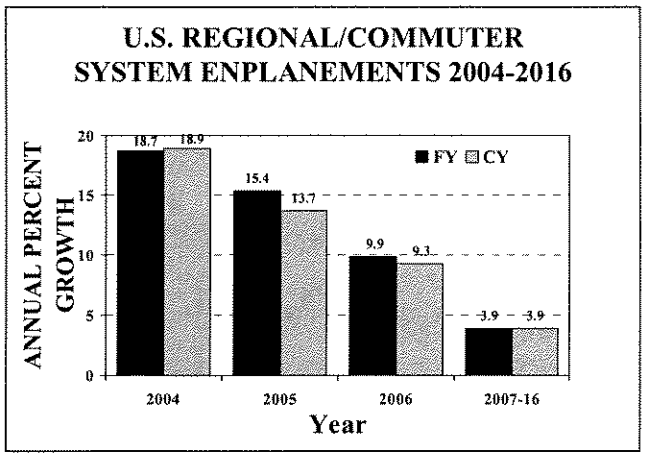
International passenger miles are projected to increase 55.0 percent between 2004 and 2007 to 2.3 billion. During the final 9 years of the forecast period, international RPMs are expected to grow at an average annual rate of 5.4 percent for a total 3.7 billion in 2016.



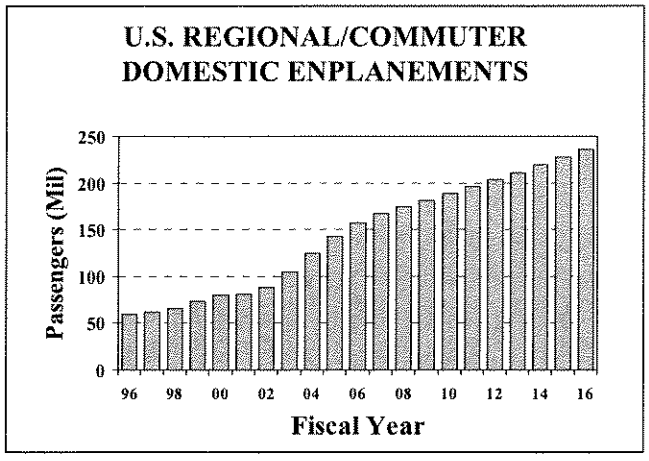
REVENUE PASSENGER ENPLANEMENTS

Regional/commuter passenger enplanements are projected to increase by 15.4 percent in 2005 (148.9 million), 9.9 percent in 2006 (163.5 million), and 6.3 percent in 2007 (173.8 million). Between 2008 and 2016 enplanements will grow at an average rate of 3.9 percent annually for a total of 245.5 million in 2016. Over the entire 12-year forecast period, system enplanements are forecast to grow 5.5 percent annually. By 2016, regional/ commuter carriers are expected to account for 23.4 percent of all commercial air carrier enplanements.

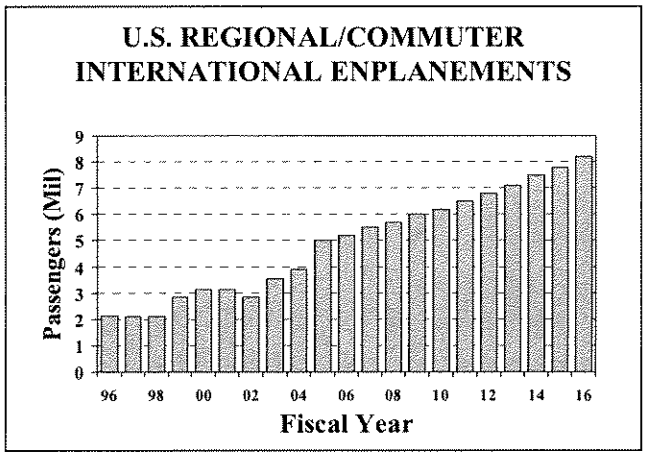
Enplanements are expected to increase at a slower rate than RPMs over the forecast period due to the fact that the average passenger trip increases at an average rate of 6.9 miles per year over the 12-year forecast period.



Domestic enplanements are projected to increase 34.7 percent during the first 3 years of the forecast, totaling 168.4 million passengers at the end of this period. Between 2008 and 2016, domestic enplanements will increase at an average annual rate of 3.9 percent. Over the entire 12-year forecast period, enplanements are forecast to increase at an average of 5.5 percent annually, totaling 237.3 million in 2016. By the end of the forecast period, regionals/commuters are expected to transport a quarter (25.3 percent) of all domestic passengers.



International enplanements are projected to increase 38.5 percent by 2007 (to 5.5 million). For the period 2008-2016, international enplanements are projected to increase at an average annual rate of 4.6 percent, totaling 8.2 million in 2016.



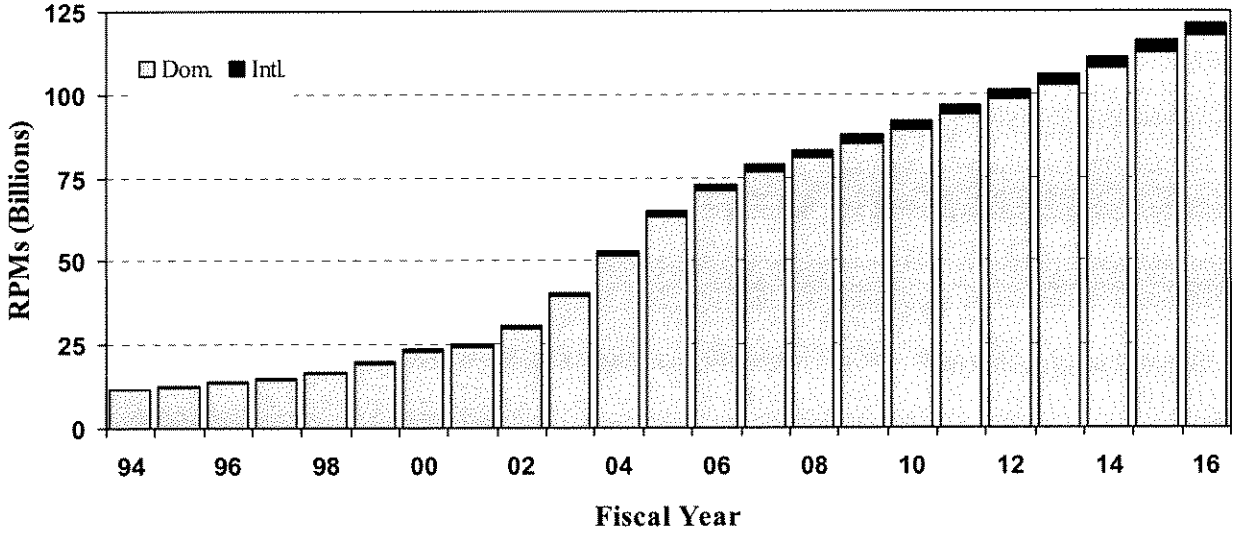
REGIONALS/COMMUTERS PASSENGER FLEET

The regional/commuter fleet, once composed primarily of piston and turboprop aircraft, is rapidly moving toward a fleet predominantly made up of regional jet aircraft. Before September 11th, regional/commuter carriers deployed regional jet aircraft for the purpose of entering new markets and for supplementing and/or replacing turboprop routes. Post September 11th, the regional/commuter carriers are deploying assets on routes traditionally served by mainline carriers in response to the restructuring and downsizing taking place among the larger regional partners. As the regional/commuter carriers began flying more long-haul routes using jet aircraft, many of the shorter-haul routes conventionally flown by turboprop aircraft were discontinued.

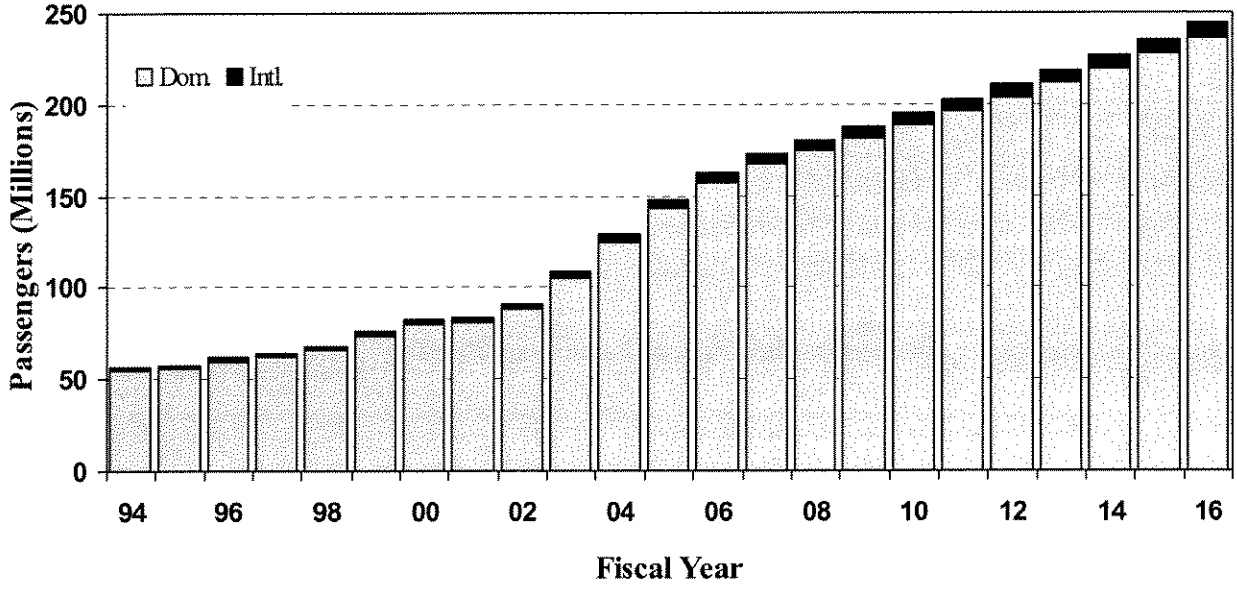
In years past, it was believed that the 50-seat regional jet aircraft would be the mainstay of the regional commuter fleet. However, this has changed as a result of the continuing relaxation of scope clauses. While the 50-seat regional jet aircraft remains economically viable, the carriers are now opting to place orders for the larger 70-90 seat regional jet aircraft.

U.S. REGIONALS/COMMUTERS TRAFFIC FORECASTS

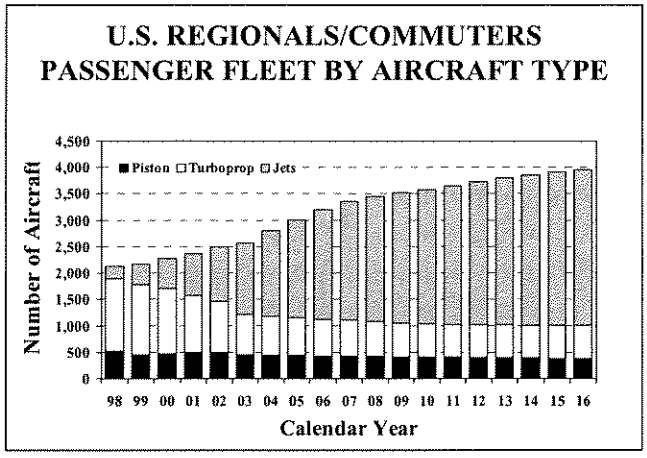
Scheduled Revenue Passenger Miles



Scheduled Passenger Enplanements



Over the 12-year forecast period, the regional/commuter passenger fleet is projected to net an average annual increase of 95.8 aircraft, going from 2,812 aircraft in 2004 to 3,961 aircraft in 2016. During the same period, the overall fleet of turboprop aircraft will decrease by 181 aircraft. For the first 3 years of the forecast 9.9 regional jet aircraft will enter the fleet for every turboprop aircraft retired.



Most of the aircraft in the "less than 10 seats" category are operated by Alaskan regional carriers. Regional aircraft in this category once made up the bulk of the fleet--60.9 percent in 1980. In 2004, this category totaled 440 aircraft and accounted for only 15.6 percent of the total regional fleet. Between 2004 and 2016, the number of aircraft in this category is expected to drop to 380 aircraft and account for only 9.6 percent of the fleet in the final year of the forecast. It is assumed that the decline in this category will occur almost entirely among regional airlines operating within the 48 contiguous states.

In 2004, the turboprop aircraft in the 10-40 seat range totaled 642 and accounted for 22.8 percent of the fleet. By 2016, these aircraft are expected to represent 13.3 percent of the fleet and total 525 aircraft. The average net decrease in the fleet is 9.8 aircraft per year. At present, many of the short-haul markets serviced by the turboprop aircraft have disappeared due, in part, to the increased processing times required for ticketing and clearing security checkpoints. However, the success of regional jets and their acceptance by the traveling public is also a reason for the decline in turboprop aircraft in the 10-40 seat category.

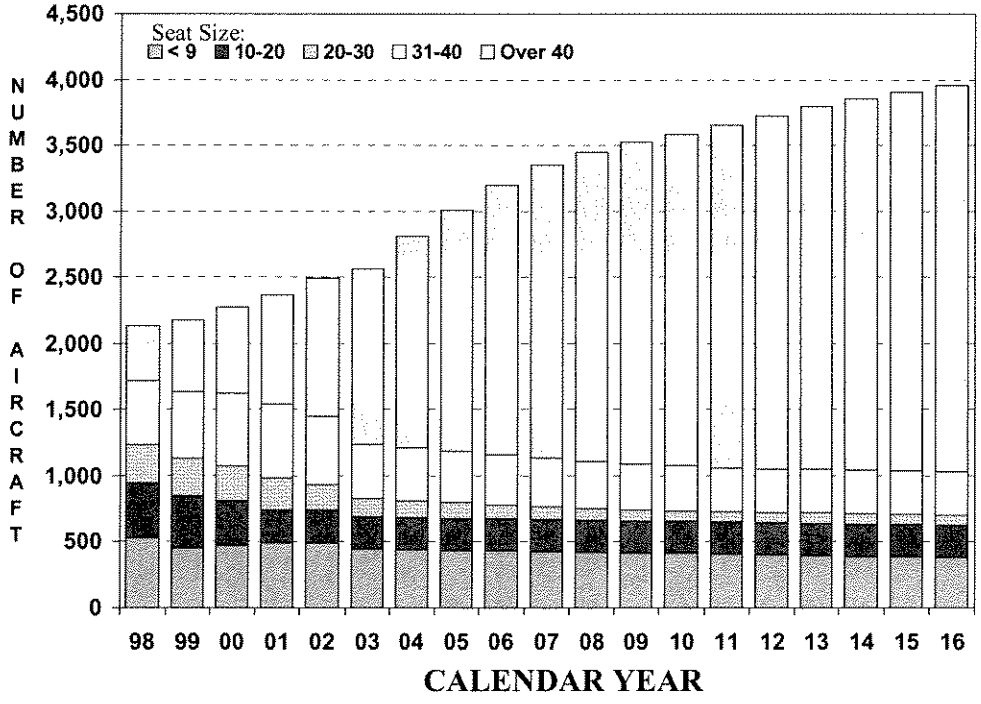
The fleet of turboprop aircraft in the over 40 seats category totaled 100 in 2004. Over the 12-year forecast period, this portion of the fleet is expected to decrease by 4 aircraft and total 96 aircraft in 2016. It is anticipated that some of the regional/commuter carriers will retire some of their ATR aircraft during the early years of the forecast. There are also expected to be deliveries of the Bombardier Q400 during this period as well. It is believed the larger turboprops will remain in the fleet since operators claim them to be economically superior for many of the routes they are used on.

In 2004, turboprop aircraft in the over 40-seat category were 3.6 percent of the fleet. In 2016, these aircraft are forecast to be only 2.4 percent of the fleet.

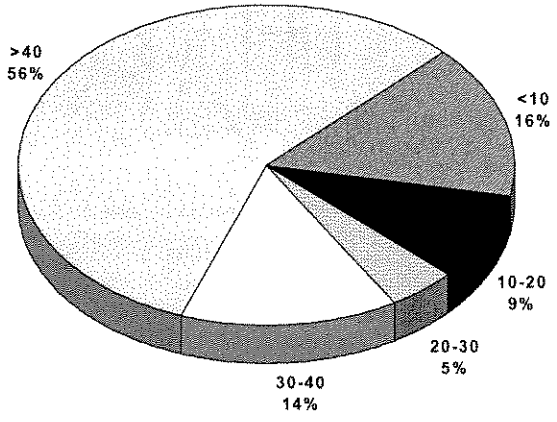
No increase is expected in the 30-40 seat regional jet category over the forecast period. It is anticipated regional/commuter carriers will continue to opt for larger regional jet aircraft. In 2004, this category of aircraft made up 4.6 percent of the fleet. By the end of 2016, regional jet aircraft in this seat category will account for only 3.3 percent of the fleet.

The majority of the increase in the regional/commuter fleet will be from regional jet aircraft in the over 40 (specifically, the 70-90) seat category. In 2004, there were 1,501 jet aircraft that made up 53.4 percent of the fleet. By 2016, it is expected that there will be an additional 1,330 of these aircraft in the fleet, for an average annual increase of 110.8 aircraft per year. Of the 1,330 aircraft that are forecast to enter the fleet over the 12-year period, 55.7 percent are expected to be delivered by the end of 2008. At the end of the forecast period, this category of aircraft are expected to account for 71.5 percent of the regional/commuter fleet.

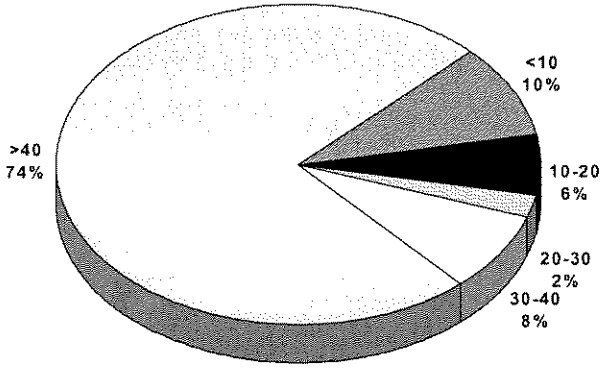
U.S. REGIONALS/COMMUTERS PASSENGER AIRCRAFT



PERCENT OF FLEET BY SEAT SIZE



2004

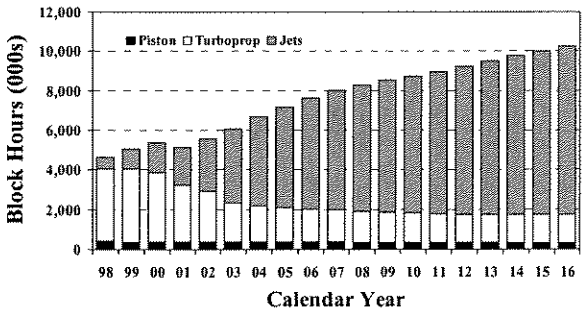


2016

BLOCK HOURS

Regional/commuter block hours for 2004 are estimated at 6.7 million, an increase of 9.7 percent over 2003. During the forecast period, hours are expected to increase to 7.2 million in 2005 (up 7.5 percent), 7.6 million in 2006 (up 6.4 percent), and 8.0 million (up 4.9 percent) in 2007. During the 12-year forecast period, flight hours are forecast to increase at an average annual rate of 3.6 percent, totaling 10.2 million hours in 2016.

U.S. REGIONALS/COMMUTERS BLOCK HOURS BY AIRCRAFT TYPE



Block hours flown by piston aircraft are forecast to decline from 0.39 million hours in 2004 to 0.32 million hours in 2016, for an average decrease of 1.7 percent annually. In 2016, piston aircraft are forecast to account for 3.1 percent of the block hours flown by the regionals/commuters, down from 5.9 percent in 2004.

Block hours flown by turboprop aircraft totaled just under 1.8 million in 2004. Hours for this category of aircraft are expected to total 1.4 million in 2016, for an average annual decrease of 1.9 percent per year. The decline in hours during the early part of the forecast period is due to the retirement of turboprop aircraft. In 2004, turboprop aircraft accounted for 26.9 percent of all hours flown by the industry. By 2015, total hours flown by turboprop aircraft is forecast to drop to 13.9 percent.

Block hours for regional jet commuter aircraft totaled 4.5 million in 2004 and were 67.2 percent of the hours flown. By 2016 block hours flown by this category of aircraft are forecast to total 8.5 million and account for 83.0 percent of the hours flown. Regional jet aircraft block hours are expected to increase at an average annual rate of 5.5 percent, but grow at a faster pace during the early years of the forecast due to the larger number of aircraft entering the fleet during this period.

CHAPTER V

GENERAL AVIATION

The term "general aviation" is used to describe a diverse range of aviation activities and includes all segments of the aviation industry except commercial air carriers (including commuter/ regional airlines) and military. Its activities include training of new pilots and pilots interested in additional ratings or certification, sightseeing, movement of large heavy loads by helicopter, flying for personal or business/corporate reasons, and emergency medical services. Its aircraft range from the one-seat single-engine piston aircraft to the long-range corporate jet, and also include gliders and amateur-built aircraft.

General aviation is an important part of both the aviation industry and our national economy. It provides on-the-spot efficient and direct aviation services to many medium and small sized communities that commercial aviation cannot or will not provide. In addition, the production and sale of general aviation aircraft, avionics, and other equipment, along with the provision of support services such as maintenance and repair, flight schools, fixed base operators, finance, and insurance, make the general aviation industry an important contributor to our nation's economy.

According to an industry study,[1] general aviation made the following contributions to the U.S. economy in 2000:

- General aviation directly generated $13.7 billion and 178,000 jobs, and
- General aviation's total impact (including indirect and induced impact) is $40.7 billion (0.4 percent of total GDP) and 511,000 jobs.

REVIEW OF 2003/2004

It has been 10 years since the passage of the General Aviation Revitalization Act of 1994 (GARA) and all indications are that the Act has accomplished its purpose. The industry, hurt by rising product liability costs, had gone from producing a high of almost 18,000 aircraft in 1978 down to only 928 aircraft in 1994. The decline in production had also resulted in the loss of approximately 100,000 jobs in the industry. The success of GARA can be measured by the resurgence in the demand for general aviation products and services since its passage.

[1] *The National Economic Impact of Civil Aviation, July 2002, DRI-WEFA, A Global Insight Company*

The 2001 to 2003 time period was a difficult one for general aviation. The 2001 economic recession and generally weak recovery, combined with rising prices for aviation fuels, sharply reduced the demand for the general aviation products and services--in particular, the high end market for business/corporate jets. In addition, some the adverse affects from the events of September 11th also continue to impact the industry, including the restriction of general aviation aircraft at Washington National Airport.

However, the market for general aviation products and services staged a relatively strong recovery in 2004, stimulated by strong U.S. economic activity as well as by accelerated depreciation allowances for the operators of new aircraft. Promise of future growth is evidenced by the general aviation industry's development, production, and introduction of new products and services. Dollars spent on research and development are advancing avionics and computer technology. These advances not only improve general aviation safety, but also make it easier to learn how to fly. Of course, without pilots to fly the planes there would be no industry. To stimulate growth in the pilot population, the industry is heavily promoting its "learn to fly" programs. Industry programs also assist teachers in bringing aviation into the classroom with the hope of encouraging students to pursue careers in aviation.

General aviation's recent performance has been encouraging, with a number of statistics pointing in a positive direction. The hope is that those segments experiencing positive results will create a foundation on which the entire general aviation industry can plan and build on for the foreseeable future.

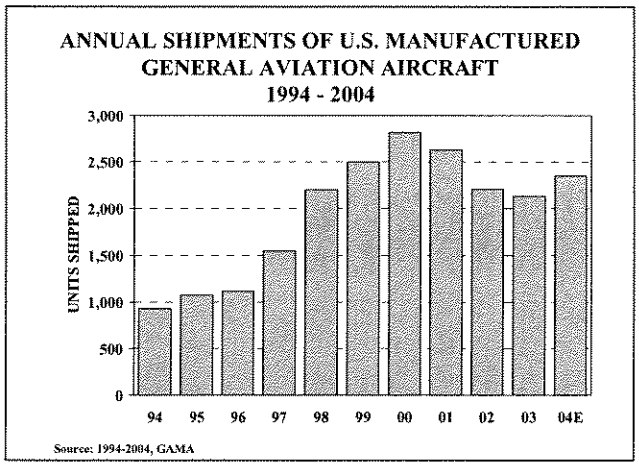
AIRCRAFT SHIPMENTS AND BILLINGS

In releasing its third quarter 2004 *General Aviation Airplane Shipment Report*, Ron Swanda, interim president of the General Aviation Manufacturers Association (GAMA), stated that "Recovery of the U.S. economy and accelerated depreciation enacted by Congress for operators of new airplanes stimulated every segment of our industry. But the growing, worldwide attraction of using general aviation airplanes for safe and efficient air travel is a fundamental growth factor that should not be overlooked."

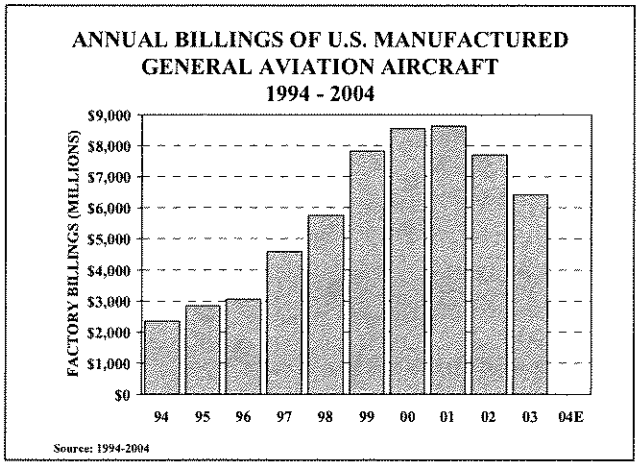
Congress responded to the success of accelerated depreciation by extending the placed-in-service date for aircraft until December 31, 2005.

According to GAMA preliminary statistics, shipments of general aviation aircraft reversed its 3-year decline in 2004. General aviation shipments by U.S. manufacturers totaled 1,758 units during calendar year 2004, an increase of 10.2 percent over the same period in 2003. Shipments increased for each of the three aircraft categories: turboprops, from 163 to 194 (up 19.0 percent); business jets, from 384 to 403 (up 4.9 percent); and pistons, from 1,590 to 1,758 (up 10.6 percent). The resilience of the piston aircraft market provides some hope that new aircraft models are generating interest in the low-end of the market for general aviation aircraft. In addition, the introduction of new light sport aircraft could further stimulate this market in future years. New aircraft models are also stimulating interest in the high-end business jet market. Certainly, the introduction of the new micro jet in 2005/2006 will spur this sector.

Sales of general aviation aircraft manufactured outside the United States also turned positive in 2004. Foreign manufacturers delivered a total of 609 aircraft during 2004, an increase of 10.3 percent over the same period in 2003.



In its year-end review and forecast[2], the Aerospace Industries Association (AIA) estimates that general aviation (excluding rotorcraft) aircraft shipments will total 2,230 for the year 2004, an increase of 4.7 percent over 2003 shipments. In addition, AIA estimates that the value of these aircraft will total $6.2 billion, an increase of 1.2 percent over 2003—the first increase since 2000.



[2] 2004 Year-End Review and 2005 Forecast—An Analysis, December 2004, Aerospace Industries Association (AIA)

PILOT POPULATION

At the end of 2004, the pilot population totaled 618,633, a decline of almost 6,400 (1.0 percent) from 2003. The three strictly general aviation groupings (student, private, and commercial) totaled 446,496 (down 1.3 percent) and accounted for 72.2 percent of all certificated pilots.

The number of active student pilots totaled 87,910 in 2004, an increase of 0.7 percent over 2003--the second consecutive yearly increase in this pilot category. The general aviation industry continues to promote a number of on-going initiatives aimed at increasing the number of student pilots since they are viewed as the future of general aviation. The industry's efforts to sustain and increase the market for its products and services will, in large part, depend on how successful its programs are in attracting new pilots. An increase in student pilots may not only be generated by those seeking private pilot certificates for personal enjoyment, but also for those seeking careers in aviation.

The number of private pilots totaled 235,994 (down 2.1 percent) in 2004 while the number of commercial pilots totaled 122,592 (down 1.1 percent). The number of airline transport pilots (142,160) declined 0.9 percent in 2004, the second consecutive decline in this pilot category.

The number of helicopter pilots (those holding helicopter certificates only) increased 8.5 percent in 2004 to 8,586. The number of glider only and recreational pilots totaled 21,100 (up 0.2 percent) and 291 (down 6.1 percent), respectively, in 2004.

The number of instrument-rated pilots (313,645) decreased 0.6 percent in 2004. Instrument-rated pilots currently account for 59.1 percent of total active pilots (excluding student and recreational pilots), up from 58.7 percent in 2003.

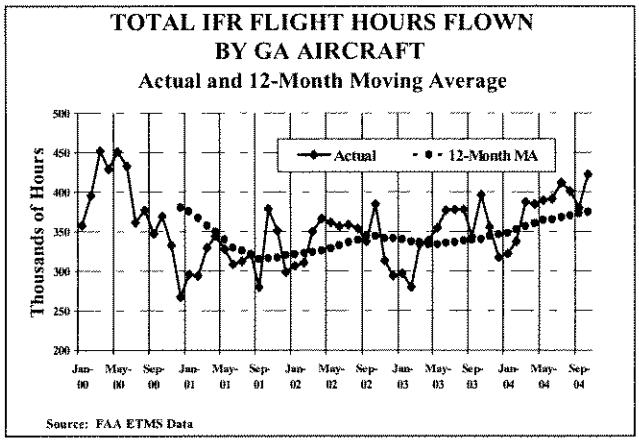
ACTIVITY AT FAA AIR TRAFFIC FACILITIES

General aviation activity at FAA air traffic facilities was generally mixed in 2004. Total activity at combined FAA and contract towered airports declined 1.6 percent in fiscal year 2004, with itinerant operations down 1.2 percent and local operations down 2.1 percent. Although general aviation operations at FAA towers declined 3.7 percent in 2004, operations at contract towers were up 2.1 percent.

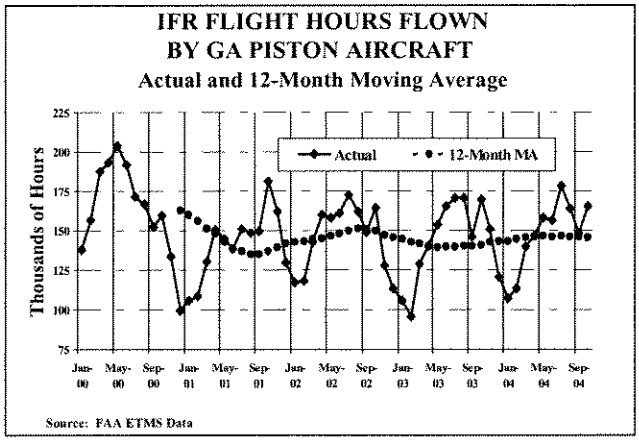
General aviation instrument flight rule (IFR) activity was generally positive in 2004. While total general aviation instrument operations at FAA and contract towered airports were basically flat (down 0.2 percent) in 2004, the number of general aviation aircraft handled at FAA en route centers grew by 4.4 percent, the largest recorded increase since 1998.

FAA's Enhanced Traffic Management Systems Counts (ETMSC) data also appears to confirm the turnaround among general aviation's more sophisticated aircraft. ETMSC data is compiled from IFR flight plans and, as such, does not cover a large portion of general aviation activity, in particular local operations at non-towered airports. However, since most business flyers do file flight plans, the data is particularly relevant to flying performed by business/corporate aircraft, i.e., turboprops and jets.

ETMSC data reported a 1.4 percent decline in total general aviation flights but a 1.4 percent increase in flight hours in 2003. In 2004, flights and hours were up 3.3 and 9.0 percent, respectively. Based on this data, general aviation IFR flights are within 0.9 percent of its pre-September 11th activity levels; hours flown within 0.1 percent.



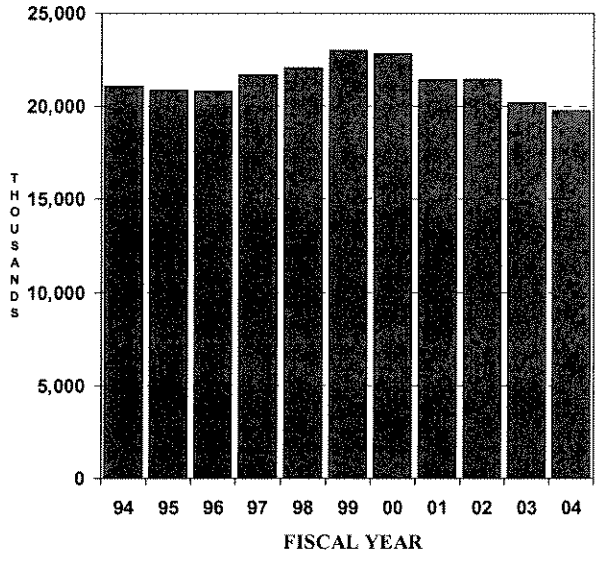
Piston aircraft IFR flights (40.4 percent of total IFR flights) declined in both 2003 (down 4.1 percent) and 2004 (down 3.8 percent). IFR hours flown by piston aircraft declined 1.7 percent in 2003 but was up 0.8 percent in 2004, totaling 1.7 million. In 2004, piston IFR flights and hours were still 8.4 and 11.4 percent, respectively, below pre-September 11th activity levels.



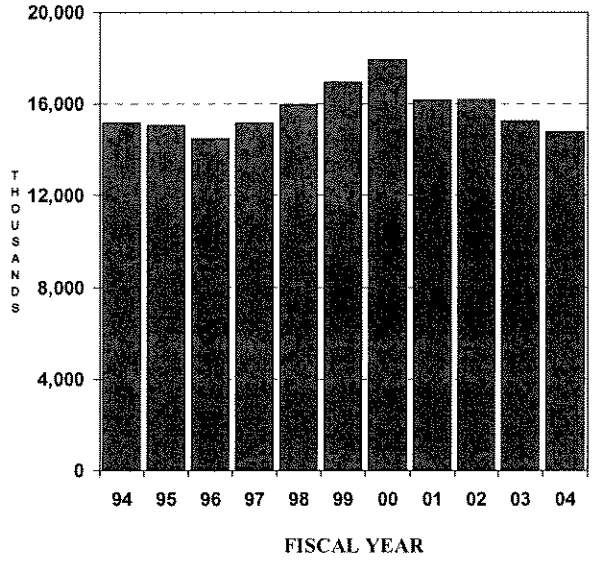
Combined IFR flights flown by turboprops and turbojets were basically flat in 2003 but increased by 5.8 percent in 2004, totaling 2.2 million. Combined flight hours were up 2.8 and 12.5 percent, respectively, over the same time period, totaling 2.6 million in 2004. Turbine IFR flight hours were up 2.8 percent in 2003 and 26.0 percent in 2004. Jet IFR hours were up 3.8 and 14.6 percent, respectively, over the same time period. In 2004, turboprop hours were 9.5 percent above its pre-September 11th levels; turbojets 1.5 percent below the level flown in 2000.

GENERAL AVIATION ACTIVITY AT FAA AIR TRAFFIC FACILITIES

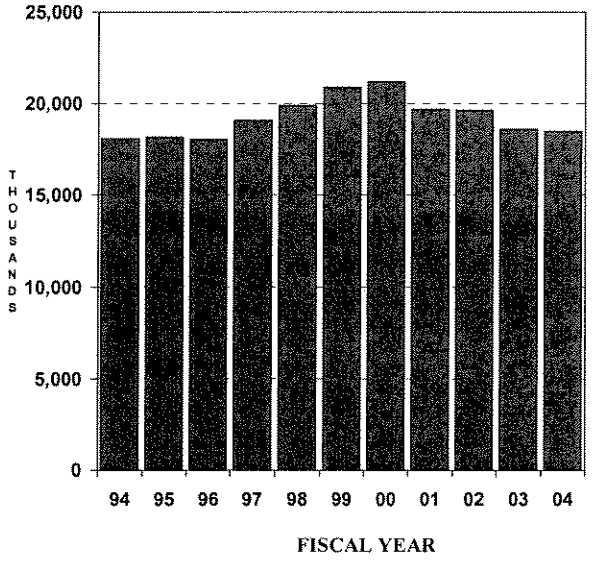
ITINERANT AIRCRAFT OPERATIONS (FAA AND CONTRACT TOWERS)



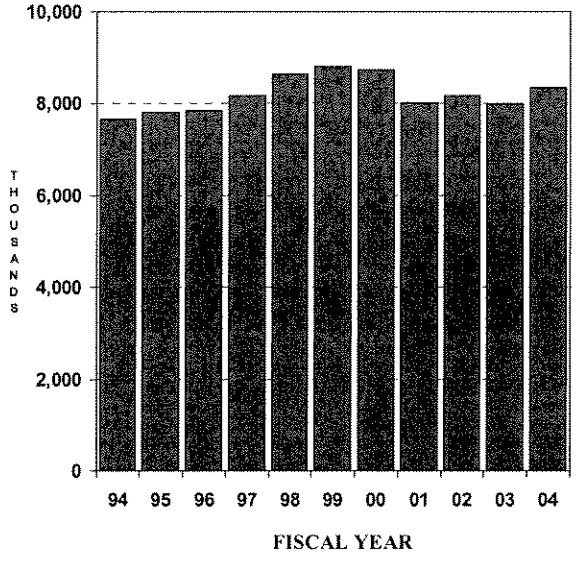
LOCAL AIRCRAFT OPERATIONS (FAA AND CONTRACT TOWERS)

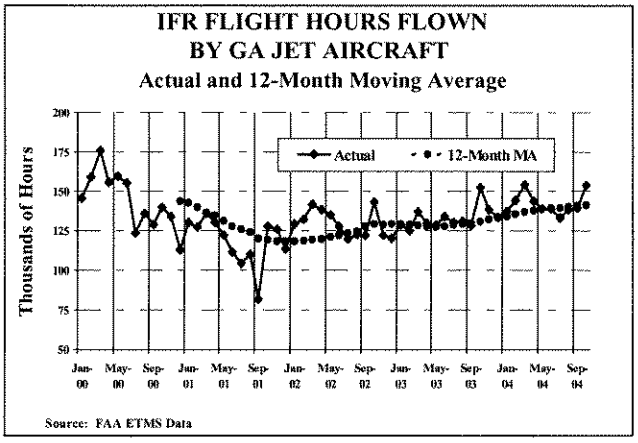


INSTRUMENT OPERATIONS (FAA AND CONTRACT TOWERS)



IFR AIRCRAFT HANDLED AT FAA AIR ROUTE TRAFFIC CONTROL CENTERS





In fiscal year 2004, operations at the top ten general aviation airports totaled 3.1 million, a decline of 6.0 percent from 2003. These 10 airports, as ranked by total general aviation operations, accounted for 8.9 percent of general aviation activity at the 489 combined FAA/contract towers. Of the top 10 airports, two each are in Arizona, California, and Florida while Colorado, Oklahoma, North Dakota, and Texas each have one. Only one of the top 10 airports (Long Beach—up 1.3 percent) experienced an increase in operations in 2004.

The 10 fastest growing general aviation airports, as ranked by the percentage increase over fiscal year 2003, grew from a combined total of 295,161 general aviation operations in 2003 to 411,026 in 2004, an increase of 39.3 percent. The three airports with the largest percentage increase in 2004 were Green Bay/Austin Straubel International (WI), Jacksonville/Cecil Field (FL), and Lihue Airport (HI).

Jacksonville/Cecil Field (second in 2003), Lake Charles/Chennault (fourth in 2003), and Kalispell Airport (fifth in 2003), are ranked among the fastest growing airports for the 2nd year in a row.

TABLE V-1[2]

FASTEST GROWING GENERAL AVIATION AIRPORTS RANKED BY PERCENT CHANGE IN OPERATIONS FISCAL YEAR 2004

Fac. Id.	City/Airport	2004	2003	% Ch. 03-04
GRB	Green Bay/ Straubel Intl.	68,476	44,504	53.9
VQQ	Jacksonville/Cecil Field	40,187	27,151	48.0
LIH	Lihue	24,126	16,697	44.5
LAW	Lawton Municipal	11,613	8,189	41.8
BOS	Boston/Logan Intl.	27,529	19,568	40.7
CWF	Lake Charles/Chennault	34,566	24,838	39.2
LYH	Lynchburg Regional	47,849	35,145	36.1
FCA	Kalispell	45,224	34,219	32.2
EWB	New Bedford Regional	78,818	59,800	31.8
BDL	Windsor Locks/Bradley Int'l	32,638	25,050	30.4

2003 GENERAL AVIATION AND AIR TAXI ACTIVITY SURVEY

Only preliminary results of the 2003 General Aviation and Air Taxi Activity Survey (GA Survey)[3] are available for discussion in this year's forecast document. Although the preliminary results are subject to change, they will be used as the base year for projecting future demand for general aviation.

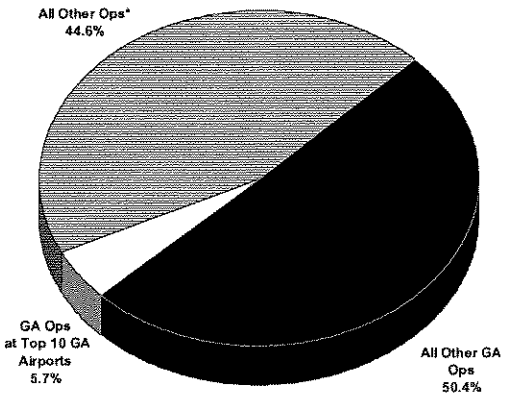
[2] Note: Eight fast growing airports were not included in the top 10 list. Four were excluded because they were not a towered airport in 2003--Denton Airport (TX), Kalaeloa Airport (HI), Hilton Head Airport (SC), and Golden Triangle Regional (MS). Four other airports were excluded because general aviation operations in 2004 were under 5,000.

[3] The preliminary results are of January 10, 2005 and are subject to revision. Surveyed aircraft owners still had 3 weeks remaining to respond to the 2003 Survey.

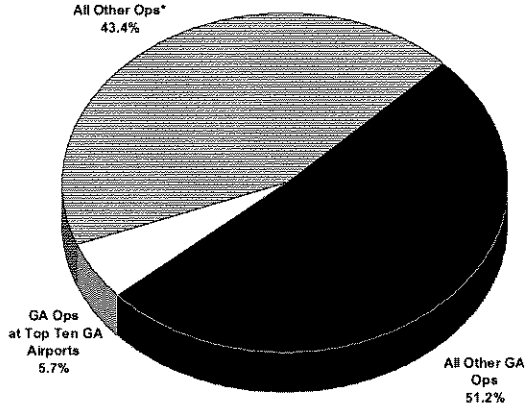
LARGEST GENERAL AVIATION AIRPORTS RANKED BY FY 2004 AIRCRAFT OPERATIONS

Facility ID	City/Airport	2004	2003
VNY	Van Nuys	438,304	457,691
DVT	Phoenix-Deer Valley Municipal	353.694	377,915
SFB	Orlando/Sanford	347.843	370.523
LGB	Long Beach/Daugherty Field	307,232	303,238
DAB	Daytona Beach International	300.087	325,636
APA	Denver/Centennial	299,664	325,529
PRC	Prescott/E A Love Field	293,154	298,399
RVS	Tulsa/Riverside	286,533	325,056
FFZ	Mesa/Falcon Field	260,741	272,312
GFK	Grand Forks International	253,037	277,048
	Operations -- Top 10 GA Airports	3,140,289	3,337,647
	Total GA Operations	34,938,200	35,524,020

PERCENT OF AIRCRAFT OPERATIONS BY TYPE OF AIRCRAFT OPERATION



2004



2003

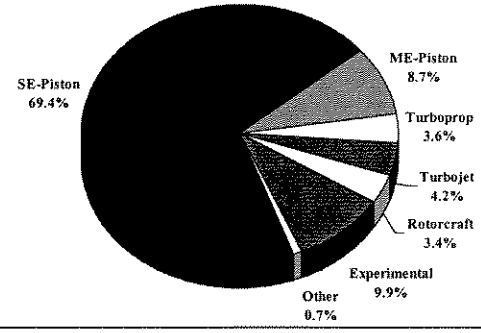
*Includes air carrier, air taxi/commuter, and military operations.

ACTIVE AIRCRAFT

There were an estimated 210,600 active general aviation aircraft in 2003, a decrease of 0.3 percent from 2002. This marks the fourth consecutive year of declining estimated fleet size.

Single-engine piston aircraft (143,916) continued to dominate the fleet in 2003, accounting for 68.3 percent of the total active fleet. The next largest groups are experimental aircraft (20,603, 9.8 percent) and multi- engine piston (17,723, 8.4 percent). Turbojets, turboprops, and rotorcraft make up relatively small shares of the active fleet, accounting for 3.9, 3.4, and 3.2 percent, respectively.

ACTIVE GENERAL AVIATION AIRCRAFT PERCENT BY AIRCRAFT TYPE IN 2003

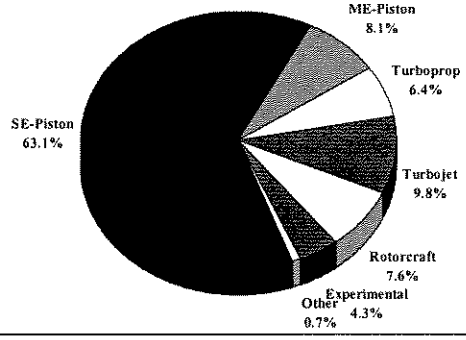


HOURS FLOWN

General aviation aircraft flew a total of 27.0 million hours in 2003. This was virtually the same amount as in the previous two years. It is 9.7 percent below the estimated total hours flown in 2000.

Single-engine piston aircraft flew 16.5 million hours in 2003 a total that has remained virtually constant over the last 3 years. Rotorcraft flew a total of 2.2 million hours, up 16.8 percent over 2002. The combined flight hours of three aircraft categories—turboprops, turbojets, and rotorcraft-- account for 24.7 percent of total hours flown, but only 10.5 percent of the active fleet. This disproportionate share is due to higher utilization rates among these aircraft types.

ACTIVE GENERAL AVIATION AIRCRAFT PERCENT HOURS FLOWN 2003



GENERAL AVIATION AS AN INDUSTRY

General aviation continues to be a vital part of aviation in the United States. At year-end 2003, there were 19,816 civil and joint use airports/heliports/seaplane bases in operation in the United States, with 5,281 available for public use. Of these 513 airports were classified as commercial service (also used by general aviation). This leaves a total of 19,303 airports/ heliports (97.4 percent) used almost exclusively by general aviation aircraft, with 4,768 available for public use.

In addition, general aviation accounts for the largest number of civil aircraft in the United States and accounts for the majority of operations handled by towered and non-towered U.S. airports, as well as for the majority of certificated pilots in the United States.

In 2003, there were over 218,181 active civil aircraft in the United States. This includes an estimated 214,311 active general aviation aircraft (over 96.6 percent of the active fleet),

TABLE V-2

GENERAL AVIATION ACTIVE AIRCRAFT BY AIRCRAFT TYPE (In Thousands)

AIRCRAFT TYPE	2003	2002	2001	2000	1999	1998
Fixed Wing - Total	**177.0**	**176.3**	**177.8**	**183.3**	**184.7**	**176.7**
Piston -- Total	**161.6**	**161.1**	**163.1**	**170.5**	**171.9**	**164.0**
One Engine	143.9	143.5	145.1	149.4	150.9	145.1
Two Engine	17.7	17.5	16.8	21.0	20.9	18.9
Other Piston	0.0	0.1	0.1	0.1	0.1	0.0
Turboprop -- Total	**7.2**	**6.8**	**6.7**	**5.8**	**5.7**	**6.5**
Single Engine	1.8	1.1	0.9	0.7	1.0	0.9
Two Engine	5.4	5.7	5.6	5.0	4.6	5.5
Other Turboprop	0.0	0.0	0.0	0.0	0.0	0.1
Turbojet -- Total	**9.2**	**8.4**	**7.9**	**7.0**	**7.1**	**6.2**
Two Engine	8.6	7.7	6.9	6.2	6.4	5.6
Other Turbojet	0.6	0.7	1.0	0.8	0.7	0.6
Rotorcraft -- Total	**6.8**	**6.6**	**6.5**	**7.2**	**7.4**	**7.3**
Piston	2.2	2.4	2.3	2.7	2.6	2.6
Turbine	4.6	4.3	4.3	4.5	4.9	4.8
Single Engine	3.7	3.6	3.4	3.8	4.0	4.0
Multi-engine	0.9	0.6	0.9	0.7	0.9	0.8
Other -- Total	**6.2**	**6.4**	**6.7**	**6.7**	**6.8**	**5.0**
Experimental -- Total	**20.6**	**21.9**	**20.3**	**20.4**	**20.5**	**16.3**
Total All Aircraft	**210.6**	**211.2**	**211.4**	**217.5**	**219.5**	**205.7**

SOURCE: 1998-2003 General Aviation Activity and Avionics Surveys

N/A = Not applicable

Columns may not add to totals due to rounding and estimation procedures.

TABLE V-3

TOTAL GENERAL AVIATION HOURS FLOWN BY AIRCRAFT TYPE

(In Thousands)

AIRCRAFT TYPE	2003	2002	2001	2000	1999	1998
Fixed Wing - Total	**23,287**	**23,486**	**23,620**	**26,127**	**27,046**	**24,392**
Piston -- Total	**18,791**	**18,891**	**19,194**	**21,493**	**22,529**	**20,402**
One Engine	16,483	16,325	16,549	18,089	18,983	16,823
Two Engine	2,304	2,548	2,634	3,385	3,531	3,367
Other Piston	4	18	10	18	14	11
Turboprop -- Total	**1,787**	**1,850**	**1,773**	**1,986**	**1,797**	**1,765**
Single Engine	510	419	299	277	368	289
Two Engine	1,277	1,427	1,457	1,703	1,424	1,459
Other Turboprop	0	4	17	7	4	17
Turbojet -- Total	**2,709**	**2,745**	**2,654**	**2,648**	**2,721**	**2,226**
Two Engine	2,510	2,551	2,368	2,324	2,435	1,995
Other Turbojet	199	194	286	324	286	231
Rotorcraft -- Total	**2,192**	**1,876**	**1,953**	**2,191**	**2,630**	**2,342**
Piston	477	454	474	530	552	430
Turbine	1,715	1,422	1,479	1,661	2,077	1,912
Single Engine	1,304	1,113	1,156	1,326	1,656	1,415
Multi-engine	411	310	322	335	422	497
Other -- Total	**275**	**333**	**287**	**362**	**309**	**295**
Experimental -- Total	**1,296**	**1,345**	**1,157**	**1,280**	**1,246**	**1,071**
Total All Aircraft	**27,050**	**27,040**	**27,017**	**29,960**	**31,231**	**28,100**

SOURCE: 1998-2003 General Aviation Activity and Avionics Surveys

N/A = Not applicable

Columns may not add to totals due to rounding and estimation procedures.

5,016 large passenger and cargo jet aircraft, and 2,565 regional/commuter aircraft (including regional jets, turboprops, and pistons).

Of the 618,633 active certificated pilots at the end of 2004, private pilots accounted for 38.1 percent of the total. In addition, it is estimated that general aviation itinerant and local operations totaled 86.7 million in fiscal year 2004, 71.9 percent of the total 120.6 million operations at towered and non-towered U.S. airports.[4]

REALISM IN THE INDUSTRY

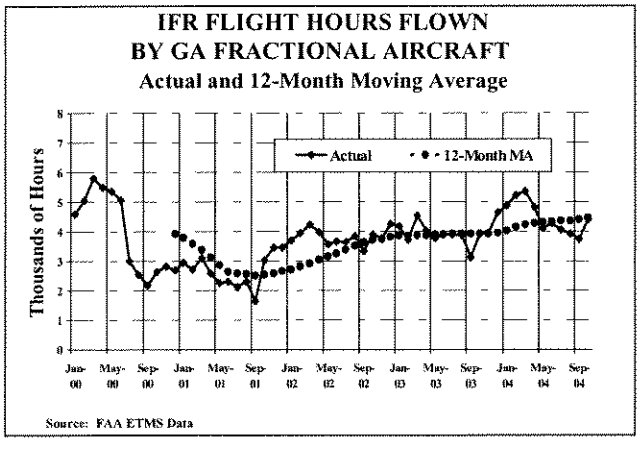
August of 2004 marked the 10th year since the passage of the General Aviation Revitalization Act (GARA). Despite the recent downturn, general aviation shipments and billings have each more than doubled during this period. The General Aviation Manufacturers Association (GAMA) estimates that more than 25,000 manufacturing jobs had been created in the general aviation industry as a result of GARA. The 2001 economic recession, combined with the lingering effects of the events of September 11th resulted in the loss of some jobs in general aviation manufacturing. However, GAMA reports that employment at member companies was up 6.3 percent in 2004. There are signs of improvement on the horizon, although some sectors will likely benefit more than others.

Whether GARA, which brought product liability reform to the industry, and the introduction of new aircraft models will be enough to see the industry through uncertain times is difficult to predict at this time.

Optimism is fostered by the continued entry of new commercial manufacturers into the general aviation aircraft market, and the fact that some kit builders are becoming production companies at the entry level.

Since their start in the 1980s, fractional ownership providers have steadily increased their customer base. According to data from Aviation Data Service Inc. (AvData), there were 4,765 individuals and companies (up 5.5 percent) in the U.S. that owned a fractional share of an airplane at the end of 2004. GAMA member companies report that approximately 14.0 percent of their total business jet deliveries went to fractional companies in 2004. The number of airplanes in fractional programs was up 5.4 percent in 2004 and up 65.6 percent since 2000. Despite these increases it is believed that only a small percentage of this market has been developed.

According to ETMSC data, fractional aircraft operated 39,262 flights (up 5.5 percent), flew 54,502 hours (up 14.6 percent), and provided service to 1,413 airports in 2004. The top five U.S. airports served by fractional aircraft in 2004 were Teterboro (NJ), Palm Beach International (FL), Westchester County (NY), Washington Dulles (VA), and Omaha Eppley Field (NE).



Fractional ownership providers offer the customer a more efficient use of time by providing faster point-to-point travel and the ability to conduct business while in transit. In addition, shareholders of fractional ownerships

[4] 2004 Terminal Are Forecast (January 2005)

find the minimum startup costs and easier exiting options of great benefit.

AvData also estimates that at the end of 2004, there were 15.050 corporate operators (up 5.5 percent) in the world utilizing a fleet of 23,013 aircraft. Of these, the U.S. accounted for almost three-quarters of corporate operators (11,070) and over 65.0 percent of the corporate fleet (15,704).

The business aviation community was initially concerned that the success of fractional ownership programs would result in the closing of corporate flight departments. These concerns have not come to fruition. Fractional ownership providers generally find its business base to be first-time users of corporate aircraft services, users that traditionally utilize commercial air transportation services. Once introduced to the benefits of corporate flying, some users of fractional programs find it more cost beneficial to start their own flight departments, instead of incurring the costs of a larger share in a fractional ownership program. As such, the fractional ownership community may be partially responsible for the increase in traditional flight departments since 1993.

In a potentially important step for general aviation, Congress recently extended the placed-in-service date for the accelerated depreciation (from 30 to 50 percent) for new general aviation aircraft until December 31, 2005. This has the potential to spur many people/businesses to purchase more expensive aircraft sooner than they might have planned. GAMA estimates that that bonus depreciation has stimulated sales by nearly 30 percent.

The number of amateur-built experimental aircraft in the general aviation fleet has increased consistently for more than a quarter of a century, from 2,100 in 1970 to over 30,000 today. It is estimated that approximately 70 percent of these are active aircraft.

The popularity of the amateur-built aircraft results from several factors, including affordability and performance. Amateur-built experimental aircraft represent a test-bed for new technologies that will eventually be introduced in the development and manufacture of the next generation of light general aviation production aircraft. The success of the kit aircraft market demonstrates that demand still exists for affordable aircraft.

FAA/Government Programs/Initiatives

The partnership between the FAA and the general aviation community is a continuous joint effort aimed at fostering industry improvements and promoting aviation safety.

The FAA, the National Aeronautics and Space Administration (NASA), industry, and other government agencies and universities, are working together to improve the safety and efficiency in our transportation system. To this end, NASA and FAA have implemented the Small Aircraft Transportation System (SATS). It is believed that the SATS can satisfy 21st century transportation demand by relieving pressure on existing ground and air systems, and by creating access to more communities in less time. The SATS Project at NASA's Langley Research Center produces data to support FAA decisions regarding operational use of National Airspace (NAS) capabilities. Collaboration between the FAA, NASA, and industry participants requires dedicated resources to support the development of technologies and their integration within the NAS.

The FAA is also committed to improving navigation through satellite-based systems such as the Global Positioning System (GPS) for airport precision approach. Most IFR aircraft are expected to have GPS/WAAS (Wide Area Augmentation System) by 2005. The expected increase in the number of general aviation aircraft equipped with GPS/WAAS and other avionics and communications gear such as

Automatic Dependent Surveillance–Broadcast (ADS-B) and 8.33 kHz (radio) channel spacing should be evidenced in avionics tables included in the GA Survey over the next few years.

The introduction of Light Sport Aircraft (LSA) is expected to increase the number of pilots and interest in flying. The Experimental Aircraft Association (EAA) has worked with the FAA and others to introduce this new element. The Sport Pilot and Light Sport Aircraft Rule was implemented in September 2004. The sport pilot certificate enables pilots to operate light-sport aircraft with either a valid third class medical or a current and valid U.S. driver's license. Any FAA certificated pilot who holds either of these credentials may exercise sport pilot privileges under their current pilot certificate, providing that they (1) have a current flight review, (2) are qualified in the specific category and class (hold the ratings on their recreational certificate, or higher), (3) meet the currency requirements of three take-offs and landings if carrying a passenger, and (4) meet the cross country training requirements of 61.101c, if a recreational pilot.

An existing aircraft type called an "LSA" retains its original airworthiness certificate, but also meets the general definitions of the Code of Federal Regulations, Section 1.1. These definitions establish, among other things, maximum aircraft weights and airspeeds. In 2005, the FAA is preparing to issue the first certificates for the following:

- Sport Pilots;
- Sport Pilot Instructors;
- Factory-built light-sport aircraft (Special Light-Sport Aircraft or S-LSA);
- Existing and kit-built light-sport aircraft (Experimental Light-Sport Aircraft or E-LSA)
- Light-Sport Aircraft Repairmen (maintenance and inspection) ratings; and
- Ratings for Private Pilots who have additional training in weight-shift aircraft or power parachutes.

Also on the horizon are Unmanned or Uninhabited Aerial Vehicles (UAVs). Remotely operated and autonomous aircraft could provide, among other things, the following services: a communication network; monitoring natural disasters; patrolling U.S. borders; and providing commercial operations. However, before these services can be implemented, policies and certifications for incorporating them into the NAS must be completed. UAVs currently fly in military or restricted airspace, or on a case-by-case basis to utilize NAS. Routine access would require providing a process by which UAVs could be certified and through which a flight plan like those for piloted aircraft could be filed. A team of NASA, government, and industry partners is working to develop recommendations to assist the FAA in developing guidelines for certifying UAVs. The long-term goal is to recommend policies, procedures, and functional requirements that will ensure that High-Altitude, Long-Endurance (HALE) UAVs can operate as safely as other routine users of NAS.

FAA Administrator Marion Blakey continues to promote safety improvements in general aviation through the "Safer Skies" program. This program was begun in 1998, with the goal of achieving significant reductions in fatal accidents by 2007. Together with industry, the FAA has used the latest technology to analyze U.S. and global data to find the root causes of accidents so as to determine the best actions for breaking the chain of events that lead to accidents. For general aviation, this means the FAA has embarked on a major effort to improve the quality, collection, and analysis of aviation data.

The GA JSC concentrates its efforts in the following areas: Controlled Flight into Terrain; Weather; Pilot Decision Making; Loss of Control; Survivability; and Runway Incursions.

Manufacturer and Industry Programs/Initiatives

The first micro jets, also called very light jets (VLJ) are scheduled to be on the market in late 2005. A combination of new jet engine technologies, sophisticated avionics equipment and entrepreneurs has provided the impetus for this new aircraft market. Several manufacturers have announced that they have received thousands of down payments for these aircraft that are expected to be priced from a low of around $1 million to a high of almost $3 million. At least two of the micro jet manufacturers have plans to utilize these planes, which generally hold 4 to 6 passengers, as on-demand air taxis. NASA believes micro jets could inspire more travelers to consider them as alternatives to commercial aviation, especially for routes of 500 miles or less. However, there are differing views as to the potential size of this market.

The fractional ownership industry was started just over 15 years ago and since that time has provided corporate flying services to companies that could not otherwise justify the costs associated with operating a separate flight department. During this time, fractional ownership providers have operated under Federal Aviation Regulation (FAR) Part 91, which governs general aviation. In 2002, the FAA established a formal rulemaking committee, consisting of members from aircraft manufacturers, corporate flight departments, charter operators, fractional owner providers and their customers, and business aircraft management companies to review current Federal Aviation Regulations regarding fractional ownership activity and to draft a proposal that would require fractional ownership aircraft to operate under subpart K of Part 91. That requirement was instituted in October 2004.

Over the past several years, the general aviation industry has launched a series of programs and initiatives whose main goal is to promote and assure future growth within the industry. These include the "No Plane, No Gain" program sponsored jointly by GAMA and the NBAA; Project Pilot" sponsored by the Aircraft Owners and Pilots Association (AOPA); the "Flying Start" program sponsored by EAA; and "BE A PILOT." Over the years, these programs have been or are being superceded by new initiatives. For example, at the NBAA's 57th Annual Meeting and Convention in October 2004, NBAA and GAMA announced the development of several new cooperative programs, including a follow-on to the "No Plane, No Gain" advocacy program.

AOPA's "Project Pilot" promotes the training of new pilots in order to increase and maintain the size of the pilot population. AOPA believes that students who have mentors offering advice and help as training progresses are more likely to complete their training than students who do not have mentors.

Security continues to be of primary concern to the general aviation industry. The general aviation community has worked with the Transportation Security Administration (TSA) to develop a set of guidelines that are designed to ensure security while giving general aviation the freedom to operate effectively.

GENERAL AVIATION FORECASTS

The general aviation forecasts discussed in the following paragraphs are based on a set of economic assumptions that includes a strong growth in 2005 and 2006, with moderate sustained growth thereafter. The modest recovery in the demand for general aviation products and services over the past year provides the foundation upon which the industry hopes to build on for the future. It is generally believed that general aviation activity lags U.S.

economy activity by approximately one year and, as such, is expected to achieve only low to moderate growth in 2004 and 2005. However, the demand for general aviation products and services is expected to return to growth patterns more indicative of U.S. economic activity beginning in 2006.

The forecast also assumes that the regulatory environment affecting general aviation will not change dramatically. Specifically, it is assumed that noise and emissions requirements on business turbine aircraft will remain within the bounds prescribed by current rules and regulations. The forecast also assumes that general aviation activity will not be subject to new user-fees or limited access to airports and airspace.

In addition, the forecast assumes that the fractional ownership and on-demand air taxi markets will continue to expand and bring new operators and shareholders into business aviation. The fractional ownership community is not expected to be inhibited by certification and regulatory requirements associated with the adoption of the new fractional ownership rule—Part 91, Subpart K.

To the extent that industry and government programs/initiatives are successful in expanding the market for general aviation products and services, the forecasts for the general aviation fleet, hours flown, and pilots can be achieved or possibly exceeded.

The forecast period for the two activity measures (active fleet and hours flown) extends from 2004 through 2016, and references to average annual growth rates for the forecast period include 13 years. Airmen forecasts are based on actual data for 2004, and references to average annual growth rates for the forecast period include 12 years.

ACTIVE FLEET

In any year, the size of the U.S. fleet is assumed to be the result of new production, the fleet carried over from the previous year, and attrition of existing aircraft during the current year. Attrition occurs from net exports, retirements, and write-offs. New production depends on economic expansion and corporate profitability, the introduction of new products, and the prices of the new aircraft offered for sale.

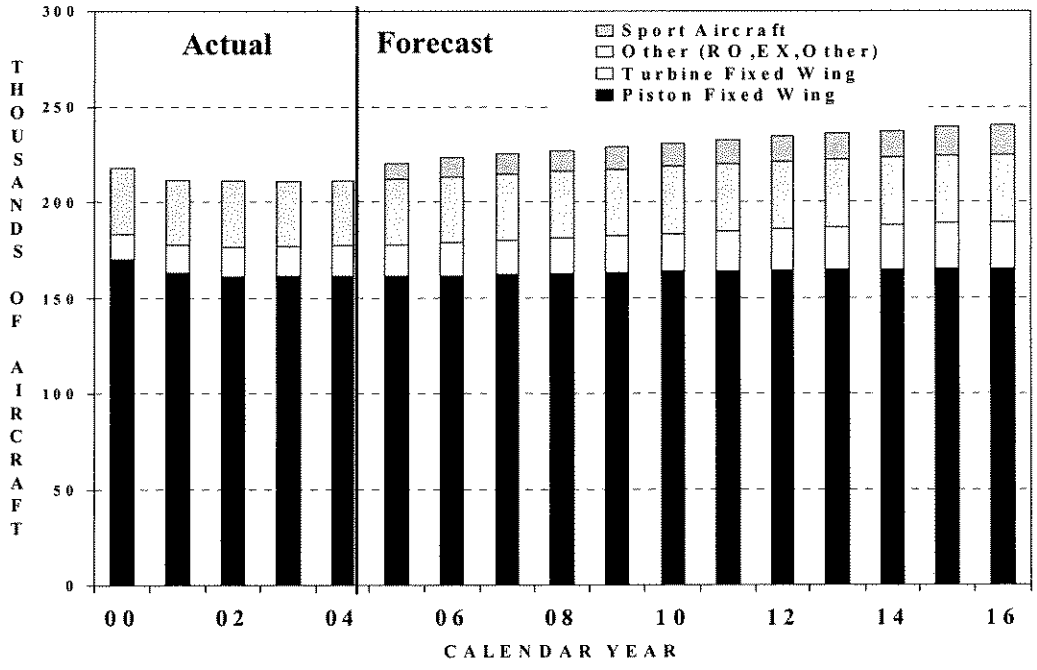
The active general aviation aircraft fleet is expected to increase at an average annual rate of 1.1 percent over forecast period, increasing from 210,600 in 2003 to 240,070 in 2016. However, this growth includes the addition of a new aircraft category--light sport aircraft--that is expected to enter the active fleet in 2005 and to account for 15,410 aircraft in 2016.

There appear to be two separate general aviation economies: turbojet aircraft follow one market pattern; while piston, turboprop, rotorcraft, and experimental aircraft follow a separate growth pattern. However, the introduction of micro jets and sport aircraft could alter this dynamic. The number of single-engine piston active aircraft is projected to maintain a 0.2 percent average annual growth from 143,916 active aircraft in 2003 to 148,000 in 2016. The number of active multi-engine piston aircraft is expected to decline by 0.2 percent per year over the forecast period, totaling 17,235 in 2016.

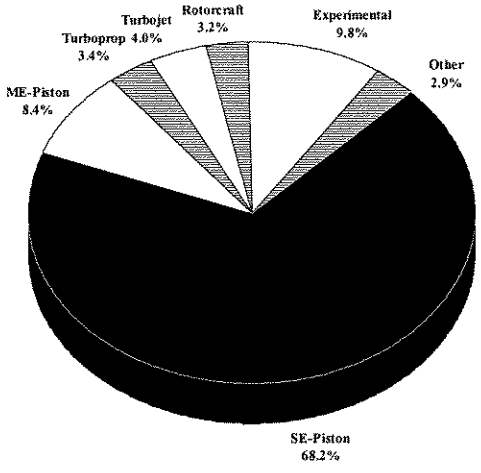
The turbine-powered fleet is expected to increase at an average annual rate of 3.7 percent over the forecast period. The number of turboprop aircraft is expected to increase from 7,201 in 2003 to 8,400 in 2016. This represents an average annual growth rate of 1.2 percent over the forecast period. These forecasts assume that the turboprop fleet grows by approximately 100 aircraft per year, counting new production and attrition.

Turbojet aircraft are forecast to increase on average by 5.4 percent annually, from 8,153 in

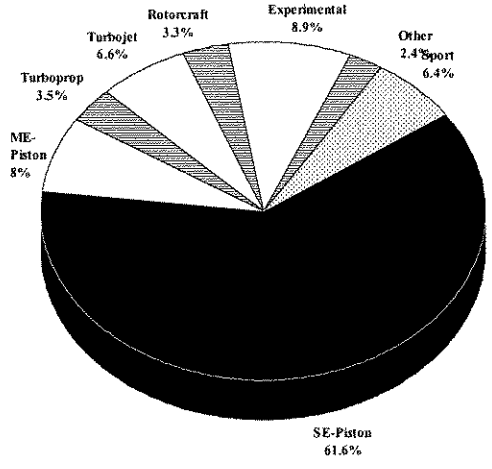
ACTIVE GENERAL AVIATION AIRCRAFT



PERCENT BY AIRCRAFT TYPE



2003



2016

2003 to 15,900 in 2016. Several factors are responsible for the market for business jets. These include strong growth in both the U.S. and global economy; the success and continued growth in the fractional ownership market; the continued introduction of new product offerings; and a continuation of the shift from commercial air travel to corporate/business air travel by business travelers and corporations. In addition, the forecast assumes that new micro jets will begin to enter the fleet in 2006 and grow to a total of 4,500 aircraft by 2016. These aircraft are expected to stimulate the market for on-demand air taxis.

The rotorcraft fleet is forecast to grow 1.2 percent annually over the forecast period, from 6,791 in 2003 to 7,915 in 2016. The piston and turbine rotorcraft fleet are each projected to grow at an annual rate of 1.2 percent. A detailed discussion of the rotorcraft forecasts is presented in Chapter VI.

The number of experimental aircraft is projected to increase from 20,603 in 2003 to 21,380 in 2010, and remains at this level throughout the remainder of the forecast period. The lack of growth after 2010 is largely due to the introduction of new sport aircraft models that are expected to dilute the market for experimental aircraft kits and blur the distinction between the two aircraft categories. Gliders and lighter-than-air aircraft are forecast to decrease 0.5 percent annually, from 6,213 in 2003 to 5,830 in 2016.

AIRCRAFT UTILIZATION

It is assumed that the aging of the general aviation fleet is one of the main determinants of declining utilization of general aviation aircraft. While part of the decline in utilization can be attributed to the aging of the general aviation fleet, U.S. economic slowdowns and/or recessions, such as the ones that occurred in 1990-1991 and 2001 can also impact utilization. The decline in the utilization rates in 2000 (down 3.2 percent) and 2001 (down 7.2 percent) were due, in part, to higher fuel prices and the 2001 U.S. economic recession. However, the restrictions placed on general aviation flying in the aftermath of the September 11th events were though to also contribute to the decline in utilization in 2001.

Utilization rates appear to have stabilized since 2001, and have increased from 128.0 in 2002 to 128.4 hours per aircraft in 2003. The strong growth projected in the U.S. economy in 2005 and 2006 should lead to continued increases in utilization rates for most categories of general aviation aircraft. In addition, new ownership strategies, and other approaches to make flying more desirable and affordable should also be positive forces on utilization rates during the forecast period.

The utilization rate for single engine piston aircraft was an estimated 114.5 hours per aircraft in 2003. Starting at this base and excluding light sport aircraft, utilization rates for single-engine piston aircraft are projected to increase to 116.7 hours by 2016, an increase of 0.1 percent annually.

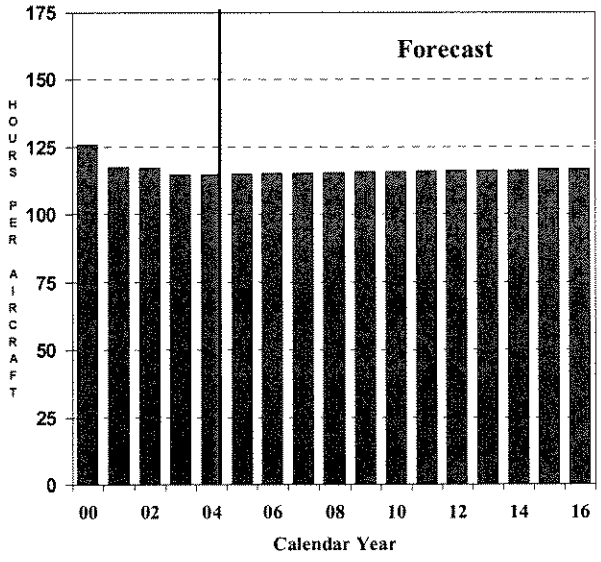
The relatively small increase forecast for single-engine piston utilization rates results from the fact that utilization rates tend to be lower for older aircraft. With less than 2,000 new aircraft projected to enter the fleet annually, the single-piston fleet will "age" and, utilization rates should increase only marginally, if at all.

In 2003, multi-engine piston aircraft utilization rates are estimated to be approximately 130.2 hours per aircraft. The utilization of multi-engine piston aircraft is forecast to decrease to 128.8 hours in 2016. This is an annual average decrease of 0.1 percent.

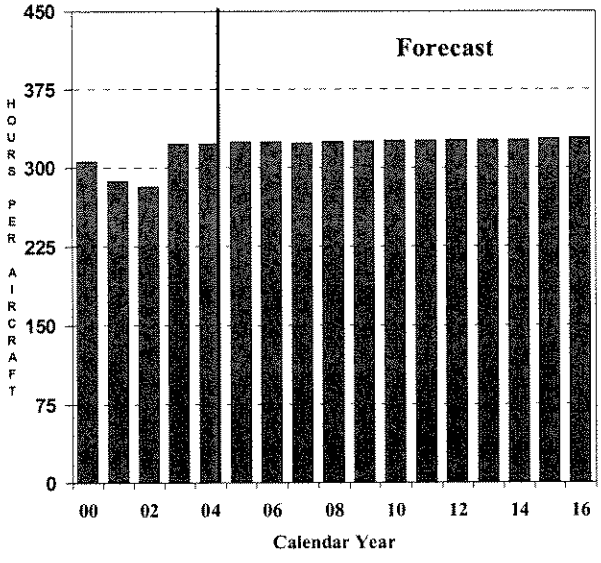
The utilization rate for turboprops declined 8.2 percent (to 248.2 hours) in 2003. While turboprop utilization is expected to increase to 256.0 hours by 2016, this is well below the average 344.7 hours flown per aircraft in 2000. Turbojet utilization was up 0.1 percent in 2003

GENERAL AVIATION AIRCRAFT UTILIZATION: AVERAGE HOURS PER AIRCRAFT

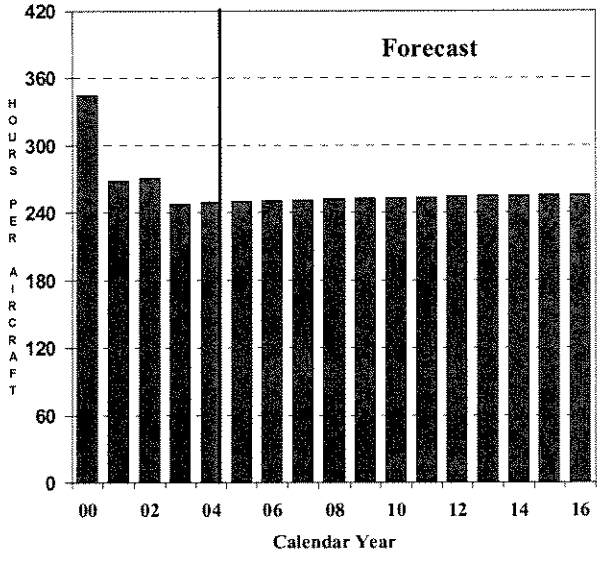
PISTON FIXED WING



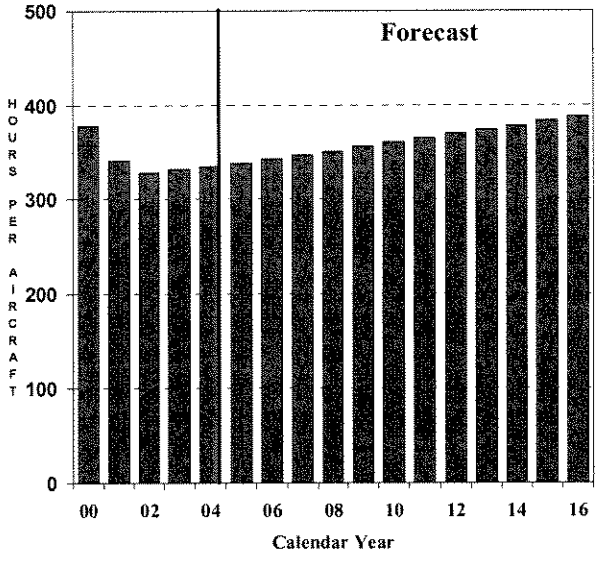
ROTORCRAFT



TURBOPROP



TURBOJET



and is projected to increase at an average annual rate of 1.2 percent over the 13-year forecast period, from 332.3 hours in 2003 to 387.6 hours in 2016. The increase in utilization rates for turbojets is largely attributable to the increased number of aircraft being operated by fractional ownership providers.

The rotorcraft utilization rate was up 14.4 percent in 2003—piston and turbine average hours up 12.2 and 12.9 percent, respectively. Rotorcraft utilization is expected to increase at an average annual rate of 0.1 percent annually, reaching 328.5 hours in 2006. Utilization rates for experimental aircraft are forecast to increase slightly over the 13-year forecast period.

HOURS FLOWN

General aviation hours flown are forecast to increase by 1.6 percent annually over forecast period--from 27.1 million in 2003 to 32.8 million in 2016. Single-engine piston aircraft hours are forecast to increase 0.4 percent annually from 16.5 million in 2003 to 17.3 million in 2016. Multi-engine piston aircraft hours are forecast to decline 0.3 percent annually, from 2.3 million in 2003 to 2.2 million in 2016.

Turboprop hours are expected to increase 1.4 percent annually over the forecast period, from 1.8 million to 2.2 million hours. Turbojet hours are expected to increase from 2.7 million in 2003 to 6.2 million in 2016, an average annual increase of 6.7 percent. Although the introduction of micro jets accounts for some part of this increase, it is the expected continued strong growth among higher utilization fractional ownership aircraft that accounts for the majority of the increase.

Rotorcraft hours are forecast to increase approximately 1.3 percent annually over the forecast period, from 2.2 million in 2003 to 2.6 million in 2016. Experimental aircraft hours are expected to increase at an annual rate of 0.4 percent, from 1.3 million in 2003 to 1.4 million in 2016. The sport aircraft category is expected to total 785,000 hours in 2016.

PILOT POPULATION

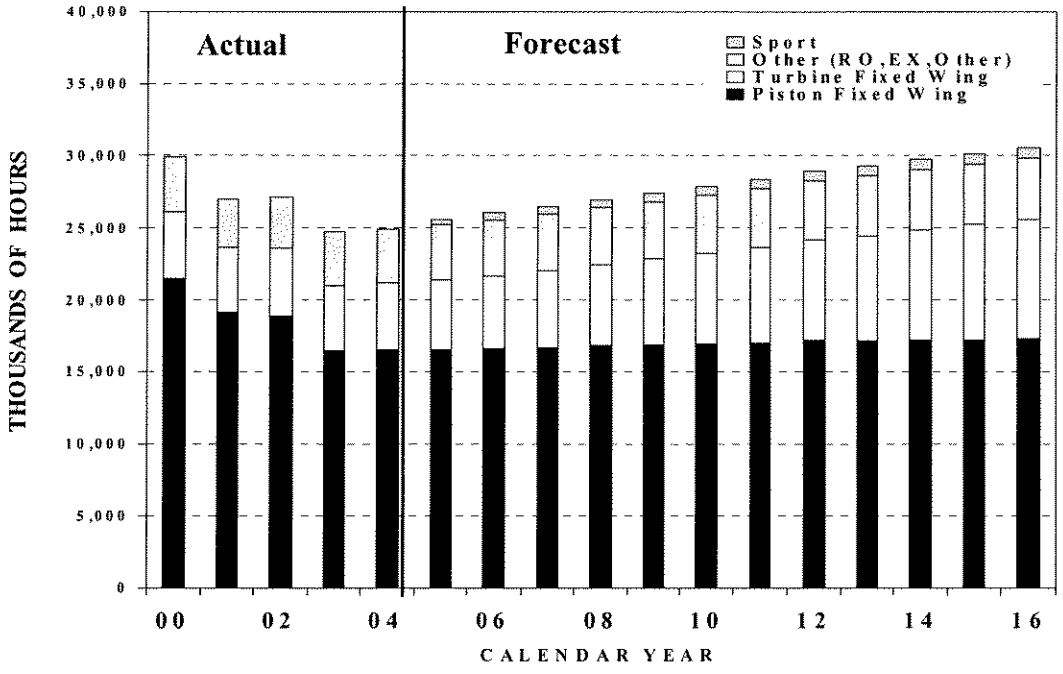
The total pilot population is projected to increase from an estimated 618,633 in 2004 to 750,260 by 2016, an annual increase of 1.6 percent over the forecast period. Annual growth rates for the major general aviation pilots categories are: student pilots, up 1.8 percent annually; private pilots, up 1.2 percent annually; and commercial pilots, up 1.7 percent annually.

The student pilot population increased 0.7 percent in 2004. This important pilot category is forecast to reach a total of 108,800 in 2016. The new category of sport aircraft makes it more economical to learn to fly, thereby attracting more student pilots.

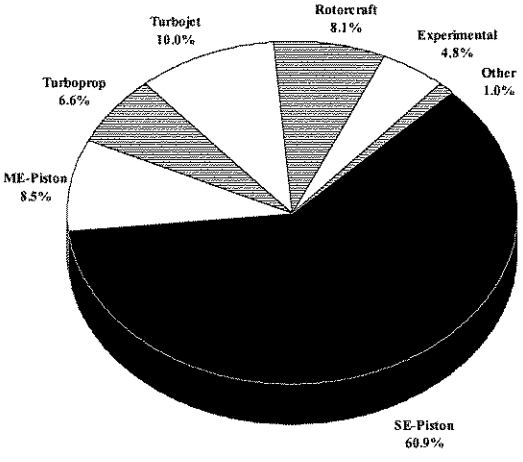
Growth rates for the other pilot categories over the forecast period are: airline transport pilots, up 1.7 percent; recreational, up 1.6 percent; rotorcraft only, up 1.2 percent; and glider only, up 0.2 percent annually.

The number of instrument rated pilots is forecast to increase from 313,545 in 2004 to 379,200 in 2016. Excluding students, recreational, and sport pilots, 60.3 percent of all pilots are expected to be instrument rated in 2016, up from 59.1 percent in 2004.

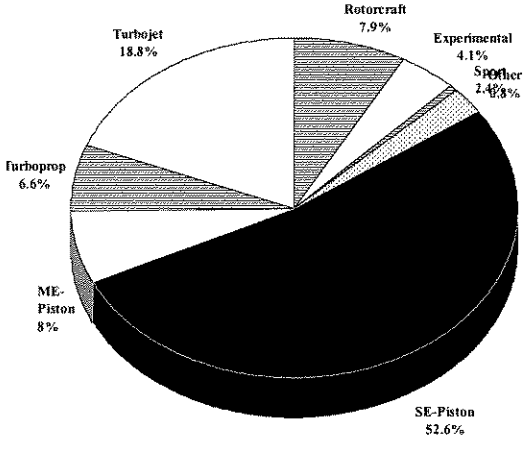
ACTIVE GENERAL AVIATION AND AIR TAXI HOURS FLOWN



PERCENT BY AIRCRAFT TYPE



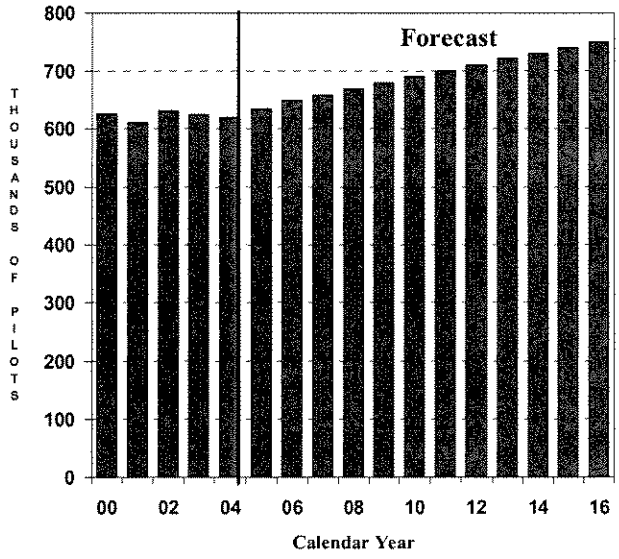
2003



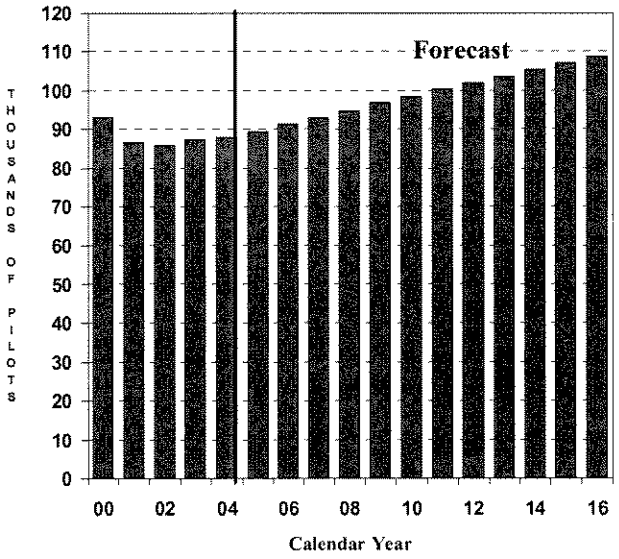
2016

ACTIVE PILOT TRENDS AND FORECASTS

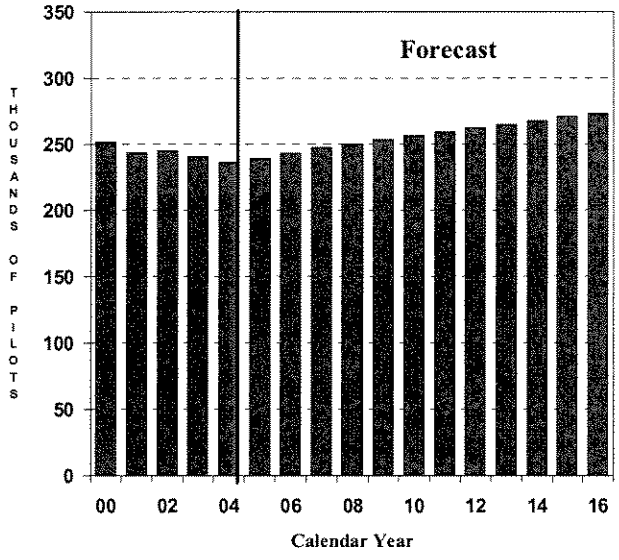
TOTAL



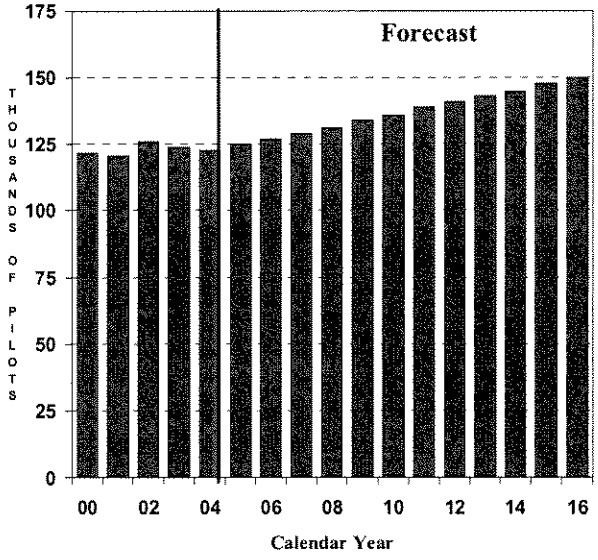
STUDENT



PRIVATE



COMMERCIAL



CHAPTER VI

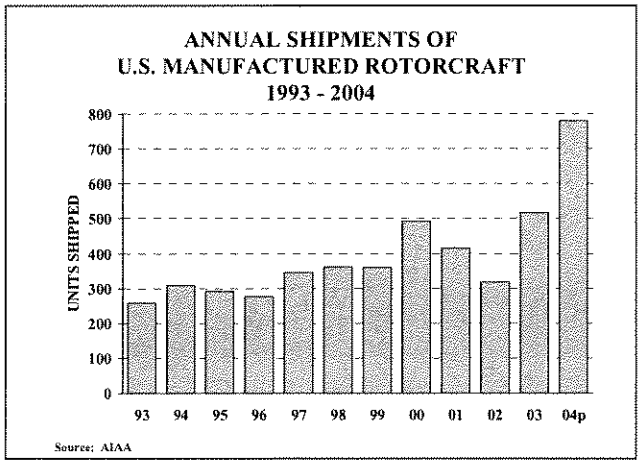
HELICOPTERS

Helicopters participate in a wide range of aviation activities, which are not only important, but contribute to the nation's economy as well. These activities include aerial observation; sightseeing; agricultural application; law enforcement; fire fighting; personal transportation; emergency medical services; transporting personnel and supplies to offshore oil rigs; traffic reporting; electronic news gathering; corporate or business transportation; and heavy lift for the oil, utility, and lumber industries.

REVIEW OF 2003/2004

SHIPMENTS

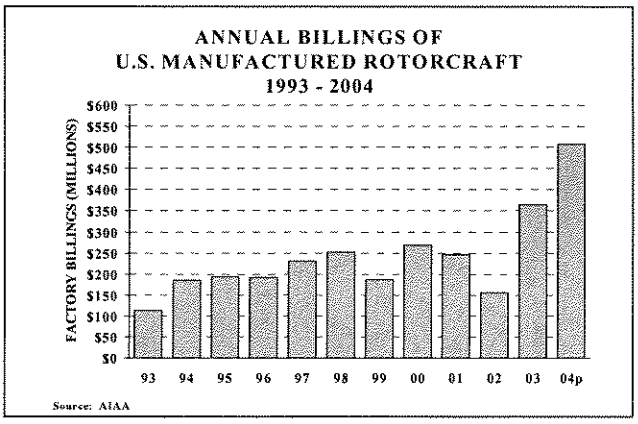
Preliminary data for calendar year 2004 reported by the Aerospace Industries Association of America (AIA)[1] indicate that shipments of new U.S. civil helicopters will total 781 units. This is a 51.1 percent increase over the 517 units shipped in 2003 and represents by far the highest level of helicopter shipments since 1991.



The value of the helicopter shipments totaled $509 million in 2004, an increase of 39.1 percent from billings of $366 million in 2003.

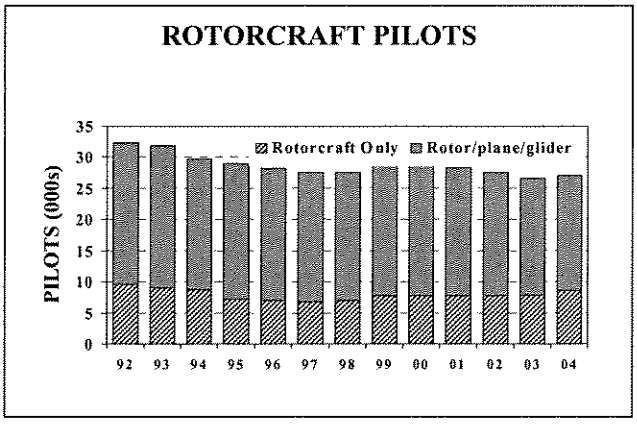
Over the past 7 years, the average value per helicopter shipped has ranged from a high of $707,930 in 2003 to a low of $413,158 in 2002. In 2004 the average value was $651,729. Indications are that the increase in the number of shipments is due primarily to the Robinson R44 and the increase in value is due primarily to the Sikorsky S-76.

[1] *2004 Year-End Review and 2005 Forecast—An Analysis*, Aerospace Industries Association of America, December 2004. These sales and shipment figures do not include U.S. imports from foreign manufactures.



PILOTS

The total rotorcraft pilot population includes pilots who are certificated to operate only rotorcraft (helicopters and gyrocopters) as well as those that may operate rotorcraft as well as other airplanes and/or gliders. The total number of active rotorcraft pilots increased 3.0 percent in 2004, from 26,231 in 2003 to 27,031 in 2004.



The number of pilots certificated to fly only rotorcraft increased from 7,916 in 2003 to 8,586 in 2004--up 8.5 percent.

2003 GENERAL AVIATION AND AIR TAXI ACTIVITY SURVEY

Only preliminary results of the General Aviation and Air Taxi Activity Survey (GA Survey) are available for discussion in this document. Although the preliminary results are subject to change, they have been used as the baseline for developing the rotorcraft active fleet and hours flown forecasts.

The active rotorcraft fleet and hours flown by aircraft type are detailed for the period 1996 to 2003 in Chapter V, Tables V-2 and V-3. The 2003 preliminary results for active rotorcraft and hours flown are also listed in Chapter X, Table 35.

FLEET AND HOURS FLOWN

There were an estimated 6,791 active civil rotorcraft in the United States in 2003, an increase of 2.2 percent over the 6,648 rotorcraft reported for 2002. This included 4,588 turbine rotorcraft (up 6.8 percent) and 2,203 piston rotorcraft (down 6.3 percent).

According to the 2003 estimates, rotorcraft flew 2.2 million hours in 2003, an increase of 16.8 percent over 2002. Turbine rotorcraft hours (1.7 million), were up 20.6 percent in 2003 and accounted for 78.2 percent of total rotorcraft hours. Hours flown by piston rotorcraft were estimated at 477,000 in 2003--an increase of 5.1 percent..

FUTURE ISSUES

Issues facing the rotorcraft industry include availability of infrastructure, improved safety image, price-to-performance ratio, the maturing of the offshore oil and air medical markets, and environmental impact. Expanding infrastructure faces both public and local government resistance because of safety and environmental concerns. Security restrictions imposed on general aviation and rotorcraft, in particular, has had an impact on the use of helicopters for newsgathering and traffic reporting. Even with falling prices and improved operating performance, the demand for rotorcraft could be dampened by the lack of adequate landing facilities. Helicopters are seen as one option for transporting passengers or cargo from airports into the city or urban sites. However, operators often find themselves unable to convince communities that a heliport can be a good neighbor.

TECHNOLOGY

Technological advances could stimulate helicopter usage. The Global Positioning System (GPS) and other free flight enabling technologies offer the promise of freeing all aircraft, including helicopters, to use efficient direct routing to their destinations. These technologies may also enable helicopters to fly routes less noticeable to persons on the ground, increasing community acceptance and further enhancing the utility of helicopter operations.

Another major technological advance is the civil tilt-rotor, which combines the vertical takeoff and landing capabilities of a helicopter with the speed and range of a turboprop aircraft. A tilt-rotor has engines that pivots 90 degrees so the aircraft can take off vertically like a helicopter then fly horizontally like an airplane.

Other innovative rotorcraft configurations that may benefit from advanced (vertical) flight research include quad tilt rotor, ducted coaxial rotor, folding prop-rotor, and canard rotor/wing. Intelligent rotorcraft systems and efficient active rotor systems may also compete with the above revolutionary systems for research funding—from both NASA and the FAA.

Airport utilization is important to the future of the rotorcraft industry. The ability of helicopters to utilize Category I airports requires achieving instrument landing systems (ILS) approach capabilities to 100-foot minimums. A Category 1 ILS approach procedures provides for an approach to height above touchdown of not less than 200 feet and with a runway visual range of not less than 1,800 feet. At the Helicopter Association International's (HAI) annual convention in March 2004, an FAA representative stated that low-visibility airport-approach capability is an intermediate step toward one of the two milestones on the agency's helicopter technology "road map" of research and development initiatives. The ultimate goal is zero-ceiling and zero-visibility operations.

MARKET FACTORS

Factors increasing the demand for helicopters include economic growth, the aging of the fleet, and the availability of new more efficient models. New models stimulate demand due to improvements in performance and cost of operation. Factors that may slow the demand for new products include lower levels of petroleum extraction in the United States (one of the primary uses of helicopter services)--at least in the short-term--and limitations relating to supporting infrastructure.

Current high oil prices could stimulate helicopter activity supporting oil exploration in the Gulf of Mexico. Based on the latest data

collected by the Helicopter Safety Advisory Conference (HSAC), the total helicopter fleet in the Gulf was 607 in 2003. These 607 aircraft carried an estimated 2.6 million passengers and flew an estimated 381,273 hours. These latter two figures are comparable to those of 1999, but down 26 and 14 percent, respectively, from 2000.

Government regulation and harmonization initiatives may also influence market demand. Aviation regulations could stimulate or reduce the market for aircraft services, depending on whether particular regulations permit or prohibit operations where market demand exists.

Harmonization is the process of reducing substantive differences between U.S. regulations and those of other nations. Harmonization of aircraft certification requirements helps open international markets to aircraft manufacturers located in participating nations.

A rapidly growing segment of general aviation is fractional ownership. Several companies have expressed interest in offering fractional ownership of helicopters. For a variety of reasons, including speed and operating range, fractional ownership of helicopters will need to be configured differently than it is for business jets. As of March 2004 there were two successful U.S. operators--Sikorsky Shares and Heliflite.

HELICOPTER FORECASTS

The forecasts of the rotorcraft fleet and flight hours discussed in this section are presented in tabular form in Chapter X, Table 35. Many of the assumptions used to develop these forecasts were derived from discussions with industry experts—including consultants, manufacturers, and industry associations and from reports presented at meetings of the TRB subcommittee on Civil Helicopter Aviation.

Forecasts for certificated pilots are based on 2004 data obtained from the airmen certification records maintained at the FAA Mike Monroney Aeronautical Center in Oklahoma City.

ACTIVE FLEET

The active rotorcraft fleet is expected to grow from an estimated 6,791 in 2003 to 7,915 in 2016, an average annual increase of 1.2 percent over the 13-year forecast period.

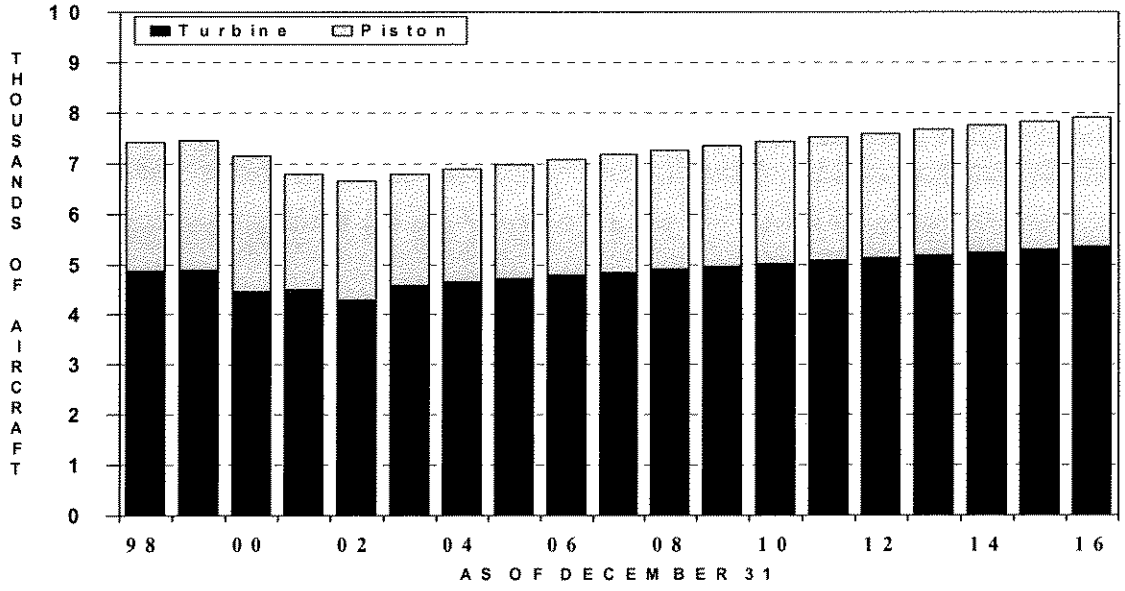
The number of turbine rotorcraft is expected to total 5,345 by 2016--an increase of 16.5 percent over the 2003 level of 4,588. The turbine rotorcraft fleet is forecast to increase at an average annual rate of 1.2 percent over the forecast period. Turbine powered rotorcraft are expected to account for 67.5 percent of the rotorcraft fleet in 2016.

The piston rotorcraft fleet is also expected to increase by 1.2 percent annually over the forecast period, reaching a total of 2,570 by 2016.

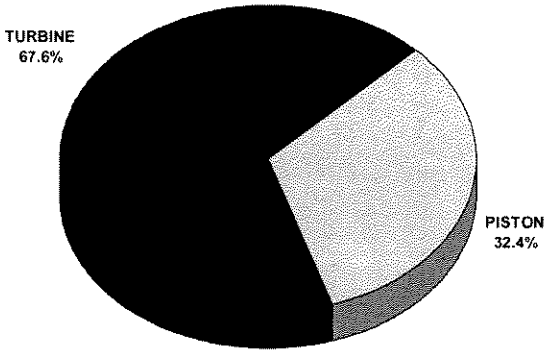
UTILIZATION

The annual utilization rate for all rotorcraft increased from 282.1 hours in 2002 to 322.8 miles in 2003, an increase of 14.4 percent. However, the 2003 rate is still much lower than the 1999 rate of 353.0 hours. Utilization rates for turbine and piston rotorcraft increased and 12.9 and 12.2 percent, respectively, in 2003.

ACTIVE ROTORCRAFT



PERCENT BY AIRCRAFT TYPE



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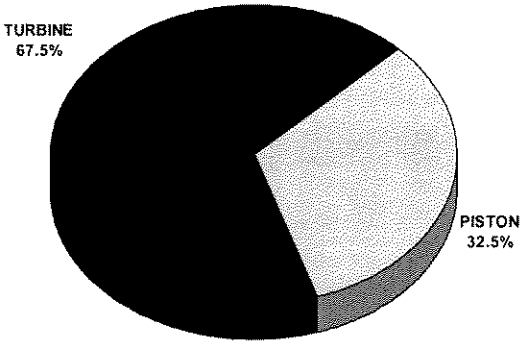

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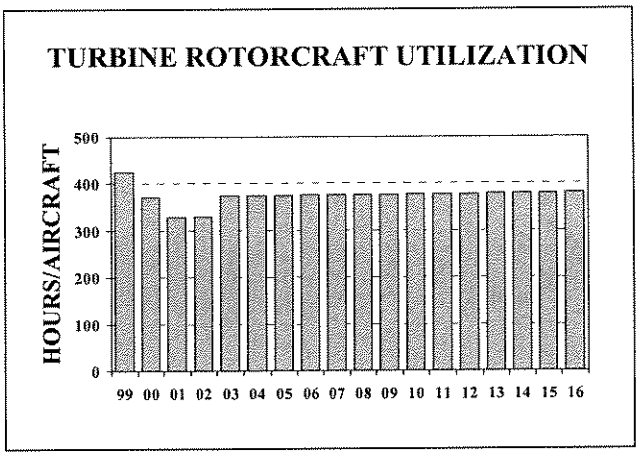
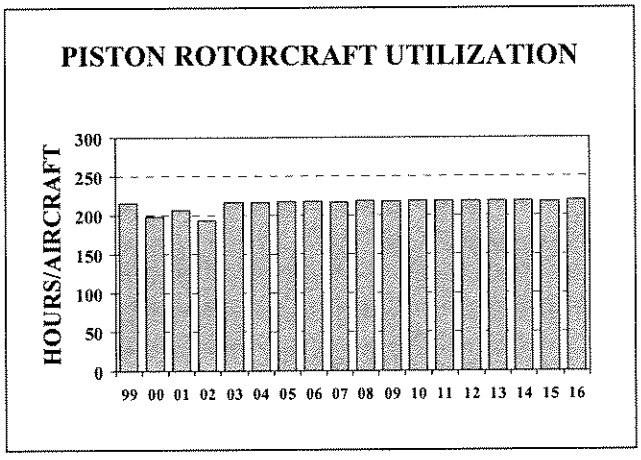


Utilization rates for all rotorcraft are expected to increase from 322.8 hours in 2003 to 328.5 hours in 2016, an average annual increase of just 0.1 percent. Turbine-powered helicopter utilization rates are forecast to increase from 373.8 hours in 2003 to 380.7 hours in 2016. Piston-powered rotorcraft utilization is forecast to total 219.8 hours in 2016, up from 216.5 hours in 2003.



FLIGHT HOURS

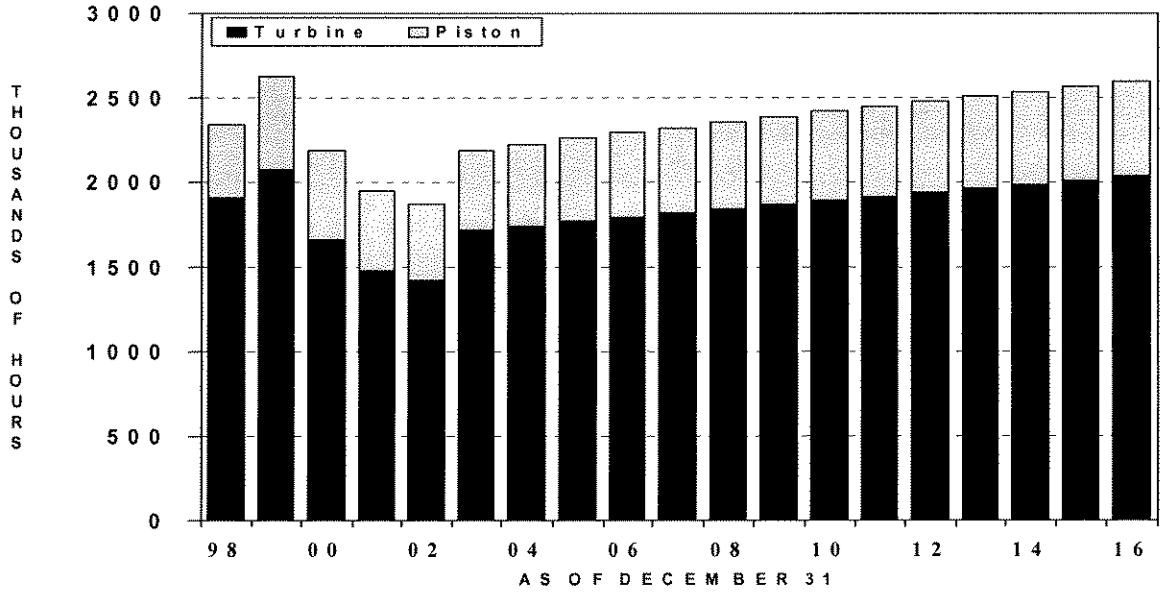
Rotorcraft flight hours are forecast to increase from 2.2 million in 2003 to 2.6 million in 2016, an average annual increase of 1.3 percent. Total flight hours for turbine-powered rotorcraft are projected to increase by 1.3 percent annually, from 1.7 million in 2003 to 2.0 million in 2016.

Flight hours for the piston-powered portion of the rotorcraft fleet are also expected to increase at an average annual increase of 1.3 percent, from 477,000 hours in 2003 to 565,000 hours in 2016.

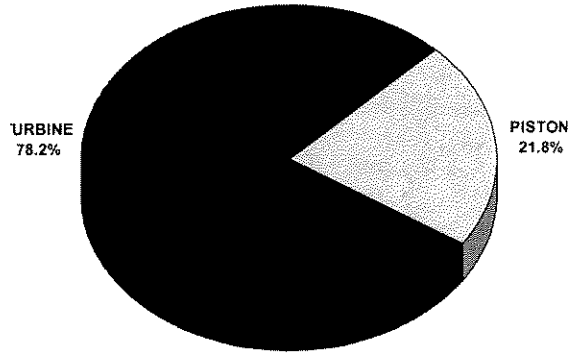
HELICOPTER PILOTS

The number of rotorcraft only pilots is expected to increase at an annual rate of 1.2 percent over the 12-year forecast period, from 8,586 in 2004 to 9,870 in 2016.

ROTORCRAFT HOURS FLOWN



PERCENT BY AIRCRAFT TYPE



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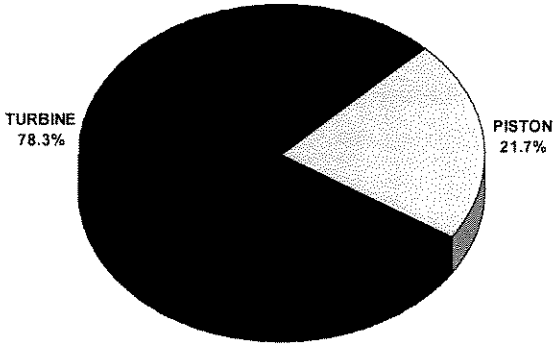


2016

CHAPTER VII

FAA WORKLOAD MEASURES

The FAA provides the aviation community with three distinct air traffic services: 1) air traffic control tower service at FAA and contract towered airports; 2) traffic surveillance and aircraft separation by air route traffic control centers (ARTCC); and 3) flight planning and pilot briefings at flight service stations (FSS). All four aviation system user groups--air carriers, commuter/air taxi, general aviation, and military--use these FAA operational services to enhance the flow and safety of aviation traffic.

Because the four aviation system user groups differ in the demands they impose on the air traffic system, multiple indicators are used to describe the total FAA operational workload. No single measure typifies past trends or future demand for the services provided by the FAA.

REVIEW OF 2004[1]

During 2004 the number of FAA towered airports remained unchanged at 266, while the number of contract towered airports increased by five new towers to 223. Between 1990 and 2000, the number of FAA towered airports declined by 136, and the number of contract towered airports increased by 214.

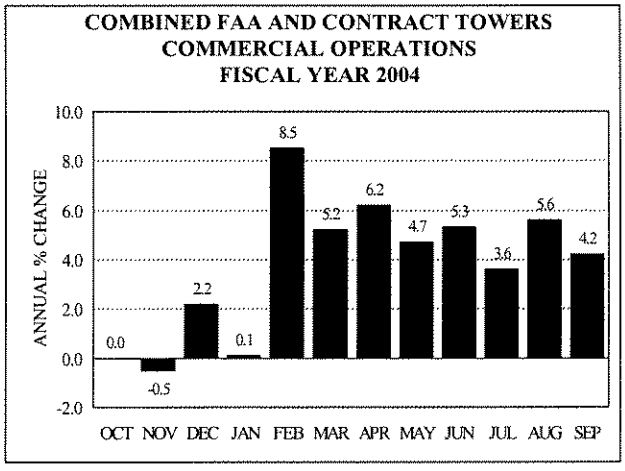
The addition and/or removal of airports to/from FAA air traffic counts make comparisons to previous year's activity levels difficult, if not impossible. To overcome these discontinuities, the FAA reports air traffic activity at FAA and contract tower facilities on both an individual as well as a combined basis. Activity at FAA air route traffic control centers is not affected by the number of towers.

TOWER ACTIVITY

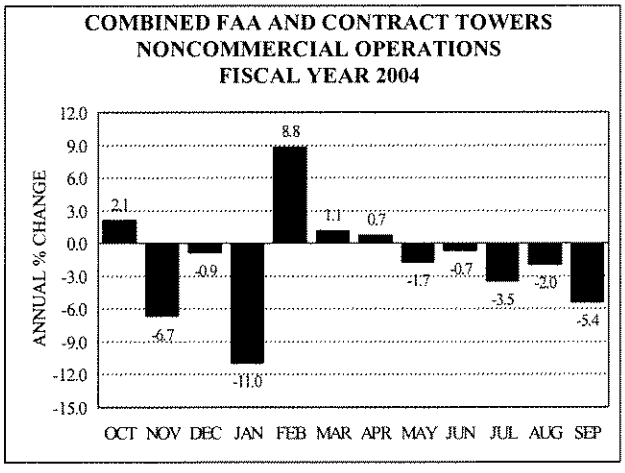
Combined FAA and Contract Towers

Aircraft activity at the 489 FAA and contract towered airports totaled 63.1 million operations, up 0.5 percent from 2003. In 2004, commercial activity was up 3.7 percent from 2003 as increases were recorded throughout the year. Air carrier operations were up 0.8 percent driven by increasing traffic and prior year schedule reductions following the beginning of the Iraq war and the outbreak of SARS.

[1] All specified years are fiscal years (October through September 30), unless designated otherwise.



Operations by commuter/air taxi continued to grow rapidly, up 7.0 percent in 2004, to 12.2 million. Much of the growth continued to be driven by the transfer of lower density, short-haul markets to commuters, especially the regional jet operators. In addition, growth in recent years has been stimulated by commuter code-sharing and schedule tie-in agreements with the larger commercial air carriers.



Noncommercial activity (the sum of general aviation and military operations) decreased 1.6 percent in 2004 with both general aviation and military activity falling. General aviation operations were down 1.6 percent with itinerant and local activity down 1.2 and 2.3 percent, respectively. Military activity was down 1.1 percent with itinerant operations down 2.1 percent and local activity down 0.1 percent.

FAA Towers

On September 30, 2004, there were 266 FAA towered airports. Aircraft operations at these airports totaled 47.0 million, down 0.2 percent from 2003. Air carrier and commuter/air taxi operations increased during the year, up 0.8 and 7.7 percent, respectively. General aviation and military operations were down 3.8 and 4.4 percent, respectively.

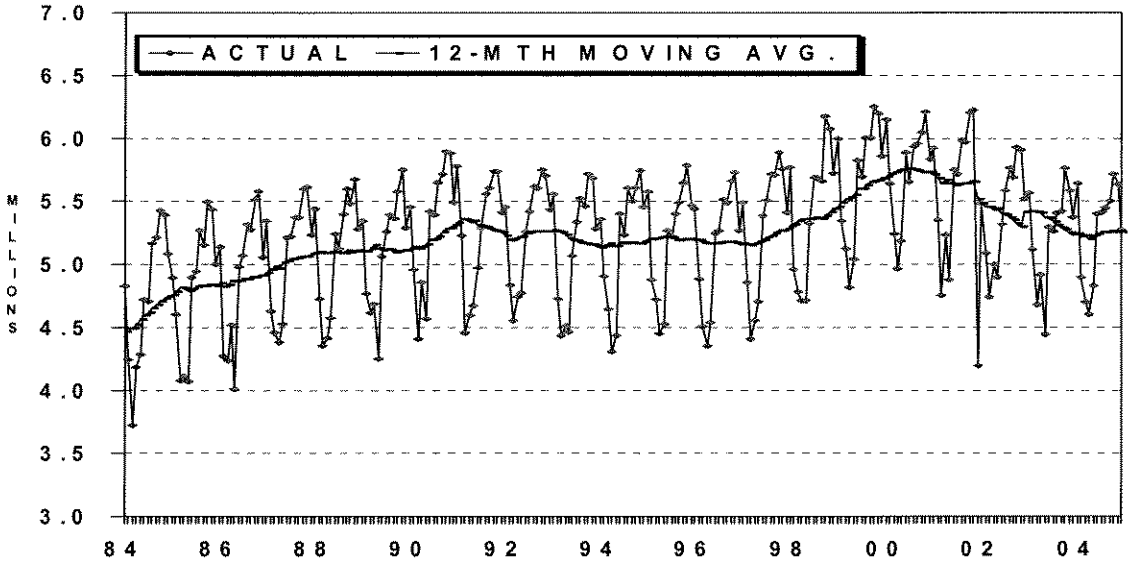
Contract Towers

On September 30, 2004, there were 223 contract towers funded either partially or fully by the FAA. Aircraft activity totaled 16.1 million operations, up 2.4 percent from 2003. Commercial activity increased 2.5 percent, while noncommercial activity rose 2.3 percent. In 2004 commuter/air taxi operations increased 2.7 percent while air carrier activity rose 1.1 percent. General aviation operations increased by 2.1 percent while military operations rose 4.8 percent. General aviation continues to dominate activity at FAA contract towers, accounting for 81.9 percent of total operations.

Monthly operation counts for the 266 FAA towered airports and the 223 contract towers, by user group, can be found on the internet at: http://www.apo.data.faa.gov/.

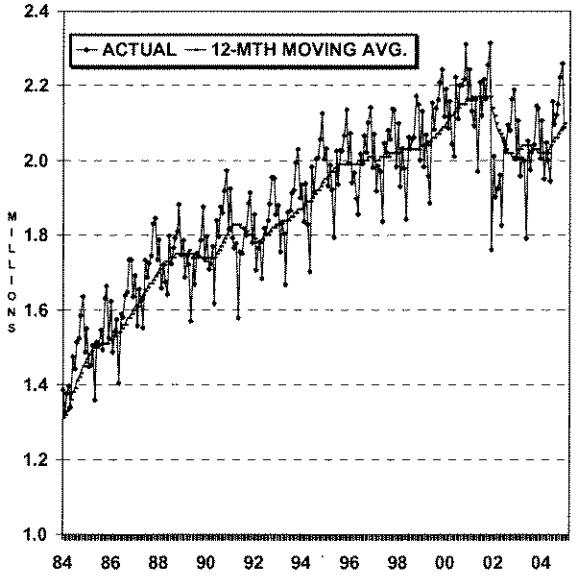
COMBINED FAA AND CONTRACT TOWERS: AIRPORT OPERATIONS

TOTAL OPERATIONS



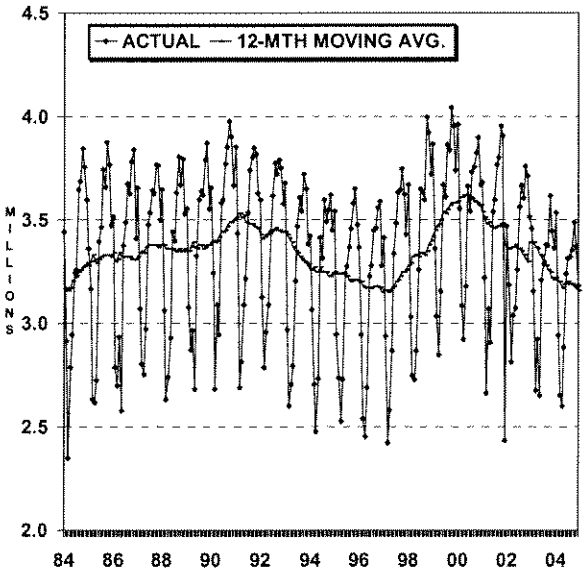
FISCAL YEAR BY MONTH

COMMERCIAL OPERATIONS



FISCAL YEAR BY MONTH

NONCOMMERCIAL OPERATIONS

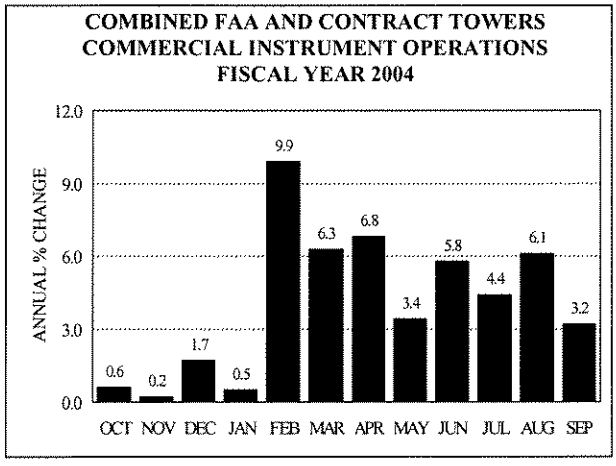


FISCAL YEAR BY MONTH

INSTRUMENT OPERATIONS

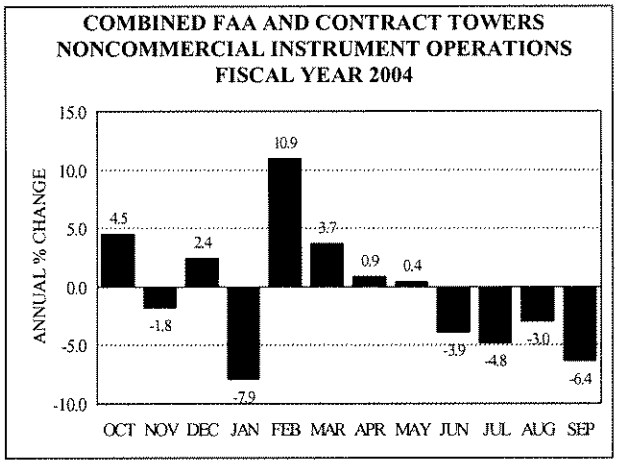
Combined FAA and Contract Towers

Instrument operations handled at combined FAA and contract towers totaled 49.1 million, up 1.9 percent from the 2003 activity level. In 2004, FAA towers accounted for 98.3 percent of combined total instrument operations.



Commercial instrument operations increased 4.0 percent over 2003 levels to 27.4 million. Increases were recorded in every month of the year. Air carrier activity was up 1.3 percent for the year, while commuter/air taxi instrument operations increased 7.1 percent.

Noncommercial instrument operations fell 0.7 percent to 21.8 million. Year over year decreases in activity were recorded in each of the last 4 months of the year. General aviation operations were down 0.2 percent for the year, but still accounted for 37.8 percent of total instrument operations. Military operations fell 3.6 percent, and accounted for only 6.5 percent of the total.



FAA Towers

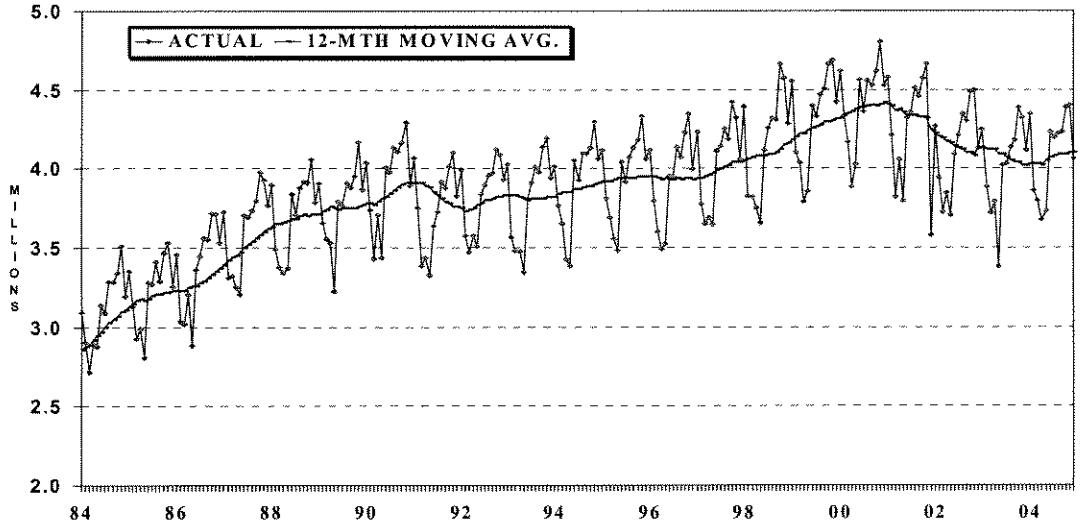
Instrument operations at the 266 FAA towered airports totaled 48.3 million, an increase of 1.9 percent. Commercial activity was up 4.1 percent with commuter/air tax activity increasing 7.2 percent while air carrier operations were up 1.3 percent. Noncommercial operations fell 0.8 percent as general aviation, and military instrument operations decreased 0.3 and 3.7 percent, respectively.

Contract Towers

Instrument operations at FAA contract towered airports totaled 845,100, up 3.9 percent from 2003. Both commercial and noncommercial activity increased, up 2.5 and 5.9 percent, respectively. In 2004, air carrier instrument operations at FAA contract towers recorded the only decrease in activity, down 0.2 percent. Commuter/air taxi operations increased 3.3 percent while general aviation and military instrument operations increased 5.7 and 6.8 percent, respectively.

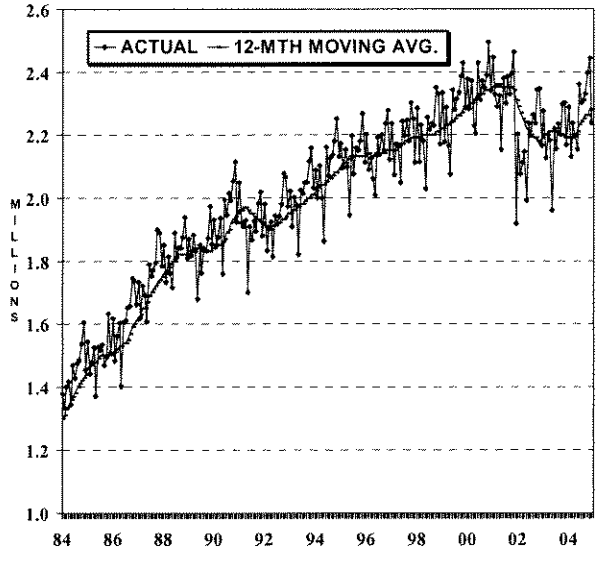
COMBINED FAA AND CONTRACT TOWERS: INSTRUMENT OPERATIONS

TOTAL OPERATIONS



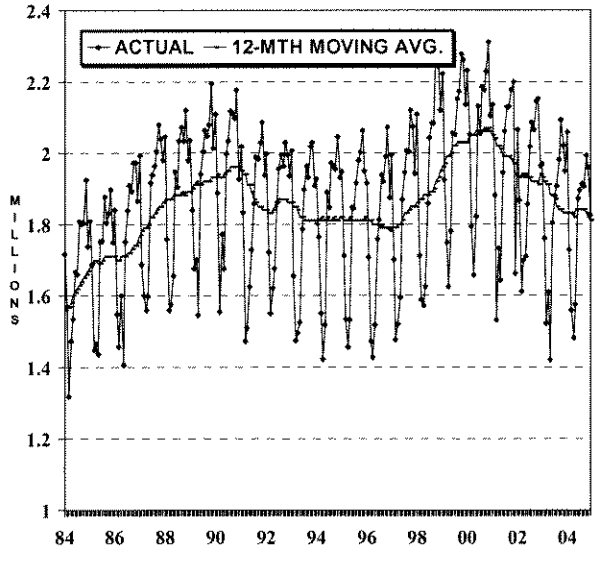
FISCAL YEAR BY MONTH

COMMERCIAL OPERATIONS



FISCAL YEAR BY MONTH

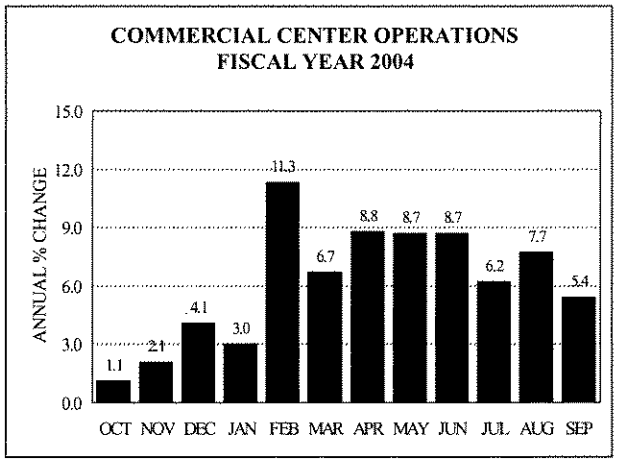
NONCOMMERCIAL OPERATIONS



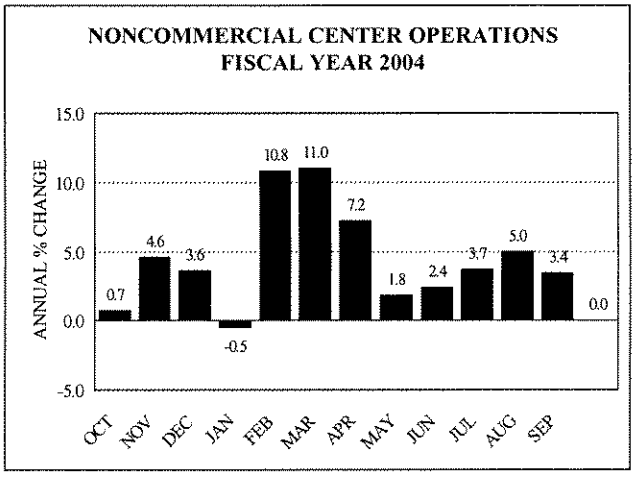
FISCAL YEAR BY MONTH

CENTER ACTIVITY

In 2004, the number of aircraft flying under Instrument Flight Rules (IFR) handled by FAA ARTCCs totaled 46.2 million, up 5.6 percent from the 2003 activity counts. The number of commercial aircraft handled at the Centers (33.8 million) rose 6.1 percent in 2003 with year over year increases occurring in every month of the year. The number of air carrier aircraft handled totaled 23.9 million (up 4.9 percent), while the number of commuter/air taxi aircraft handled totaled 10.0 million (up 9.1 percent).



The number of noncommercial aircraft handled (12.4 million) rose 4.4 percent. Year-over-year increases were posted in every month except January. The number of general aviation aircraft handled totaled 8.4 million (up 4.4 percent), while military activity totaled 4.0 million (up 4.5 percent).



FLIGHT SERVICE STATION ACTIVITY

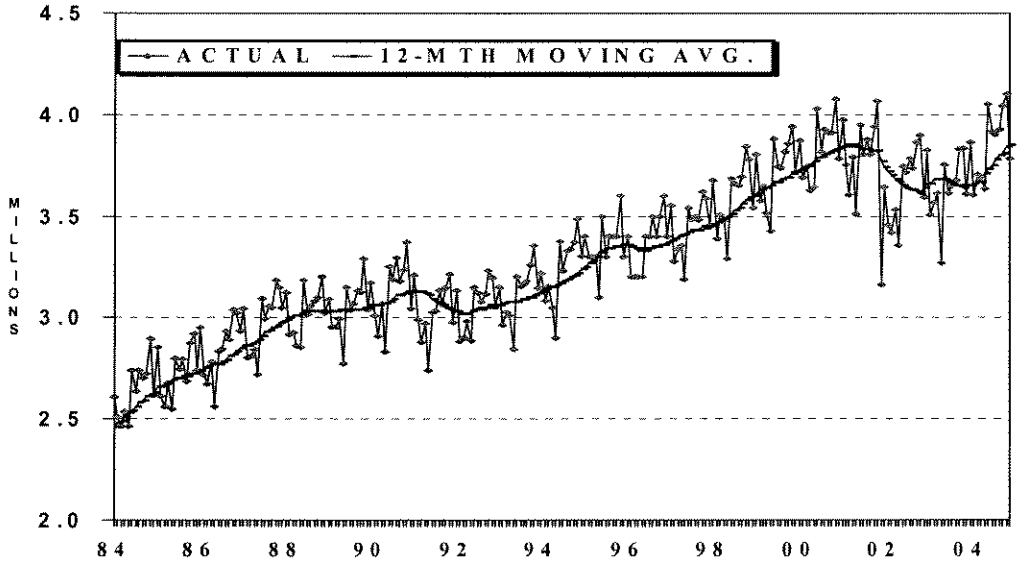
Total flight services, encompassing pilot briefings, flight plans filed, and aircraft contacts recorded by FAA Flight Service Stations (FSS) totaled 27.1 million in 2004, down 2.2 percent from 2003 activity levels. In 2004, the number of aircraft contacted fell 4.7 percent to 2.68 million, the number of pilot briefings declined by 3 percent to 6.80 million, and the number of flight plans originated decreased 0.5 percent to 5.39 million.

The FAA also provides automated flight services, which supplement FSS activity. The Direct User Access Terminal System (DUATS) provides an alternative to the FSS for obtaining pilot briefing information and filing flight plans. Use of this service was introduced in February 1990.

In 2004, total DUATS transactions (including flight plans) totaled 19.8 million, an increase of 13.0 percent over 2003. The number of flight plans filed through DUATS rose 18.3 percent to 1.5 million. The number of DUAT transactions (excluding flight plans) increased 12.1 percent in 2004, from 7.5 million in 2003 to 8.4 million.

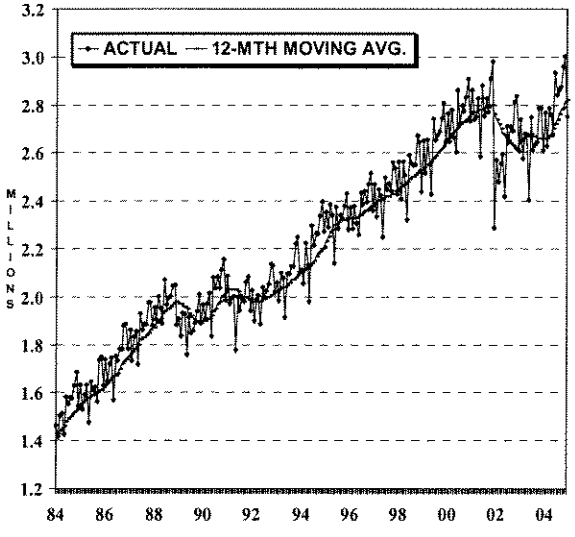
FAA AIR ROUTE TRAFFIC CONTROL CENTERS: IFR AIRCRAFT HANDLED

TOTAL AIRCRAFT HANDLED



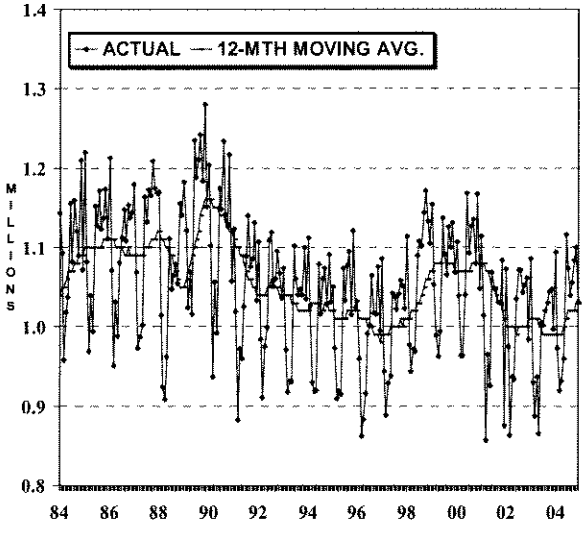
FISCAL YEAR BY MONTH

COMMERCIAL OPERATIONS

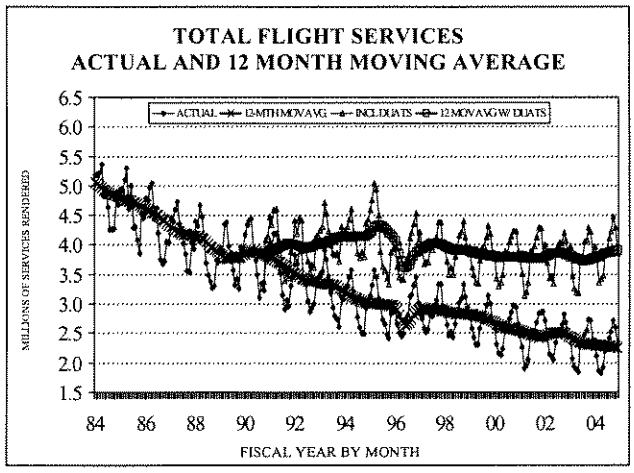


FISCAL YEAR BY MONTH

NONCOMMERCIAL OPERATIONS



FISCAL YEAR BY MONTH



When these DUAT services are included with traditional FSS services, total flight services rose from 45.2 million in 2003 to 46.8 million in 2004, an increase of 3.7 percent.

FORECAST ASSUMPTIONS

Forecast growth in FAA workload measures includes not only the demand imposed on the existing National Airspace System, but also aviation activity at new locations not previously provided with FAA services. Workload forecasts are presented for combined FAA and contract towers, and separately for FAA facilities and contract towers.

NUMBER OF FAA FACILITIES

There were 266 FAA towered airports on September 30, 2004. There are 148 radar service areas--47 terminal radar service areas, 15 class B (terminal control areas), and 86 class C (airport radar service areas). The number of FSSs and AFSSs totaled 75 on September 30, 2004: 61 AFSSs and 14 Alaskan rotational FSSs.

In 2005, the number of contract tower airports will increase from 223 to 234 with the addition of eleven new towers and are assumed to remain at that level over the remainder of the forecast period.

COMMERCIAL AVIATION: RISKS AND UNCERTAINTIES

Although growth in demand for commercial aviation services is based upon continued growth in the U. S. economy, lower industry operating costs, lower fares, lower fuel costs, and financial stability, there is uncertainty associated with these forecasts. A number of events could alter the short and long-term environment, and cause demand to differ substantially from the projections presented in this report. Also, structural changes in the industry could change the mix of operations at FAA facilities.

The events of September 11th have had a significant impact on the demand for aviation services. A rebound from the lows in 2003 began in 2004 and is forecast to continue in 2005. A return to long-term growth trends is assumed to begin in 2006. Increased demand is initially met by utilizing the existing fleet more intensively and by achieving higher load factors. Ultimately the increase in demand leads to increases in aviation activity.

The growth of state-of-the-art jet aircraft in the regional/commuter fleet coupled with the financial aftermath of September 11th is significantly altering the route system of the industry. These new aircraft are greatly expanding the number of markets that regional/commuters can serve. Should the number of route transfers or new markets greatly

exceed current expectations, commuter/air tax operations at FAA facilities could be higher than currently forecast. Conversely, air carrier operations would be lower.

WORKLOAD FORECASTS

METHODOLOGY

The workload measures for airports with air traffic control towers are the number aircraft operations (sum of landings and takeoffs) and instrument operations (arrivals and departures at primary and secondary airports, and overflights). The workload measure for ARTCCs is the number of aircraft handled (sum of departures, landings, and overflights for aircraft operating under instrument flight rules). For flight service stations, the workload measures are flight plans filed, pilot briefings, and aircraft contacts. The workload measures are developed by user category for all three components of the air traffic control system.

Projections of total operations for commercial air carriers and commuter/air taxis at airports with air traffic control towers are based upon forecasts of Available Seat Miles (ASMs), and assumptions regarding average seats per aircraft, and aircraft stage length. Specifically, if the average number of seats per aircraft is divided into the forecast of ASMs, an estimate of the number of aircraft miles in the system is derived. The average aircraft stage length is then divided into the forecast of aircraft miles in order to derive an estimate for departures. For both air carriers and cargo operators, estimates are made for both international and domestic departures. An estimate of total operations for the air carrier and commuter/air taxi is derived by doubling the number of departures.

Forecasts of general aviation airport operations are developed from projections of general aviation hours flown and the general aviation fleet.

Forecasts of instrument operations for airports with air traffic control towers, and the workload measures for ARTCCs and flight service stations are derived from the forecasts of airport operations by user category. With the exception of service at the 11 new contract towers, military operations are assumed to remain at current levels throughout the forecast period.

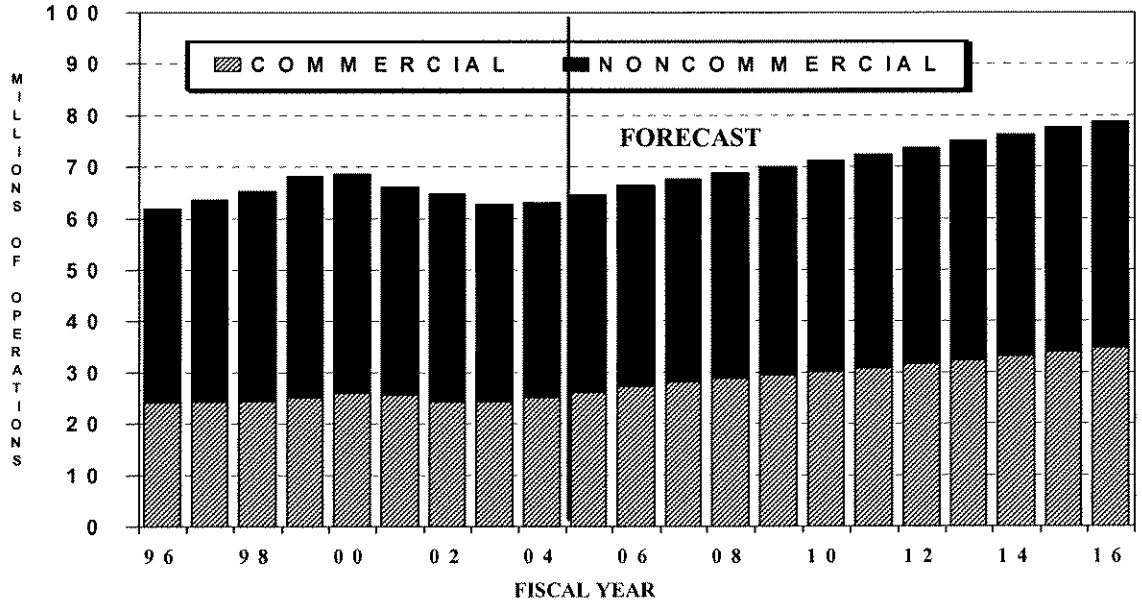
In February 2005 the FAA announced that Lockheed Martin had been selected to provide flight services as a result of an A-76 competitive sourcing competition. Lockheed's plan is to consolidate the number of non-Alaska flight service stations from the current 58 to 20 within 3 years. However, it is anticipated that the consolidation of stations will not impact the level of flight service activity in the current forecast.

TOWER ACTIVITY

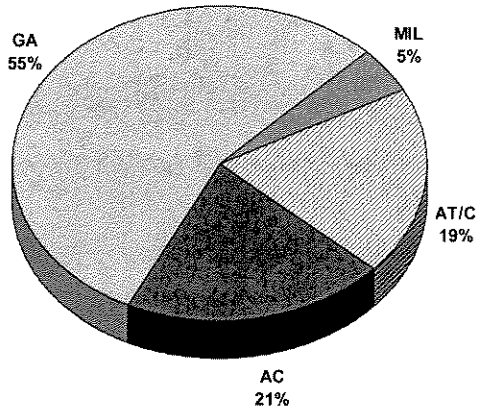
It is assumed that the number of FAA control towers will remain constant at 266 in 2005. The number of contract towers is expected to increase by 11[2] to 234 in 2005 and remain at that level for the duration of the forecast. It is assumed that the 11 new towers will be phased in throughout 2005. As such, the addition of the new towers will impact contract tower operations in both 2005 and 2006.

[2] The eleven new contract towers are as follows: Arlington Municipal (TX), Cape Girardeau Regional (MO), Chippewa Valley Regional (WI), Ellington Field (TX), Georgetown Municipal (TX), Leesburg Regional (FL), Olive Branch (MS), Provo Municipal (UT), Rogers Municipal-Carter Field (AR),Scholes International at Galveston (TX), and Trent Lott International (MS).

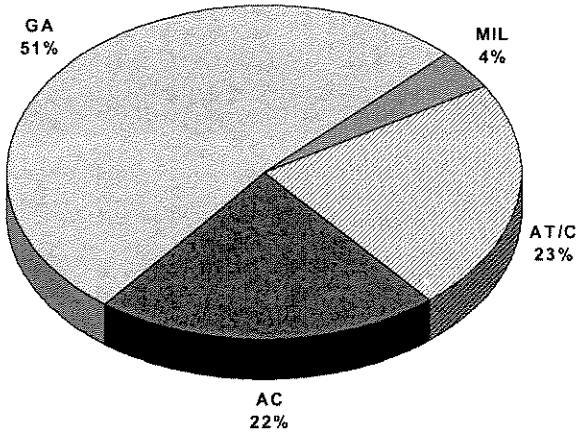
AIRCRAFT OPERATIONS AT AIRPORTS WITH FAA AND CONTRACT TRAFFIC CONTROL SERVICE



DISTRIBUTION OF WORKLOAD BY USER GROUP



2004



2016

Combined FAA and Contract Towers

During the 12-year forecast period, operations at FAA and contract towered airports grow to 78.9 million by 2016, increasing 1.9 percent annually on average. Growth in tower activity in 2005 is projected to increase 2.6 percent with increases in all activity categories. As the demand for aviation services grows so does the level of activity. For the balance of the forecast from 2006 to 2016, tower activity is projected to increase an average of 1.7 percent per year. Commercial activity is forecast to grow at relatively faster rates than general aviation. Air carrier operations share of the combined towered airport activity increases 1.1 points from 20.5 percent in 2004 to 21.6 percent in 2016 while the commuter/air taxi share increases 3.2 points from 19.4 percent in 2004 to 22.6 percent. The general aviation share of activity declines from 55.4 percent in 2004 to 51.9 percent by 2016. Commuter/air taxi activity is projected to grow at rates faster than that forecast for the larger commercial air carriers during the early years of the forecast, with accelerating route transfers and increased use of regional jets the primary drivers.

In 2004, air carrier operations increased from 12.8 to 12.9 million operations, a 0.8 percent increase. In 2005, air carrier operations are projected to grow 0.9 percent as capacity reductions by legacy carriers are offset by increased low-cost carrier operations. For the balance of the forecast, air carrier operations are forecast to grow an average of 2.5 percent per year. However, air carrier operations do not return to the 2000 level of activity until 2012. For the entire 12-year forecast period, air carrier operations increase at a rate of 2.3 percent annually.

Commuter/air taxi activity grows an average of 6.7 percent per year in 2005 and 2006 and then increases at a 2.5 percent annual rate over the remainder of the forecast. Over the 12-year forecast period, commuter/air taxi operations grow an average of 3.2 percent annually, increasing from 12.2 to 17.8 million operations. General aviation activity increases 1.8 percent in both 2005 and 2006. For the remainder of the forecast, general aviation operations increase at a rate of 1.2 percent per year. For the entire forecast period, general aviation operations increase from 34.9 to 40.9 million operations (1.3 percent annual growth). Itinerant and local general aviation operations are forecast to increase 18.7 and 15.1 percent, respectively, over the period. Total military operations are projected to increase to 3.0 million by 2005 then remain at that level throughout the balance of the forecast period.

Commercial aircraft activity (air carrier plus commuter/air taxi) at combined towered airports is projected to increase 3.8 percent in 2005, with an increase of 6.9 percent in commuter/air taxi activity. By 2005, commercial aircraft activity returns to the level of activity flown in 2000.

However, the mix of traffic will be significantly different than existed in 2000. In 2000, air carrier operations accounted for 58.5 percent of total commercial operations. By 2005, it is expected that the air carrier share of commercial operations will decline to 50.0 percent. The surge in regional jet activity adds to the complexity of the FAA workload. In contrast to the turboprops they have replaced, regional jets use the same runways as the large jets operated by the air carriers, and they fly at the same altitudes as do larger jets, increasing congestion at the higher altitudes. For the period 2006 to 2016, commercial activity increases at an average rate of 2.5 percent per year. Commercial activity growth averages 2.8 percent annually during the 12-year forecast period, increasing from 25.2 to 34.9 million. Noncommercial activity increases at an average of 1.2 percent annually, from 37.9 million in 2004 to 44.0 million in 2016.

In certain large hubs, such as Chicago O'Hare, the change in the mix of commercial operations is expected to be even greater than the national average. Forecasts for individual airports are contained in the FAA's Terminal Area Forecast and are available at the following website: http://www.apo.data.faa.gov/.

FAA Towers

In 2004, operations at the 266 FAA towered airports totaled 47.0 million, down 0.2 percent from 2003. For the 12-year forecast period, operations at FAA towered airports increase 1.9 percent a year. In absolute numbers, towered operations total 58.9 million in 2016.

Commercial aircraft activity at FAA towered airports is projected to grow 2.7 percent annually during the 12-year forecast period, from 23.4 to 32.2 million, exceeding the level of activity that occurred in 2000 by 2005. Noncommercial activity increases from its current level of 23.6 million to 26.7 million in 2016 (1.0 percent annually), and does not exceed the 2000 level of activity during the forecast period.

Contract Towers

In 2004, operations at the 223 contract towered airports totaled 16.1 million, a 2.4 percent increase from 2003. The forecast assumes that 11 new contract towers are added in 2005. The vast majority of the increased activity at these towers is general aviation and military activity. During the 12-year forecast period, operations at contract towered airports increase at an annual rate of 1.8 percent, totaling 20.0 million in 2016. The additional activity of the new towers provides for significant growth in contract tower operations in both 2005 (4.6 percent) and 2006 (4.1 percent). Thereafter growth in contract tower activity will moderate.

Commercial aircraft activity at contract-towered airports grows an average of 3.4 percent annually during the 12-year forecast period, increasing from 1.8 million to 2.7 million. Noncommercial activity grows slower, averaging 1.6 percent annually, increasing from 14.3 million in 2004 to 17.3 million in 2016.

INSTRUMENT OPERATIONS[3]

Combined FAA and Contract Towers

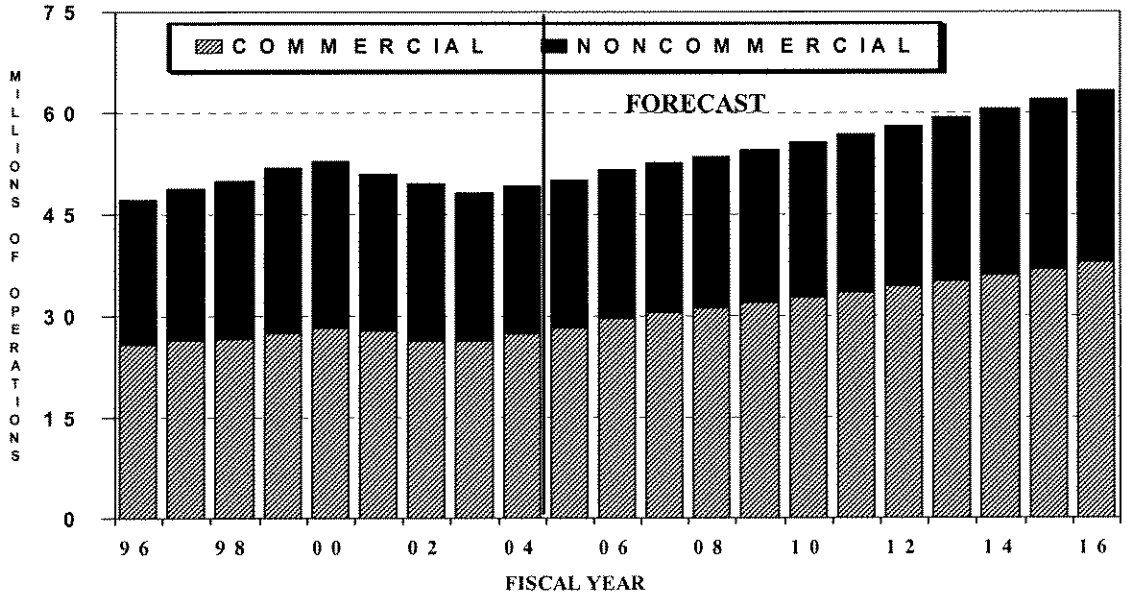
During the forecast period, combined instrument operations increase from 49.1 million operations in 2004 to 63.4 million operations in 2016, averaging 2.1 percent annually. In 2016, FAA towers will account for about 98.3 percent of combined instrument operations.

The mix of instrument operations is expected to change during the forecast period. The air commuter/air taxi share of total instrument operations increase significantly share over the forecast period (from 26.9 to 30.2 percent) while the air carrier share increases but at a slower rate (from 28.9 to 29.5 percent). General aviation's share declines from 37.8 percent to 35.3 percent over the 12-year forecast period.

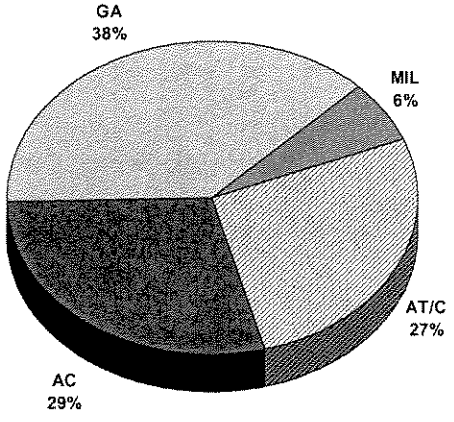
Air carrier instrument operations are forecast to increase 0.3 percent in 2005, then increase 2.8 percent in 2006, and 2.5 percent annually thereafter. During the entire 12-year forecast period, air carrier instrument operations increase 2.3 percent annually from 14.2 million to

[3] Instrument operations include arrivals and departures at both primary and secondary airports as well as overflights. Thus instrument operations totals at FAA towers are generally higher than aircraft operation counts at the same towers.

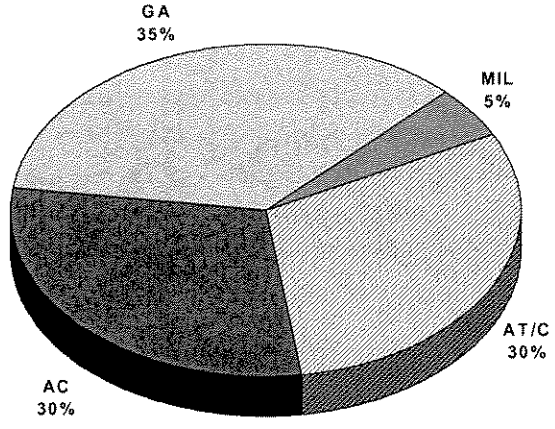
INSTRUMENT OPERATIONS AT AIRPORTS WITH FAA AND CONTRACT TRAFFIC CONTROL SERVICE



DISTRIBUTION OF WORKLOAD BY USER GROUP



2004



2016

18.7 million by 2016. Commuter/air taxi operations increase 6.4 percent per year through 2006, then grow 2.5 percent per year thereafter. For the 12-year forecast period, commuter/air taxi operations grow 3.1 percent annually, increasing from 13.2 million to 19.1 million.

General aviation operations rise 0.5 percent in 2005 and increase steadily thereafter and grow an average of 1.5 percent annually during the forecast period, increasing from 18.6 million to 22.3 million operations. Military activity decreased 3.6 percent in 2004 to 3.2 million, and remains at that level for the balance of the forecast.

During the 12-year forecast period, commercial activity increases 2.7 percent annually, from 27.4 million to 37.8 million. Noncommercial activity is forecast to increase 1.3 percent annually, from 21.7 million in 2004 to 25.5 million in 2016.

FAA Towers

Instrument operations at FAA towered airports are projected to increase 1.8 percent in 2005 with increases in all categories except military activity. For the 12-year forecast period, instrument operations at FAA towered airports increase at an average annual rate of 2.1 percent. In absolute numbers, FAA towered instrument operations reach 62.3 million in 2016.

Commercial instrument operations at FAA towered airports increase 3.3 percent in 2005 and 4.5 percent in 2006. During the period 2006 to 2016, commercial instrument operations at FAA towered airports grow 2.5 percent annually. For the entire 12-year forecast period, commercial instrument operations increase from 26.9 million to 37.2 million, a rate of 2.7 percent annually. Noncommercial activity expands 1.3 percent annually, from 21.4 million in 2004 to 25.1 million in 2016.

Contract Towers

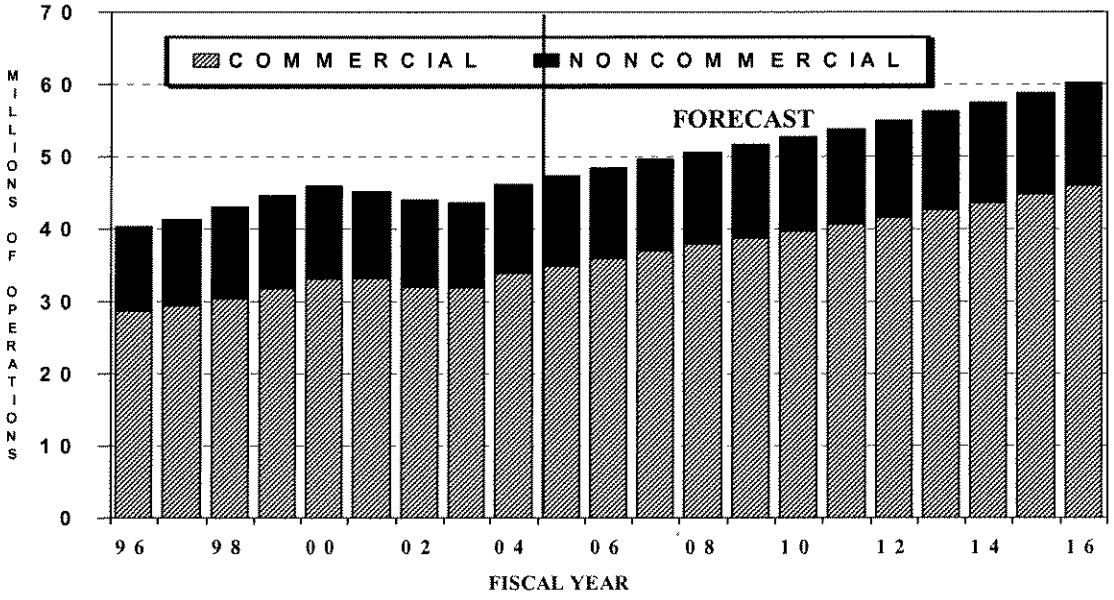
For the 12-year forecast period, instrument operations at contract-towered airports increase 2.2 percent a year, totaling 1.1 million in 2016. Commercial instrument operations at contract-towered airports grow at an average annual rate of 3.0 percent during the 12-year forecast period, increasing from 482,700 to 684,700. Noncommercial activity is forecast to increase from 362,400 in 2004 to 413,400 in 2016, growing at an average annual rate of 1.1 percent.

CENTER ACTIVITY

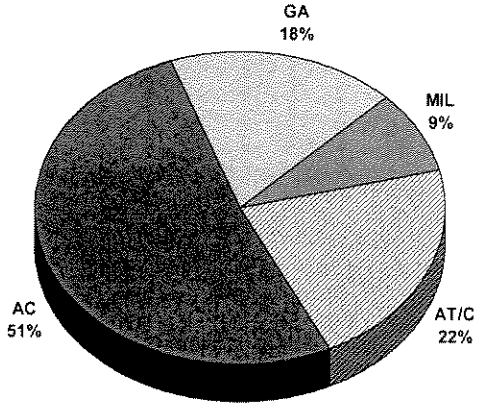
During the 12-year forecast period, the number of aircraft handled at centers increases 2.2 percent annually, expanding from 46.2 million aircraft handled in 2004 to 60.2 million in 2016. Aircraft handled rise 2.5 percent in both 2005 and 2006 with the largest increases occurring in commuter/air taxi and general aviation activity. Thereafter, growth in aircraft handled averages 2.2 percent during the period 2006 to 2016.

The number of air carrier aircraft handled at centers is forecast to increase from 23.9 million in 2004 to 31.5 million in 2016, a 2.3 percent annual growth rate. Air carrier aircraft handled increase 1.5 percent in 2005, 1.6 percent in 2006, and then grow at an average rate of 2.5 percent per year between 2006 and 2016.

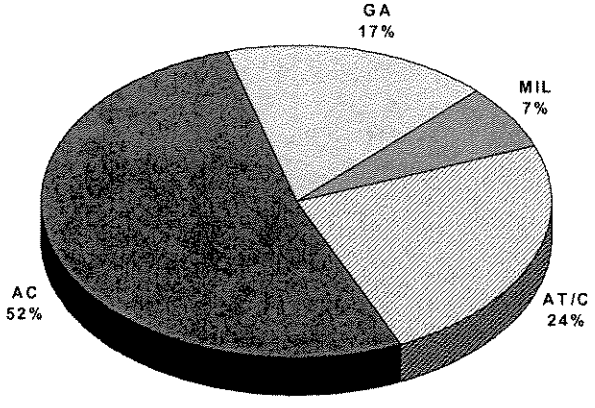
IFR AIRCRAFT HANDLED AT FAA AIR ROUTE TRAFFIC CONTROL CENTERS



DISTRIBUTION OF WORKLOAD BY USER GROUP



2004



2016

Commuter/air taxi aircraft handled are expected to increase by 6.4 percent per year through 2006 and grow 3.1 percent annually for the 12-year forecast period, increasing from 10.0 million to 14.5 million. The relatively strong growth during the first three years of the forecast period reflects increases in the commuter stage length during this period.

General aviation aircraft handled increase 1.7 percent in 2005 and continue to increase steadily to total 10.2 million in 2016 (1.7 percent annual growth). Military activity increased 4.4 percent in 2004 to 4.0 million and remains at that level throughout the forecast period.

Commercial activity grows at an average annual rate of 2.6 percent during the forecast period, increasing from 33.8 million to 45.9 million. Noncommercial activity increases 1.2 percent annually, increasing from 12.4 million in 2004 to 14.3 million in 2016.

The commercial aircraft activities' share of center workload is forecast to increase from 73.2 percent in 2004 to 76.3 percent in 2016. Between 2004 and the year 2016, the air carrier share is forecast to increase from 51.6 to 52.3 percent, while the commuter/air taxi share increases from 21.6 to 24.0 percent.

FLIGHT SERVICE STATION ACTIVITY

The introduction of new technology for flight service applications has significantly changed the operating environment of the flight service system. Viewed in the larger context of the total National Airspace System, the declining trend in non-automated flight services does not necessarily indicate declining demand for total flight planning services. More likely, the fall in non-automated services suggests that demand is being met through increased use of automation and new system capabilities resulting in increased efficiency and productivity.

Non-Automated Service

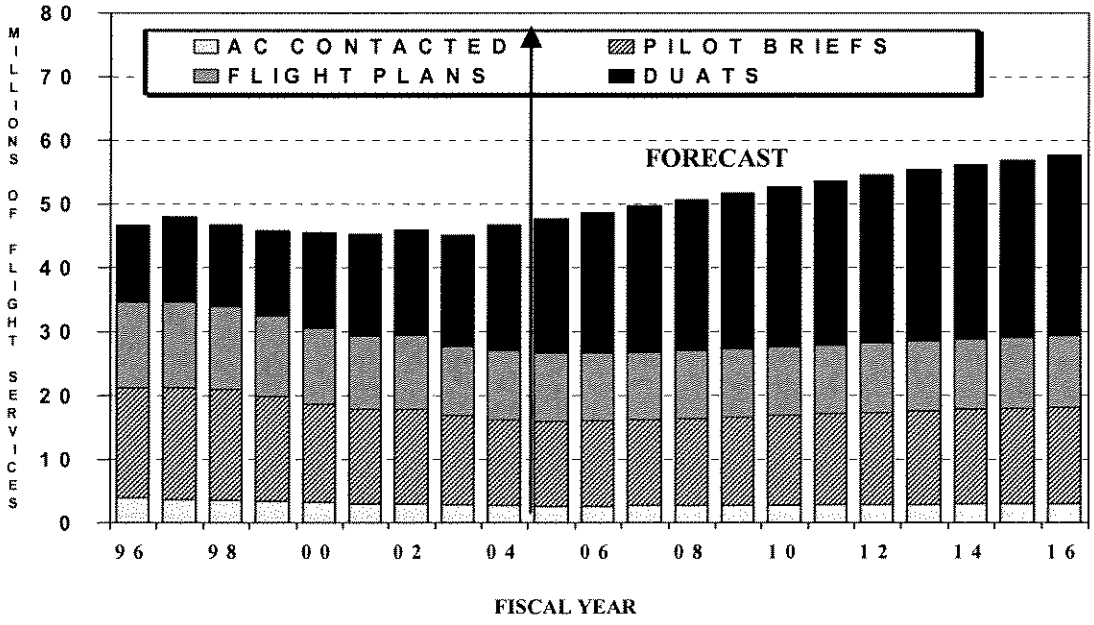
Total traditional (non-automated) flight services originating at FAA flight service stations are projected to post a decrease in 2005. In absolute numbers, the number of total flight services is expected to fall to 26.6 million in 2005. For the balance of the forecast period FSS activity is projected to increase at modest rates. By the end of the forecast period, total flight services provided by the FAA flight service stations are projected to total 29.3 million.

The number of pilot briefings is projected to decrease 2.1 percent to 6.7 million in 2005, but then increase slowly throughout the remainder of the forecast period. Over all, pilot briefs are projected to increase from 6.8 million in 2004 to 7.6 million in 2016, an average annual rate of 0.9 percent.

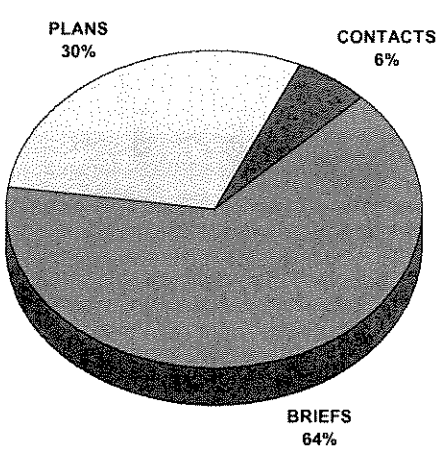
FSS flight plans originated at flight service stations are projected to decline 1.2 percent in 2005 and 0.6 percent in 2006. For the balance of the forecast, total flight plans originated are projected to grow 0.6 percent per year to total 5.6 million by the year 2016.

The number of aircraft contacted is forecast to decline 2.3 percent in 2005 and then increase moderately for the balance of the forecast. By 2016, aircraft contacted total 3.0 million, up from 2.7 million in 2004, increasing an average of 0.9 percent per year.

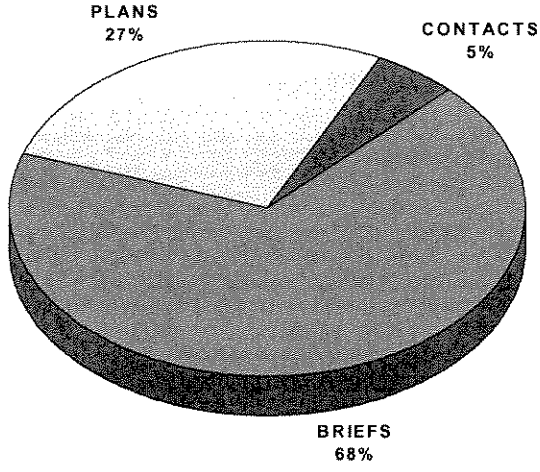
FLIGHT SERVICES ORIGINATED AT FAA FLIGHT SERVICE STATIONS



DISTRIBUTION OF WORKLOAD BY USER GROUP



2004



2016

Automated Service

Several factors resulting from automation will tend to dampen the growth in traditional FSS workload measures, as currently defined. First, pilots can now obtain weather briefings through the Telephone Information Briefing System (TIBS), which does not require contact with a flight service specialist, and is not, therefore, included in the FSS pilot briefings count.

Second, private weather briefing vendors, participating in memorandums of agreement with the FAA, can also provide weather briefings and file flight plans for their customers without going through an FSS. Third, starting February 1990, DUATS became operational. Using DUATS, pilots with access to a computer, modem, and telephone can directly access a national weather data base for weather briefings and flight plan filing without ever going through an FSS.

This automated access may be through the pilot's own computer or through those of fixed-based operators offering the service to their customers. None of the flight planning services provided through the above sources are included in the FSS workload measures.

During 2004 there were a total of 8.35 million DUATS transactions. If each transaction involves a weather briefing, this represents 8.35 million pilot briefs. In addition, approximately 1.5 million flight plans were filed through the DUATS system. Using the weighted total flight services formula (two times the sum of pilot briefs and flight plans filed), this translates into approximately 19.8 million total flight services that are not included in the FAA flight service station workload measure.

DUATS transactions are projected to increase from 8.35 million in 2004 to 8.8 million in 2005 (up 5.0 percent). During the period 2004 through 2016, DUATS transactions are forecast to increase at an average annual rate of 3.1 percent, reaching 12.0 million in 2016.

For the entire forecast period, flight plans filed through DUATS are expected to increase from approximately 1.5 million to 2.2 million in 2016, a 3.0 percent average annual increase. By the year 2016, total services provided through DUATS are projected to account for 28.4 million flight services, or 49.2 percent of total system services.

Total Flight Services

The decline in activity at FAA flight service stations since the mid 1980s is the result of the process of FSS consolidation, and the growing acceptance and utilization of DUATS services.

Total flight services, including non-automated and automated services, are projected to increase 1.8 percent in 2005 to 47.7 million. By 2016 total flight services are forecast to reach 57.7 million, an average annual increase of 1.8 percent over the 12-year forecast period.

CHAPTER VIII

FORECAST ACCURACY

The Federal Aviation Administration (FAA) has developed econometric forecast models and established a forecast process that attempts to anticipate changes that may affect the future direction of the aviation industry. Using this forecast process, the FAA annually provides 12-year forecasts of aviation demand and activity measures, that are, in turn, used for aviation-related personnel and facility planning. The FAA occasionally sponsors workshops to critique techniques and practices currently used by the FAA and other aviation forecasters, and to examine the outlook for the aviation industry and its prospects for future growth. The workshops focus on the forecasting process and ways to improve the reliability and utility of forecasting results.

Tables VIII-1 and VIII-2 provide some measure of the accuracy of FAA projections of aviation demand and workloads at FAA facilities. The tables compare forecasts for both short- and long-term periods. The short-term period, 1 to 5 years, is the critical period for personnel planning; the long-term period, 10 years out, is important for facility planning. The two key FAA forecasts are large carrier domestic revenue passenger miles (RPMs) and aircraft handled at FAA en route centers, the former used as one of the predictors of the latter.

For short-term trends, forecast errors normally tend to be modest. However, evaluation of the 2004 forecasts demonstrates the impact that the changing dynamics of the industry since September 11th can have on forecast accuracy. As a result of the continuing restructuring efforts of the legacy carriers, the 2004 domestic mainline carrier RPM forecast was 2.6 percent lower than the actual results for the year—488.4 billion compared to a forecast of 475.9 billion.[1] On the other hand, the forecast for domestic enplanements was right on the mark in 2004—502.2 million compared to a forecast of 502.4 million. The larger forecast error in domestic RPMs reflects the legacy carriers' continuing transfer of medium distance routes to its smaller regional affiliates as well as its increased service in transcon routes in response to increased competition from low-cost carriers. In 2003, the FAA had predicted that the domestic passenger trip length would increase by 8.1 miles, assuming that there would be a gradual slowing in the number of routes transferred to its regional partners. Instead, the rapid run-up in oil prices in 2004 forced legacy carriers to once again transfer large numbers of routes to its regional affiliates, the result being a 33.5 mile increase in the passenger trip length.

[1]The definition of air carriers was changed in 2002 to exclude regional/commuters reporting on Form 41. Previous forecasts were rebased using the new historical database and previous forecast growth rates.

TABLE VIII-1

U.S. MAINLINE AIR CARRIERS
SCHEDULED DOMESTIC REVENUE PASSENGER MILES (RPMs)
FORECAST EVALUATION

Year Being Forecast	Actual RPMs (Billions)	Forecast RPMs (Billions) Published -- Years Earlier					
		1 Year	2 Years	3 Years	4 Years	5 Years	10 Years
1997	434.6	433.2	420.3	426.6	399.9	422.0	507.5
1998	444.7	453.0	451.6	441.0	443.8	414.9	509.2
1999	463.1	455.0	467.6	467.7	455.2	459.5	496.4
2000	490.0	479.0	466.1	482.4	484.1	469.6	492.6
2001	483.8	506.3	493.9	477.9	498.8	501.4	485.0
2002	443.2	425.8	527.0	515.7	505.7	528.8	509.8
2003	453.4	455.6	485.4	548.1	533.2	527.5	499.9
2004	488.4	475.9	473.0	507.7	571.7	556.2	553.3
2005		***496.7***	502.6	489.6	530.6	596.9	567.6
2006			***521.1***	521.7	506.5	553.1	622.1
2007				***541.4***	539.4	523.9	649.6
2008					***558.7***	558.8	650.4
2009						***577.7***	691.8
2010							737.1
2014							***686.8***

Year Being Forecast	Forecast RPMs Percent Error Published--Years Earlier					
	1 Year	2 Years	3 Years	4 Years	5 Years	10 Years
1998	1.9	1.5	(0.8)	(0.2)	(6.7)	14.5
1999	(1.8)	1.0	1.0	(1.7)	(0.8)	7.2
2000	(2.3)	(4.9)	(1.6)	(1.2)	(4.2)	0.5
2001	4.7	2.1	(1.2)	3.1	3.6	0.3
2002	(3.9)	18.9	16.4	14.1	19.3	15.0
2003	0.5	7.1	20.9	17.6	16.3	10.3
2004	(2.6)	(3.2)	3.9	17.0	13.9	13.3

Note on how to read this table: In 2003 the FAA forecast 475.9 billion RPMs would occur in 2004. In fact, 488.4 billion RPMs were recorded, meaning the forecast was 2.6 percent lower than actual.

The 2005 forecast is shown in bold italics.

TABLE VIII-2

FAA ARTCC AIRCRAFT HANDLED FORECAST EVALUATION

Year Being Forecast	Actual Activity (Millions)	Forecast Activity Level (Millions) Published -- Years Earlier					
		1 Year	2 Years	3 Years	4 Years	5 Years	10 Years
1997	41.4	40.9	42.2	41.5	40.3	40.7	46.0
1998	43.2	42.0	41.8	43.4	42.4	41.1	46.1
1999	44.7	44.2	42.6	42.5	44.4	43.4	46.0
2000	46.0	45.7	45.2	43.2	43.5	45.3	47.1
2001	45.2	47.0	46.8	46.2	44.2	44.4	46.6
2002	43.7	43.2	48.1	48.0	47.3	45.2	45.1
2003	43.7	43.6	45.4	49.3	49.0	48.4	45.0
2004	46.2	45.1	44.8	46.5	50.4	50.1	47.3
2005		***46.9***	46.8	46.0	47.6	51.8	49.3
2006			***48.5***	47.9	47.0	48.6	48.5
2007				***49.7***	48.9	48.0	49.6
2008					***50.7***	49.9	54.2
2009						***51.7***	56.7
2010							58.6
2014							***57.5***

Year Being Forecast	Forecast Activity Percent Error Published--Years Earlier					
	1 Year	2 Years	3 Years	4 Years	5 Years	10 Years
1998	(2.8)	(3.2)	0.5	(1.9)	(4.9)	6.7
1999	(1.1)	(4.7)	(4.9)	(0.7)	(2.9)	2.9
2000	(0.7)	(1.8)	(6.1)	(5.5)	(1.6)	2.3
2001	4.0	3.5	2.1	(2.3)	(1.8)	3.0
2002	(1.2)	10.1	9.8	8.2	3.4	3.1
2003	(0.4)	3.8	12.7	12.0	10.6	2.9
2004	(2.3)	(3.0)	0.6	9.1	8.4	2.3

Note on how to read this table: In 2003 the FAA forecast 45.1 million aircraft would be handled in 2004. In fact, 46.2 million aircraft were recorded, meaning the forecast was 2.3 percent lower than actual.

The 2005 forecast is shown in bold italics.

Over the last 7 years, the average absolute 1-year RPM forecast error is 2.5 percent (2.5 percent for the 6 years prior to 2004, and 2.9 percent for the 5 years prior to 2003). The average 1-year forecast error is (0.5) percent for the 7 years--4 of the forecast years being underestimated and 3 of the forecast years being overestimated.

The forecast for aircraft handled in 2004 was 45.1 million compared to an actual of 46.2 million--resulting in the forecast being 2.3 percent lower than actual. This larger than average forecast error also reflects continuing legacy carrier restructuring and transfer of routes to their smaller affiliates. In addition, FAA military forecasts assume, for lack of any information regarding future military activity, that military activity will remain constant at its last reported activity level. Military operations increased 4.4 percent in 2004, the added activity accounting for almost 16 percent of the forecast error in 2004.

The average absolute 1-year forecast error over the last 7 years is 1.8 percent (1.7 percent for the 6 years prior to 2003, and 2.0 percent for the 5 years prior to 2003). The average 1-year forecast error is 0.7 percent, with 6 out of the last 7 forecasts underestimating the number of aircraft handled.

The 10-year out forecast errors tend to be larger because of unanticipated external events that have long-term impacts on the aviation system. Contributing external factors impacting the long-term forecasting accuracy of RPMs and aircraft handled include the 1991 Gulf War and the concomitant rise in fuel prices; the outbreaks of terrorism in 1986, 1991, and 2001; the Southeast Asian financial crisis in 1997-98; the War in Iraq along with the outbreak of SARS in 2003; and the rapid rise of oil prices in 2004. Since the FAA does not use cyclical economic projections in preparing its long-term forecasts, the 2001 economic recession was not considered in any of the forecasts prepared prior to 2001.

For the 7-year period 1998 through 2004, the average absolute 10-year forecast error for domestic RPMs is 8.7 percent and the average absolute 10-year forecast error for aircraft handled is 3.3 percent. The evaluation of forecasts published in 1994 (for 2003) and 1995 (for 2004) indicate that the forecast error for domestic RPMs was 10.3 and 13.5 percent, respectively. For aircraft handled, the error for the forecasts published in 1994 and 1995 was 2.9 and 2.3 percent, respectively. This statistical comparison highlights the significant impact that unanticipated exogenous events, or the lack thereof, can have on the long-term accuracy of the forecasts. It should also be noted that the errors for forecasts prepared prior to 2002 will continue to widen because of the events of September 11th.

THE FAA AVIATION FORECASTING PROCESS

INTRODUCTION

The FAA's forecasting process is a continuous and interactive one that involves the FAA Statistics and Forecast Branch, as well as other FAA offices, government agencies, and aviation industry groups. In addition, the process uses various economic and aviation databases, econometric models and equations, and other analytical techniques.

Forecasting aviation activity is an essential component of the FAA's planning process. The forecasts are used to determine staffing levels and capital expenditures required to accommodate the growth of aviation activity while maintaining a safe, secure, and efficient environment. The forecasts are also used for short-term budget preparation and trust fund, cost-benefit and regulatory analyses.

The relative importance of the forecasting function in the planning process can be gauged by examining the National Airspace System (NAS) Architecture. The NAS architecture is a 15-year plan, with the first 5 years focusing on the Capital Investment Plan (CIP). The CIP identifies the short-term requirements for sustaining and improving the safety, security, and efficiency in the NAS. The sizable investments being made in the National Airspace System make it essential for the FAA to develop and use the most accurate and reliable forecasts possible. Thus, the periodic review and evaluation of the forecasting procedures, models, assumptions, and results constitute essential parts of the process.

The FAA considers over 100 variables when producing a set of national forecasts. Of these, four economic independent variables are obtained from sources external to the FAA. Consequently, the FAA has no control over these truly exogenous variables. There are 12 quantifiable air carrier forecast assumptions and 3 quantifiable regional/commuter carrier forecast assumptions. These forecast assumptions are made by FAA analysts who develop the forecasts. There are 83 aviation variables that are not FAA workload measures, but influence the workload measures in one way or another. Finally, there are over 30 aviation variables that are workload measures used by the FAA for policy and planning considerations, and for personnel and investment planning.

Table VIII-3 at the end of this chapter contains a list of the variables, the sources of the data, and their relationship to the forecast process. Forecasts of the economic variables are developed outside the FAA. All other forecasts are developed by the FAA.

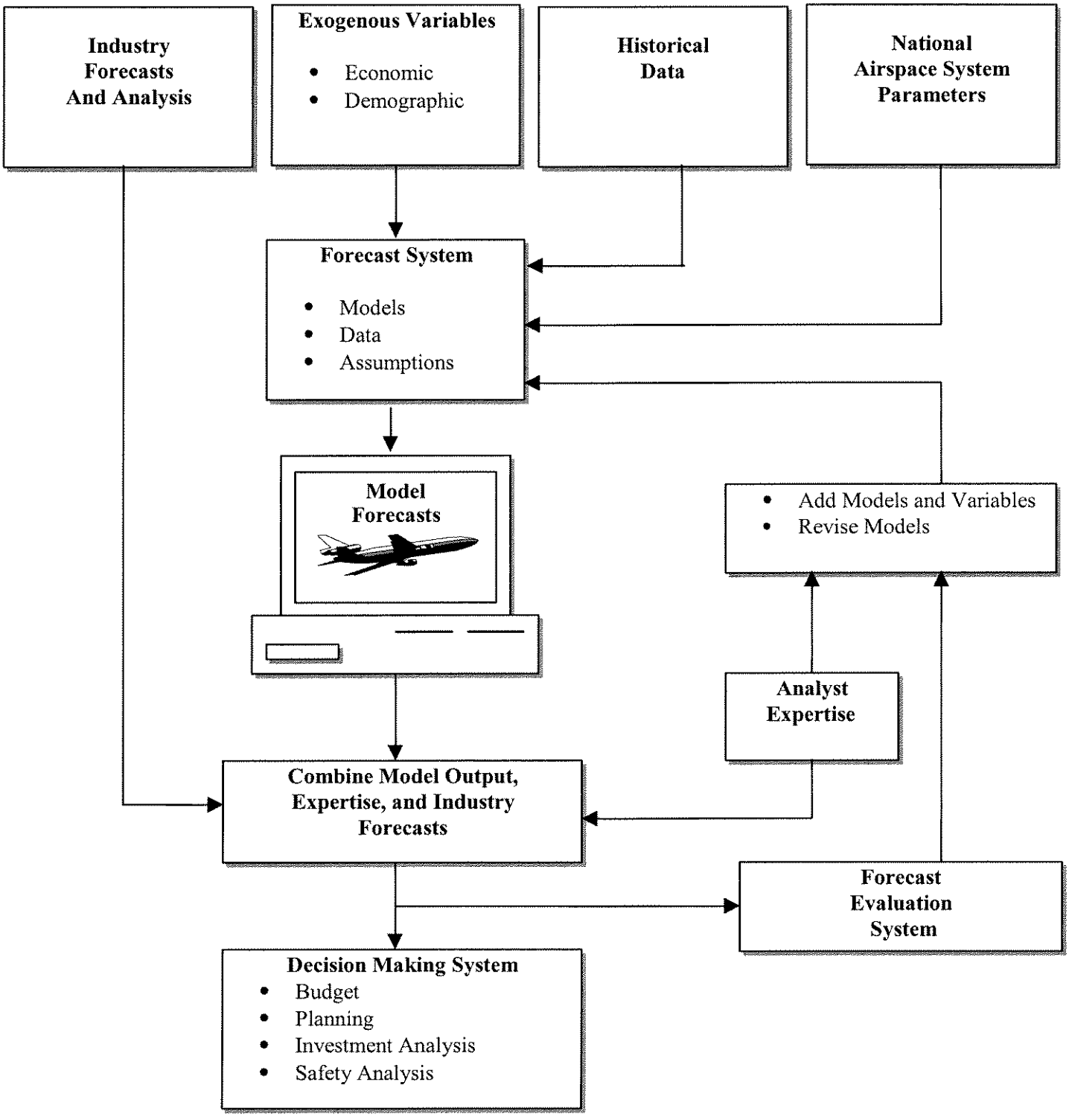
Research undertaken in the early- and mid-1970s indicated that some measures of economic activity (such as gross domestic product or total employment) and some measures of prices (for example, airline fares and aviation fuel prices) were useful predictors of aviation activity. Some unique events (including the failure of U.S. air carriers to follow rational pricing policies; e.g., the destructive fare wars of 1986 and 1992; the prolonged depressed state of the general aviation manufacturing industry; and the September 2001 terrorist attacks) have altered the relationships between key aviation variables and the economic variables used previously. It has been difficult, therefore, to produce economic or econometric models that predict aviation activity with the same degree of reliability as the models developed in earlier periods. Thus, for the present, the forecasters must rely to a greater degree on subjective judgment, evaluation, and expertise than was required previously. This is not at all unusual in times when significant structural changes are taking place in a volatile industry.

THE FAA FORECASTING PROCESS

During the past several years the FAA has adopted a decision-theoretic forecasting system. The approach is generally accomplished in two stages. Initially, projections are made with the use of econometric and time-series models. The model equations and outcomes are then adjusted based upon "expert industry opinion" to arrive at posterior forecasts for use in the decision-making process. The flow diagram on page VIII-6 shows a generalized version of the FAA aviation forecasting process.

In light of the continuing changes occurring in the industry, this year's forecast process was similar to the process put in place after September 11th. Near-term forecasts (2005) were developed utilizing assumptions regarding capacity and expert judgment as to the degree and timing of the industry recovery. For the remaining years (2006-2016) the air carrier forecasts were based on results derived from econometric and time-series models. The

FAA FORECASTING SYSTEM



regional/commuter forecast combined assumptions relating to capacity as well as results from econometric models. It is believed that optimum policy forecasts can only be achieved by combining model forecasts and judgment.

In general, these models are relatively simple descriptions of very complex systems. They cannot account for all the political, social, psychological, and economic factors and their interactions that will lead to a particular set of outcomes. Therefore, it is essential to use judgment to account for the complexities of the operating environment. This can be accomplished by adjusting the exogenous variables, adjusting the model outputs, or revising the models initial parameter estimates.

FORECASTING EVALUATION

It is important to evaluate the forecast results and to determine the causes of the deviations of the forecast values from the actual values observed in the real world. Large forecast errors can lead to inefficient allocation of resources which, in turn, could lead to capacity constraints and delays or to excess capacity in the National Airspace System. For this reason, the FAA continuously evaluates the forecasting process and its results.

The analysis of the errors generally identifies the causes of the deviations and helps determine the proportion due to improper model specifications, erroneous forecasts of independent variables, erroneous forecast assumptions, or incorrect judgments and opinions. If warranted, the forecast error analysis may lead to a reformulation or respecification of the model and to additions or deletions of independent variables, revisions of forecast assumptions, and/or changes in analysts' opinions and judgments about future events.

The evaluation of the forecast process proceeds on several fronts. On a monthly basis, the FAA tracks its short-term forecasts of commercial air carrier traffic (enplanements and RPMs), aircraft operations, instrument operations, IFR aircraft handled, and flight services vis-à-vis actual carrier traffic data reported to DOT and actual activity counts at the FAA facilities. This tracking system alerts FAA management to unexpected deviations from the trends suggested by the forecasts. Inquiries are then initiated to determine the cause(s) of the differences and revised short-term forecasts may be generated, if necessary.

To help the analysts make correct decisions and informed judgments when developing the forecast assumptions, the FAA meets with industry representatives to discuss industry trends, recent developments, and possible future courses of events. In cooperation with the National Academy of Sciences, Transportation Research Board (TRB), the FAA has, since 1979, sponsored a biennial International Workshop on Future Aviation Activities--"Forecast Assumptions Workshop." This "by invitation only" workshop is attended by some 120-140 industry planners and forecasters representing airlines, aircraft manufacturers, engine manufacturers, trade associations, academic institutions, and other industry groups.

Generally, workshop participants are divided into nine concurrent panels to discuss sectoral trends and problems in the following areas: (1) domestic air carriers, (2) international air carriers, (3) regional and commuter airlines, (4) air cargo, (5) airports and infrastructure, (6) commercial aircraft fleets and manufacturers, (7) light personal and general aviation, (8) business aviation, and (9) vertical flight (rotorcraft).

The subgroups are instructed to critique FAA aviation forecasts for their specific areas. Each subgroup is asked to identify specific assumptions about the short- and long-term future trends of the economic and aviation

variables that are important to their segments of the industry, to indicate why these trends are considered important, and to explain why specific trends are anticipated. After discussing the FAA forecast and the group's assumptions, each group attempts to reach a consensus about the key variables affecting the industry and the most likely future courses of these variables. The findings of these workshops are published by the TRB.

In past years, the TRB workshops have provided discussions beneficial to both government and industry participants, while at the same time providing FAA analysts with a benchmark for preparing future aviation forecasts and for evaluating forecasts prepared by other organizations. These meetings are even more valuable for gaining insight, as the industry continues to be impacted by major world events.

Throughout the year formal and informal meetings with individuals and representatives of specific aviation groups are held, and this is another method used by the FAA to solicit input and comments on FAA forecasts. Meetings are held regularly with aircraft manufacturers and with members of the various aviation trade associations. In addition, FAA analysts maintain one-on-one contact with many industry representatives and also attend annual conferences/meetings conducted by the aviation trade associations when the budget permits.

The largest setting for industry dialogue and critique regarding the FAA aviation forecast process is the annual FAA Aviation Forecast Conference. Now in its 30th year, the conference provides a forum for the release of its aviation forecasts for the upcoming 12 years. The last conference was held March 25-26, 2004, in Washington, DC. Participants and attendees were over 600 strong and included airline and airport executives, aircraft and engine manufacturers, trade associations, aviation consultants, consumer groups, industry representatives, and the news media. To the maximum extent possible, the FAA responds to questions raised about the forecasts both during and after the conference.

An important part of the conference is the opportunity for government and industry leaders and experts in the aviation industry to make presentations on a variety of topics of interest to the aviation community. The FAA also receives valuable information and insights through the papers presented at the forecast conference. Last year's conference proceedings can be found at the following web address: http://api.hq.faa.gov/conference/2004/web%20agenda.htm

Finally, the FAA requests FAA regional and state participation in the evaluation of the forecast process. For example, the aircraft handled and terminal area forecasts are distributed to FAA regional offices for review and comment. The comments and changes are incorporated in final facility-level reports. In the case of terminal area forecasts, the FAA regions can make changes directly on personal computers. However, the final facility-level forecasts derived by this procedure must be consistent with the national forecasts.

Periodically, the FAA prepares technical reports comparing forecast accuracy of key workload measures with forecast accuracy of economic variables prepared by the major forecasting services. Based on the results of these studies, the FAA forecasts compare favorably with those produced by the major forecasting services.

TABLE VIII-3

FAA AVIATION FORECAST VARIABLES AND DATA SOURCES

TYPES OF VARIABLES AND VARIABLE NAMES	HISTORICAL DATA SOURCES
ECONOMIC	
ECONOMIC ASSUMPTIONS	
Gross Domestic Product (GDP)	OMB, CBO, Global Insight
Consumer Price Index – All Urban Consumers (CPIU)	OMB, CBO, Global Insight
Oil and Gas Deflator	OMB, Global Insight
Energy Deflator	CBO
AIR CARRIER	
FORECAST ASSUMPTIONS	
Domestic Operations	
Average seats per aircraft	BTS/computed
Average passenger trip length[2]	BTS/computed
Revenue per passenger mile (current $)	BTS/computed
Revenue per passenger mile (2004 $)	Computed
Average jet fuel prices (current $)	BTS/computed
Average jet fuel prices (2004 $)	Computed
International Operations (U.S. Carriers)	
(Same as Domestic)	(Same)
SCHEDULED PASSENGER TRAFFIC	
Domestic	
Revenue passenger miles (RPMs)	BTS
Revenue passenger enplanements	BTS
Available seat miles (ASMs)	BTS
Load factors	Computed
International (U.S. Carriers)	
RPMs by World Regions	BTS
Revenue passenger enplanements by World Regions	BTS

[2]Result of econometric models for RPMs and Enplanements

FAA AVIATION FORECAST VARIABLES AND DATA SOURCES (CONTINUED)

TYPES OF VARIABLES AND VARIABLE NAMES	HISTORICAL DATA SOURCES
AIR CARRIER (CONTINUED)	
SCHEDULED PASSENGER TRAFFIC (CONTINUED)	
International (U.S. Carriers)	
ASMs by World Region	BTS
Load factors	Computed
International (U.S. and Foreign Flag Carriers)	
Passenger enplanements	INS
SCHEDULED AND NONSCHEDULED CARGO TRAFFIC	
Domestic and International (U.S. Flag Carriers)	
Total Air Cargo Revenue Ton Miles (RTMs)	BTS
Air Cargo RTMs: All-Cargo Carriers	BTS
Air Cargo RTMs: Passenger Carriers	BTS
FLEET	
Large jet aircraft: Passenger	FAA
Large jet aircraft: Cargo	FAA
HOURS FLOWN BY EQUIPMENT TYPE	
Large jet aircraft	BTS
FUEL CONSUMED	
Jet	
Domestic air carriers	BTS
International air carriers	BTS
General aviation	FAA/APO-110
Aviation Gasoline	FAA/APO-110

FAA AVIATION FORECAST VARIABLES AND DATA SOURCES (CONTINUED)

TYPES OF VARIABLES AND VARIABLE NAMES	HISTORICAL DATA SOURCES
REGIONAL/COMMUTER	
FORECAST ASSUMPTIONS	
Average seats per aircraft	BTS/Computed
Average passenger trip length	BTS/Computed
Average load factor	BTS/Computed
PASSENGER TRAFFIC	
Revenue passenger enplanements	BTS
RPMs	BTS
ASMs	BTS
FLEET	
Aircraft less than or equal to 90 seats	FAA
HOURS FLOWN	
Total for all passenger airlines	BTS
GENERAL AVIATION	
FLEET	
Active aircraft by equipment type	FAA/APO-110
NUMBER OF AIRCRAFT BY REGION	
Total aircraft in each of nine FAA Regions	FAA/APO-110
HOURS FLOWN	
Hours flown by equipment type	FAA/APO-110
FUEL CONSUMED	
Fuel consumed by equipment type	FAA/APO-110
PILOTS	
Active pilots by certificate type	FAA/Mike Monroney Aeronautical Center

FAA AVIATION FORECAST VARIABLES AND DATA SOURCES (CONTINUED)

TYPES OF VARIABLES AND VARIABLE NAMES	HISTORICAL DATA SOURCES
FAA WORKLOAD MEASURES	
FAA TOWERS	
Number of FAA Towers	FAA/APO-130
Number of Contract Towers	FAA/ATP-140
Aircraft Operations:	
Itinerant and local operations by aviation category	FAA/APO-130
Instrument operations by aviation category	FAA/APO-130
Non-IFR Instrument Operations:	
Terminal control areas	FAA/APO-130
Expanded radar service areas	FAA/APO-130
AIR ROUTE TRAFFIC CONTROL CENTERS	
IFR departures by aviation category	FAA/APO-130
IFR overs by aviation category	FAA/APO-130
FLIGHT SERVICE STATIONS	
IFR-DVFR flight plans originated	FAA/APO-130
VFR flight plans originated	FAA/APO-130
Pilot briefings	FAA/APO-130
Aircraft contacted by aviation category	FAA/APO-130
IFR-DVFR aircraft contacted	FAA/APO-130
VFR aircraft contacted	FAA/APO-130

FAA AVIATION FORECAST VARIABLES AND DATA SOURCES (CONTINUED)

TYPES OF VARIABLES AND VARIABLE NAMES	HISTORICAL DATA SOURCES
TERMINAL AREA FORECASTS (3,444 Towered and Nontowered Airports)	
ENPLANEMENTS	
U. S. Flag Carrier	BTS
Foreign Flag Carrier	INS/BTS
Regional/Commuter	BTS
Air Taxi	FAA/VNTSC
OPERATIONS	
Towered Airports:	
Aircraft operations by aviation segment	FAA/APO-130
Scheduled commuter	OAG
Nontowered Airports	FAA/NFDC
Scheduled commuter	OAG

APO-110--Statistics and Forecast Branch, FAA
APO-130--Information Systems Branch, FAA
ATP-140--Contract Air Traffic Services, FAA
BTS--Bureau of Transportation Statistics, Department of Transportation
CBO--Congressional Budget Office
Global Insight--formerly DRI-WEFA, Inc.
INS--Immigration and Naturalization Service, Department of Justice
NFDC--National Flight Data Center, FAA
OAG--North American Official Airline Guide
OMB--Office of Management and Budget
VNTSC--Volpe National Transportation Systems Center, Research and Special Programs Administration, Department of Transportation

CHAPTER IX

COMMERCIAL SPACE TRANSPORTATION

The Federal Aviation Administration's (FAA) Associate Administrator for Commercial Space Transportation (AST) licenses and regulates U.S. commercial space launch activity as authorized by Executive Order 12465, *Commercial Expendable Launch Vehicle Activities*, and 49 US Code, Subtitle IX, Chapter 701 (formerly the *Commercial Space Launch Act)*. AST's mission is to license and regulate commercial launch and reentry operations to protect public health and safety, the safety of property, and the national security and foreign policy interests of the United States. In addition, the FAA licenses commercial launch and reentry sites. The *Commercial Space Launch Act of 1984* and the 2004 *U.S. Space Transportation Policy* also direct the DOT (FAA) to encourage, facilitate, and promote commercial launches.

INTRODUCTION TO COMMERCIAL SPACE TRANSPORTATION

WHAT IS COMMERCIAL SPACE TRANSPORTATION?

The term "commercial space transportation" refers to the launch of an object into space or the reentry of an object from space by a private, non-government entity. Typically, commercial space transportation concerns the activities of launch service providers – companies that place satellites into orbit under contract from corporations, governments, universities, or other organizations. Launch service providers also conduct suborbital flights, which are typically short duration launches of objects high into the atmosphere or into space that return to Earth instead of entering orbit. The world's major orbital launch service providers are in the United States, Europe, Russia, and China. Other countries are attempting to enter the market such as Brazil, Japan, and India.

The FAA issues licenses to companies that conduct commercial launches in the United States and to U.S. companies that conduct launches outside U.S. territory. U.S. orbital

launch service providers include Lockheed Martin's International Launch Services (ILS), Boeing Launch Services (BLS), Orbital Sciences Corporation (OSC) and Space Exploration Technologies (SpaceX). Active U.S. commercial suborbital launch providers include DTI Associates and Scaled Composites, LLC. A launch license from FAA/AST may be required for certain large hobby or research rockets, depending on the rocket's motor impulse, operating time, and ballistic coefficient factors.

Suborbital launches by private entities are an increasingly important regulatory activity for the FAA. Several organizations are developing reusable suborbital vehicles designed to carry people or payloads to and from very high altitudes. The following sections will briefly describe the history of the commercial use of space, U.S. orbital launch service providers, and the emerging suborbital service providers using new reusable vehicles.

COMMERCIAL USE OF SPACE

Since the launch of Sputnik in 1957, spaceflight has largely been a government endeavor. Even though satellites serving commercial or quasi-commercial purposes went into service in the early 1960s, the business of launching them was a government affair. Many of the early commercial satellites launched were telecommunications spacecraft located in geosynchronous Earth orbit[1] (GEO) used to relay video and audio signals for television and telephone services.

Launches of satellites that serve commercial purposes have steadily increased from the early 1980s to the late 1990s. In 2004, commercial launches represented about 30 percent of the total orbital launches conducted worldwide. Until the mid-1990s, commercial satellites were almost exclusively telecommunications satellites located in GEO.

Since 1997, new satellite markets have opened up for commercial mobile telephones, data messaging, and remote sensing in low Earth orbit (LEO) or other non-geosynchronous orbits (NGSO).[2] Digital satellite radio services began in North America in late 2001.

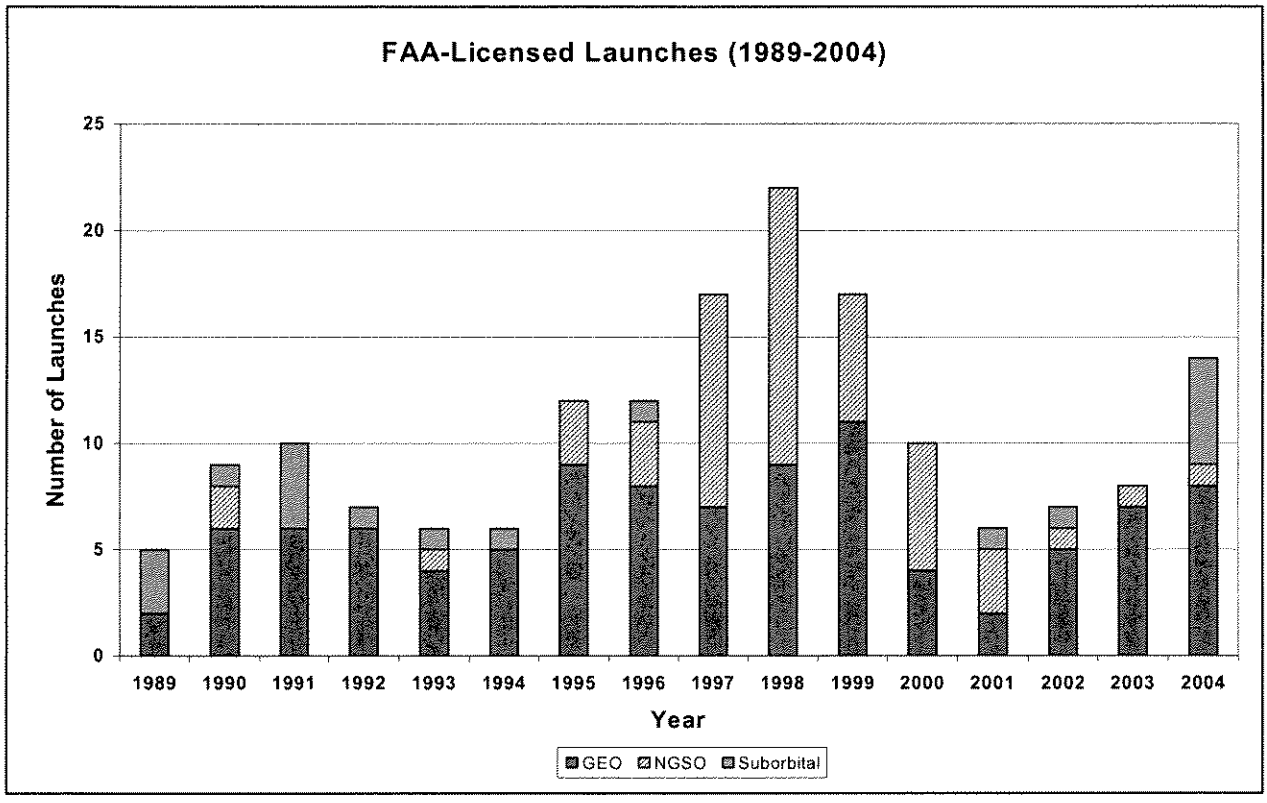
The era of public space travel and tourism has arrived. The first privately-built launch vehicle to carry humans into space launched three times in 2004 into space on suborbital flights from Mojave, California. New companies developing passenger-carrying vehicles are expected to begin regular suborbital flights around 2007. In addition, a new $50-million private sector prize contest has been announced for passengers to low Earth orbit.

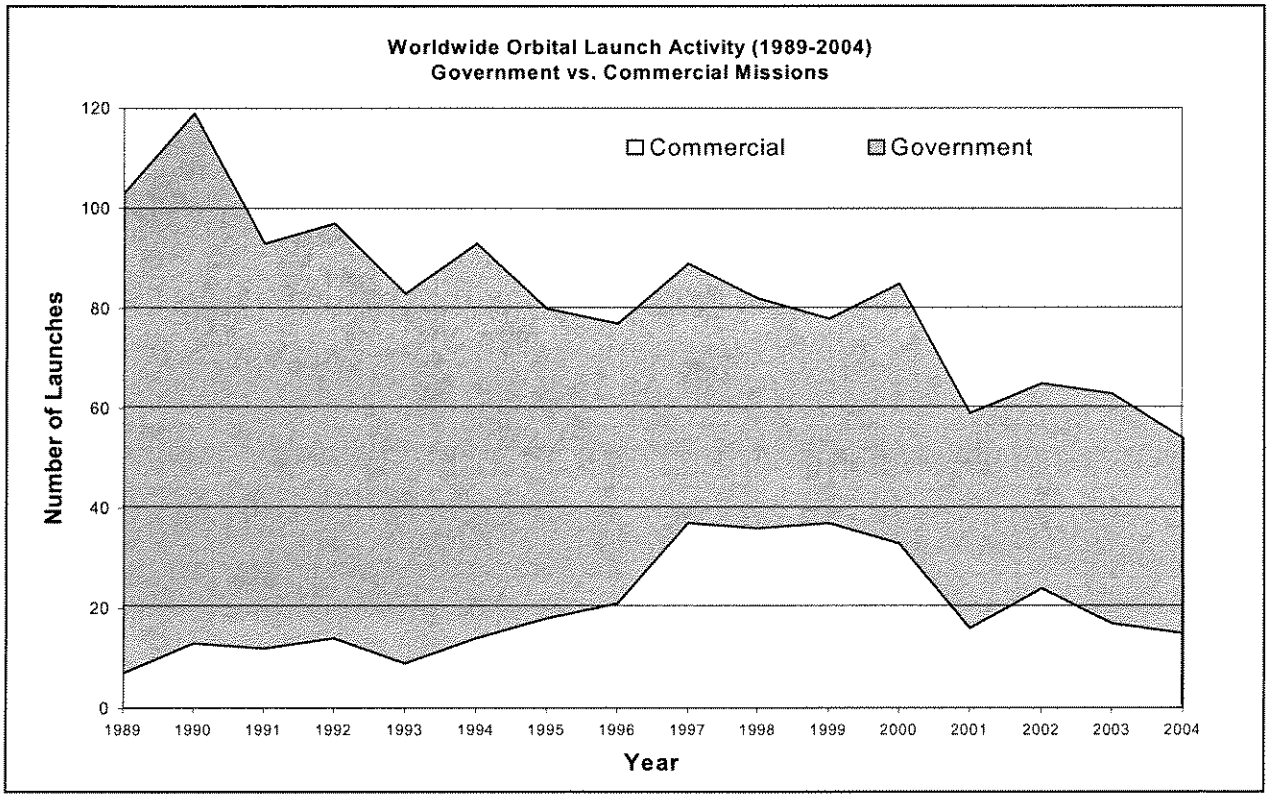
U.S. COMMERCIAL LAUNCH SERVICES

Up until the early 1980s, all commercial satellites were launched on rockets owned and operated by the U.S. government, including the Space Shuttle. When Europe's Arianespace began offering launch services for commercial satellites in 1983, an international launch market was created and has since grown to over 15 vehicle families worldwide.

[1]A spacecraft in geostationary Earth orbit is synchronized with the Earth's rotation, orbiting once every 24 hours, and appears to an observer on the ground to be stationary in the sky. GEO is a broader category used for any circular orbit at an altitude of 35,852 kilometers with a low inclination (i.e., over the equator).

[2]Non-geosynchronous orbit (NGSO) satellites are those in orbits other than GEO. They are located in LEO (lowest achievable orbit to about 2,400 kilometers), medium Earth orbit (MEO, 2,400 kilometers to GEO), and all other high or elliptical orbits or escape trajectories.


FAA-Licensed Launches (1989-2004)
Number of Launches
25
20
15
10
5
0
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
Year
GEO
NGSO
Suborbital


Worldwide Orbital Launch Activity (1989-2004)
Government vs. Commercial Missions
Number of Launches
120
100
80
60
40
20
0
Commercial
Government
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
Year

Following the passage of the *Commercial Space Launch Act of 1984,* the U.S. government and industry began to transition from government to commercial operations for expendable launch vehicles (ELVs). The *Commercial Space Launch Act* authorized the Department of Transportation (DOT) to regulate and license commercial launch activities. From 1989 through the end of 2004, the DOT has licensed 168 orbital and suborbital commercial launches.

NASA and the U.S. Air Force continue to launch government satellites, which include flights of the Space Shuttle. These flights are not considered commercial by the FAA because they are conducted for and by government agencies and not by the private launch service provider, even though the same vehicles may be used. Occasionally, a U.S. government agency may contract a private launch service provider to deploy a satellite, or may contract a satellite manufacturer to build a satellite and deliver it in orbit, allowing the manufacturer to select a private launch service provider. As a result, launches of U.S. government payloads may or may not be FAA-licensed as commercial depending on who is conducting the specific launch. Launches of foreign government satellites on U.S. vehicles are commonly contracted through the private service providers and are considered commercial.

Launch providers continually upgrade their vehicles to keep pace with the marketplace and technology and retire older models.

Currently active ELVs that are licensed by the FAA for orbital launches include:

- Atlas 5 (heavy class), built by Lockheed Martin and marketed by International Launch Services (ILS). The Atlas 5's predecessors, the Atlas 2 and 3, were retired from commercial service in 2004;

- Delta 2 (medium class), built by The Boeing Company and marketed by Boeing Launch Services (BLS);

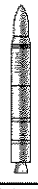
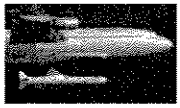
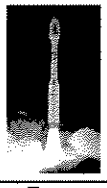
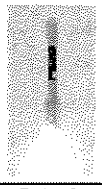
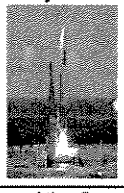
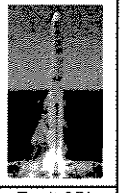
- Zenit 3SL (heavy class), built by KB Yuzhnoye (in Ukraine) for the Sea Launch partnership and marketed by BLS; and

- Pegasus XL and Taurus (small class), both built and marketed by Orbital Sciences.

Delta 4 is currently not being bid in commercial competitions. A new Delta 4 heavy version performed a demonstration launch for the Air Force in December 2004 and a heavy lift version of the Atlas 5 is under development by Lockheed Martin.

The Falcon 1, developed by SpaceX with a first launch in 2005, can carry satellites up to 454 kilograms (1,000 pounds). SpaceX intends to develop a more powerful version, Falcon 5, capable of lifting up to 4,200 kilograms (9,259 pounds) to LEO. The first stages of these vehicles are designed to be recoverable and possibly reusable.

US Commercial Orbital Launch Systems

	Small			Medium		Heavy	
							
Vehicle Name	Falcon 1	Pegasus	Taurus	Delta 2	Falcon 5	Atlas 5	Zenit 3SL
Company	SpaceX	OSC	OSC	Boeing	SpaceX	ILS	Sea Launch
First Commercial Launch	2005	1993	1998	1989	2006	2002	1999

Kistler Aerospace is developing the K-1, a two-stage reusable launch vehicle (RLV). Initially intended to deliver satellites to LEO, Kistler is repositioning the K-1 as a vehicle that can carry up to 3,200 kilograms (7,040 pounds) to the International Space Station (ISS) and return 900 kilograms (2,000 pounds) from the ISS back to Earth. Kistler is planning the first flight of the K-1 18 months after emerging from Chapter 11 bankruptcy protection, which the company has been in since July 2003.

Currently active launch vehicles licensed by the FAA for commercial suborbital launches include:

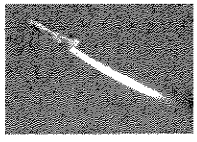
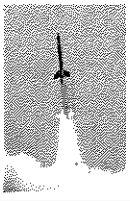
- Oriole, an expendable sounding rocket manufactured by Alliant Techsystems and provided by DTI Associates;
- SpaceShipOne, a reusable manned suborbital vehicle developed by Scaled Composites and marketed by Mojave Aerospace Ventures; and
- Terrier-Orion, an expendable sounding rocket integrated by DTI Associates using surplus government rocket motors.

Other suborbital vehicles could make launch attempts in 2005. Commercial suborbital spaceflight celebrated a number of major accomplishments in 2004. In April 2004 the FAA awarded its first licenses for commercial manned reusable spacecraft. The first license, issued April 1, went to Scaled Composites for SpaceShipOne. XCOR Aerospace received the second license on April 23 for its proposed Sphinx suborbital RLV.

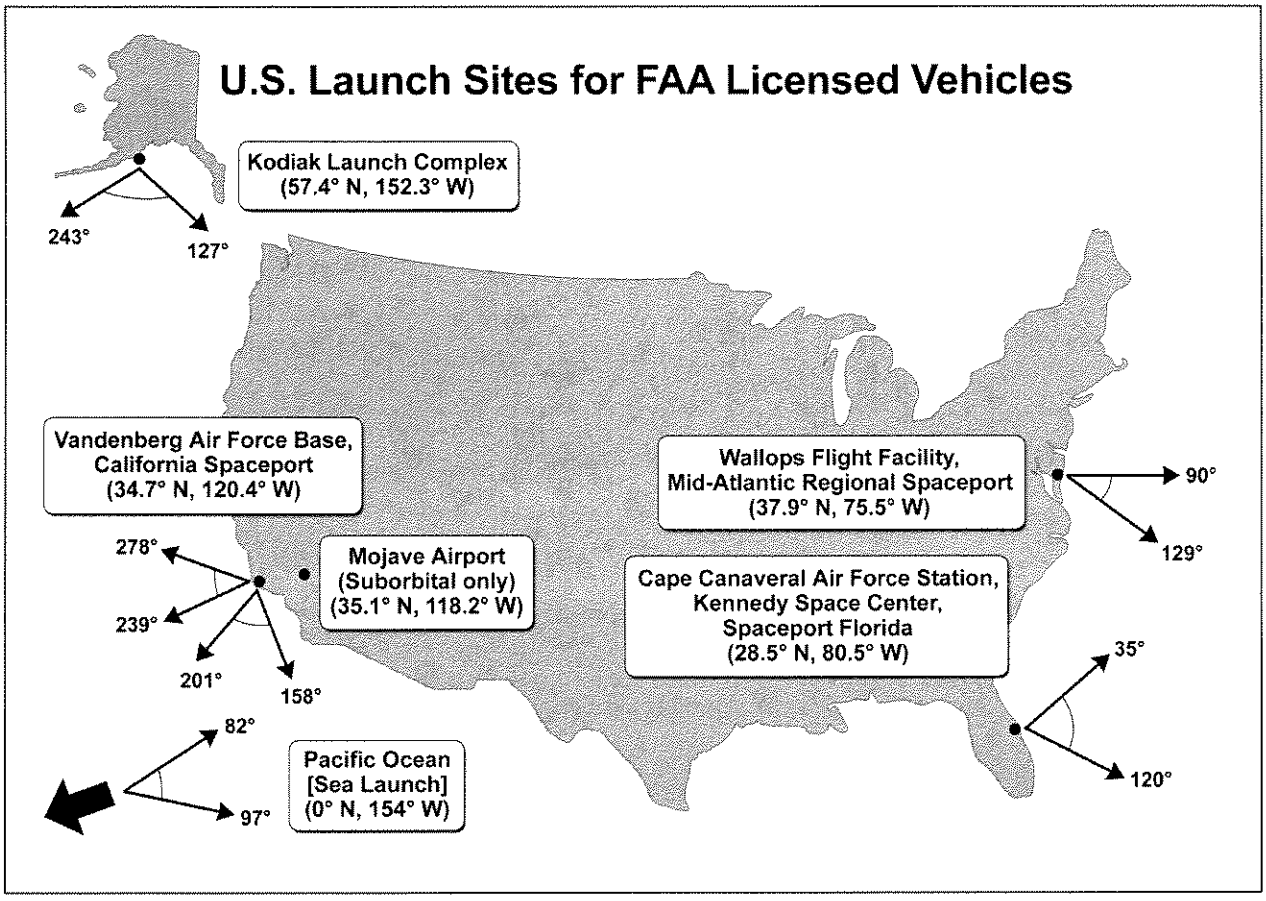
SpaceShipOne performed five licensed flights in 2004, including one on June 21, 2004, where SpaceShipOne became the first private-developed manned vehicle to fly into space, achieving a peak altitude of 100.1 kilometers (62.2 miles) during its suborbital flight. SpaceShipOne also performed manned flights above 100 kilometers on September 29 and October 4, 2004, reaching peak altitudes of 103.1 kilometers (63.8 miles) and 112.4 kilometers (69.6 miles), respectively. The latter two flights qualified for the $10-million Ansari X Prize, a competition for the first privately-developed reusable suborbital vehicle capable of carrying three people to 100 kilometers altitude twice in a two-week period. Mojave Aerospace Ventures officially received the prize on November 6, 2004.

Other companies that were developing vehicles for the Ansari X Prize are continuing their efforts, including Armadillo Aerospace, Rocketplane Ltd., Space Transport Company, and TGV Rockets. Several other companies not competing for the Ansari X Prize, such as Blue Origin, Masten Space Systems, and XCOR Aerospace, are also developing reusable suborbital vehicles for space tourism and other applications.

US Commercial Suborbital Launch Systems

Vehicle Name	Oriole	SpaceShipOne	Terrier-Orion
Company	DTI Associates	Scaled Composites	DTI Associates
First Commercial Launch	2005	2004	2001



ILS and BLS launch satellites to GEO from Cape Canaveral Air Force Station (CCAFS) in Florida. Sea Launch conducts GEO launches from a mobile ocean platform in the East-central Pacific Ocean. Launches to NGSO can take place from CCAFS, Vandenberg Air Force Base (VAFB) in California, the Mid-Atlantic Regional Spaceport in Virginia, or Kodiak Launch Complex in Alaska (see figure "U.S. Launch Sites," above).

FAA/AST has issued five launch site operator licenses to state-run organizations to operate commercial launch sites, or spaceports. They are:

- Spaceport Florida at CCAFS, Florida (license held by Florida Space Authority);
- California Spaceport at VAFB, California (license held by Spaceport Systems International);
- Mid-Atlantic Regional Spaceport at Wallops Island, Virginia (license held by Virginia Commercial Space Flight Authority);
- Kodiak Launch Complex on Kodiak Island, Alaska (license held by Alaska Aerospace Development Corporation), the first spaceport not located on a federal range; and
- Mojave Airport in Mojave, California (license held by East Kern Airport District), for suborbital launches. This is the first inland licensed launch site.

Other states are actively seeking to develop additional spaceports, including Oklahoma, New Mexico, and Texas.

REVIEW OF 2004

There were 14 FAA-licensed launches—nine orbital and five suborbital—in 2004, up from eight in 2003. ILS carried out five Atlas launches, all from Cape Canaveral. Sea Launch conducted three successful launches of GEO communications satellites from their Pacific Ocean platform, and Orbital Sciences Corporation conducted a successful launch of the Taurus launch vehicle for Taiwan. There were also five suborbital flights of Scaled Composites' SpaceShipOne vehicle.

Russian launch ranges deployed five vehicles for commercial missions. Europe's Arianespace conducted only one commercial launch from Kourou in French Guiana, their lowest total since the company was founded. Therefore, including the six launches from U.S. ranges and the three flights for Sea Launch, a total of 15 orbital commercial launches were conducted during 2004. There were 54 total worldwide commercial, civil, and military launches, the lowest total since 1961, with commercial launches representing about 30 percent of total launches. For more details, see the Year in Review report available from the FAA/AST website at *http://ast.faa.gov/rep_study/yir.htm.*

COMMERCIAL SPACE TRANSPORTATION FORECASTS

In May 2004, the FAA and the Commercial Space Transportation Advisory Committee (COMSTAC) published their annual forecast for commercial launch demand, the *2004 Commercial Space Transportation Forecasts.* This forecast combined the *COMSTAC 2004 Commercial Geostationary Launch Demand Model,* which covers satellites that operate in GEO, with the FAA's *2004 Commercial Space Transportation Projections for Non-Geosynchronous Orbits (NGSO).* The forecast projected an average of about 23 commercial orbital launches worldwide annually through 2013.

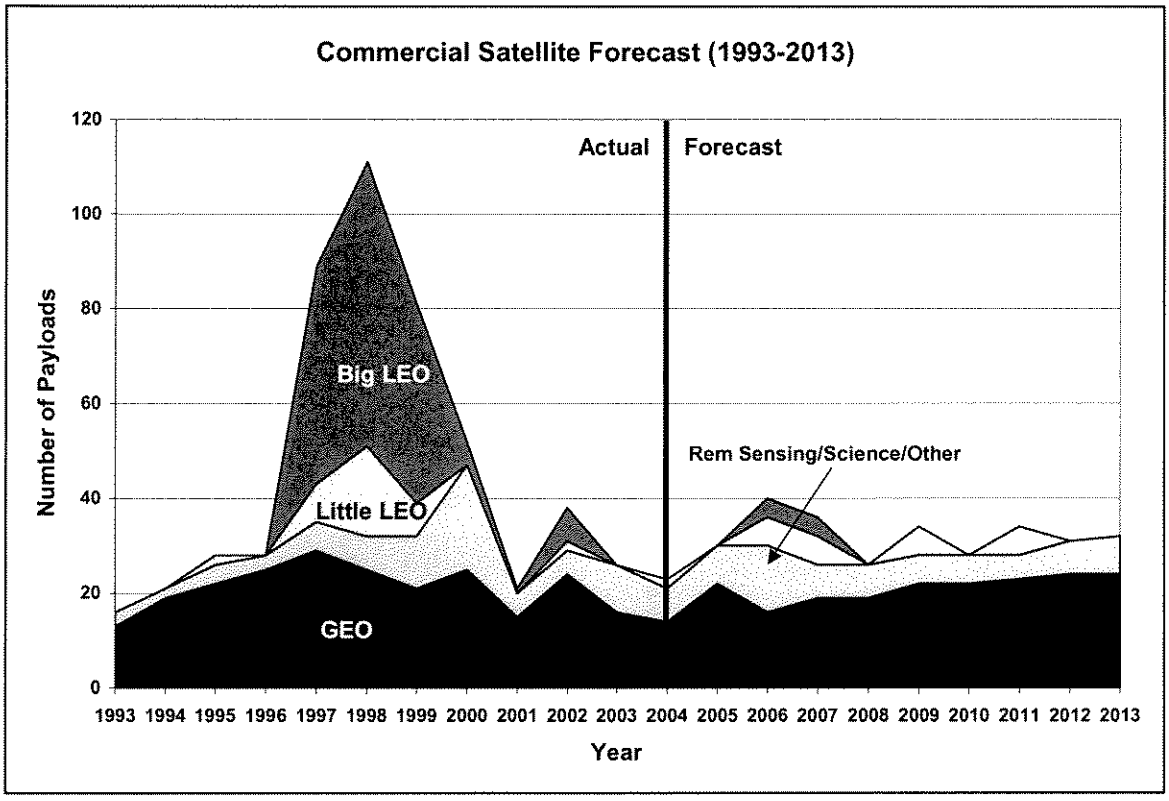
The 2004-2013 forecasts project an annual average of:

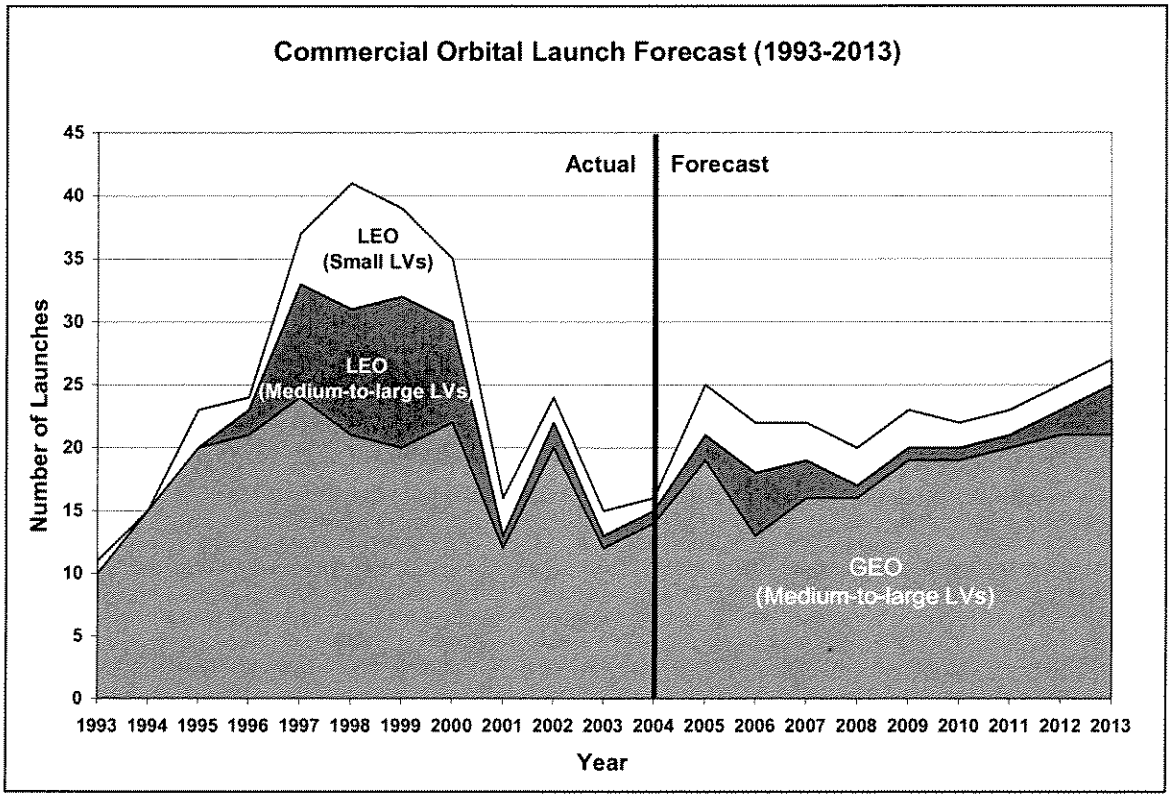
- 18.3 launches of medium-to-heavy vehicles to deploy GEO satellites;
- 2.3 launches of medium-to-heavy vehicles to NGSO; and
- 2.8 launches to NGSO by small vehicles.

These estimates account for multiple manifesting payloads, since commercial NGSO payloads could be launched in groups to reduce launch costs.

The GEO and NGSO forecasts are not a prediction of what will actually be launched. Instead, they represent the demand for launch services for actual or projected satellite programs in a given year, based on inputs from industry, government, and other sources.

The GEO forecast, compiled by COMSTAC, is based on responses to questionnaires from satellite manufacturers, satellite operators, and launch service providers in the U.S. and other nations. The ten-year mission model consists of a near-term manifest that identifies specific payloads scheduled for launch during the first three years of the forecast (2004–2006), as well as a long-term demand forecast that estimates demand for payloads and launches for the remaining years (2007–2013). The GEO forecast also includes a "realization factor" that estimates the number of launches that will actually take place during the near-term portion of the model, to take into account the variance between forecasted demand and actual launches because of satellite and launch vehicle delays.


Commercial Satellite Forecast (1993-2013)
Actual
Forecast
Big LEO
Little LEO
GEO
Rem Sensing/Science/Other
Number of Payloads
Year
0
20
40
60
80
100
120
1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013


Commercial Orbital Launch Forecast (1993-2013)
Actual
Forecast
LEO
(Small LVs)
LEO
(Medium-to-large LVs)
GEO
(Medium-to-large LVs)
Number of Launches
Year
0
5
10
15
20
25
30
35
40
45
1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013

The NGSO forecast examines three major markets for commercial launch services: telecommunications, commercial remote sensing, and international science and other payloads. Representatives of these markets, as well as launch service providers and other sources, are queried about their plans for specific satellite systems throughout the forecast period. This information is used to assemble a near term manifest (2004-2007) for identified payloads and launches. Because some of these systems, particularly in the international science sector, have short timelines, demand for future launches is projected based on past experience and current trends. Replacement of existing telecommunications and remote sensing systems is also included in the forecast based on lifetimes of existing systems.

Several factors can affect the forecast, including satellite manufacturing delays, launch vehicle component problems, launch failure investigations, or manifesting issues. Regulatory issues, such as satellite export compliance or FCC licensing, can come into play. Also, changes in the business environment can cause satellite companies to alter or cancel their development plans.

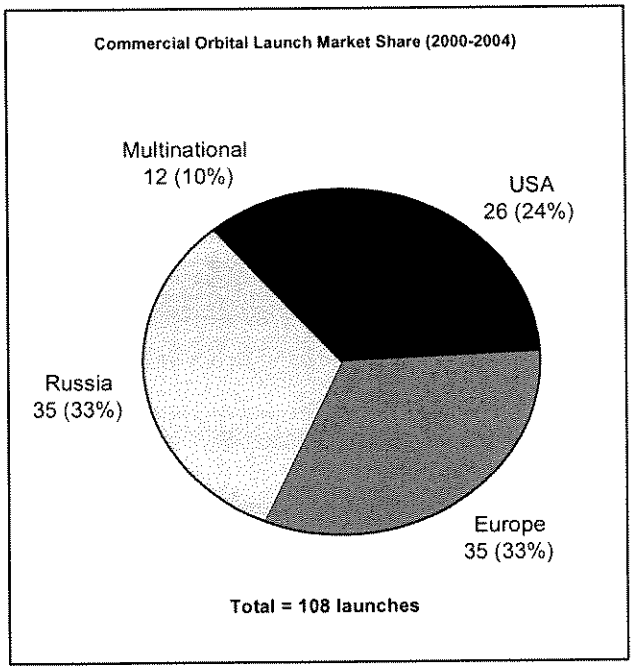
The complete forecast report is available at *http://ast.faa.gov/rep_study/forcasts_and_reports.htm*.

GENERAL TRENDS

The dominant feature of the commercial launch industry continues to be the launch of commercial satellites to GEO. There are also a small number of commercial launches to NGSO for remote sensing and international science payloads, but NGSO launches make up a considerably smaller portion of the market today then during the deployment phase of Iridium and Globalstar in the late 1990s. The NGSO telecommunications market has declined significantly. The 2004 forecast projects the composition of NGSO payloads to be about 55 percent international science and research and 15 percent remote sensing. The remaining 30 percent of NGSO payloads will be telecommunications satellites, although these will serve to replenish existing satellite constellations rather than deploy new systems. Only 2 of 16 commercial launches during 2004 contained NGSO payloads.

The commercial market generally has experienced a sharp decline in demand due to the global economic slowdown and business failures of first generation mobile telecommunications companies. Launch activity is expected to grow only gradually over the next several years. U.S. commercial providers hope that new government markets open up, such as resupply of the International Space Station.

The global marketplace continues to have a surplus in commercial launch capacity. The largest providers of commercial launch services in the United States, Europe, and Russia continue to operate fewer launches than in the recent past. New efforts to offer commercial services from Japan and Brazil have slowed because of vehicle failures and a generally crowded marketplace. As the chart below shows, Europe and Russia have each taken approximately one third of the total commercial launch market over the last five years, with the remaining third split between U.S. vehicles and the multinational Sea Launch venture.



The success of SpaceShipOne and the Ansari X Prize has helped open a new market for commercial space transportation: public space travel or space tourism. In September 2004, shortly before the first of the two SpaceShipOne Ansari X Prize flights, the Virgin Group announced that it would license SpaceShipOne technology from Mojave Aerospace Ventures for use on a new reusable suborbital vehicle, to be built by Scaled Composites. Up to five such vehicles will be operated by Virgin Galactic, a Virgin subsidiary, to provide suborbital space tourism flights for approximately $200,000 a person starting in 2007. In addition to space tourism, other markets that may be serviced by commercial suborbital spaceflight in the near term include remote sensing, high-altitude and microgravity research, and microsatellite insertion.

The X Prize Foundation intends on following up its prize competition with an annual competition similar to the air races of the early 20th century. The X Prize Cup, slated to begin in 2006 in New Mexico, will feature commercially-developed suborbital vehicles competing in a number of categories, including maximum altitude and fastest turnaround time between flights.

The Ansari X Prize has also generated interest in similar prize competitions designed to stimulate commercial space transportation. In the fall of 2004 Robert Bigelow, founder of Bigelow Aerospace, unveiled plans for America's Space Prize, a $50-million award for a commercial manned orbital vehicle. The prize, which expires on January 10, 2010, would go to the first commercially-developed U.S. vehicle capable of carrying five people launched into orbit twice within 60 days. The vehicle must also be capable of docking with inflatable orbital habitats being developed by Bigelow Aerospace.

NASA also started its own prize program, Centennial Challenges, during 2004. Although NASA is still developing the details of the program, as well as seeking Congressional authorization to offer prizes larger than $250,000, the agency plans to offer prizes for both specific technologies as well as full-scale missions, such as a robotic lunar lander or a solar sail. These prizes may stimulate additional demand for commercial space transportation.

Centennial Challenges is part of NASA's Vision for Space Exploration (VSE), the agency's new space exploration policy unveiled by President George W. Bush on January 14, 2004. The VSE calls for retiring the Space Shuttle by 2010, when the ISS is completed, and developing a new manned spacecraft, the Crew Exploration Vehicle (CEV), that would be used for missions to Earth orbit and beyond, including a lunar landing by 2020. The VSE calls on NASA to "pursue commercial opportunities for providing transportation and other services supporting the International Space Station and exploration missions beyond low Earth orbit." This recommendation was supported by the President's Commission on the Implementation of United States Space Exploration Policy, which in June 2004 suggested that prizes, tax incentives, and other tools be used to support transportation and other aspects of a "true space industry" in the U.S.

TABLE 1

U.S. SHORT-TERM ECONOMIC FORECASTS

ECONOMIC VARIABLE	FISCAL YEAR 2005				FISCAL YEAR 2006			
	1ST. QTR.	2ND. QTR.	3RD QTR.	4TH. QTR.	1ST. QTR.	2ND. QTR.	3RD QTR.	4TH. QTR.
REAL GDP								
(2000 Chained $, Billions)								
GLOBAL INSIGHT	10,980.6	11,059.6	11,149.4	11,230.2	11,307.9	11,391.5	11,479.7	11,570.9
OMB	10,996.8	11,086.4	11,182.0	11,281.2	11,381.2	11,478.9	11,577.0	11,675.6
CBO	10,982.7	11,080.2	11,184.0	11,288.8	11,391.8	11,500.4	11,607.3	11,718.8
OIL AND GAS PRICE INDEX								
(2000 EQUALS 100)								
GLOBAL INSIGHT	134.1	132.4	131.3	123.0	117.5	114.9	113.2	115.0
OMB	148.0	143.4	139.6	135.3	132.0	129.0	126.5	124.3
CBO (Energy Deflator)	134.7	138.5	138.3	137.4	136.4	135.7	135.1	134.7
CONSUMER PRICE INDEX								
(1982-84 EQUALS 100)								
GLOBAL INSIGHT	190.9	192.0	192.9	193.3	193.7	194.3	195.1	196.0
OMB	191.1	191.9	192.9	193.9	195.0	196.1	197.2	198.4
CBO	190.9	191.9	192.8	193.6	194.5	195.4	196.4	197.4

Source: Global Insight, November 2004; Office of Management and Budget, December 2004; Congressional Budget Office, December 2004.

TABLE 2

U.S. LONG-TERM ECONOMIC FORECASTS

FISCAL YEAR	GROSS DOMESTIC PRODUCT (Billions 2000$)	CONSUMER PRICE INDEX (1982-84=100)	OIL AND GAS PRICE INDEX (CY 2000 = 100)
Historical			
1999	9,361.9	165.5	74.1
2000	9,762.8	170.7	96.0
2001	9,885.1	176.2	101.2
2002	10,018.4	178.9	87.2
2003	10,270.1	183.1	103.3
2004E	10,738.2	187.3	116.8
Forecast			
2005	11,136.6	192.5	141.6
2006	11,528.2	196.7	127.9
2007	11,916.3	201.3	120.2
2008	12,298.2	206.2	118.1
2009	12,685.3	211.1	120.6
2010	13,078.5	216.2	123.1
2011	13,483.9	221.5	125.7
2012	13,896.7	227.0	128.3
2013	14,314.2	232.7	131.0
2014	14,745.0	238.5	133.7
2015	15,188.9	244.5	136.5
2016	15,646.1	250.6	139.4

Source: 2004-2015; Office of Management and Budget, December 2004. Extrapolated to 2016.

TABLE 3

ALTERNATIVE U.S. LONG-TERM ECONOMIC FORECASTS

FISCAL YEAR	GROSS DOMESTIC PRODUCT (Billions 2000$)		CONSUMER PRICE INDEX (1982-84 = 100)		OIL AND GAS PRICE INDEX (2000 = 100)	
	CBO	GLOBAL INSIGHT	CBO	GLOBAL INSIGHT	CBO*	GLOBAL INSIGHT
Historical						
1999	9,361.9	9,361.9	165.5	165.5	89.7	74.1
2000	9,762.8	9,762.8	170.7	170.7	95.7	96.0
2001	9,885.1	9,885.1	176.2	176.2	101.6	101.2
2002	10,018.4	10,018.4	178.9	178.9	87.4	87.0
2003	10,270.1	10,270.1	183.1	183.1	103.7	103.4
2004E	10,736.6	10,736.6	187.3	187.3	116.7	116.8
Forecast						
2005	11,133.9	11,105.0	192.3	192.3	137.2	130.2
2006	11,554.6	11,437.5	195.9	194.8	135.5	115.2
2007	11,991.2	11,790.8	200.1	198.0	134.3	114.0
2008	12,395.9	12,161.6	204.4	201.7	134.6	112.7
2009	12,780.4	12,544.4	208.9	205.8	135.5	113.0
2010	13,149.2	12,953.9	213.6	210.5	137.7	114.0
2011	13,511.1	13,375.0	218.4	215.7	140.9	114.5
2012	13,870.9	13,802.6	223.3	221.4	144.2	115.0
2013	14,236.0	14,244.4	228.3	227.1	147.6	116.1
2014	14,606.2	14,739.1	233.4	233.1	151.1	118.6
2015	14,975.9	15,239.8	238.6	239.2	154.7	121.5
2016	15,352.1	15,715.8	243.9	245.0	158.3	124.0

Source: Global Insight, November 2004; Congressional Budget Office, December 2004.
*Energy Deflator

TABLE 4

INTERNATIONAL GDP FORECASTS BY TRAVEL REGION

CALENDAR YEAR	GROSS DOMESTIC PRODUCT (In Billions of 2000 U.S. Dollars)				
	CANADA	EUROPE/ AFRICA/ MIDDLE EAST	LATIN AMERICA/ MEXICO	JAPAN/PACIFIC BASIN/CHINA/OTHER ASIA/AUSTRALIA/ N. ZEALAND	WORLD
Historical					
1999	688.7	9,966.5	1,766.8	7,920.0	30,284.2
2000	724.8	10,366.7	1,836.5	8,268.6	31,513.0
2001	737.8	10,529.7	1,838.6	8,429.6	31,972.3
2002	763.2	10,694.2	1,818.1	8,618.7	32,527.3
2003	778.7	10,858.4	1,843.8	8,966.0	33,423.8
2004E	801.7	11,188.9	1,940.8	9,435.2	34,830.9
Forecast					
2005	826.5	11,500.1	2,013.4	9,791.4	35,980.5
2006	848.7	11,824.5	2,086.3	10,160.7	37,141.6
2007	877.3	12,165.1	2,167.1	10,532.0	38,357.0
2008	906.4	12,494.5	2,251.4	10,911.1	39,583.6
2009	934.1	12,822.1	2,339.9	11,307.2	40,849.3
2010	962.4	13,161.2	2,432.3	11,712.5	42,163.8
2011	991.1	13,509.3	2,528.2	12,128.3	43,508.6
2012	1,018.8	13,862.6	2,628.9	12,553.6	44,880.4
2013	1,044.9	14,225.2	2,733.9	12,989.7	46,299.9
2014	1,069.9	14,593.4	2,843.8	13,441.2	47,801.5
2015	1,094.6	14,969.8	2,958.5	13,902.8	49,303.7
2016	1,119.2	15,353.1	3,077.8	14,379.1	50,825.2

Source: Global Insight, World Economic Outlook, November 2004.

TABLE 5

INTERNATIONAL GDP FORECASTS--SELECTED AREAS/COUNTRIES

CALENDAR YEAR	GROSS DOMESTIC PRODUCT (In Billions of 2000 U.S. Dollars)				
	NORTH AMERICA (NAFTA)	EUROZONE	UNITED KINGDOM	JAPAN	CHINA
Historical					
1999	10,704.2	5,842.6	1,385.7	4,618.8	1,000.7
2000	11,122.3	6,058.6	1,439.2	4,747.8	1,080.7
2001	11,208.2	6,160.7	1,472.3	4,768.3	1,161.8
2002	11,421.8	6,215.6	1,498.3	4,753.0	1,254.7
2003	11,751.6	6,250.4	1,532.0	4,870.7	1,368.9
2004E	12,253.5	6,368.3	1,580.5	5,070.8	1,493.3
Forecast					
2005	12,651.6	6,482.9	1,621.3	5,170.8	1,603.3
2006	13,033.7	6,623.4	1,659.6	5,277.0	1,720.3
2007	13,449.4	6,770.2	1,706.8	5,378.7	1,843.5
2008	13,874.7	6,908.8	1,752.3	5,475.5	1,972.6
2009	14,321.5	7,045.9	1,796.2	5,568.6	2,110.5
2010	14,793.5	7,187.2	1,843.3	5,661.8	2,253.0
2011	15,275.1	7,330.9	1,891.2	5,757.7	2,401.3
2012	15,763.9	7,476.7	1,939.2	5,854.7	2,555.9
2013	16,275.3	7,627.0	1,988.3	5,951.2	2,719.4
2014	16,842.9	7,778.5	2,037.0	6,045.6	2,895.7
2015	17,389.1	7,935.3	2,085.7	6,137.6	3,081.1
2016	17,927.8	8,092.4	2,135.3	6,228.5	3,279.9

Source: Global Insight, World Economic Outlook, November 2004.

TABLE 6

INTERNATIONAL EXCHANGE RATE FORECASTS

CALENDAR YEAR	FOREIGN EXCHANGE RATES (US$/Local Currency, Average)				UNITED STATES OECD TRADE-WEIGHTED NOMINAL EXCHANGE RATE (2000 EQUALS 100)
	CANADA	UNITED KINGDOM	JAPAN*	EURO	
Historical					
1999	0.673	1.618	8.791	1.066	96.0
2000	0.673	1.514	9.279	0.921	100.0
2001	0.646	1.441	8.230	0.895	105.8
2002	0.637	1.504	7.988	0.944	108.2
2003	0.714	1.637	8.625	1.129	103.9
2004E	0.767	1.824	9.214	1.237	100.4
Forecast					
2005	0.827	1.904	9.846	1.327	99.1
2006	0.823	1.889	10.182	1.340	98.6
2007	0.827	1.833	10.447	1.325	97.6
2008	0.835	1.818	10.740	1.325	97.2
2009	0.845	1.829	11.039	1.335	97.3
2010	0.853	1.843	11.309	1.345	97.4
2011	0.859	1.856	11.513	1.355	97.8
2012	0.863	1.871	11.624	1.366	98.1
2013	0.868	1.879	11.687	1.371	98.5
2014	0.874	1.881	11.721	1.373	98.9
2015	0.879	1.886	11.730	1.377	99.4
2016	0.883	1.890	11.717	1.379	99.9

Source: Global Insight, World Economic Outlook, November 2004.
* U.S.$ per 1,000 Yen.

TABLE 7

U.S. AND FOREIGN FLAG CARRIERS

TOTAL PASSENGER TRAFFIC TO/FROM THE UNITED STATES

CALENDAR YEAR	TOTAL PASSENGERS BY WORLD TRAVEL AREA (Millions)				
	ATLANTIC	LATIN AMERICA	PACIFIC	U.S./CANADA TRANSBORDER	TOTAL
Historical*					
1999	48.7	38.8	24.3	19.6	131.4
2000	53.0	40.8	26.0	20.8	140.6
2001	47.5	38.8	23.0	19.5	128.8
2002	43.4	36.9	22.3	18.3	120.8
2003	43.8	38.7	20.0	17.5	120.0
2004E	48.4	42.8	23.5	19.3	134.0
Forecast					
2005	52.0	46.0	26.3	21.1	145.4
2006	55.2	48.8	28.5	22.5	155.0
2007	58.0	51.3	30.4	23.4	163.2
2008	60.7	53.8	32.2	24.1	170.8
2009	63.1	56.4	33.8	24.8	178.2
2010	65.6	59.2	35.4	25.5	185.6
2011	68.0	62.0	36.9	26.2	193.1
2012	70.4	65.0	38.5	26.9	200.7
2013	72.8	68.0	40.0	27.6	208.4
2014	75.3	71.2	41.6	28.3	216.4
2015	77.8	74.5	43.2	29.0	224.5
2016	80.3	77.9	44.8	29.8	232.9

* Sources: Atlantic, Pacific, and Latin America, INS Form I-92, U.S. Department of Commerce; U.S./ Canada Transborder, Transport Canada.

TABLE 8

U.S. COMMERCIAL AIR CARRIERS' FORECAST ASSUMPTIONS 1/

SEATS PER AIRCRAFT AND PASSENGER TRIP LENGTH

FISCAL YEAR	AVERAGE SEATS PER AIRCRAFT			AVERAGE PASSENGER TRIP LENGTH		
	DOMESTIC (Seats)	INT'L. (Seats)	SYSTEM (Seats)	DOMESTIC (Miles)	INT'L. (Miles)	SYSTEM (Miles)
Historical*						
1999	130.5	229.5	146.2	789.6	3,097.9	979.9
2000	129.3	230.6	145.0	799.8	3,223.2	995.7
2001	127.7	226.9	143.5	810.7	3,233.9	1,011.6
2002	125.9	221.5	140.3	823.3	3,088.8	1,008.8
2003	122.8	217.3	136.6	838.2	2,880.7	1,010.3
2004E	121.5	215.9	135.4	861.0	2,895.3	1,042.1
Forecast						
2005	119.4	216.1	134.4	861.7	2,913.3	1,056.1
2006	118.9	217.2	134.4	867.0	2,959.4	1,067.1
2007	118.9	218.0	134.7	871.3	2,982.8	1,075.6
2008	119.3	218.4	135.3	874.7	2,996.1	1,083.3
2009	119.7	218.9	136.0	879.1	3,005.0	1,090.8
2010	120.2	219.4	136.6	884.4	3,011.1	1,098.5
2011	120.6	219.8	137.1	888.8	3,014.6	1,105.1
2012	121.0	220.3	137.7	893.3	3,018.8	1,111.8
2013	121.3	220.6	138.1	898.1	3,020.9	1,118.2
2014	121.7	220.9	138.6	903.6	3,022.0	1,125.2
2015	122.2	221.2	139.1	910.1	3,023.3	1,132.7
2016	122.6	221.4	139.6	915.8	3,023.7	1,139.4

* Source: Forms 41 and 298-C, U.S. Department of Transportation.
1/ Sum of Mainline Air Carriers and Regionals/Commuters

TABLE 9

U.S. COMMERCIAL AIR CARRIERS 1/

TOTAL SCHEDULED U.S. PASSENGER TRAFFIC

FISCAL YEAR	REVENUE PASSENGER ENPLANEMENTS (Millions)			REVENUE PASSENGER MILES (Billions)		
	DOMESTIC	INTERNATIONAL	SYSTEM	DOMESTIC	INTERNATIONAL	SYSTEM
Historical*						
1999	610.9	54.9	665.8	482.4	170.1	652.4
2000	641.2	56.4	697.6	512.8	181.8	694.6
2001	626.8	56.7	683.4	508.1	183.3	691.4
2002	574.5	51.2	625.8	473.0	158.2	631.3
2003	587.9	54.1	642.0	492.8	155.9	648.6
2004E	627.2	61.3	688.5	540.0	177.4	717.4
Forecast						
2005	649.6	68.0	717.5	559.7	198.0	757.8
2006	682.7	72.2	754.9	592.0	213.6	805.5
2007	709.6	76.0	785.6	618.2	226.8	845.0
2008	731.3	79.7	811.0	639.6	238.9	878.6
2009	754.0	83.4	837.4	662.8	250.6	913.4
2010	777.8	87.1	864.9	687.9	262.2	950.1
2011	801.8	90.8	892.6	712.6	273.8	986.4
2012	826.3	94.6	921.0	738.2	285.7	1,023.9
2013	852.1	98.6	950.7	765.2	297.9	1,063.1
2014	879.2	102.7	981.9	794.5	310.4	1,104.9
2015	907.8	106.9	1,014.7	826.2	323.2	1,149.4
2016	937.3	111.2	1,048.6	858.5	336.3	1,194.8

* Source: Forms 41 and 298-C, U.S. Department of Transportation.
1/ Sum of Mainline Air Carriers and Regionals/Commuters

TABLE 10

U.S. COMMERCIAL AIR CARRIERS 1/

SCHEDULED PASSENGER CAPACITY, TRAFFIC, AND LOAD FACTORS

FISCAL YEAR	DOMESTIC			INTERNATIONAL			SYSTEM		
	ASMs (BIL)	RPMs (BIL)	% LOAD FACTOR	ASMs (BIL)	RPMs (BIL)	% LOAD FACTOR	ASMs (BIL)	RPMs (BIL)	% LOAD FACTOR
Historical*									
1999	694.7	482.4	69.4	230.1	170.1	73.9	924.8	652.4	70.5
2000	726.6	512.8	70.6	239.3	181.8	76.0	965.9	694.6	71.9
2001	732.5	508.1	69.4	246.6	183.3	74.3	979.1	691.4	70.6
2002	681.3	473.0	69.4	212.3	158.2	74.5	893.6	631.3	70.6
2003	684.4	492.8	72.0	207.0	155.9	75.3	891.3	648.6	72.8
2004E	729.9	540.0	74.0	223.7	177.4	79.3	953.6	717.4	75.2
Forecast									
2005	749.5	559.7	74.7	250.3	198.0	79.1	999.7	757.8	75.8
2006	792.2	592.0	74.7	270.3	213.6	79.0	1,062.4	805.5	75.8
2007	826.6	618.2	74.8	287.3	226.8	78.9	1,113.9	845.0	75.9
2008	855.6	639.6	74.8	303.0	238.9	78.9	1,158.6	878.6	75.8
2009	885.8	662.8	74.8	317.8	250.6	78.9	1,203.6	913.4	75.9
2010	918.1	687.9	74.9	332.6	262.2	78.8	1,250.7	950.1	76.0
2011	950.5	712.6	75.0	347.3	273.8	78.8	1,297.8	986.4	76.0
2012	983.9	738.2	75.0	362.6	285.7	78.8	1,346.5	1,023.9	76.0
2013	1,019.1	765.2	75.1	378.0	297.9	78.8	1,397.0	1,063.1	76.1
2014	1,056.8	794.5	75.2	394.0	310.4	78.8	1,450.8	1,104.9	76.2
2015	1,097.5	826.2	75.3	410.4	323.2	78.8	1,507.9	1,149.4	76.2
2016	1,138.9	858.5	75.4	427.2	336.3	78.7	1,566.1	1,194.8	76.3

* Source: Forms 41 and 298-C, U.S. Department of Transportation.
1/ Sum of Mainline Air Carriers and Regionals/Commuters

TABLE 11

U.S. COMMERCIAL AIR CARRIERS 1/

TOTAL SCHEDULED U.S. INTERNATIONAL PASSENGER TRAFFIC

FISCAL YEAR	REVENUE PASSENGER ENPLANEMENTS				REVENUE PASSENGER MILES			
	ATLANTIC (Mil)	LATIN AMERICA (Mil)	PACIFIC (Mil)	TOTAL INTERNATIONAL (Mil)	ATLANTIC (Bil)	LATIN AMERICA (Bil)	PACIFIC (Bil)	TOTAL INTERNATIONAL (Bil)
Historical*								
1999	19.1	23.5	12.3	54.9	79.6	34.4	56.1	170.1
2000	20.9	24.3	11.2	56.4	87.1	36.3	58.4	181.8
2001	20.5	24.8	11.4	56.7	86.2	37.6	59.4	183.3
2002	18.0	23.6	9.6	51.2	74.7	34.5	49.0	158.2
2003	17.8	25.8	10.5	54.1	73.2	36.5	46.2	155.9
2004E	19.9	29.1	12.3	61.3	82.1	41.7	53.5	177.4
Forecast								
2005	21.8	33.0	13.2	68.0	90.8	48.0	59.1	198.0
2006	23.2	34.7	14.2	72.2	97.3	52.1	64.2	213.6
2007	24.3	36.5	15.2	76.0	102.3	55.8	68.8	226.8
2008	25.3	38.3	16.1	79.7	106.6	59.2	73.1	238.9
2009	26.2	40.2	17.0	83.4	110.6	62.8	77.2	250.6
2010	27.1	42.2	17.8	87.1	114.6	66.5	81.1	262.2
2011	28.0	44.3	18.6	90.8	118.6	70.3	85.0	273.8
2012	28.9	46.4	19.4	94.6	122.7	74.2	88.8	285.7
2013	29.8	48.6	20.2	98.6	126.9	78.3	92.7	297.9
2014	30.8	50.9	21.0	102.7	131.2	82.5	96.7	310.4
2015	31.7	53.3	21.9	106.9	135.7	86.9	100.6	323.2
2016	32.7	55.8	22.7	111.2	140.2	91.5	104.7	336.3

* Source: Forms 41 and 298-C, U.S. Department of Transportation.
1/ Sum of Mainline Air Carriers and Regionals/Commuters

TABLE 12

U.S. MAINLINE AIR CARRIER FORECAST ASSUMPTIONS

SEATS PER AIRCRAFT MILE

FISCAL YEAR	DOMESTIC (Seats)	INTERNATIONAL ATLANTIC (Seats)	INTERNATIONAL LATIN AMERICA (Seats)	INTERNATIONAL PACIFIC (Seats)	INTERNATIONAL TOTAL (Seats)	SYSTEM (Seats)
Historical*						
1999	149.8	229.6	180.9	303.8	234.2	165.1
2000	148.8	233.7	179.5	307.8	236.6	164.5
2001	146.6	232.6	174.7	304.1	233.6	162.5
2002	148.0	233.8	172.5	295.2	228.6	162.3
2003	148.5	231.5	171.7	287.6	224.9	162.2
2004E	149.7	231.6	174.6	281.8	224.1	163.4
Forecast						
2005	150.2	233.0	175.0	282.6	225.1	165.2
2006	150.5	234.0	175.5	283.0	225.9	166.0
2007	150.8	234.8	176.0	283.3	226.5	166.6
2008	151.0	235.0	176.5	283.3	226.7	167.1
2009	151.5	235.5	177.0	284.0	227.2	167.8
2010	152.0	236.0	177.5	284.8	227.6	168.5
2011	152.5	236.5	178.0	285.5	228.0	169.1
2012	153.0	237.0	178.5	287.0	228.5	169.7
2013	153.5	237.5	179.0	287.3	228.8	170.3
2014	154.0	238.0	179.5	287.5	229.0	170.9
2015	154.5	238.5	180.0	287.8	229.2	171.4
2016	155.0	239.0	180.5	288.0	229.5	171.9

* Source: Form 41, U.S. Department of Transportation.

TABLE 13

U.S. MAINLINE AIR CARRIER FORECAST ASSUMPTIONS

AVERAGE PASSENGER TRIP LENGTH

FISCAL YEAR	DOMESTIC (Miles)	INTERNATIONAL ATLANTIC (Miles)	INTERNATIONAL LATIN AMERICA (Miles)	INTERNATIONAL PACIFIC (Miles)	INTERNATIONAL TOTAL (Miles)	SYSTEM (Miles)
Historical*						
1999	861.1	4,161.9	1,634.3	4,563.4	3,253.6	1,072.3
2000	872.6	4,168.1	1,675.2	5,219.9	3,397.3	1,091.4
2001	885.5	4,211.8	1,688.3	5,228.8	3,405.0	1,110.4
2002	912.1	4,147.5	1,622.5	5,077.6	3,251.5	1,124.0
2003	939.1	4,105.4	1,588.3	4,419.6	3,061.0	1,140.2
2004E	972.6	4,125.7	1,599.7	4,365.9	3,068.4	1,187.3
Forecast						
2005	982.3	4,174.8	1,639.5	4,491.3	3,112.2	1,218.1
2006	993.6	4,194.3	1,692.5	4,507.9	3,157.9	1,238.6
2007	1,000.4	4,206.3	1,721.4	4,520.5	3,180.8	1,251.9
2008	1,005.2	4,214.4	1,741.1	4,533.3	3,193.8	1,262.5
2009	1,011.1	4,222.6	1,757.7	4,546.2	3,202.9	1,272.7
2010	1,018.0	4,230.7	1,772.7	4,559.3	3,209.3	1,282.9
2011	1,023.9	4,238.9	1,786.2	4,568.0	3,213.6	1,292.0
2012	1,029.9	4,251.3	1,799.9	4,576.7	3,219.1	1,301.0
2013	1,035.9	4,259.5	1,811.9	4,585.5	3,222.2	1,309.5
2014	1,042.9	4,267.7	1,822.3	4,594.3	3,224.4	1,318.5
2015	1,051.0	4,280.2	1,832.7	4,598.8	3,226.9	1,328.1
2016	1,058.2	4,288.5	1,843.2	4,607.6	3,228.5	1,336.6

* Source: Form 41, U.S. Department of Transportation.

TABLE 14

U.S. MAINLINE AIR CARRIER FORECAST ASSUMPTIONS

PASSENGER YIELDS

FISCAL YEAR	REVENUE PER PASSENGER MILE					
	DOMESTIC		INTERNATIONAL		SYSTEM	
	CURRENT $ (Cents)	FY 2004 $ (Cents)	CURRENT $ (Cents)	FY 2004 $ (Cents)	CURRENT $ (Cents)	FY 2004 $ (Cents)
Historical*						
1999	13.54	15.32	9.99	11.30	12.59	14.24
2000	14.03	15.38	10.46	11.46	13.06	14.32
2001	13.53	14.38	10.34	10.99	12.65	13.45
2002	11.88	12.45	9.78	10.24	11.33	11.87
2003	11.73	12.00	9.92	10.15	11.27	11.53
2004E	11.46	11.46	10.42	10.42	11.19	11.19
Forecast						
2005	11.11	10.81	10.51	10.23	10.94	10.65
2006	11.15	10.62	10.65	10.15	11.01	10.49
2007	11.25	10.47	10.84	10.08	11.13	10.36
2008	11.39	10.35	11.03	10.02	11.28	10.25
2009	11.53	10.23	11.23	9.96	11.44	10.15
2010	11.65	10.10	11.43	9.90	11.59	10.04
2011	11.79	9.97	11.64	9.85	11.75	9.94
2012	11.95	9.86	11.87	9.79	11.92	9.84
2013	12.10	9.74	12.09	9.73	12.10	9.74
2014	12.25	9.62	12.32	9.68	12.27	9.64
2015	12.39	9.50	12.56	9.62	12.44	9.53
2016	12.54	9.37	12.80	9.57	12.62	9.43

* Source: Form 41, U.S. Department of Transportation.

TABLE 15

U.S. MAINLINE AIR CARRIER FORECAST ASSUMPTIONS

INTERNATIONAL PASSENGER YIELDS BY REGION

FISCAL YEAR	REVENUE PER PASSENGER MILE							
	ATLANTIC		LATIN AMERICA 1/		PACIFIC		TOTAL INTERNATIONAL	
	CURRENT $ (Cents)	FY 2004 $ (Cents)	CURRENT $ (Cents)	FY 2004 $ (Cents)	CURRENT $ (Cents)	FY 2004 $ (Cents)	CURRENT $ (Cents)	FY 2004 $ (Cents)
Historical*								
1999	9.61	10.87	12.54	14.18	9.00	10.18	9.99	11.30
2000	9.73	10.67	13.00	14.26	9.99	10.95	10.46	11.46
2001	9.71	10.32	13.38	14.22	9.38	9.97	10.34	10.99
2002	9.29	9.73	12.49	13.08	8.67	9.08	9.78	10.24
2003	9.60	9.82	12.40	12.68	8.53	8.73	9.92	10.15
2004E	10.15	10.15	12.28	12.28	9.44	9.44	10.42	10.42
Forecast								
2005	10.15	9.88	12.45	12.12	9.57	9.31	10.51	10.23
2006	10.27	9.78	12.66	12.06	9.68	9.22	10.65	10.15
2007	10.46	9.73	12.89	12.00	9.81	9.12	10.84	10.08
2008	10.65	9.68	13.14	11.94	9.94	9.03	11.03	10.02
2009	10.85	9.63	13.39	11.88	10.08	8.94	11.23	9.96
2010	11.06	9.58	13.64	11.82	10.22	8.85	11.43	9.90
2011	11.27	9.54	13.90	11.76	10.36	8.76	11.64	9.85
2012	11.50	9.49	14.18	11.70	10.52	8.68	11.87	9.79
2013	11.73	9.44	14.46	11.64	10.67	8.59	12.09	9.73
2014	11.96	9.39	14.75	11.58	10.83	8.50	12.32	9.68
2015	12.20	9.35	15.04	11.53	10.99	8.42	12.56	9.62
2016	12.44	9.30	15.34	11.47	11.15	8.34	12.80	9.57

1/ Mainline Air Carrier Only

* Source: Form 41, U.S. Department of Transportation.

TABLE 16

U.S. MAINLINE AIR CARRIER FORECAST ASSUMPTIONS

JET FUEL PRICES

FISCAL YEAR	DOMESTIC		INTERNATIONAL		SYSTEM	
	CURRENT $ (Cents)	FY 2004 $ (Cents)	CURRENT $ (Cents)	FY 2004 $ (Cents)	CURRENT $ (Cents)	FY 2004 $ (Cents)
Historical*						
1999	48.5	54.9	52.9	59.8	49.69	56.20
2000	71.5	78.4	79.4	87.0	73.57	80.67
2001	82.4	87.5	86.1	91.5	83.37	88.61
2002	67.0	70.1	71.7	75.1	68.28	71.51
2003	82.4	84.3	86.2	88.2	83.32	85.24
2004E	100.4	100.4	105.3	105.3	101.73	101.73
Forecast						
2005	128.8	125.3	135.1	131.5	130.45	126.96
2006	121.7	115.9	127.6	121.5	123.24	117.38
2007	115.1	107.1	120.7	112.3	116.56	108.45
2008	112.8	102.5	118.3	107.5	114.22	103.78
2009	114.4	101.5	120.0	106.4	115.84	102.79
2010	116.4	100.9	122.1	105.8	117.94	102.19
2011	118.6	100.3	124.4	105.2	120.14	101.61
2012	120.8	99.7	126.7	104.6	122.38	100.97
2013	123.1	99.1	129.1	103.9	124.66	100.34
2014	125.4	98.5	131.5	103.3	127.00	99.74
2015	127.8	97.9	134.0	102.7	129.40	99.14
2016	130.2	97.3	136.5	102.0	131.85	98.55

* Source: Form 41, U.S. Department of Transportation.

TABLE 17

U. S. MAINLINE AIR CARRIERS

SCHEDULED PASSENGER TRAFFIC

FISCAL YEAR	REVENUE PASSENGER ENPLANEMENTS (Millions)			REVENUE PASSENGER MILES (Billions)		
	DOMESTIC	INTERNATIONAL	SYSTEM	DOMESTIC	INTERNATIONAL	SYSTEM
Historical*						
1999	537.8	52.1	589.9	463.1	169.4	632.5
2000	561.5	53.3	614.8	490.0	181.0	670.9
2001	546.3	53.5	599.9	483.8	182.3	666.1
2002	485.9	48.4	534.3	443.2	157.3	600.5
2003	482.8	50.6	533.4	453.4	154.8	608.2
2004E	502.2	57.3	559.5	488.4	175.9	664.3
Forecast						
2005	505.7	63.0	568.7	496.7	195.9	692.7
2006	524.4	66.9	591.4	521.1	211.4	732.5
2007	541.2	70.6	611.8	541.4	224.5	765.9
2008	555.8	74.0	629.9	558.7	236.5	795.2
2009	571.4	77.4	648.8	577.7	248.0	825.8
2010	588.0	80.9	668.8	598.5	259.5	858.0
2011	604.4	84.3	688.7	618.9	271.0	889.9
2012	621.3	87.8	709.2	639.9	282.7	922.6
2013	639.4	91.5	730.8	662.3	294.7	957.0
2014	658.5	95.2	753.8	686.8	307.1	993.9
2015	679.0	99.1	778.0	713.6	319.7	1,033.3
2016	700.0	103.0	803.0	740.7	332.6	1,073.3

* Source: Form 41, U.S. Department of Transportation.

TABLE 18

U.S. MAINLINE AIR CARRIERS

SCHEDULED PASSENGER CAPACITY, TRAFFIC, AND LOAD FACTORS

FISCAL YEAR	DOMESTIC			INTERNATIONAL			SYSTEM		
	ASMs (BIL)	RPMs (BIL)	% LOAD FACTOR	ASMs (BIL)	RPMs (BIL)	% LOAD FACTOR	ASMs (BIL)	RPMs (BIL)	% LOAD FACTOR
Historical*									
1999	661.4	463.1	70.0	229.0	169.4	74.0	890.4	632.5	71.0
2000	688.3	490.0	71.2	238.0	181.0	76.0	926.2	670.9	72.4
2001	691.1	483.8	70.0	244.9	182.3	74.4	936.0	666.1	71.2
2002	632.6	443.2	70.1	210.8	157.3	74.6	843.5	600.5	71.2
2003	623.7	453.4	72.7	205.1	154.8	75.5	828.8	608.2	73.4
2004E	654.1	488.4	74.7	221.4	175.9	79.5	875.5	664.3	75.9
Forecast									
2005	658.3	496.7	75.5	247.2	195.9	79.3	905.5	692.7	76.5
2006	689.9	521.1	75.5	267.1	211.4	79.2	957.0	732.5	76.5
2007	716.1	541.4	75.6	283.9	224.5	79.1	1,000.0	765.9	76.6
2008	739.5	558.7	75.6	299.5	236.5	79.0	1,039.0	795.2	76.5
2009	764.1	577.7	75.6	314.1	248.0	79.0	1,078.2	825.8	76.6
2010	790.6	598.5	75.7	328.8	259.5	78.9	1,119.4	858.0	76.7
2011	817.1	618.9	75.7	343.3	271.0	78.9	1,160.4	889.9	76.7
2012	844.5	639.9	75.8	358.3	282.7	78.9	1,202.8	922.6	76.7
2013	873.5	662.3	75.8	373.5	294.7	78.9	1,247.0	957.0	76.7
2014	904.9	686.8	75.9	389.3	307.1	78.9	1,294.2	993.9	76.8
2015	939.1	713.6	76.0	405.5	319.7	78.8	1,344.6	1,033.3	76.8
2016	973.8	740.7	76.1	422.1	332.6	78.8	1,395.9	1,073.3	76.9

* Source: Form 41, U.S. Department of Transportation.

TABLE 19

U.S. MAINLINE AIR CARRIERS

SCHEDULED INTERNATIONAL PASSENGER ENPLANEMENTS

FISCAL YEAR	REVENUE PASSENGER ENPLANEMENTS (MIL)			
	ATLANTIC	LATIN AMERICA	PACIFIC	TOTAL
Historical*				
1999	19.1	20.7	12.3	52.1
2000	20.9	21.2	11.2	53.3
2001	20.5	21.7	11.4	53.5
2002	18.0	20.7	9.6	48.4
2003	17.8	22.3	10.5	50.6
2004E	19.9	25.2	12.3	57.3
Forecast				
2005	21.8	28.0	13.2	63.0
2006	23.2	29.5	14.2	66.9
2007	24.3	31.1	15.2	70.6
2008	25.3	32.6	16.1	74.0
2009	26.2	34.3	17.0	77.4
2010	27.1	36.0	17.8	80.9
2011	28.0	37.7	18.6	84.3
2012	28.9	39.6	19.4	87.8
2013	29.8	41.5	20.2	91.5
2014	30.8	43.4	21.0	95.2
2015	31.7	45.5	21.9	99.1
2016	32.7	47.6	22.7	103.0

* Source: Form 41, U.S. Department of Transportation.
Note: Detail may not add to total because of rounding.

TABLE 20

U.S. MAINLINE AIR CARRIERS

SCHEDULED PASSENGER CAPACITY, TRAFFIC, AND LOAD FACTORS BY INTERNATIONAL TRAVEL REGIONS

	ATLANTIC			LATIN AMERICA			PACIFIC			INTERNATIONAL		
FISCAL YEAR	ASMs (BIL)	RPMs (BIL)	% LOAD FACTOR	ASMs (BIL)	RPMs (BIL)	% LOAD FACTOR	ASMs (BIL)	RPMs (BIL)	% LOAD FACTOR	ASMs (BIL)	RPMs (BIL)	% LOAD FACTOR
Historical*												
1999	102.6	79.6	77.5	51.2	33.8	66.0	75.2	56.1	74.5	229.0	169.4	74.0
2000	109.9	87.1	79.2	51.4	35.5	69.0	76.6	58.4	76.2	238.0	181.0	76.0
2001	112.9	86.2	76.4	53.0	36.6	69.2	79.1	59.4	75.2	244.9	182.3	74.4
2002	97.0	74.7	77.0	50.6	33.6	66.5	63.2	49.0	77.5	210.8	157.3	74.6
2003	93.7	73.2	78.1	51.1	35.4	69.3	60.3	46.2	76.6	205.1	154.8	75.5
2004E	100.5	82.1	81.7	57.3	40.3	70.3	63.6	53.5	84.2	221.4	175.9	79.5
Forecast												
2005	110.1	90.8	82.5	64.5	46.0	71.3	72.6	59.1	81.5	247.2	195.9	79.3
2006	118.7	97.3	82.0	69.7	50.0	71.7	78.7	64.2	81.5	267.1	211.4	79.2
2007	124.7	102.3	82.0	74.6	53.5	71.7	84.7	68.8	81.2	283.9	224.5	79.1
2008	129.9	106.6	82.0	79.3	56.8	71.7	90.3	73.1	81.0	299.5	236.5	79.0
2009	134.9	110.6	82.0	83.9	60.2	71.8	95.3	77.2	81.0	314.1	248.0	79.0
2010	139.7	114.6	82.0	88.8	63.8	71.8	100.2	81.1	81.0	328.8	259.5	78.9
2011	144.6	118.6	82.0	93.8	67.4	71.9	104.9	85.0	81.0	343.3	271.0	78.9
2012	149.7	122.7	82.0	99.0	71.2	71.9	109.6	88.8	81.0	358.3	282.7	78.9
2013	154.8	126.9	82.0	104.3	75.1	72.0	114.4	92.7	81.0	373.5	294.7	78.9
2014	160.0	131.2	82.0	110.0	79.2	72.0	119.4	96.7	81.0	389.3	307.1	78.9
2015	165.5	135.7	82.0	115.8	83.4	72.0	124.3	100.6	81.0	405.5	319.7	78.8
2016	170.9	140.2	82.0	121.9	87.8	72.0	129.2	104.7	81.0	422.1	332.6	78.8

* Source: Form 41, U.S. Department of Transportation.

TABLE 21

U.S. MAINLINE AIR CARRIERS

AIR CARGO REVENUE TON MILES 1/

FISCAL YEAR	ALL-CARGO CARRIER RTMS (Millions)			PASSENGER CARRIER RTMS (Millions)			TOTAL RTMS (Millions)		
	DOMESTIC	INT'L.	TOTAL	DOMESTIC	INT'L.	TOTAL	DOMESTIC	INT'L.	TOTAL
Historical*									
1999	9,756.7	7,328.1	17,084.8	4,218.2	6,798.8	11,017.0	13,974.9	14,126.9	28,101.8
2000	10,283.5	7,568.2	17,851.7	4,415.3	7,789.6	12,204.9	14,698.8	15,357.8	30,056.6
2001	9,992.3	7,370.4	17,362.7	3,941.7	7,176.6	11,118.3	13,934.0	14,547.0	28,481.0
2002	9,629.9	8,202.1	17,832.0	3,337.4	6,594.0	9,931.4	12,967.3	14,796.1	27,763.4
2003 2/	10,450.7	11,766.8	22,217.5	3,819.1	6,775.1	10,594.2	14,269.8	18,541.9	32,811.7
2003 3/	11,153.3	11,766.8	22,920.1	3,819.1	6,775.1	10,594.2	14,972.4	18,541.9	33,514.3
2004E	11,789.6	11,682.8	23,472.4	3,752.0	7,884.0	11,636.0	15,541.6	19,566.8	35,108.4
Forecast									
2005	12,301.6	12,535.2	24,836.8	3,841.5	8,345.8	12,187.3	16,143.1	20,881.0	37,024.1
2006	12,788.6	13,427.8	26,216.4	3,917.9	8,819.8	12,737.7	16,706.5	22,247.6	38,954.1
2007	13,273.3	14,356.8	27,630.1	3,988.6	9,302.8	13,291.4	17,261.9	23,659.6	40,921.5
2008	13,777.6	15,346.3	29,123.9	4,060.1	9,809.6	13,869.7	17,837.7	25,155.9	42,993.6
2009	14,291.8	16,403.6	30,695.4	4,129.3	10,343.1	14,472.4	18,421.1	26,746.7	45,167.8
2010	14,817.3	17,539.9	32,357.2	4,196.5	10,909.2	15,105.7	19,013.8	28,449.1	47,462.9
2011	15,361.2	18,744.4	34,105.6	4,263.6	11,499.2	15,762.8	19,624.8	30,243.6	49,868.4
2012	15,918.1	20,017.2	35,935.3	4,328.9	12,111.9	16,440.8	20,247.0	32,129.1	52,376.1
2013	16,484.9	21,379.9	37,864.8	4,391.4	12,758.6	17,150.0	20,876.3	34,138.5	55,014.8
2014	17,071.9	22,869.3	39,941.2	4,453.7	13,459.3	17,913.0	21,525.6	36,328.6	57,854.2
2015	17,679.1	24,415.5	42,094.6	4,515.5	14,170.5	18,686.0	22,194.6	38,586.0	60,780.6
2016	18,307.0	26,037.7	44,344.7	4,576.8	14,902.0	19,478.8	22,883.8	40,939.7	63,823.5

* Source: Form 41, U.S. Department of Transportation.

1/ Includes freight/express and mail revenue ton miles.

2/ Domestic figures from 1999 through this line exclude Airborne Express, Inc.; international figures for 2003 and beyond include new reporting of contract service by U.S. carriers for foreign flag carriers.

3/ Domestic figures from this line and beyond include Airborne Express. Inc.

TABLE 22

U.S. MAINLINE AIR CARRIERS

PASSENGER JET AIRCRAFT

CALENDAR YEAR	LARGE NARROWBODY				LARGE WIDEBODY				LARGE JETS	REGIONAL JETS	TOTAL JETS
	2 ENGINE	3 ENGINE	4 ENGINE	TOTAL	2 ENGINE	3 ENGINE	4 ENGINE	TOTAL			
Historical											
1999	3,139	436	10	3,585	361	204	129	694	4,279	18	4,297
2000	3,364	385	0	3,749	424	169	120	713	4,462	26	4,488
2001	3,412	187	0	3,599	451	89	85	625	4,224	20	4,244
2002	3,387	107	0	3,494	472	69	81	622	4,116	3	4,119
2003	3,379	70	0	3,449	464	37	67	568	4,017	6	4,023
2004E	3,399	65	0	3,464	478	34	66	578	4,042	4	4,046
Forecast											
2005	3,480	65	0	3,545	494	35	66	595	4,140	11	4,151
2006	3,628	64	0	3,692	503	30	66	599	4,291	29	4,320
2007	3,780	63	0	3,843	510	20	66	596	4,439	47	4,486
2008	3,900	62	0	3,962	527	12	66	605	4,567	65	4,632
2009	4,028	61	0	4,089	541	10	65	616	4,705	84	4,789
2010	4,167	60	0	4,227	554	8	62	624	4,851	102	4,953
2011	4,320	59	0	4,379	567	8	58	633	5,012	119	5,131
2012	4,458	58	0	4,516	579	8	58	645	5,161	139	5,300
2013	4,596	58	0	4,654	591	8	58	657	5,311	159	5,470
2014	4,734	58	0	4,792	602	8	58	668	5,460	179	5,639
2015	4,876	58	0	4,934	614	8	58	680	5,614	199	5,813
2016	5,029	58	0	5,087	627	8	58	693	5,780	219	5,999

03/03/2005

TABLE 23

U.S. MAINLINE AIR CARRIERS

CARGO JET AIRCRAFT

CALENDAR YEAR	LARGE NARROWBODY				LARGE WIDEBODY				TOTAL
	2 ENGINE	3 ENGINE	4 ENGINE	TOTAL	2 ENGINE	3 ENGINE	4 ENGINE	TOTAL	
Historical									
1999	172	338	196	706	134	147	53	334	1,040
2000	166	332	176	674	164	158	68	390	1,064
2001	180	343	143	666	190	192	85	467	1,133
2002	175	315	114	604	214	165	73	452	1,056
2003	175	277	104	556	203	165	69	437	993
2004E	174	243	111	528	215	170	61	446	974
Forecast									
2005	174	240	116	530	225	181	60	466	996
2006	174	231	114	519	243	190	59	492	1,011
2007	174	231	112	517	261	195	59	515	1,032
2008	174	231	110	515	279	199	61	539	1,054
2009	174	231	108	513	305	203	64	572	1,085
2010	174	231	106	511	333	207	66	606	1,117
2011	174	231	104	509	361	212	69	642	1,151
2012	174	231	102	507	389	216	70	675	1,182
2013	174	231	101	506	417	220	72	709	1,215
2014	174	231	101	506	444	224	73	741	1,247
2015	174	231	101	506	471	228	75	774	1,280
2016	174	231	101	506	498	232	76	806	1,312

TABLE 24

U.S. MAINLINE AIR CARRIERS

TOTAL AIRBORNE HOURS 1/

(In Thousands)

FISCAL YEAR	LARGE NARROWBODY				LARGE WIDEBODY				TOTAL
	2 ENGINE	3 ENGINE	4 ENGINE	TOTAL	2 ENGINE	3 ENGINE	4 ENGINE	TOTAL	
Historical*									
1999	9,195	1,385	249	10,828	1,489	908	503	2,900	13,728
2000	9,795	1,226	201	11,222	1,690	846	501	3,037	14,258
2001	10,167	969	186	11,321	1,885	669	483	3,037	14,358
2002	9,542	433	112	10,087	1,920	527	435	2,882	12,969
2003	10,008	282	90	10,379	1,937	538	455	2,930	13,309
2004E	10,495	238	83	10,816	2,066	503	341	2,910	13,726
Forecast									
2005	10,894	233	87	11,214	2,175	538	342	3,055	14,269
2006	11,392	223	86	11,701	2,280	548	342	3,170	14,871
2007	11,906	220	84	12,211	2,368	535	339	3,242	15,453
2008	12,329	217	83	12,629	2,488	525	341	3,354	15,983
2009	12,748	214	81	13,044	2,618	530	346	3,494	16,538
2010	13,203	212	80	13,494	2,751	535	344	3,630	17,124
2011	13,702	209	78	13,989	2,886	548	341	3,774	17,764
2012	14,159	206	77	14,441	3,018	558	344	3,919	18,360
2013	14,617	204	76	14,897	3,150	568	349	4,067	18,963
2014	15,077	202	76	15,355	3,277	578	352	4,206	19,561
2015	15,552	200	76	15,828	3,408	588	357	4,352	20,180
2016	16,064	198	76	16,337	3,542	598	360	4,500	20,837

* Source: Form 41, U.S. Department of Transportation.

1/ Includes both passenger (excluding regional jets) and cargo aircraft.

TABLE 25

TOTAL JET FUEL AND AVIATION GASOLINE FUEL CONSUMPTION

U.S. CIVIL AVIATION AIRCRAFT

(Millions of Gallons)

FISCAL YEAR	JET FUEL					AVIATION GASOLINE			TOTAL FUEL CONSUMED
	U.S. AIR CARRIERS 1/			GENERAL AVIATION	TOTAL	AIR CARRIER	GENERAL AVIATION	TOTAL	
	DOMESTIC	INT'L.	TOTAL						
Historical*									
1999	14,243	5,186	19,428	967	20,396	2	345	347	20,743
2000	14,746	5,297	20,043	972	21,015	2	333	335	21,350
2001	14,469	5,395	19,864	953	20,817	2	275	277	21,094
2002	12,653	4,844	17,497	984	18,481	2	278	280	18,761
2003	12,886	4,990	17,876	978	18,854	2	272	274	19,128
2004E	13,335	4,746	18,081	1,015	19,096	2	274	276	19,372
Forecast									
2005	13,624	5,364	18,988	1,061	20,049	2	281	283	20,332
2006	14,364	5,764	20,128	1,120	21,248	2	286	288	21,536
2007	14,951	6,097	21,048	1,194	22,242	2	289	291	22,533
2008	15,436	6,398	21,835	1,277	23,111	2	292	294	23,405
2009	15,942	6,677	22,619	1,362	23,980	2	296	298	24,278
2010	16,481	6,971	23,452	1,446	24,898	2	299	301	25,199
2011	17,020	7,262	24,282	1,538	25,820	2	302	304	26,124
2012	17,575	7,561	25,136	1,625	26,761	2	306	308	27,069
2013	18,157	7,863	26,020	1,707	27,727	2	309	311	28,038
2014	18,783	8,176	26,958	1,791	28,749	2	312	314	29,063
2015	19,458	8,494	27,952	1,875	29,827	2	315	317	30,144
2016	20,142	8,820	28,962	1,955	30,917	2	317	319	31,237

* Source: Air carrier jet fuel, Form 41, U.S. Department of Transportation; all others, FAA APO estimates.
1/ Includes both passenger (mainline air carrier and regional/commuter) and cargo carriers.

TABLE 26

U.S. REGIONALS/COMMUTERS FORECAST ASSUMPTIONS

FISCAL YEAR	AVERAGE SEATS PER AIRCRAFT			AVERAGE PASSENGER TRIP LENGTH			REVENUE PER PASSENGER MILE**	
	DOMESTIC (Seats)	INT'L. (Seats)	SYSTEM (Seats)	DOMESTIC (Miles)	INT'L. (Miles)	SYSTEM (Miles)	CURRENT $ (Cents)	2004$ (Cents)
Historical*								
1999	36.7	42.2	36.8	263.4	240.5	262.6	31.88	36.08
2000	38.4	41.8	38.5	286.5	260.0	285.5	30.42	33.38
2001	40.5	43.0	40.6	302.1	302.9	302.1	31.78	33.78
2002	42.8	41.0	42.8	336.3	320.4	335.8	27.36	28.65
2003	44.1	46.4	44.2	374.4	312.2	372.3	25.46	26.05
2004E	46.3	47.5	46.3	412.7	376.4	411.6	23.82	23.82
Forecast								
2005	48.1	51.2	48.2	437.9	413.3	437.1	23.09	22.47
2006	49.2	51.7	49.3	447.7	417.3	446.7	23.18	22.07
2007	50.2	52.2	50.3	456.2	421.3	455.1	23.38	21.76
2008	51.0	52.7	51.0	461.2	425.3	460.1	23.67	21.51
2009	51.7	53.2	51.7	465.9	429.3	464.8	23.97	21.27
2010	52.3	53.7	52.3	470.5	433.3	469.3	24.21	20.98
2011	52.8	54.2	52.8	475.0	436.3	473.8	24.51	20.73
2012	53.3	54.7	53.3	479.4	439.3	478.1	24.84	20.49
2013	53.7	55.2	53.7	483.7	442.3	482.4	25.15	20.24
2014	54.1	55.7	54.1	487.9	445.3	486.5	25.46	20.00
2015	54.5	56.2	54.5	492.0	448.3	490.6	25.75	19.73
2016	54.9	56.7	54.9	496.0	451.3	494.5	26.06	19.48

* Source: Form 41 and 298C, U.S. Department of Transportation.

** Reporting carriers.

TABLE 27

U.S. REGIONALS/COMMUTERS

SCHEDULED PASSENGER TRAFFIC

(In Millions)

FISCAL YEAR	REVENUE PASSENGERS			REVENUE PASSENGER MILES		
	DOMESTIC	INTERNATIONAL	SYSTEM	DOMESTIC	INTERNATIONAL	SYSTEM
Historical*						
1999	73.1	2.8	76.0	19,265.0	682.6	19,947.6
2000	79.7	3.1	82.8	22,824.7	813.9	23,638.6
2001	80.4	3.1	83.6	24,298.8	946.8	25,245.6
2002	88.6	2.8	91.5	29,807.2	911.1	30,718.3
2003	105.1	3.5	108.6	39,331.9	1,107.6	40,439.5
2004E	125.0	3.9	128.9	51,592.4	1,482.4	53,074.8
Forecast						
2005	143.8	5.0	148.9	62,997.3	2,070.3	65,067.6
2006	158.3	5.2	163.5	70,865.7	2,181.6	73,047.3
2007	168.4	5.5	173.8	76,808.5	2,298.8	79,107.3
2008	175.4	5.7	181.1	80,908.4	2,422.2	83,330.6
2009	182.6	6.0	188.5	85,068.1	2,554.4	87,622.5
2010	189.9	6.2	196.1	89,329.2	2,693.8	92,023.0
2011	197.3	6.5	203.9	93,744.6	2,840.6	96,585.3
2012	205.0	6.8	211.8	98,272.7	2,995.3	101,268.0
2013	212.7	7.1	219.8	102,888.7	3,158.2	106,046.9
2014	220.7	7.5	228.1	107,669.0	3,329.9	110,998.9
2015	228.9	7.8	236.7	112,612.6	3,510.7	116,123.3
2016	237.3	8.2	245.5	117,722.4	3,701.1	121,423.5

* Source: Form 41 and 298C, U.S. Department of Transportation.

TABLE 28

U.S. REGIONALS/COMMUTERS

SCHEDULED PASSENGER CAPACITY, TRAFFIC, AND LOAD FACTORS

FISCAL YEAR	DOMESTIC			INTERNATIONAL			SYSTEM		
	ASMs (MIL)	RPMs (MIL)	% LOAD FACTOR	ASMs (MIL)	RPMs (MIL)	% LOAD FACTOR	ASMs (MIL)	RPMs (MIL)	% LOAD FACTOR
Historical*									
1999	33,345.6	19,265.0	57.8	1,054.8	682.6	64.7	34,400.4	19,947.6	58.0
2000	38,332.4	22,824.7	59.5	1,337.9	813.9	60.8	39,670.3	23,638.6	59.6
2001	41,418.3	24,298.8	58.7	1,632.6	946.9	58.0	43,050.9	25,245.7	58.6
2002	48,660.1	29,807.2	61.3	1,491.6	911.1	61.1	50,151.7	30,718.3	61.3
2003	60,616.5	39,331.9	64.9	1,891.1	1,107.6	58.6	62,507.6	40,439.5	64.7
2004E	75,837.7	51,592.4	68.0	2,285.4	1,482.4	64.9	78,123.1	53,074.8	67.9
Forecast									
2005	91,184.4	62,997.3	69.1	3,077.9	2,070.3	67.3	94,262.3	65,067.6	69.0
2006	102,277.3	70,865.7	69.3	3,219.5	2,181.6	67.8	105,496.8	73,047.3	69.2
2007	110,535.2	76,808.5	69.5	3,367.6	2,298.8	68.3	113,902.8	79,107.3	69.5
2008	116,101.2	80,908.4	69.7	3,522.5	2,422.2	68.8	119,623.7	83,330.6	69.7
2009	121,720.9	85,068.1	69.9	3,688.1	2,554.4	69.3	125,409.0	87,622.5	69.9
2010	127,453.2	89,329.2	70.1	3,861.4	2,693.8	69.8	131,314.6	92,023.0	70.1
2011	133,372.5	93,744.6	70.3	4,042.9	2,840.6	70.3	137,415.4	96,585.3	70.3
2012	139,417.9	98,272.7	70.5	4,232.9	2,995.3	70.8	143,650.9	101,268.0	70.5
2013	145,553.6	102,888.7	70.7	4,431.9	3,158.2	71.3	149,985.5	106,046.9	70.7
2014	151,886.5	107,669.0	70.9	4,640.2	3,329.9	71.8	156,526.6	110,998.9	70.9
2015	158,413.4	112,612.6	71.1	4,858.2	3,510.7	72.3	163,271.6	116,123.3	71.1
2016	165,136.7	117,722.4	71.3	5,086.6	3,701.1	72.8	170,223.3	121,423.5	71.3

* Source: Form 41 and 298C, U.S. Department of Transportation.

TABLE 29

U.S. REGIONALS/COMMUTERS

PASSENGER AIRCRAFT

AS OF JANUARY 1	REGIONAL/COMMUTER AIRCRAFT											
	LESS THAN 9 SEATS	10 TO 19 SEATS	20 TO 30 SEATS	31 TO 40 SEATS			OVER 40 SEATS			TOTAL FLEET		
				PROP	JET	TOTAL	PROP	JET**	TOTAL	NON JET	JET	TOTAL
Historical*												
1999	452	401	279	485	22	507	169	370	539	1,786	392	2,178
2000	470	343	262	474	74	548	155	496	651	1,704	570	2,274
2001	490	250	248	445	110	555	148	672	820	1,581	782	2,363
2002	490	253	194	396	118	514	128	917	1045	1,461	1,035	2,496
2003	447	246	137	280	127	407	106	1,222	1,328	1,216	1,349	2,565
2004E	440	245	127	270	129	399	100	1,501	1,601	1,182	1,630	2,812
Forecast												
2005	435	245	117	260	129	389	99	1,728	1,827	1,156	1,857	3,013
2006	430	245	107	250	129	379	98	1,940	2,038	1,130	2,069	3,199
2007	425	245	97	240	129	369	97	2,122	2,219	1,104	2,251	3,355
2008	420	245	88	230	129	359	96	2,242	2,338	1,079	2,371	3,450
2009	415	245	80	220	129	349	96	2,339	2,435	1,056	2,468	3,524
2010	410	245	80	210	129	339	96	2,414	2,510	1,041	2,543	3,584
2011	405	245	80	200	129	329	96	2,498	2,594	1,026	2,627	3,653
2012	400	245	80	200	129	329	96	2,577	2,673	1,021	2,706	3,727
2013	395	245	80	200	129	329	96	2,653	2,749	1,016	2,782	3,798
2014	390	245	80	200	129	329	96	2,714	2,810	1,011	2,843	3,854
2015	385	245	80	200	129	329	96	2,775	2,871	1,006	2,904	3,910
2016	380	245	80	200	129	329	96	2,831	2,927	1,001	2,960	3,961

*Source: The Velocity Group for the Regional Airline Association.

**Independence Air A319 aircraft are included in Table 22 - U.S. Mainline Air Carriers Passenger Jet Aircraft.

TABLE 30

U.S. REGIONALS/COMMUTERS

BLOCK HOURS FLOWN

(In Thousands)

AS OF JANUARY 1	REGIONAL/COMMUTER AIRCRAFT											
	LESS THAN 9 SEATS	10 TO 19 SEATS	20 TO 30 SEATS	31 TO 40 SEATS			OVER 40 SEATS			TOTAL BLOCK HOURS		
				PROP	JET	TOTAL	PROP	JET	TOTAL	NON JET	JET	TOTAL
Historical*												
1999	364	1,024	841	1,402	9	1,411	416	1,000	1,416	4,047	1,009	5,056
2000	384	852	782	1,447	121	1,568	392	1,381	1,773	3,857	1,502	5,359
2001	397	609	675	1,201	263	1,464	364	1,647	2,011	3,246	1,910	5,156
2002	372	517	526	1,216	272	1,488	282	2,372	2,654	2,913	2,644	5,557
2003	401	508	311	842	353	1,195	286	3,386	3,672	2,348	3,739	6,087
2004E	393	503	287	808	359	1,166	200	4,128	4,328	2,191	4,486	6,677
Forecast												
2005	386	498	262	770	359	1,129	196	4,709	4,905	2,113	5,068	7,181
2006	380	496	238	737	360	1,097	193	5,238	5,431	2,044	5,598	7,642
2007	374	493	215	704	361	1,065	190	5,676	5,866	1,976	6,037	8,013
2008	367	491	194	671	361	1,033	187	6,027	6,215	1,911	6,389	8,299
2009	361	488	176	642	362	1,004	186	6,320	6,506	1,854	6,682	8,536
2010	355	486	176	613	363	976	185	6,555	6,740	1,816	6,918	8,733
2011	349	484	176	584	364	947	184	6,817	7,001	1,777	7,180	8,957
2012	343	481	176	584	367	951	184	7,103	7,286	1,768	7,470	9,237
2013	337	481	176	584	371	955	184	7,385	7,569	1,762	7,756	9,518
2014	331	481	176	584	375	958	184	7,631	7,814	1,756	8,005	9,761
2015	325	481	176	584	378	962	184	7,880	8,064	1,750	8,259	10,008
2016	319	481	176	584	382	966	184	8,120	8,303	1,744	8,502	10,246

*Source: Based on utilization rates from The Velocity Group for the Regional Airline Association.

TABLE 31

ACTIVE GENERAL AVIATION AND AIR TAXI AIRCRAFT

AS OF DEC. 31	FIXED WING						ROTORCRAFT			EXPERI-MENTAL	SPORT AIRCRAFT	OTHER	TOTAL GENERAL AVIATION FLEET
	PISTON			TURBINE									
	SINGLE ENGINE	MULTI-ENGINE	TOTAL	TURBO PROP	TURBO JET	TOTAL	PISTON	TURBINE	TOTAL				
Historical*													
1999	150,886	21,038	171,924	5,679	7,120	12,799	2,564	4,884	7,448	20,528	NA	6,765	219,464
2000	149,422	21,091	170,513	5,762	7,001	12,763	2,680	4,470	7,150	20,407	NA	6,700	217,533
2001	145,034	18,281	163,315	6,596	7,787	14,383	2,292	4,491	6,783	20,421	NA	6,545	211,447
2002	143,503	17,584	161,087	6,841	8,355	15,196	2,351	4,297	6,648	21,936	NA	6,377	211,244
2003E	143,916	17,723	161,639	7,201	8,153	15,354	2,203	4,588	6,791	20,603	NA	6,213	210,600
2004E	144,000	17,700	161,700	7,300	8,425	15,725	2,240	4,650	6,890	20,800	NA	6,180	211,295
Forecast													
2005	144,150	17,645	161,795	7,400	8,750	16,150	2,270	4,715	6,985	21,000	7,700	6,150	219,780
2006	144,400	17,610	162,010	7,500	9,200	16,700	2,300	4,780	7,080	21,190	10,000	6,120	223,100
2007	144,950	17,570	162,520	7,600	9,800	17,400	2,330	4,845	7,175	21,300	10,350	6,090	224,835
2008	145,500	17,530	163,030	7,700	10,500	18,200	2,360	4,905	7,265	21,350	10,820	6,060	226,725
2009	145,900	17,430	163,330	7,800	11,200	19,000	2,390	4,960	7,350	21,370	11,390	6,030	228,470
2010	146,300	17,460	163,760	7,900	11,900	19,800	2,420	5,015	7,435	21,380	11,960	6,000	230,335
2011	146,650	17,420	164,070	8,000	12,650	20,650	2,445	5,070	7,515	21,380	12,620	5,970	232,205
2012	147,000	17,380	164,380	8,100	13,350	21,450	2,470	5,125	7,595	21,380	13,190	5,940	233,935
2013	147,300	17,345	164,645	8,200	14,000	22,200	2,495	5,180	7,675	21,380	13,760	5,910	235,570
2014	147,550	17,310	164,860	8,300	14,650	22,950	2,520	5,235	7,755	21,380	14,310	5,880	237,135
2015	147,800	17,270	165,070	8,350	15,300	23,650	2,545	5,290	7,835	21,380	14,860	5,850	238,645
2016	148,000	17,235	165,235	8,400	15,900	24,300	2,570	5,345	7,915	21,380	15,410	5,830	240,070

* Source: 1999-2003, FAA General Aviation and Air Taxi Activity (and Avionics) Surveys.

Note: An active aircraft is one that has a current registration and was flown at least one hour during the calendar year.

TABLE 32

ACTIVE GENERAL AVIATION AND AIR TAXI HOURS FLOWN

(In Thousands)

CALENDAR YEAR	FIXED WING						ROTORCRAFT			EXPERI-MENTAL	SPORT AIRCRAFT	OTHER	TOTAL GENERAL AVIATION HOURS
	PISTON			TURBINE									
	SINGLE ENGINE	MULTI-ENGINE	TOTAL	TURBO PROP	TURBO JET	TOTAL	PISTON	TURBINE	TOTAL				
Historical*													
1999	18,983	3,545	22,528	1,797	2,721	4,518	552	2,077	2,629	1,246	NA	309	31,230
2000	18,089	3,403	21,492	1,986	2,648	4,634	530	1,661	2,191	1,280	NA	361	29,958
2001	16,549	2,644	19,194	1,773	2,654	4,426	474	1,479	1,953	1,157	NA	287	27,017
2002	16,325	2,566	18,891	1,850	2,745	4,595	454	1,422	1,876	1,345	NA	333	27,040
2003E	16,483	2,307	18,790	1,787	2,709	4,496	477	1,715	2,192	1,296	NA	275	27,049
2004E	16,520	2,300	18,820	1,820	2,820	4,640	485	1,740	2,225	1,300	NA	270	27,255
Forecast													
2005	16,565	2,290	18,855	1,850	2,960	4,810	495	1,770	2,265	1,315	385	270	27,900
2006	16,620	2,285	18,905	1,880	3,150	5,030	500	1,795	2,295	1,330	500	270	28,330
2007	16,715	2,275	18,990	1,910	3,400	5,310	505	1,820	2,325	1,340	520	270	28,755
2008	16,805	2,270	19,075	1,940	3,690	5,630	515	1,845	2,360	1,345	540	265	29,215
2009	16,880	2,260	19,140	1,970	3,990	5,960	520	1,870	2,390	1,345	570	265	29,670
2010	16,955	2,255	19,210	2,000	4,290	6,290	530	1,895	2,425	1,350	600	265	30,140
2011	17,025	2,250	19,275	2,030	4,620	6,650	535	1,915	2,450	1,350	635	265	30,625
2012	17,095	2,245	19,340	2,060	4,935	6,995	540	1,940	2,480	1,350	665	265	31,095
2013	17,145	2,240	19,385	2,090	5,235	7,325	545	1,965	2,510	1,355	695	265	31,535
2014	17,190	2,230	19,420	2,115	5,545	7,660	550	1,985	2,535	1,355	725	265	31,960
2015	17,235	2,225	19,460	2,135	5,860	7,995	555	2,010	2,565	1,360	755	260	32,395
2016	17,270	2,220	19,490	2,150	6,165	8,315	565	2,035	2,600	1,360	785	260	32,810

* Source: 1999-2003, FAA General Aviation and Air Taxi Surveys.

Note: An active aircraft is one that has a current registration and was flown at least one hour during the previous calendar year.

TABLE 33

ACTIVE PILOTS BY TYPE OF CERTIFICATE

AS OF DEC. 31	STUDENTS	RECREA-TIONAL	SPORT PILOT	PRIVATE	COMMERCIAL	AIRLINE TRANSPORT	ROTOR-CRAFT ONLY	GLIDER ONLY	TOTAL PILOTS	TOTAL LESS AT PILOTS	INSTRUMENT RATED PILOTS 1/
Historical*											
1999	99,184	343	NA	258,749	124,261	137,642	7,728	9,390	637,297	499,655	308,951
2000	99,110	340	NA	251,561	121,858	141,598	7,775	9,387	631,629	490,031	315,100
2001	94,420	316	NA	243,823	120,502	144,702	7,727	8,473	619,963	475,261	321,000
2002	85,991	317	NA	245,230	125,920	144,708	7,770	21,826 2\	631,762	487,054	317,389
2003	87,296	310	NA	241,045	123,990	143,504	7,916	20,950	625,011	481,507	315,413
2004	87,910	291	NA	235,994	122,592	142,160	8,586	21,100	618,633	476,473	313,545
Forecast											
2005	89,500	295	7,500	239,500	124,700	143,700	8,700	21,150	635,045	491,345	318,500
2006	91,200	300	9,900	243,300	126,900	146,000	8,830	21,210	647,640	501,640	324,000
2007	93,000	305	10,100	247,000	129,140	148,700	8,960	21,270	658,475	509,775	329,500
2008	94,900	310	10,300	250,500	131,330	151,560	9,070	21,320	669,290	517,730	335,700
2009	96,800	315	10,500	253,800	133,690	154,590	9,170	21,370	680,235	525,645	341,500
2010	98,500	320	10,700	256,600	136,230	157,680	9,270	21,420	690,720	533,040	347,000
2011	100,300	325	10,900	259,500	138,680	160,520	9,370	21,470	701,065	540,545	352,500
2012	102,000	330	11,100	262,400	141,040	163,410	9,470	21,520	711,270	547,860	358,000
2013	103,700	335	11,300	265,200	143,300	166,190	9,570	21,570	721,165	554,975	363,500
2014	105,400	340	11,500	268,000	145,450	169,020	9,670	21,620	731,000	561,980	369,000
2015	107,100	345	11,700	270,800	147,490	171,720	9,770	21,670	740,595	568,875	374,000
2016	108,800	350	11,900	273,600	149,550	174,470	9,870	21,720	750,260	575,790	379,200

* Source: FAA U.S. Civil Airmen Statistics.

1/ Instrument rated pilots should not be added to other categories in deriving total.

2/ In March 2001, the FAA Registry changed the definition of this pilot category. It added approximately 13,000 to this pilot category.

E: Estimate

Note: An active pilot is a person with a pilot certificate and a valid medical certificate.

TABLE 34

GENERAL AVIATION AIRCRAFT FUEL CONSUMPTION

(In Millions of Gallons)

CALENDAR YEAR	FIXED WING				ROTORCRAFT		EXPERI-MENTAL/ SPORT/ OTHER	TOTAL FUEL CONSUMED		
	PISTON		TURBINE							
	SINGLE ENGINE	MULTI-ENGINE	TURBO-PROP	TURBO-JET	PISTON	TURBINE		AVGAS	JET FUEL	TOTAL
Historical										
1999	209.9	111.6	153.3	750.8	8.4	63.2	15.5	345.4	967.3	1,312.7
2000	200.8	108.4	176.3	736.7	8.4	59.0	15.2	332.7	972.0	1,304.7
2001	178.7	76.7	157.8	743.0	8.0	52.1	11.8	275.2	952.8	1,228.1
2002	179.6	75.7	164.6	774.1	7.8	45.6	14.8	277.9	984.3	1,262.2
2003E	181.3	68.1	159.0	763.9	8.2	55.0	14.3	271.9	977.9	1,249.8
2004E	182.5	69.0	162.3	796.7	8.4	56.1	14.4	274.3	1,015.1	1,289.4
Forecast										
2005	183.9	69.8	165.4	837.7	8.6	57.5	19.0	281.3	1,060.6	1,341.9
2006	185.3	70.8	168.4	893.0	8.7	58.8	20.7	285.5	1,120.2	1,405.7
2007	187.2	71.7	171.5	962.2	8.8	60.1	21.2	288.9	1,193.8	1,482.7
2008	189.1	72.6	174.6	1,040.6	9.0	61.3	21.7	292.4	1,276.5	1,568.9
2009	190.7	73.5	177.7	1,121.2	9.1	62.6	22.2	295.5	1,361.5	1,657.0
2010	192.4	74.4	180.8	1,201.2	9.3	64.0	22.8	298.9	1,446.0	1,744.9
2011	194.1	75.4	183.9	1,289.0	9.4	65.1	23.4	302.3	1,538.0	1,840.3
2012	195.7	76.3	187.0	1,371.9	9.5	66.0	24.0	305.5	1,624.9	1,930.4
2013	197.2	77.3	190.2	1,450.1	9.6	66.8	24.6	308.7	1,707.1	2,015.8
2014	198.5	78.1	192.9	1,530.4	9.7	67.5	25.2	311.5	1,790.8	2,102.3
2015	199.9	79.0	195.1	1,611.5	9.8	68.3	25.8	314.5	1,874.9	2,189.4
2016	201.2	79.9	196.9	1,689.2	9.9	69.2	26.4	317.4	1,955.3	2,272.7

Source: FAA APO Estimates.
Note: Detail may not add to total because of independent rounding.

TABLE 35

ACTIVE ROTORCRAFT FLEET AND HOURS FLOWN

CALENDAR YEAR	ACTIVE FLEET			HOURS FLOWN (Thousands)		
	PISTON	TURBINE	TOTAL	PISTON	TURBINE	TOTAL
Historical*						
1999	2,564	4,884	7,448	552	2,077	2,629
2000	2,680	4,470	7,150	530	1,661	2,191
2001	2,292	4,491	6,783	474	1,479	1,953
2002	2,351	4,297	6,648	454	1,422	1,876
2003	2,203	4,588	6,791	477	1,715	2,192
2004E	2,240	4,650	6,890	485	1,740	2,225
Forecast						
2005	2,270	4,715	6,985	495	1,770	2,265
2006	2,300	4,780	7,080	500	1,795	2,295
2007	2,330	4,845	7,175	505	1,820	2,325
2008	2,360	4,905	7,265	515	1,845	2,360
2009	2,390	4,960	7,350	520	1,870	2,390
2010	2,420	5,015	7,435	530	1,895	2,425
2011	2,445	5,070	7,515	535	1,915	2,450
2012	2,470	5,125	7,595	540	1,940	2,480
2013	2,495	5,180	7,675	545	1,965	2,510
2014	2,520	5,235	7,755	550	1,985	2,535
2015	2,545	5,290	7,835	555	2,010	2,565
2016	2,570	5,345	7,915	565	2,035	2,600

* Source: 1999-2003, FAA General Aviation and Air Taxi Activity (and Avionics) Surveys.

Notes: An active aircraft is one that has a current registration and was flown at least one hour during the calendar year.

TABLE 36

TOTAL COMBINED AIRCRAFT OPERATIONS AT AIRPORTS WITH FAA AND CONTRACT TRAFFIC CONTROL SERVICE

(In Thousands)

FISCAL YEAR	AIR CARRIER	AIR TAXI/ COMMUTER	GENERAL AVIATION	MILITARY	TOTAL	NUMBER OF TOWERS	
						FAA	CONTRACT
Historical*							
1999	14,581.2	10,573.5	39,999.6	2,950.5	68,104.8	288	161
2000	15,158.7	10,760.6	39,878.5	2,888.0	68,685.8	288	165
2001	14,762.8	10,882.1	37,627.0	2,917.1	66,189.0	266	192
2002	13,209.7	11,029.8	37,653.2	3,065.7	64,958.4	266	206
2003	12,823.8	11,426.0	35,524.0	3,009.2	62,782.9	266	217
2004E	12,929.7	12,225.1	34,938.2	2,976.1	63,069.1	266	223
Forecast							
2005	13,047.5	13,063.1	35,563.1	3,030.2	64,703.9	266	234
2006	13,333.0	13,929.5	36,211.1	3,030.2	66,503.8	266	234
2007	13,719.6	14,417.0	36,467.8	3,030.2	67,634.6	266	234
2008	14,048.9	14,719.8	36,978.8	3,030.2	68,777.7	266	234
2009	14,386.1	15,043.6	37,492.1	3,030.2	69,952.0	266	234
2010	14,731.4	15,389.6	38,028.4	3,030.2	71,179.6	266	234
2011	15,084.9	15,774.3	38,572.6	3,030.2	72,462.0	266	234
2012	15,446.9	16,152.9	39,124.7	3,030.2	73,754.7	266	234
2013	15,817.7	16,556.7	39,662.2	3,030.2	75,066.8	266	234
2014	16,213.1	16,970.7	40,121.5	3,030.2	76,335.5	266	234
2015	16,634.7	17,394.9	40,539.5	3,030.2	77,599.3	266	234
2016	17,067.2	17,829.8	40,938.5	3,030.2	78,865.7	266	234

* Source: FAA Air Traffic Activity.

TABLE 37

COMBINED ITINERANT AIRCRAFT OPERATIONS AT AIRPORTS

WITH FAA AND CONTRACT TRAFFIC CONTROL SERVICE

(In Thousands)

FISCAL YEAR	AIR CARRIER	AIR TAXI/ COMMUTER	GENERAL AVIATION	MILITARY	TOTAL
Historical*					
1999	14,581.2	10,573.5	23,019.4	1,441.6	49,615.7
2000	15,158.7	10,760.6	22,844.1	1,439.8	50,203.2
2001	14,762.8	10,882.1	21,433.3	1,479.5	48,557.7
2002	13,209.7	11,029.8	21,450.5	1,552.5	47,242.5
2003	12,823.8	11,426.0	20,231.3	1,528.6	46,009.7
2004E	12,929.7	12,225.1	19,989.9	1,496.9	46,641.5
Forecast					
2005	13,047.5	13,063.1	20,346.3	1,532.8	47,989.7
2006	13,333.0	13,929.5	20,730.9	1,532.8	49,526.2
2007	13,719.6	14,417.0	20,919.7	1,532.8	50,589.1
2008	14,048.9	14,719.8	21,275.3	1,532.8	51,576.8
2009	14,386.1	15,043.6	21,615.8	1,532.8	52,578.3
2010	14,731.4	15,389.6	21,961.6	1,532.8	53,615.4
2011	15,084.9	15,774.3	22,313.0	1,532.8	54,705.0
2012	15,446.9	16,152.9	22,670.0	1,532.8	55,802.6
2013	15,817.7	16,556.7	23,010.0	1,532.8	56,917.2
2014	16,213.1	16,970.7	23,286.2	1,532.8	58,002.8
2015	16,634.7	17,394.9	23,519.0	1,532.8	59,081.4
2016	17,067.2	17,829.8	23,730.7	1,532.8	60,160.5

* Source: FAA Air Traffic Activity.

TABLE 38

COMBINED LOCAL AIRCRAFT OPERATIONS AT AIRPORTS WITH FAA AND CONTRACT TRAFFIC CONTROL SERVICE

(In Thousands)

FISCAL YEAR	GENERAL AVIATION	MILITARY	TOTAL
Historical*			
1999	16,980.2	1,508.9	18,489.1
2000	17,034.4	1,448.2	18,482.6
2001	16,193.7	1,437.6	17,631.3
2002	16,202.7	1,513.2	17,715.9
2003	15,292.7	1,480.5	16,773.2
2004E	14,948.4	1,479.3	16,427.6
Forecast			
2005	15,216.8	1,497.4	16,714.2
2006	15,480.2	1,497.4	16,977.6
2007	15,548.1	1,497.4	17,045.5
2008	15,703.5	1,497.4	17,200.9
2009	15,876.3	1,497.4	17,373.7
2010	16,066.8	1,497.4	17,564.2
2011	16,259.6	1,497.4	17,757.0
2012	16,454.7	1,497.4	17,952.1
2013	16,652.2	1,497.4	18,149.6
2014	16,835.3	1,497.4	18,332.7
2015	17,020.5	1,497.4	18,517.9
2016	17,207.8	1,497.4	18,705.2

* Source: FAA Air Traffic Activity.

TABLE 39

TOTAL AIRCRAFT OPERATIONS

AT AIRPORTS WITH FAA TRAFFIC CONTROL SERVICE

(In Thousands)

FISCAL YEAR	AIR CARRIER	AIR TAXI/ COMMUTER	GENERAL AVIATION	MILITARY	TOTAL
Historical*					
1999	14,422.7	9,316.5	29,110.1	2,181.7	55,031.0
2000	14,921.1	9,217.2	27,002.8	2,031.7	53,172.8
2001	14,539.6	9,304.9	24,783.9	1,998.4	50,626.8
2002	13,004.1	9,469.5	24,091.5	2,012.5	48,577.6
2003	12,618.7	9,891.7	22,598.4	1,926.8	47,035.6
2004E	12,722.4	10,649.4	21,737.6	1,841.8	46,951.2
Forecast					
2005	12,836.9	11,341.6	21,820.6	1,841.8	47,840.9
2006	13,115.5	12,056.1	21,938.2	1,841.8	48,951.6
2007	13,495.8	12,478.1	22,098.1	1,841.8	49,913.8
2008	13,819.7	12,740.1	22,413.3	1,841.8	50,815.0
2009	14,151.4	13,020.4	22,728.4	1,841.8	51,742.0
2010	14,491.1	13,319.9	23,056.8	1,841.8	52,709.5
2011	14,838.8	13,652.9	23,390.0	1,841.8	53,723.5
2012	15,195.0	13,980.6	23,728.1	1,841.8	54,745.4
2013	15,559.7	14,330.1	24,056.6	1,841.8	55,788.2
2014	15,948.6	14,688.3	24,336.1	1,841.8	56,814.8
2015	16,363.3	15,055.5	24,588.8	1,841.8	57,849.4
2016	16,788.8	15,431.9	24,829.0	1,841.8	58,891.4

* Source: FAA Air Traffic Activity.

TABLE 40

ITINERANT AIRCRAFT OPERATIONS

AT AIRPORTS WITH FAA TRAFFIC CONTROL SERVICE

(In Thousands)

FISCAL YEAR	AIR CARRIER	AIR TAXI/ COMMUTER	GENERAL AVIATION	MILITARY	TOTAL
Historical*					
1999	14,422.7	9,316.5	17,422.2	1,118.6	42,280.0
2000	14,921.1	9,217.2	16,286.1	1,090.6	41,515.0
2001	14,539.6	9,304.9	14,949.4	1,090.3	39,884.2
2002	13,004.1	9,469.5	14,552.8	1,100.9	38,127.3
2003	12,618.7	9,891.7	13,577.1	1,063.9	37,151.5
2004E	12,722.4	10,649.4	13,174.3	992.5	37,538.6
Forecast					
2005	12,836.9	11,341.6	13,240.2	992.5	38,411.2
2006	13,115.5	12,056.1	13,332.9	992.5	39,497.0
2007	13,495.8	12,478.1	13,466.2	992.5	40,432.6
2008	13,819.7	12,740.1	13,695.1	992.5	41,247.5
2009	14,151.4	13,020.4	13,914.2	992.5	42,078.6
2010	14,491.1	13,319.9	14,136.9	992.5	42,940.3
2011	14,838.8	13,652.9	14,363.0	992.5	43,847.3
2012	15,195.0	13,980.6	14,592.9	992.5	44,760.9
2013	15,559.7	14,330.1	14,811.7	992.5	45,694.0
2014	15,948.6	14,688.3	14,989.5	992.5	46,619.0
2015	16,363.3	15,055.5	15,139.4	992.5	47,550.7
2016	16,788.8	15,431.9	15,275.6	992.5	48,488.8

* Source: FAA Air Traffic Activity.

TABLE 41

LOCAL AIRCRAFT OPERATIONS

AT AIRPORTS WITH FAA TRAFFIC CONTROL SERVICE

(In Thousands)

FISCAL YEAR	GENERAL AVIATION	MILITARY	TOTAL
Historical*			
1999	11,687.9	1,063.1	12,751.0
2000	10,716.7	941.1	11,657.8
2001	9,834.5	908.1	10,742.6
2002	9,538.7	911.6	10,450.3
2003	9,021.2	862.9	9,884.1
2004E	8,563.3	849.3	9,412.6
Forecast			
2005	8,580.4	849.3	9,429.7
2006	8,605.3	849.3	9,454.6
2007	8,631.9	849.3	9,481.2
2008	8,718.2	849.3	9,567.5
2009	8,814.1	849.3	9,663.4
2010	8,919.9	849.3	9,769.2
2011	9,026.9	849.3	9,876.2
2012	9,135.3	849.3	9,984.6
2013	9,244.9	849.3	10,094.2
2014	9,346.6	849.3	10,195.9
2015	9,449.4	849.3	10,298.7
2016	9,553.3	849.3	10,402.6

* Source: FAA Air Traffic Activity.

TABLE 42

TOTAL AIRCRAFT OPERATIONS

AT AIRPORTS WITH CONTRACT TRAFFIC CONTROL SERVICE

(In Thousands)

FISCAL YEAR	AIR CARRIER	AIR TAXI/ COMMUTER	GENERAL AVIATION	MILITARY	TOTAL
Historical*					
1999	158.5	1,257.0	10,889.5	768.8	13,073.8
2000	237.6	1,543.4	12,875.7	856.3	15,513.0
2001	223.2	1,577.2	12,843.1	918.7	15,562.2
2002	205.6	1,560.3	13,561.7	1,053.2	16,380.8
2003	205.1	1,534.2	12,925.7	1,082.4	15,747.3
2004E	207.3	1,575.7	13,200.6	1,134.3	16,117.9
Forecast					
2005	210.6	1,721.5	13,742.5	1,188.5	16,863.0
2006	217.5	1,873.3	14,272.9	1,188.5	17,552.2
2007	223.8	1,938.9	14,369.7	1,188.5	17,720.8
2008	229.2	1,979.6	14,565.6	1,188.5	17,962.8
2009	234.7	2,023.2	14,763.7	1,188.5	18,210.0
2010	240.3	2,069.7	14,971.6	1,188.5	18,470.1
2011	246.1	2,121.5	15,182.6	1,188.5	18,738.6
2012	252.0	2,172.4	15,396.6	1,188.5	19,009.4
2013	258.0	2,226.7	15,605.6	1,188.5	19,278.7
2014	264.5	2,282.3	15,785.4	1,188.5	19,520.7
2015	271.3	2,339.4	15,950.8	1,188.5	19,750.0
2016	278.4	2,397.9	16,109.5	1,188.5	19,974.2

* Source: FAA Air Traffic Activity.
Note: Detail may not add to total because of rounding.

TABLE 43

ITINERANT AIRCRAFT OPERATIONS

AT AIRPORTS WITH CONTRACT TRAFFIC CONTROL SERVICE

(In Thousands)

FISCAL YEAR	AIR CARRIER	AIR TAXI/ COMMUTER	GENERAL AVIATION	MILITARY	TOTAL
Historical*					
1999	158.5	1,257.0	5,597.2	323.0	7,335.7
2000	237.6	1,543.4	6,558.0	349.2	8,688.2
2001	223.2	1,577.2	6,483.9	389.2	8,673.5
2002	205.6	1,560.3	6,897.7	451.6	9,115.2
2003	205.1	1,534.2	6,654.2	464.7	8,858.3
2004E	207.3	1,575.7	6,815.6	504.4	9,102.9
Forecast					
2005	210.6	1,721.5	7,106.1	540.3	9,578.5
2006	217.5	1,873.3	7,398.0	540.3	10,029.2
2007	223.8	1,938.9	7,453.5	540.3	10,156.6
2008	229.2	1,979.6	7,580.2	540.3	10,329.4
2009	234.7	2,023.2	7,701.5	540.3	10,499.7
2010	240.3	2,069.7	7,824.8	540.3	10,675.1
2011	246.1	2,121.5	7,949.9	540.3	10,857.8
2012	252.0	2,172.4	8,077.1	540.3	11,041.8
2013	258.0	2,226.7	8,198.3	540.3	11,223.3
2014	264.5	2,282.3	8,296.7	540.3	11,383.8
2015	271.3	2,339.4	8,379.6	540.3	11,530.7
2016	278.4	2,397.9	8,455.1	540.3	11,671.7

* Source: FAA Air Traffic Activity.

TABLE 44

LOCAL AIRCRAFT OPERATIONS

AT AIRPORTS WITH CONTRACT TRAFFIC CONTROL SERVICE

(In Thousands)

FISCAL YEAR	GENERAL AVIATION	MILITARY	TOTAL
Historical*			
1999	5,292.3	445.8	5,738.1
2000	6,317.7	507.1	6,824.8
2001	6,359.2	529.5	6,888.7
2002	6,664.0	601.6	7,265.6
2003	6,271.5	617.6	6,889.1
2004E	6,385.1	630.0	7,015.0
Forecast			
2005	6,636.4	648.1	7,284.5
2006	6,874.9	648.1	7,523.0
2007	6,916.1	648.1	7,564.3
2008	6,985.3	648.1	7,633.4
2009	7,062.1	648.1	7,710.3
2010	7,146.9	648.1	7,795.0
2011	7,232.7	648.1	7,880.8
2012	7,319.4	648.1	7,967.6
2013	7,407.3	648.1	8,055.4
2014	7,488.8	648.1	8,136.9
2015	7,571.1	648.1	8,219.3
2016	7,654.4	648.1	8,302.5

* Source: FAA Air Traffic Activity.

TABLE 45

TOTAL COMBINED INSTRUMENT OPERATIONS

AT AIRPORTS WITH FAA AND CONTRACT TRAFFIC CONTROL SERVICE

(In Thousands)

FISCAL YEAR	AIR CARRIER	AIR TAXI/ COMMUTER	GENERAL AVIATION	MILITARY	TOTAL
Historical*					
1999	15,833.1	11,586.7	20,897.8	3,512.3	51,829.9
2000	16,534.7	11,623.3	21,221.7	3,529.2	52,908.9
2001	16,030.8	11,751.8	19,705.5	3,530.4	51,018.5
2002	14,379.0	11,934.1	19,655.8	3,586.0	49,554.8
2003	13,994.5	12,323.0	18,629.8	3,287.7	48,235.1
2004E	14,179.7	13,201.3	18,593.5	3,171.0	49,145.5
Forecast					
2005	14,223.0	14,059.4	18,682.9	3,171.0	50,136.3
2006	14,617.8	14,945.1	18,820.5	3,171.0	51,554.5
2007	15,041.7	15,468.2	19,007.3	3,171.0	52,688.2
2008	15,402.7	15,793.0	19,197.4	3,171.0	53,564.1
2009	15,772.4	16,140.5	19,466.1	3,171.0	54,550.0
2010	16,150.9	16,511.7	19,797.0	3,171.0	55,630.7
2011	16,538.5	16,924.5	20,173.2	3,171.0	56,807.2
2012	16,935.5	17,330.7	20,596.8	3,171.0	58,034.0
2013	17,341.9	17,764.0	21,050.0	3,171.0	59,326.8
2014	17,775.5	18,208.1	21,492.0	3,171.0	60,646.5
2015	18,237.6	18,663.3	21,921.8	3,171.0	61,993.7
2016	18,711.8	19,129.8	22,338.4	3,171.0	63,351.0

* Source: FAA Air Traffic Activity.

TABLE 46

INSTRUMENT OPERATIONS

AT AIRPORTS WITH FAA TRAFFIC CONTROL SERVICE

(In Thousands)

FISCAL YEAR	AIR CARRIER	AIR TAXI/ COMMUTER	GENERAL AVIATION	MILITARY	TOTAL
Historical*					
1999	15,742.3	11,270.0	20,643.7	3,454.2	51,110.2
2000	16,408.7	11,244.4	20,945.8	3,468.5	52,067.4
2001	15,908.4	11,371.7	19,431.8	3,467.4	50,179.3
2002	14,257.7	11,577.9	19,380.4	3,525.0	48,741.0
2003	13,880.6	11,965.8	18,348.7	3,226.5	47,421.7
2004E	14,066.0	12,832.3	18,296.5	3,105.6	48,300.4
Forecast					
2005	14,108.2	13,666.4	18,388.0	3,105.6	49,268.2
2006	14,500.6	14,527.4	18,525.9	3,105.6	50,659.5
2007	14,921.1	15,035.8	18,711.2	3,105.6	51,773.7
2008	15,279.2	15,351.6	18,898.3	3,105.6	52,634.7
2009	15,645.9	15,689.3	19,162.8	3,105.6	53,603.7
2010	16,021.4	16,050.2	19,488.6	3,105.6	54,665.8
2011	16,406.0	16,451.4	19,858.9	3,105.6	55,821.9
2012	16,799.7	16,846.3	20,275.9	3,105.6	57,027.5
2013	17,202.9	17,267.4	20,722.0	3,105.6	58,297.9
2014	17,633.0	17,699.1	21,157.2	3,105.6	59,594.8
2015	18,091.4	18,141.6	21,580.3	3,105.6	60,918.9
2016	18,561.8	18,595.1	21,990.3	3,105.6	62,252.9

* Source: FAA Air Traffic Activity.

TABLE 47

INSTRUMENT OPERATIONS

AT AIRPORTS WITH CONTRACT TRAFFIC CONTROL SERVICE

(In Thousands)

FISCAL YEAR	AIR CARRIER	AIR TAXI/ COMMUTER	GENERAL AVIATION	MILITARY	TOTAL
Historical*					
1999	90.8	316.7	254.1	58.1	719.7
2000	126.0	378.9	275.9	60.7	841.5
2001	122.4	380.1	273.7	63.0	839.2
2002	121.3	356.2	275.4	61.0	813.8
2003	113.9	357.2	281.1	61.2	813.4
2004E	113.7	369.0	297.0	65.4	845.1
Forecast					
2005	114.8	393.0	295.0	65.4	868.1
2006	117.2	417.7	294.7	65.4	895.0
2007	120.6	432.4	296.1	65.4	914.5
2008	123.5	441.4	299.1	65.4	929.4
2009	126.4	451.2	303.3	65.4	946.3
2010	129.5	461.5	308.4	65.4	964.8
2011	132.6	473.1	314.3	65.4	985.3
2012	135.8	484.4	320.9	65.4	1,006.5
2013	139.0	496.5	328.0	65.4	1,028.9
2014	142.5	508.9	334.8	65.4	1,051.7
2015	146.2	521.7	341.5	65.4	1,074.8
2016	150.0	534.7	348.0	65.4	1,098.1

* Source: FAA Air Traffic Activity.

TABLE 48

IFR AIRCRAFT HANDLED

AT FAA AIR ROUTE TRAFFIC CONTROL CENTERS

(In Thousands)

FISCAL YEAR	IFR AIRCRAFT HANDLED				
	AIR CARRIER	AIR TAXI/ COMMUTER	GENERAL AVIATION	MILITARY	TOTAL
Historical*					
1999	24,044.8	7,732.1	8,807.7	4,069.7	44,654.3
2000	24,987.1	8,100.9	8,744.4	4,192.5	46,024.9
2001	24,865.5	8,303.3	8,024.6	4,038.6	45,232.0
2002	22,820.6	8,810.6	8,180.7	3,922.5	43,734.4
2003	22,743.5	9,149.0	7,999.8	3,855.3	43,747.5
2004E	23,856.9	9,981.5	8,350.4	4,026.7	46,215.5
Forecast					
2005	24,214.8	10,630.3	8,492.5	4,026.7	47,364.2
2006	24,594.0	11,300.0	8,619.9	4,026.7	48,540.6
2007	25,307.3	11,695.5	8,705.6	4,026.7	49,734.9
2008	25,914.6	11,941.1	8,792.5	4,026.7	50,674.8
2009	26,536.6	12,203.8	8,915.6	4,026.7	51,682.6
2010	27,173.5	12,484.5	9,067.1	4,026.7	52,751.7
2011	27,825.6	12,796.6	9,239.4	4,026.7	53,888.3
2012	28,493.4	13,103.7	9,433.4	4,026.7	55,057.2
2013	29,177.3	13,431.3	9,641.0	4,026.7	56,276.2
2014	29,906.7	13,767.1	9,843.4	4,026.7	57,543.9
2015	30,684.3	14,111.2	10,040.3	4,026.7	58,862.5
2016	31,482.1	14,464.0	10,231.1	4,026.7	60,203.8

* Source: FAA Air Traffic Activity.

TABLE 49

IFR DEPARTURES AND OVERS

AT FAA AIR ROUTE TRAFFIC CONTROL CENTERS

(In Thousands)

FISCAL YEAR	AIR CARRIER		AIR TAXI/COMMUTER		GENERAL AVIATION		MILITARY		TOTAL	
	IFR DEPARTURES	OVERS	IFR DEPARTURES	OVERS	IFR DEPARTURES	OVERS	IFR DEPARTURES	OVERS	IFR DEPARTURES	OVERS
Historical*										
1999	7,835.5	8,373.8	3,512.7	706.7	3,535.2	1,737.3	1,467.3	1,135.1	16,350.7	11,952.9
2000	8,036.2	8,914.7	3,641.4	818.1	3,476.3	1,791.8	1,482.7	1,227.1	16,636.6	12,751.7
2001	7,828.1	9,209.3	3,633.5	1,036.3	3,191.9	1,640.8	1,428.1	1,182.4	16,081.6	13,068.8
2002	7,127.7	8,565.2	3,792.1	1,226.4	3,240.4	1,699.9	1,372.9	1,176.7	15,533.1	12,668.2
2003	6,934.5	8,874.5	3,921.7	1,305.6	3,149.8	1,700.2	1,365.4	1,124.4	15,371.4	13,004.7
2004E	7,239.3	9,378.3	4,212.3	1,556.9	3,294.2	1,762.1	1,425.7	1,175.3	16,171.4	13,872.6
Forecast										
2005	7,347.9	9,519.0	4,486.1	1,658.1	3,359.9	1,772.7	1,425.7	1,175.3	16,619.5	14,125.1
2006	7,463.0	9,668.1	4,768.7	1,762.6	3,410.3	1,799.3	1,425.7	1,175.3	17,067.6	14,405.3
2007	7,679.4	9,948.5	4,935.6	1,824.3	3,444.2	1,817.2	1,425.7	1,175.3	17,484.8	14,765.3
2008	7,863.7	10,187.3	5,039.2	1,862.6	3,478.6	1,835.3	1,425.7	1,175.3	17,807.2	15,060.5
2009	8,052.4	10,431.8	5,150.1	1,903.6	3,527.3	1,861.0	1,425.7	1,175.3	18,155.5	15,371.6
2010	8,245.7	10,682.1	5,268.5	1,947.4	3,587.2	1,892.7	1,425.7	1,175.3	18,527.1	15,697.4
2011	8,443.6	10,938.5	5,400.3	1,996.0	3,655.4	1,928.6	1,425.7	1,175.3	18,924.9	16,038.4
2012	8,646.2	11,201.0	5,529.9	2,043.9	3,732.2	1,969.1	1,425.7	1,175.3	19,333.9	16,389.4
2013	8,853.7	11,469.8	5,668.1	2,095.0	3,814.3	2,012.4	1,425.7	1,175.3	19,761.8	16,752.6
2014	9,075.1	11,756.6	5,809.8	2,147.4	3,894.4	2,054.7	1,425.7	1,175.3	20,204.9	17,134.0
2015	9,311.0	12,062.3	5,955.1	2,201.1	3,972.3	2,095.8	1,425.7	1,175.3	20,664.0	17,534.4
2016	9,553.1	12,375.9	6,103.9	2,256.1	4,047.7	2,135.6	1,425.7	1,175.3	21,130.5	17,942.9

* Source: FAA Air Traffic Activity.

Note: Totals may not add because of rounding.

TABLE 50

TOTAL FLIGHT SERVICES

AT FAA FLIGHT SERVICE STATIONS

(In Thousands)

FISCAL YEAR	FLIGHT PLANS ORIGINATED	PILOT BRIEFS	AIRCRAFT CONTACTED	TOTAL FLIGHT SERVICES	FLIGHT SERVICES INCLUDING DUATS
Historical*					
1999	6,252	8,293	3,325	32,415	45,785
2000	5,925	7,713	3,205	30,481	45,483
2001	5,749	7,424	2,964	29,310	45,228
2002	5,772	7,458	2,974	29,434	45,923
2003	5,417	7,010	2,814	27,669	45,150
2004E	5,389	6,800	2,683	27,060	46,814
Forecast					
2005	5,325	6,659	2,621	26,589	47,677
2006	5,292	6,700	2,626	26,610	48,674
2007	5,284	6,758	2,647	26,732	48,796
2008	5,294	6,865	2,676	26,993	50,711
2009	5,315	6,961	2,711	27,264	51,705
2010	5,346	7,058	2,749	27,557	51,998
2011	5,382	7,157	2,790	27,869	53,628
2012	5,421	7,257	2,829	28,186	54,541
2013	5,462	7,352	2,869	28,498	54,853
2014	5,504	7,436	2,909	28,789	56,217
2015	5,547	7,501	2,950	29,046	56,474
2016	5,590	7,567	2,991	29,306	57,659

* Source: FAA Air Traffic Activity.

Notes: Total flight services is equal to the sum of flight plans originated and pilot briefs, multiplied by two, plus the number of aircraft contacted.

TABLE 51

FLIGHT PLANS ORIGINATED

AT FAA FLIGHT SERVICE STATIONS

(In Thousands)

FISCAL YEAR	FLIGHT PLANS ORIGINATED		
	IFR-DVFR	VFR	TOTAL
Historical*			
1999	5,018	1,234	6,252
2000	4,668	1,257	5,925
2001	4,516	1,233	5,749
2002	4,541	1,231	5,772
2003	4,276	1,141	5,417
2004E	4,292	1,096	5,389
Forecast			
2005	4,231	1,094	5,325
2006	4,198	1,095	5,292
2007	4,186	1,098	5,284
2008	4,191	1,103	5,294
2009	4,207	1,108	5,315
2010	4,232	1,114	5,346
2011	4,262	1,120	5,382
2012	4,295	1,126	5,421
2013	4,330	1,132	5,462
2014	4,366	1,138	5,504
2015	4,402	1,144	5,547
2016	4,440	1,151	5,590

* Source: FAA Air Traffic Activity.

Notes: Detail may not add to total because of rounding.

TABLE 52

AIRCRAFT CONTACTED

AT FAA FLIGHT SERVICE STATIONS

(In Thousands)

FISCAL YEAR	USER CATEGORY				FLIGHT RULES		TOTAL
	AIR CARRIER	AIR TAXI/ COMMUTER	GENERAL AVIATION	MILITARY	IFR-DVFR	VFR	
Historical*							
1999	136	515	2,524	150	1,044	2,282	3,325
2000	127	495	2,438	145	960	2,245	3,205
2001	108	514	2,196	146	922	2,042	2,964
2002	96	558	2,170	150	868	2,105	2,974
2003	86	558	2,050	120	848	1,966	2,814
2004E	81	520	1,976	106	805	1,878	2,683
Forecast							
2005	79	508	1,930	104	786	1,835	2,621
2006	79	509	1,934	104	788	1,838	2,626
2007	80	513	1,949	105	794	1,853	2,647
2008	81	519	1,971	106	803	1,873	2,676
2009	82	526	1,996	107	813	1,898	2,711
2010	83	533	2,024	109	825	1,924	2,749
2011	84	541	2,055	110	837	1,953	2,790
2012	85	549	2,084	112	849	1,980	2,829
2013	86	556	2,113	113	860	2,008	2,869
2014	88	564	2,142	115	873	2,036	2,909
2015	89	572	2,172	117	885	2,065	2,950
2016	90	580	2,203	118	897	2,094	2,991

* Source: FAA Air Traffic Activity.

Notes: Detail may not add to total because of rounding.

TABLE 53

AUTOMATED FLIGHT SERVICES

DUATS TRANSACTIONS

(In Thousands)

FISCAL YEAR	DUATS FLIGHT PLANS	DUATS TRANSACTIONS	TOTAL DUATS
Historical*			
1999	724	5,961	13,370
2000	799	6,702	15,002
2001	787	7,172	15,918
2002	1,168	7,076	16,489
2003	1,288	7,452	17,481
2004E	1,523	8,354	19,754
Forecast			
2005	1,769	8,775	21,088
2006	1,857	9,175	22,064
2007	1,922	9,552	22,949
2008	1,951	9,907	23,717
2009	1,980	10,240	24,442
2010	2,010	10,552	25,123
2011	2,038	10,841	25,759
2012	2,067	11,111	26,355
2013	2,096	11,360	26,912
2014	2,123	11,591	27,428
2015	2,151	11,804	27,909
2016	2,176	12,000	28,353

* Source: FAA Air Traffic Activity.

Notes: Total DUATS services are equal to the sum of flight plans originated and transactions multiplied by two.