CHAPTER FOUR: FORECASTS OF AVIATION ACTIVITY

INTRODUCTION

Forecasts of commercial and general aviation activity estimate the level of demand expected at Idaho airports during the next 20 years. These activity projections assist in verifying the roles of individual airports within the Idaho system and help to determine whether existing facilities are adequate to accommodate future demand. The forecast period for this study is 2007-2027.

This chapter examines and projects the following components of Idaho aviation activity:

- Commercial airline enplanements and operations
- Based general aviation aircraft
- General aviation operations

To ensure reasonable results, forecasts for each aviation component were developed using several different forecasting methodologies. These methodologies include both "top down" and "bottom up" approaches. A "top down" approach projects aviation activity for the entire Idaho airport system, then relates the projections back to each individual airport based on the current share of statewide activity. The "bottom up" approach relates local factors including historic based aircraft trends and projected population and employment growth to future aviation activity at individual airports. The "bottom up" approach sums each individual airport's forecasts to arrive at the system-wide total.

Preferred methodologies for each aviation activity indicator were selected based on historic and projected demographic trends, Federal Aviation Administration (FAA) projections, and the possible impacts of industry trends. The projections of aviation demand are then compared to the FAA's *Terminal Area Forecasts* (TAF) and airport master plans, where available, to ensure a reasonableness check of the Idaho Airport System Plan's (IASP's) preferred forecasts.

To put these forecasts in perspective, the chapter begins with a brief discussion of national aviation trends most often associated with the growth or decline in aviation activity.

NATIONAL AVIATION TRENDS

Nationally, demand for commercial air service and general aviation has remained strong and has returned to pre-9/11 activity levels. However, the domestic commercial airline industry continues to struggle with high operational costs in an environment of intense pricing competition. In both the commercial and general aviation sectors, fuel prices have rapidly escalated the cost of flying. In 2008, it is projected that both sectors will experience declines in activity nationally as a result, even though the end of 2008 brought reductions in fuel prices.

The following sections review some of the most important national trends in aviation that have and will continue to impact Idaho. Among the most important factors influencing aviation demand in Idaho today, and in the near future, are the following:

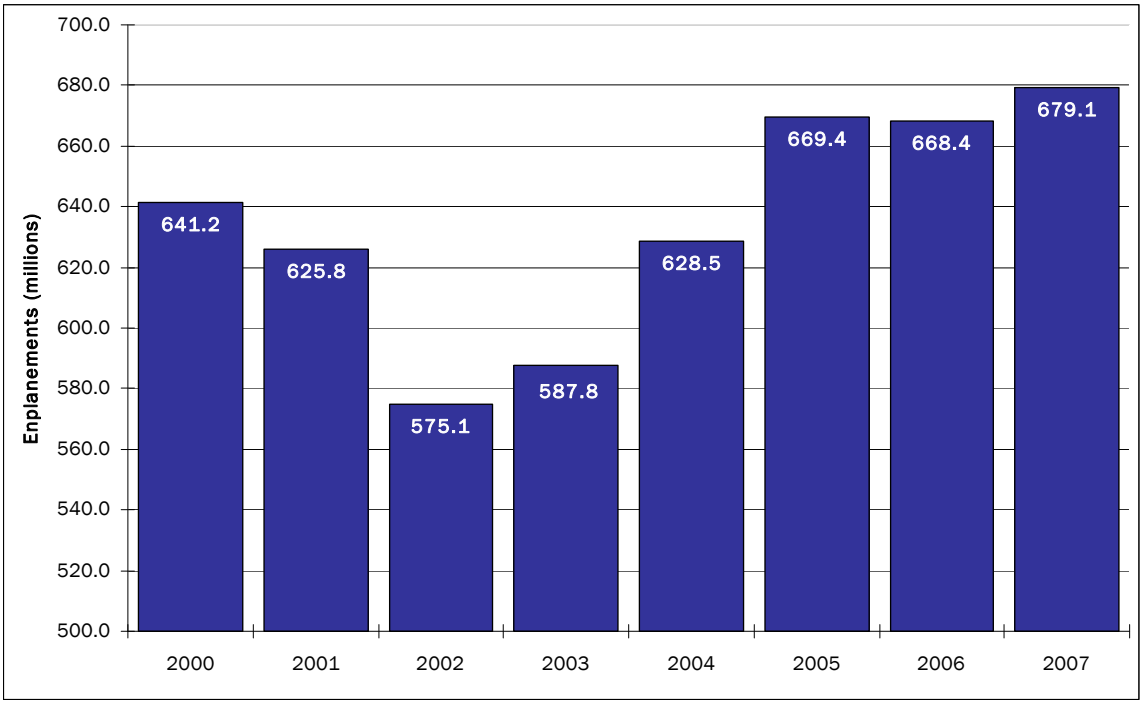
- Increased competition for market share between network and low cost carriers;
- On-going financial difficulties of the legacy carriers, especially those that operate hub and spoke networks;
- A restructuring of regional jet service and regional airlines precipitated by legacy carrier bankruptcies and reorganization;
- Further declines in air service to the smallest communities, as the carriers focus on the highest density point-to-point markets;
- Replacement of aircraft in favor of more fuel efficient models both on the commercial side and in general aviation;
- Introduction of twin-engine micro jets or very light jets (VLJ) and increased national capability to provide on-demand business travel; and,
- Reductions in recreational (discretionary) flying of general aviation aircraft because of high fuel costs.

Commercial Service Trends

Demand for Air Service Recovers

Commercial service includes all scheduled passenger and air cargo flights. Following September 11, 2001, aviation forecasters anticipated that it would take some time for commercial demand to return to levels seen in 2000. Demand in 2005 at almost all commercial airports exceeded 2000 levels. Figure 4-1 shows the trend in total domestic enplanements since 2000.

Figure 4-1: Domestic Enplanements, 2000-2007

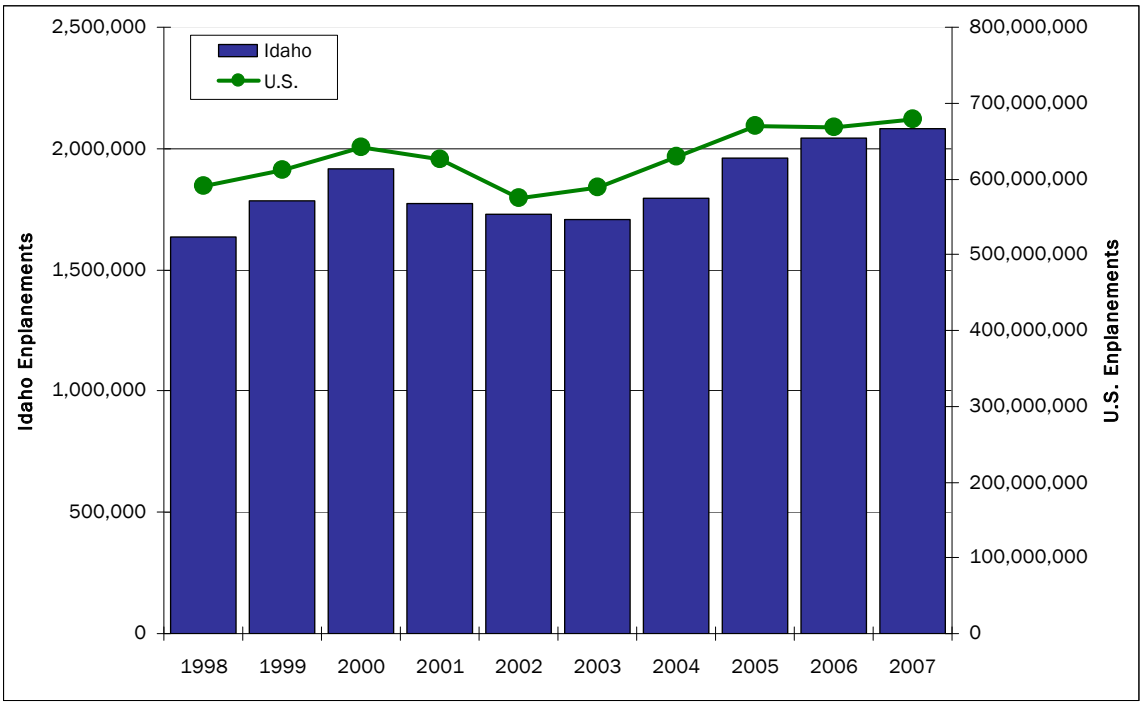


Source: FAA Aerospace Forecasts, Fiscal Years 2008-2025; Bureau of Transportation Statistics, T-100 Domestic Market and Segment
Prepared: November 2008

Idaho Demand for Air Service Follows U.S. Trends

Figure 4-2 compares Idaho's historical enplanements with U.S. enplanements for the 10-year period, 1998-2007. As Figure 4-2 shows, Idaho traffic has consistently tracked U.S. trends.

Figure 4-2: Idaho and U.S. Enplanements Compared, 1998-2007

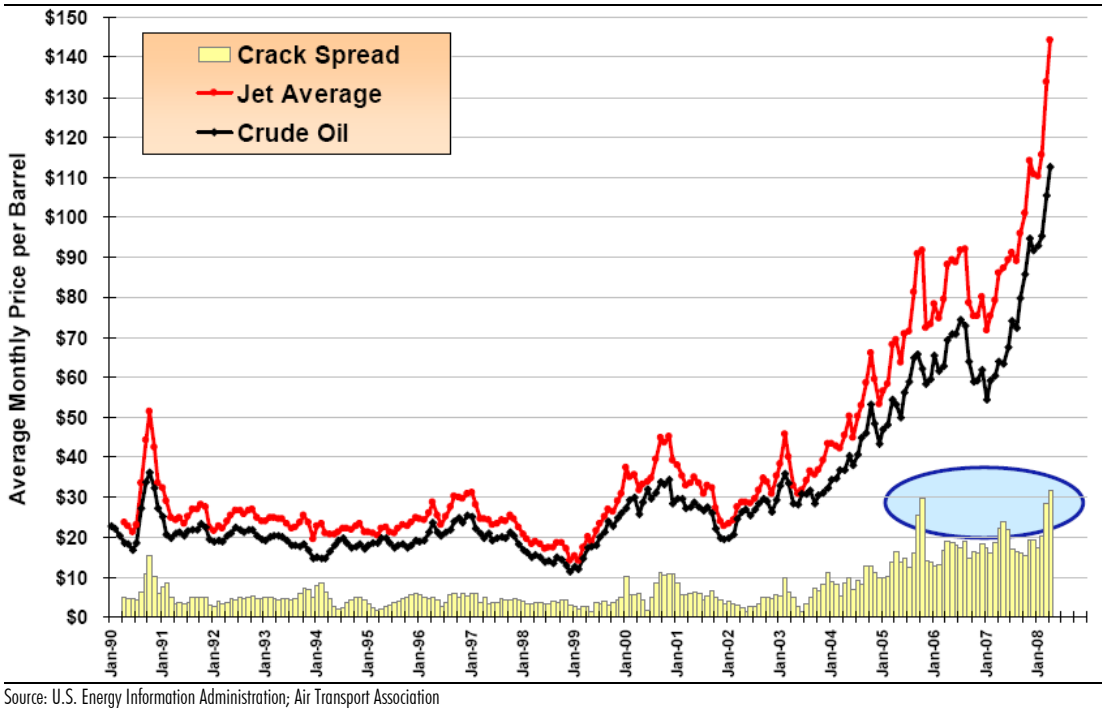


Sources: FAA Aerospace Forecasts, Fiscal Years 2003-2014; FAA Aerospace Forecasts, Fiscal Years 2008-2025; Bureau of Transportation Statistics, T-100 Domestic Market and Segment; Idaho Air Service Demand Study; FAA CY 2000-2007 Enplanements
Prepared: November 2008

High Fuel Prices Disrupt the Financial Recovery of the Airlines

Despite a continuing increase in passenger demand, the cost of fuel continues to disrupt the financial recovery of the commercial airlines. Figure 4-3 shows the pricing trends of spot crude oil and jet fuel since 1990. In the last 30 years, there have been three pricing spikes. In 1973-74, the Oil Embargo caused the price of oil to spike from $3 per barrel to over $11 per barrel. In the 1980s, the price of crude oil moved into the $20 range. In the 1990s, the price fluctuated between $20 and $30 per barrel until mid-2003. In the last four years, the price of crude oil has more than quadrupled; and in 2008, crude oil increased to $140 per barrel (as of early July 2008) before declining the remainder of the year back to the $50 per barrel range. In addition, the difference between crude and jet fuel cost per barrel, known as the "crack spread" has increased as well, from a historical average of $5 to over $20 since Hurricane Katrina in 2005.

Figure 4-3: Average Prices ($/Barrel): Crude Oil (Spot) and Jet Fuel (Paid), 1990-2008

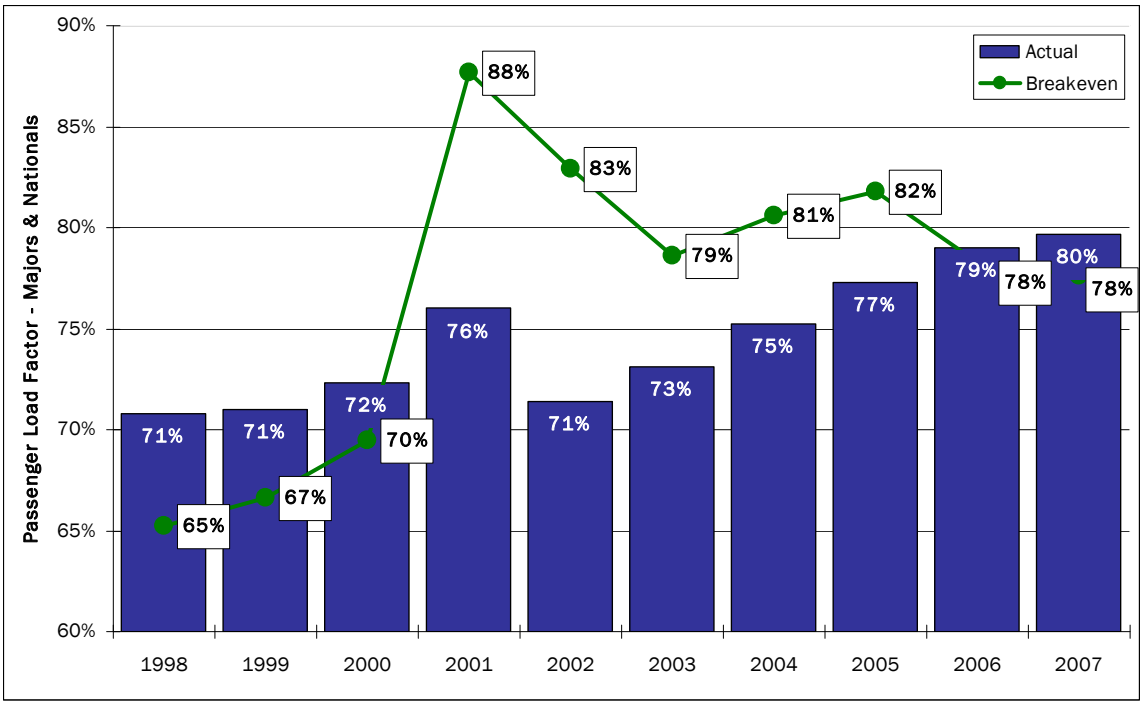


Source: U.S. Energy Information Administration; Air Transport Association
Prepared: February 2008

High Breakeven Load Factors Reflect Low Fares and High Costs

A way to look at the cost and revenue components of commercial air service is to compare actual passenger load factors with breakeven load factors. Figure 4-4 compares passenger load factors and breakeven load factors for the major carriers. This figure clearly demonstrates how the airlines are challenged to stay profitable when fares remain low, demand is high, and costs continue to escalate. Beginning in 1995 and continuing through 2000, carrier load factors exceeded breakeven points. Breakeven points hovered in the mid-60 percent range while actual load factors averaged 70 percent. However, in the last seven years, breakeven points averaged in the low-80 percent range, well above actual load factors. Typically when airlines are operating at 80 percent or higher load factors, they must either turn away passengers or schedule additional flights. This is why the airlines are eager to reduce operating costs, raise airfares, and lower the number of passengers needed to break even.

Figure 4-4: Passenger Load Factors and Breakeven Points – Legacy Carriers (Major & Nationals), 1998-2007



Source: Air Transport Association
Prepared: November 2008

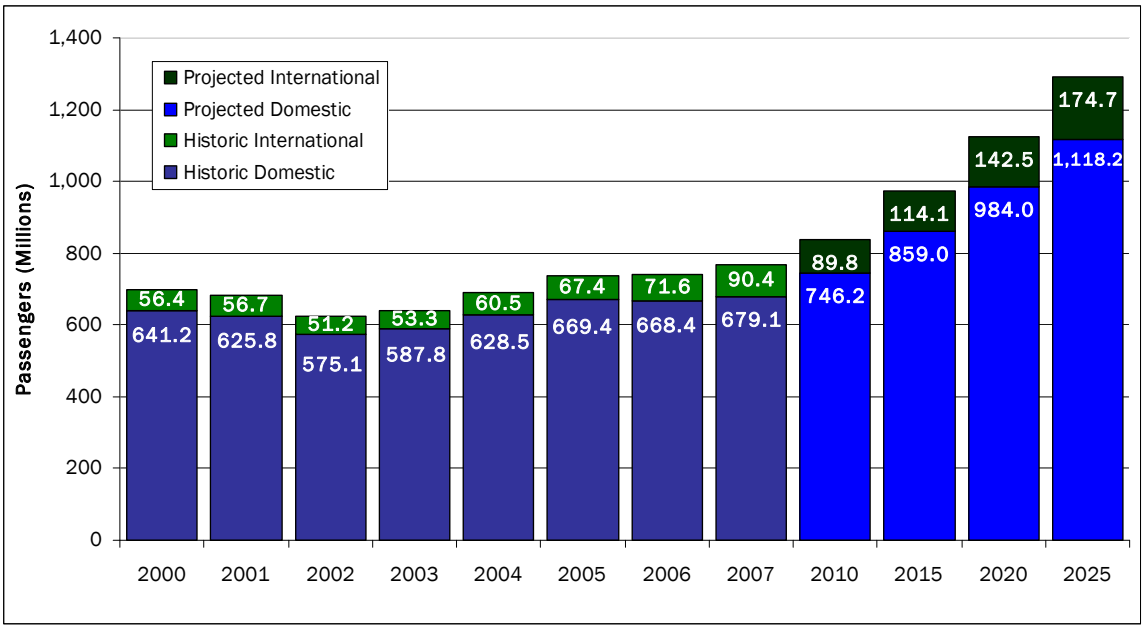
FAA Commercial Aviation Forecasts

Each year the FAA prepares a 12-year forecast for commercial aviation as part of the *FAA Aerospace Forecasts*. The forecasts are presented in March each year. The most recent commercial aviation forecasts reflect the following average annual growth rates for 2008-2025:

- Domestic enplanements – 2.72 percent per year
- International enplanements – 4.79 percent per year
- Load factors up to 82 percent
- Available Seat Miles (ASMs) – 4.1 percent per year
- Revenue Passenger Miles (RPMs) – 4.2 percent per year

The FAA anticipates that international travel will be the fastest growing segment of scheduled air service. In 2007, international ASMs represented approximately 27 percent of the system. By 2025, international ASMs are expected to represent 34 percent of total ASMs. Regional carrier growth is anticipated to slow to 1.3 percent per year after annual increases in the 12 percent range between 2000 and 2006. Passenger yields are projected to improve at an average annual growth rate of 1.7 percent. Figure 4-5 reflects the most recent FAA forecasts for both domestic and international passengers.

Figure 4-5: U.S. Commercial Air Carriers, Historical and Forecast Domestic and International Passengers (2000-2025)



Source: FAA Aerospace Forecasts, Fiscal Years 2008-2025; Bureau of Transportation Statistics, T-100 International Market and Segment
Prepared: November 2008

It is worth noting that the FAA projections do not take into account the surge in fuel costs in early 2008, ongoing difficulties experienced by U.S. carriers, and the late 2008 economic conditions. Based on recent events, it appears that the FAA's near-term domestic projections may be overstated.

General Aviation Trends

General aviation includes all aviation except scheduled passenger or air cargo operations. It includes personal transportation, business and corporate flights, air taxi, and helicopter operations. In Idaho, general aviation aircraft are flown for a wide variety of uses including: business travel, agricultural spraying, flight instruction, emergency airlift, fire fighting, and recreation. In 2008, 3,954 aircraft were registered in Idaho with 4,930 licensed pilots[1]. These aircraft included home built/experimental, glider, agricultural, military surplus, antique and classic/warbirds, ultra-light airplanes, helicopters, single and multi-engine aircraft, and corporate and private jets.

Each year, the FAA and the General Aviation Manufacturers Association (GAMA) review the outlook for the general aviation industry. The FAA's particular areas of interest are: the workload at airports with FAA air traffic control towers and contract towers, airspace congestion, and changes in the U.S. fleet mix. GAMA keeps track of aircraft billings and shipments.

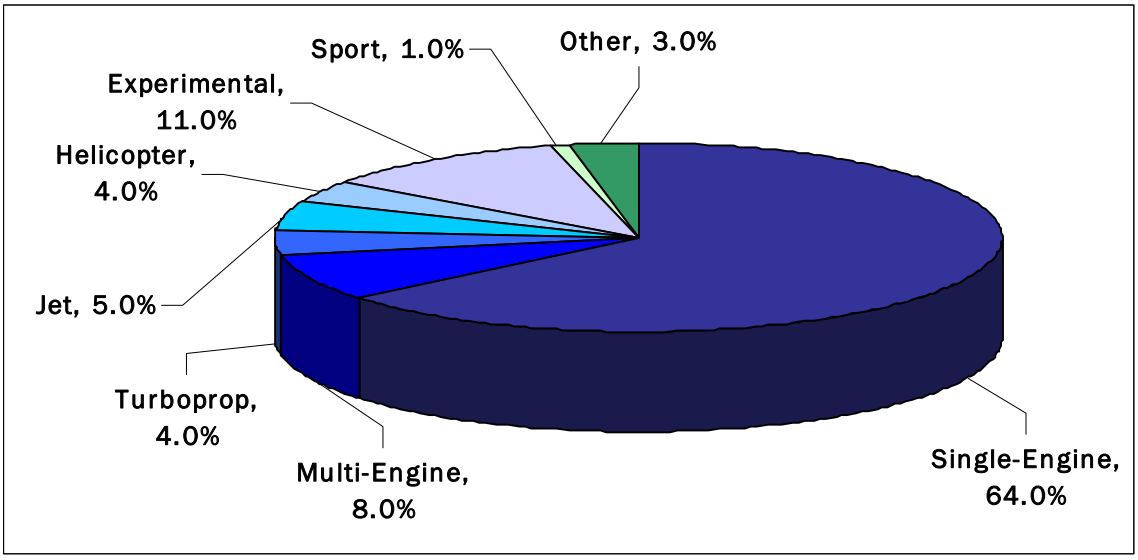
The following describes general aviation activity in the U.S. in order to provide a comparison for based aircraft and general aviation activity in Idaho[2]:

[1] Federal Aviation Administration
[2] GAMA Annual Industry Review & Market Outlook Briefing

- There are 224,000 general aviation aircraft registered in the U.S.; 3,954 are registered in Idaho.
- General aviation aircraft fly over 27 million hours in the U.S. and carry 166 million passengers each year.
- Nearly two-thirds of the hours flown on general aviation aircraft are for business purposes. In Idaho, agricultural spraying also accounts for a large number of aircraft operations and hours flown.
- Fractional ownership of aircraft is on the rise. In 2006, 984 aircraft were operated in fractional ownership programs. This is a growing, but relatively small portion of the U.S. fleet.
- Single-engine aircraft are the most popular and numerous aircraft in the United States. In 2007, 2,174 single-engine aircraft were shipped.
- Turboprop airplanes are a much smaller segment of the market. In 2007, 459 units were shipped.
- Business jets are a growing segment of the market in terms of units shipped. In 2007, 1,138 units were shipped. The FAA now identifies twin-engine micro jets as part of their annual forecasts. These aircraft have the highest potential for growth.
- Domestic shipments of new aircraft reached a near term high in 2007.

Figure 4-6 shows the most recent fleet mix of general aviation aircraft in the U.S.

Figure 4-6: U.S. General Aviation Fleet Mix, 2007

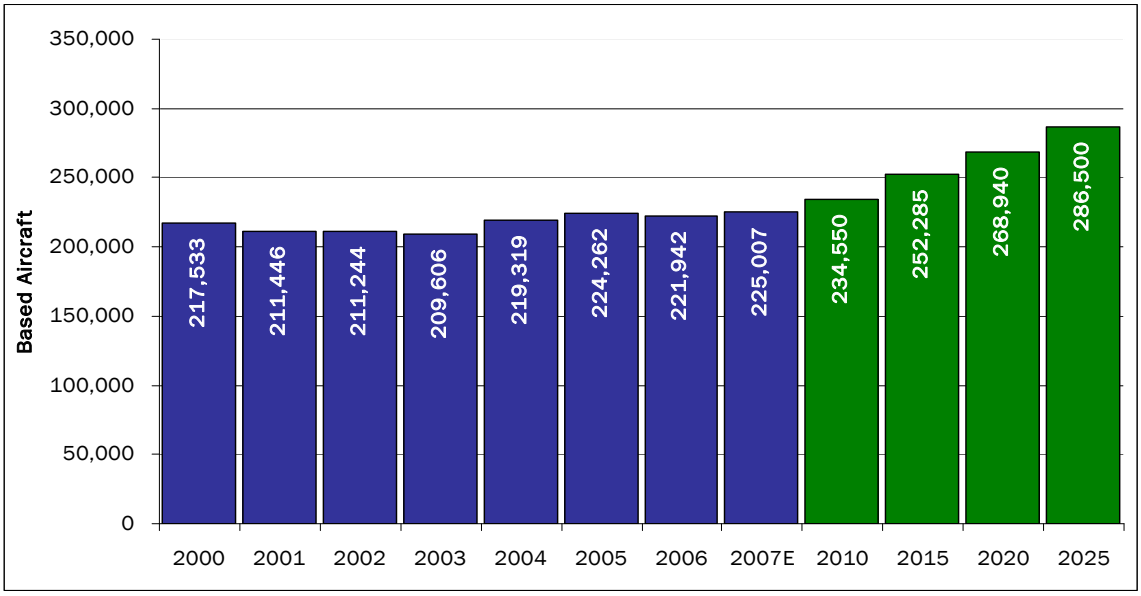


Source: FAA Aerospace Forecasts, Fiscal Years 2008-2025
Prepared: November 2008

FAA General Aviation Forecasts

As part of its forecasting effort, the FAA prepares national forecasts of active general aviation aircraft, fleet mix, and general aircraft operations. The FAA active aircraft forecast is presented in Figure 4-7; and the fleet mix forecast is presented in Figure 4-8.

Figure 4-7: Active General Aviation and Air Taxi Aircraft



Source: FAA Aerospace Forecasts, Fiscal Years 2008-2025
Note: E=estimate
Prepared: November 2008

Figure 4-8: U.S. Active General Aviation Aircraft, Actual and Forecast

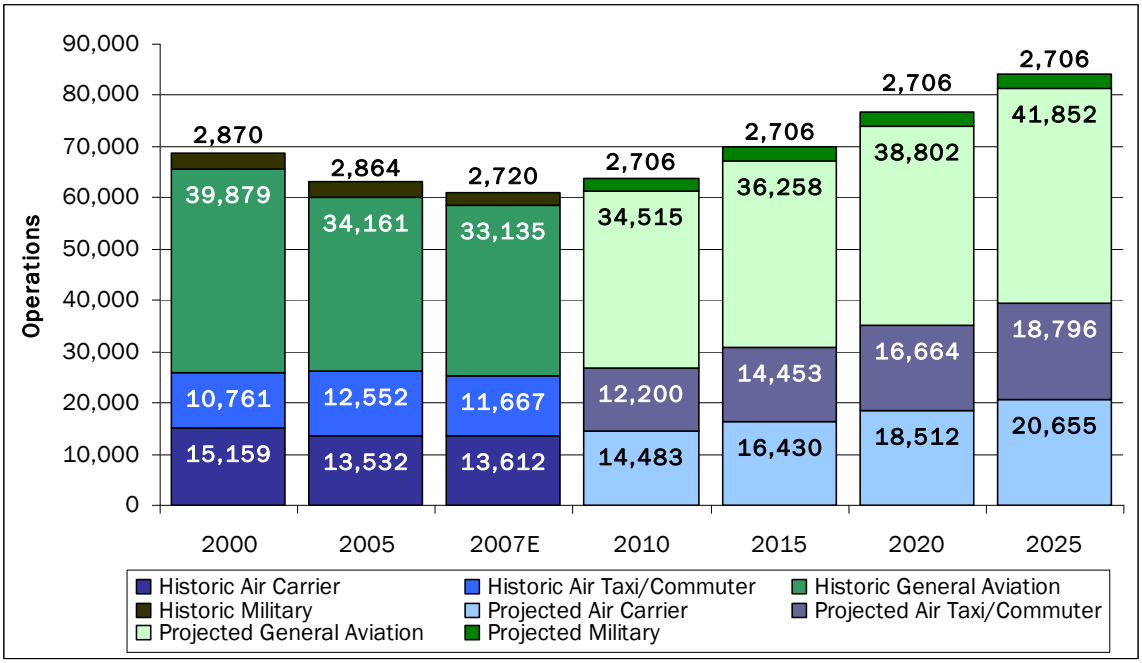
	Fixed Wing				Rotorcraft					
	Piston		Turbine							
Year	Single-Engine	Multi-Engine	Turbo Prop	Turbo Jet	Piston	Turbine	Experimental	Sport	Other	Total Fleet
2000	149,422	21,091	5,762	7,001	2,680	4,470	20,407	NA	6,700	217,533
2005	148,101	19,412	7,942	9,823	3,039	5,689	23,627	170	6,459	224,262
2007E	144,580	18,555	8,190	10,997	3,610	6,075	23,920	2,700	6,380	225,007
2010	144,015	18,055	8,565	14,220	4,725	6,575	26,285	5,600	6,510	234,550
2015	145,620	17,245	9,310	19,845	6,255	7,290	29,760	10,500	6,460	252,285
2020	150,035	16,455	10,110	24,900	7,295	7,915	32,625	13,200	6,405	268,940
2025	157,400	15,650	10,820	29,515	8,295	8,560	35,200	14,700	6,360	286,500
CAGR	0.5%	-0.9%	1.6%	5.6%	4.7%	1.9%	2.2%	9.9%	0.0%	1.4%

Source: FAA Aerospace Forecasts, Fiscal Years 2008-2025
Note: E=estimate
Prepared: November 2008

Overall, general aviation aircraft are projected to grow at an average annual rate of 1.4 percent for the next 13 years. However, there is a significant amount of variation both with respect to the mix of aircraft and the growth rates within each category. Beginning in 2005, the FAA added "light sport" aircraft as a registration category. FAA is expecting registration of over 9,000 aircraft in this category over the next 10 years. Other growth areas are the twin-engine micro jets and piston helicopters. Single-engine piston aircraft are expected to grow relatively slowly at average annual rates of 0.5 percent while twin-engine piston aircraft are expected to decline at 0.9 percent annually.

Figure 4-9 presents forecasted operations at airports with either an FAA or contract air traffic control tower. Commercial and air taxi/commuter operations are projected to grow 2.3 and 2.7 percent annually, respectively. General aviation operations are projected to grow 1.3 percent per year and military operations are expected to stay flat.

Figure 4-9: Commercial and General Aviation Operations at Airports with FAA or Contract Towers, 2000-2007



Source: FAA Aerospace Forecasts, Fiscal Years 2008-2025
Note: E=estimate
Prepared: November 2008

Technology Trends

This section discusses the trends in new technology that have the largest potential to impact the future of aviation.

Very Light Jets

Other new, growing segments of the business aircraft fleet mix include business liners and very light jets (VLJ). Business liners are large business jets, such as the Boeing Business Jet and Airbus ACJ that are reconfigured versions of passenger aircraft flown by large commercial airlines. VLJs are a relatively new category of aircraft that includes aircraft like the Embraer Phenom 100, HondaJet, and Cessna Citation Mustang. These are small, single pilot, six-seat jets that cost substantially less than typical business jet aircraft and have been labeled as "personal jets."

VLJs represent a significant departure from the cost of previously available jet aircraft. The basic Citation Mustang has a price estimated around $2.4 million and the HondaJet around $3.6 million. Figure 4-10 depicts some examples of VLJ aircraft and their general design concept.

As of October 2006, the Eclipse 500, Citation Mustang, and Adam A-500 became the first VLJs to receive full Type Certification by the FAA. The first Eclipse 500 was delivered in January 2007 and the first Citation Mustang was delivered in September 2008. Honda Aircraft Company aims to receive FAA Type Certification for the HondaJet in 2010, with the first HondaJet scheduled for delivery in 2010.

Figure 4-10: Examples of VLJ Aircraft

Embraer Phenom 100

HondaJet

Citation Mustang

Eclipse 500

Sources: Cessna Aircraft Company; Eclipse Aviation; Embraer Press Room; Honda.
Prepared: November 2008

DayJet, an on-demand jet service provider that served business travelers tired of the air carrier "hassle factor" at a reasonable cost, operated in Florida from October 2007 to September 2008. As of the writing of this chapter, DayJet has ceased operations. Other on-demand providers have similar business models, however, and are projected to initiate service in the future.

Four key features make airports attractive to on-demand operators and their clients:

- Fixed base operators that provide fuel and other supplies to aircraft operators.
- Availability of ground transportation such as taxi cab operators and rental cars.
- Close proximity to customer populations.
- Runways at least 4,000 feet long with precise navigation and landing guidance.

Business aviation is projected to experience substantial additional growth in the future. The *Honeywell Business Aviation Outlook* projects that more than 7,600 new business aircraft will be delivered by 2012, excluding business liners and VLJs.

The future of the VLJ segment of the business aircraft market appears extremely promising. More than 13 percent of the traditional corporate flight departments knowledgeable about VLJs expressed a strong probability of purchasing these aircraft for their corporate fleets. The respondents indicated that VLJ purchases would be used by approximately 40 percent of the flight departments to replace turboprops, 20 percent to replace very light and light jets, and the remainder would represent additions to the corporate fleet.

Wide Area Augmentation System

The U.S. Department of Transportation (DOT) and FAA are developing the Wide Area Augmentation System (WAAS) for use in precision flight approaches. Currently, the Global Positioning System (GPS) alone does not meet the FAA's navigation requirements for accuracy, integrity, and availability. WAAS corrects for GPS signal errors caused by ionospheric disturbances, timing, and satellite orbit errors, and it provides vital integrity information regarding the health of each GPS satellite.

WAAS consists of approximately 25 ground reference stations positioned across the United States that monitor GPS satellite data. Two master stations, located on either coast, collect data from the reference stations and create a GPS correction message. This correction accounts for GPS satellite orbit and clock drift plus signal delays caused by the atmosphere and ionosphere. The corrected differential message is then broadcast through one of two geostationary satellites, or satellites with a fixed position over the equator. The information is compatible with the basic GPS signal structure, which means any WAAS-enabled GPS receiver can read the signal.

GPS NPA (LNAV) refers to a Non-Precision Approach (NPA) procedure which uses GPS and/or WAAS for Lateral Navigation (LNAV). On an LNAV approach, the pilot flies the final approach lateral course, but does not receive vertical guidance for a controlled descent to the runway. Instead, when the aircraft reaches the final approach fix, the pilot descends to a minimum descent altitude using the barometric altimeter. LNAV approaches are less precise and therefore usually do not allow the pilot to descend to as low an altitude above the runway. Typically, LNAV procedures achieve a minimum descent altitude (MDA) of 400 feet height above the runway. LNAV/VNAV (Lateral Navigation/Vertical Navigation) approaches use lateral guidance from GPS and/or WAAS and vertical guidance provided by either the barometric altimeter or WAAS. Aircraft that don't use WAAS for the vertical guidance portion must have VNAV-capable altimeters, which are typically part of a flight management system (FMS). FMS avionics are more expensive than WAAS receivers. When the pilot flies an LNAV/VNAV approach lateral and vertical guidance is provided to fly a controlled descent, a safer maneuver, to the runway. The decision altitudes on these approaches are usually 350 feet above the runway.

LPV (Localizer Performance with Vertical guidance) is similar to LNAV/VNAV except it is much more precise, enables descent to 200-250 feet above the runway, and can only be flown with a WAAS receiver. LPV approaches are operationally equivalent to the legacy instrument landing systems (ILS) but are more economical because no navigation infrastructure has to be

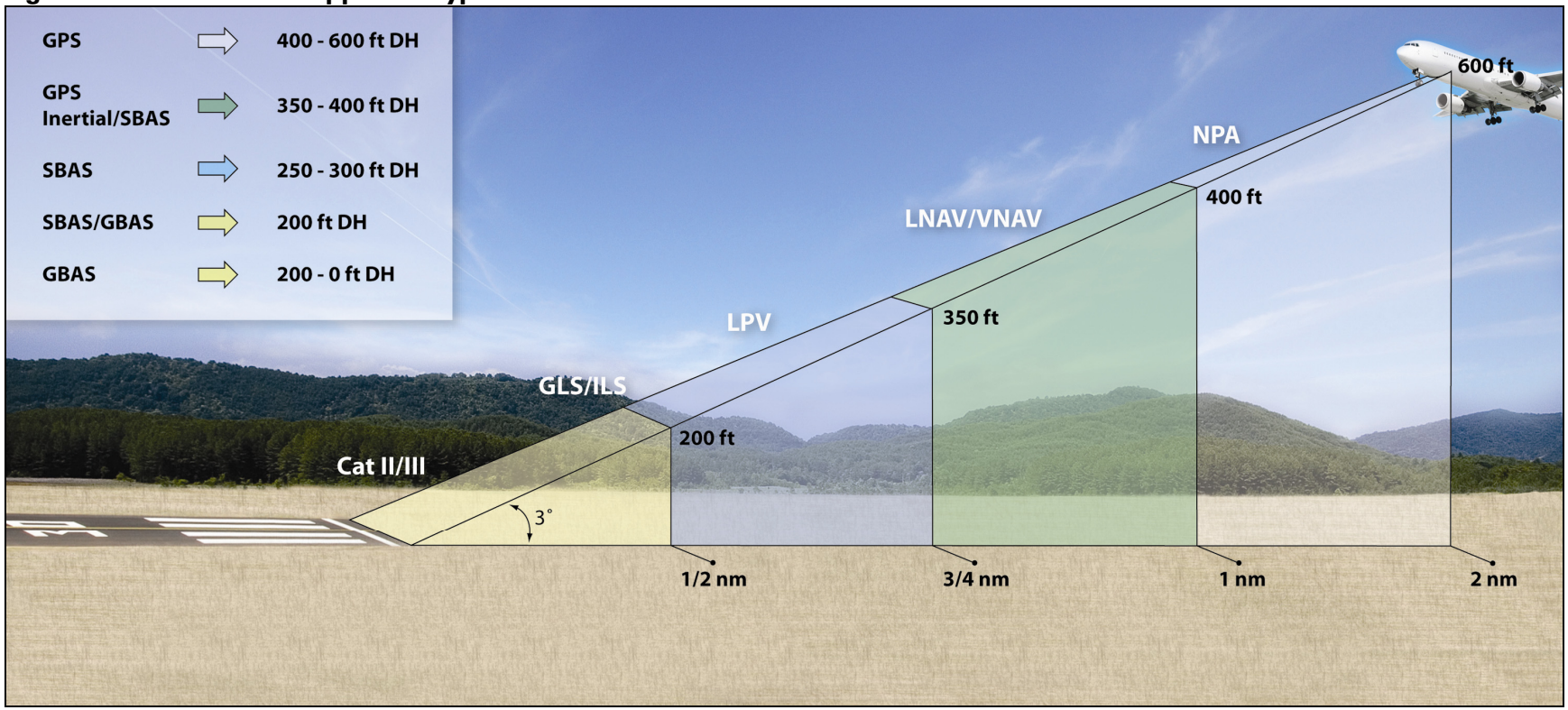
installed at the runway. Figure 4-11 summarizes the various approaches and their associated minimums.

These WAAS approaches should be considered the same as conventional precision approaches from an airport infrastructure perspective. There were over 1,300 LPV approach procedures published as of September 2008, with the FAA's goal being to produce 500 new LPV procedures each year until every qualified runway in the NAS has one. LPV approaches can currently be found at 833 airports.

It is the intent of the FAA to put LPV approaches with 200-foot decision altitudes and as low as ½ statute miles visibility where the airport infrastructure and environment can accommodate it. The next steps in the LPV evolution are summarized below:

- Current:
  - CAT I ILS is limited to 200' HAT and ½ mile visibility
  - LPV is limited to 200' HAT and ½ mile visibility
- Next Steps:
  - If airport's ILS has 200' and ½ mile minimums, and
  - Has RNAV (GPS) of 250' and ¾ mile visibility, then
  - The airport is a candidate for LPV to 200' and ½ mile minimums

Figure 4-11: Instrument Approach Types



Source: Federal Aviation Administration
Notes: *GPS (Global Position Satellites), SBAS (Satellite Based Approach Systems), GBAS (Ground Based Approach Systems)
Prepared: November 2008

IDAHO AVIATION TRENDS

Commercial Aviation in Idaho

Idaho has seven commercial service airports. These airports handled approximately 2.1 million enplanements in 2007[3]. The vast majority of these enplanements occurred at Boise Air Terminal-Gowen Field. Boise Air Terminal-Gowen Field served 81 percent of all Idaho enplanements in 2007. The remaining enplanements occurred at Friedman Memorial Airport, Idaho Falls Regional Airport, Lewiston-Nez Perce County Airport, Pocatello Regional Airport, Pullman-Moscow Regional Airport, or Joslin Field-Magic Valley Regional Airport. The state is also served by airports in adjacent states, primarily Salt Lake City, Utah to the south, Missoula, Montana to the east, and Spokane, Washington to the west. Figure 4-12 shows the commercial service airports that are within reasonable driving distance for Idaho air passengers. Also indicated are overlapping service areas. Southern Idaho is served by multiple airports. The Pocatello Regional service area overlaps with the Idaho Falls Regional service area, and the Joslin Field-Magic Valley Regional service area overlaps with the Friedman Memorial service area. In the northern part of the state, passengers can choose between Pullman-Moscow Regional and Lewiston-Nez Perce County Regional airports.

To differentiate between airports that have different levels of air service, airport service areas shown in Figure 4-12 assume 90-minute drive times for airports with more than one airline and 60-minute drive times for airports with one airline.

Historic data shows that enplanements at Idaho's commercial service airports are increasing. Figure 4-13 charts Idaho enplanements in the last 10 years. Enplaned passengers have remained steady or increased slightly at most airports. Recent Idaho enplanements are presented in Figure 4-14.

Enplanements increased at four of the seven airports, with Idaho Falls Regional experiencing the largest growth at 9.38 percent annually. Pocatello Regional witnessed the largest decrease with a compound annual growth rate of -9.35 percent. In all, enplaned passengers in Idaho grew at a compound annual growth rate of 5.10 percent over the five-year period. Compared to total U.S. enplanements, Idaho's share of total enplanements in the last 10 years has held steady between 0.28 percent and 0.31 percent, as illustrated in Figure 4-15.

[3] Federal Aviation Administration CY 2007 Enplanements

Figure 4-12: Overlapping Service Areas for Commercial Airports

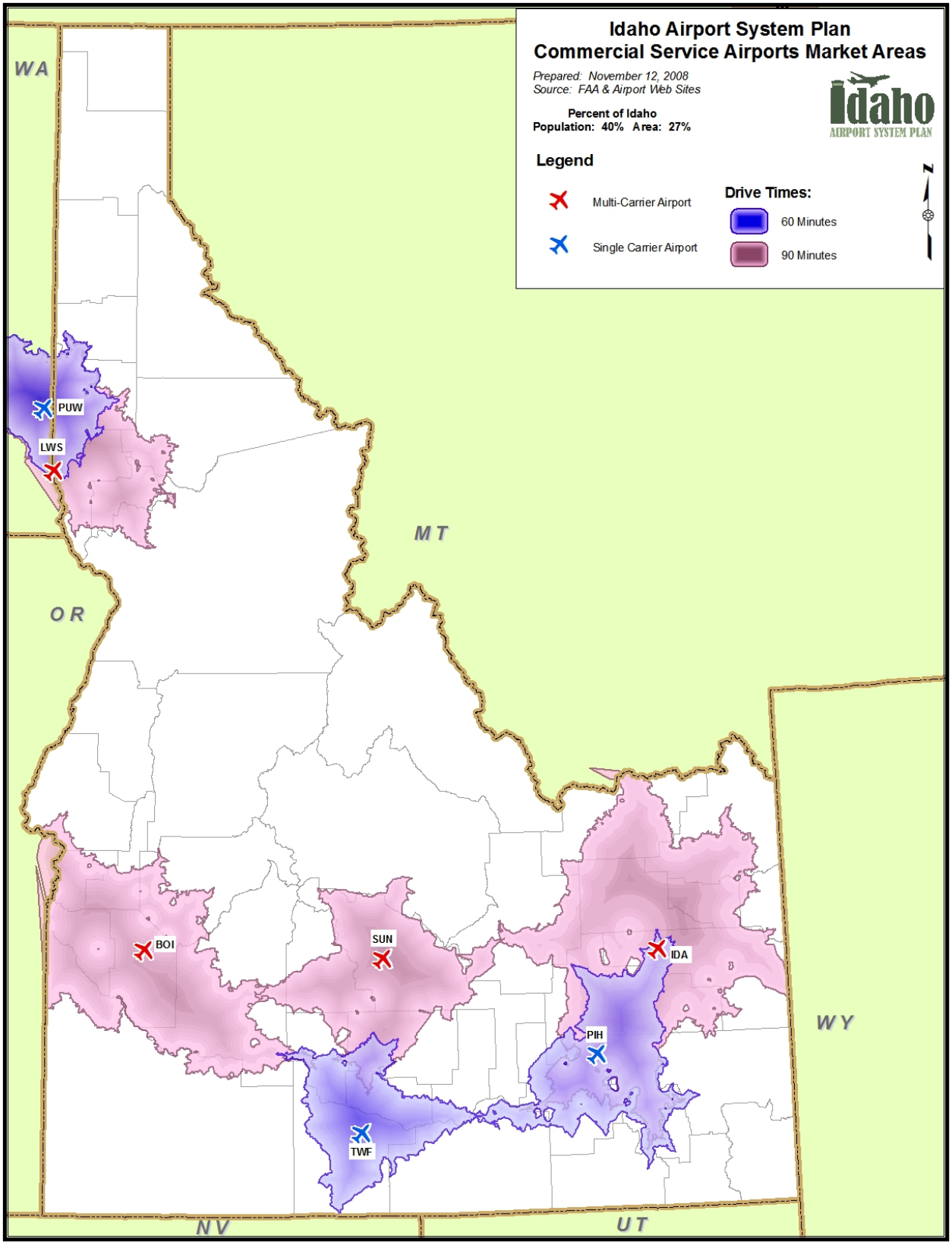
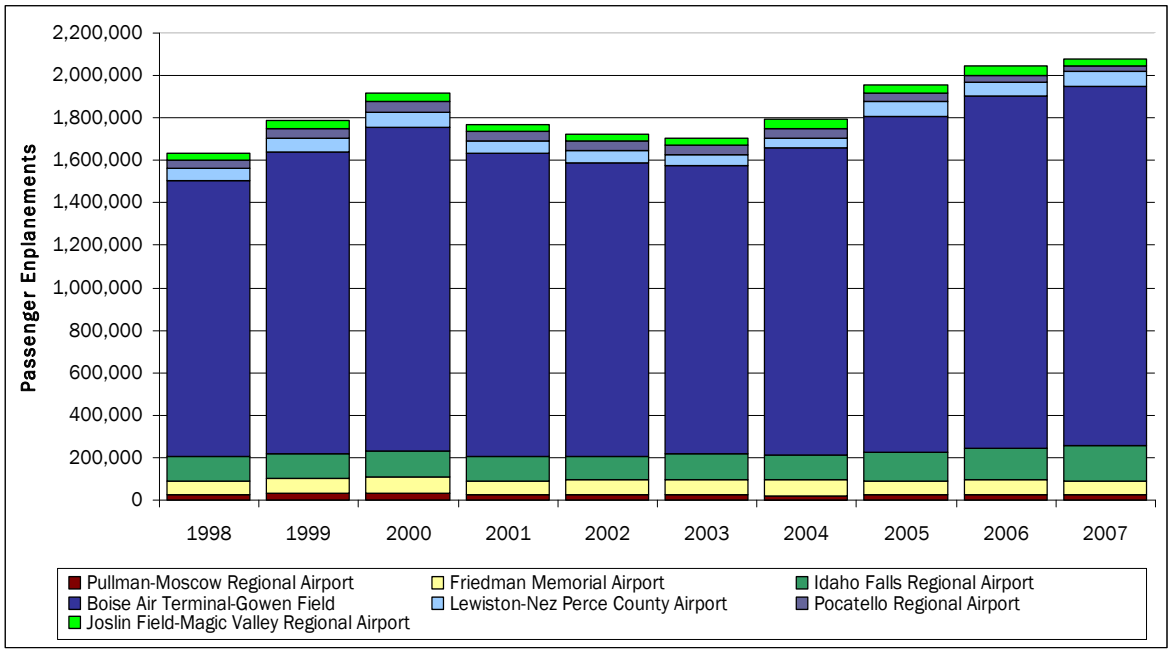


Figure 4-13: Enplanement Growth by Commercial Service Airport, 1998-2007



Sources: FAA CY 2000-2007 Enplanements; Idaho Air Service Demand Study
Prepared: November 2008

Figure 4-14: Recent Enplanement Growth at Idaho Airports, 2003-2007

Airport	*2003*	*2004*	*2005*	*2006*	*2007*	*CAGR 2003-2007*
Boise Air Terminal-Gowen Field	1,357,984	1,451,728	1,581,338	1,656,677	1,689,046	5.61%
Idaho Falls Regional Airport	116,326	117,619	135,058	152,146	166,503	9.38%
Lewiston-Nez Perce County Airport	53,907	43,436	66,444	66,357	69,726	6.64%
Friedman Memorial Airport	74,741	72,522	69,892	70,057	67,469	-2.53%
Joslin Field-Magic Valley Regional Airport	34,201	41,834	44,405	39,153	33,523	-0.50%
Pullman-Moscow Regional Airport	24,569	20,980	22,874	23,838	24,856	0.29%
Pocatello Regional Airport	43,667	44,435	38,411	34,458	29,491	-9.35%
Total	1,705,395	1,792,554	1,958,422	2,042,686	2,080,614	5.10%

Source: FAA CY 2003-2007 Enplanements
Prepared: November 2008

Figure 4-15: Idaho Share of U.S. Enplanements, 1998-2007

Year	Idaho	United States	% Share	CAGR 1998-2007	
				Idaho	United States
1998	1,635,367	590,417,146	0.28%	2.04%	2.18%
1999	1,786,395	610,927,590	0.29%	9.24%	3.47%
2000	1,913,808	641,155,514	0.30%	7.13%	4.95%
2001	1,771,857	625,799,975	0.28%	-7.42%	-2.39%
2002	1,726,626	575,087,498	0.30%	-2.55%	-8.10%
2003	1,705,395	587,829,547	0.29%	-1.23%	2.22%
2004	1,792,554	628,493,362	0.29%	5.11%	6.92%
2005	1,958,422	669,427,839	0.29%	9.25%	6.51%
2006	2,042,686	668,418,019	0.31%	4.30%	-0.15%
2007	2,080,614	689,442,583	0.30%	1.86%	3.15%

Sources: FAA CY 2000-2007 Enplanements; Idaho Air Service Demand Study; FAA Aerospace Forecasts, Fiscal Years 2008-2025; FAA Aerospace Forecasts, Fiscal Years 2003-2014
Prepared: November 2008

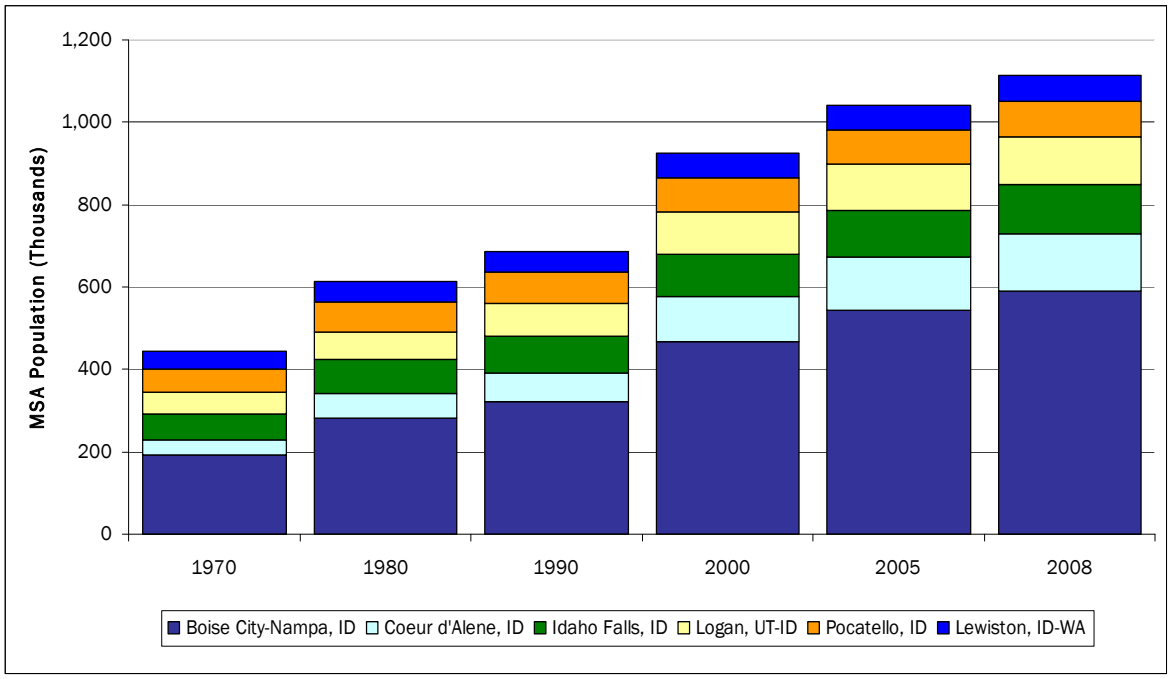
Economic Trends

Generally speaking, local demand for air service is determined by the level of service, the cost of that service, and the strength of the local economy as expressed by growth in employment and income.

Figure 4-16 and Figure 4-17 show population growth in Idaho metropolitan statistical areas (MSAs) over the last 38 years. The largest MSA is Boise City-Nampa followed by Coeur d'Alene, which is approximately one-quarter the size of Boise City-Nampa. The largest growth areas in Idaho are the Coeur d'Alene MSA in the Idaho panhandle, the Boise City-Nampa MSA in the southwestern part of the state, and the Idaho Falls MSA in the southeastern part of the state. Figure 4-18 shows the counties with the largest population growth rates in the last 23 years and the impact of development in Bonner and Kootenai counties in the panhandle, Payette, Gem, Boise, Canyon, Ada, and Blaine counties in southwestern and south central Idaho, and Jefferson, Madison, Teton, and Bonneville counties in southeastern Idaho.

Figure 4-19 shows employment growth by county in the last 23 years. In general, employment growth tracks closely with population growth.

Figure 4-16: MSA Population Growth, 1970-2008



Source: Woods & Poole Economics 2007 Complete Economic and Demographic Data Source
Prepared: November 2008

Figure 4-17: MSA Population Growth, 1970-2008

Metropolitan Statistical Area	*1970*	*1980*	*1990*	*2000*	*2005*	*2008*	*CAGR 1970-2008*
Boise City-Nampa, ID	193,350	281,540	322,320	468,870	545,140	589,680	2.98%
Coeur d'Alene, ID	35,590	60,040	70,440	109,550	127,720	138,850	3.65%
Idaho Falls, ID	64,250	81,670	89,200	102,130	113,310	121,570	1.69%
Logan, UT-ID	49,920	66,770	79,720	103,070	110,770	114,030	2.20%
Pocatello, ID	57,260	72,560	73,310	83,110	85,560	88,070	1.14%
Lewiston, ID-WA	44,280	50,090	51,530	57,950	59,060	60,370	0.82%
Total MSA Population	**444,650**	**612,670**	**686,520**	**924,680**	**1,041,560**	**1,112,570**	**2.44%**
Total State of Idaho	**718,080**	**948,570**	**1,012,380**	**1,299,810**	**1,429,370**	**1,517,250**	**1.99%**

Source: Woods & Poole Economics 2007 Complete Economic and Demographic Data Source
Prepared: November 2008

Figure 4-18: Historic Population Growth

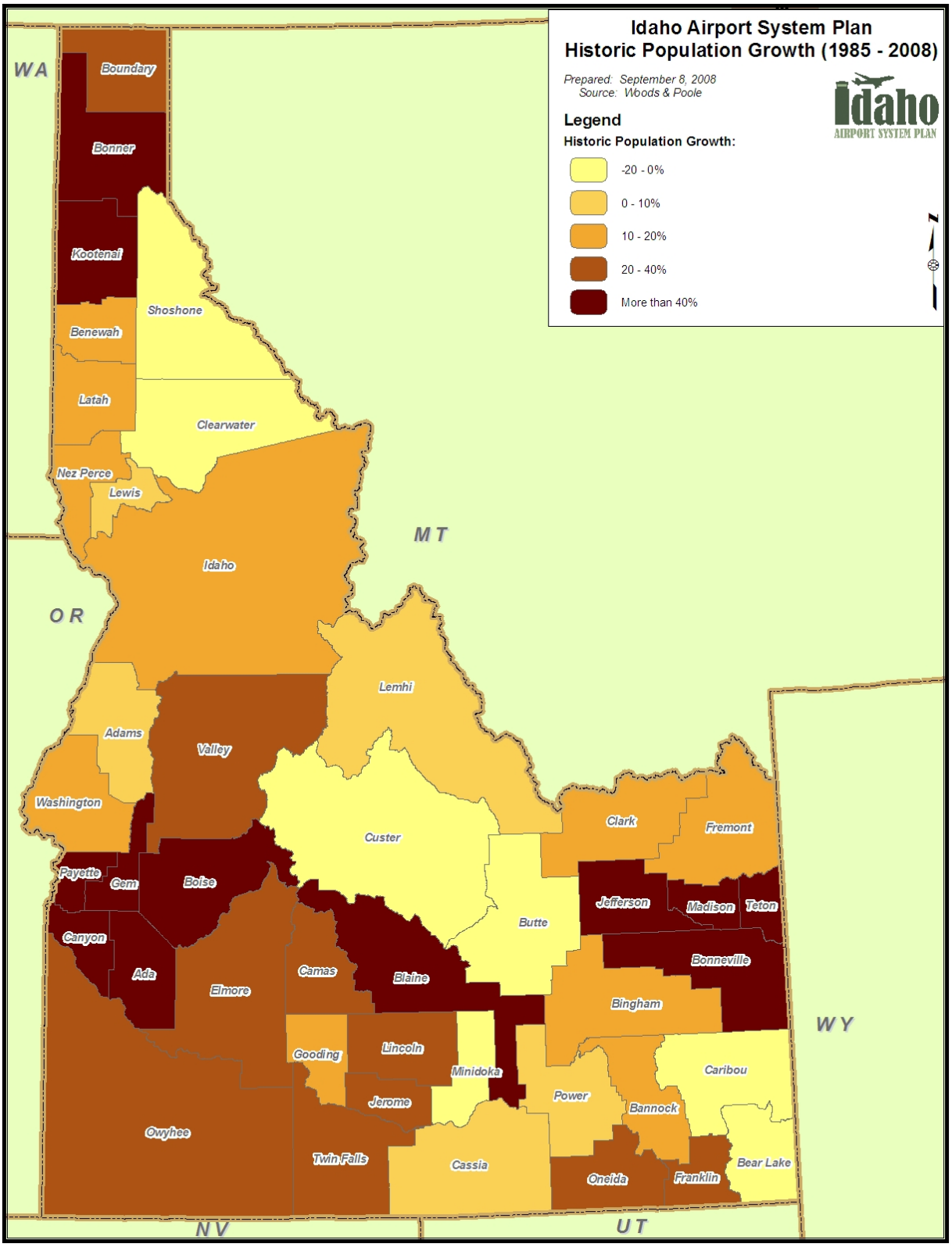
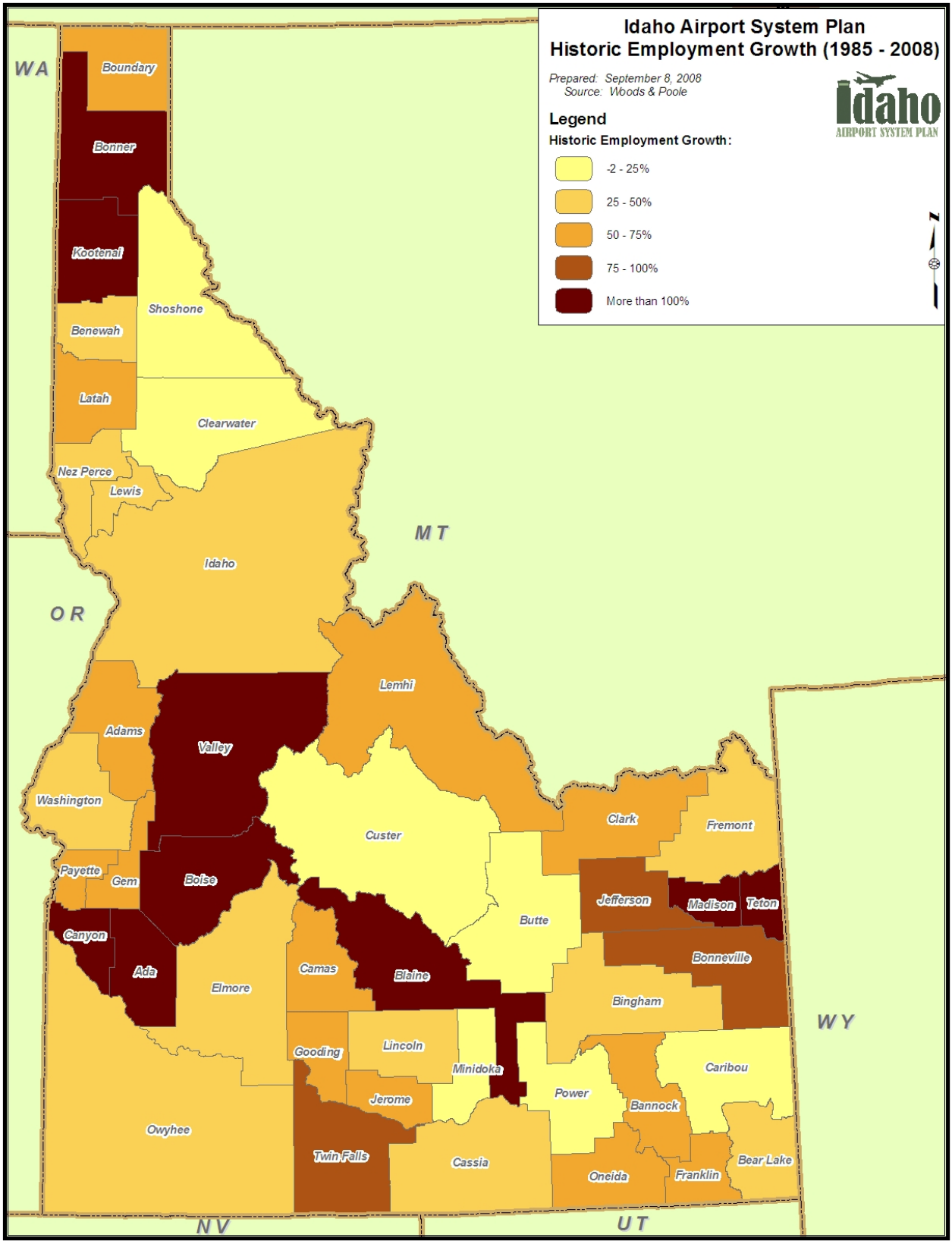


Figure 4-19: Historic Employment Growth



General Aviation in Idaho

Information on current and historic general aviation based aircraft/registered aircraft in Idaho are presented in the following section. Airport activity data provides a good indication of not only the total amounts of activity occurring, but also recent increases or declines in activity levels.

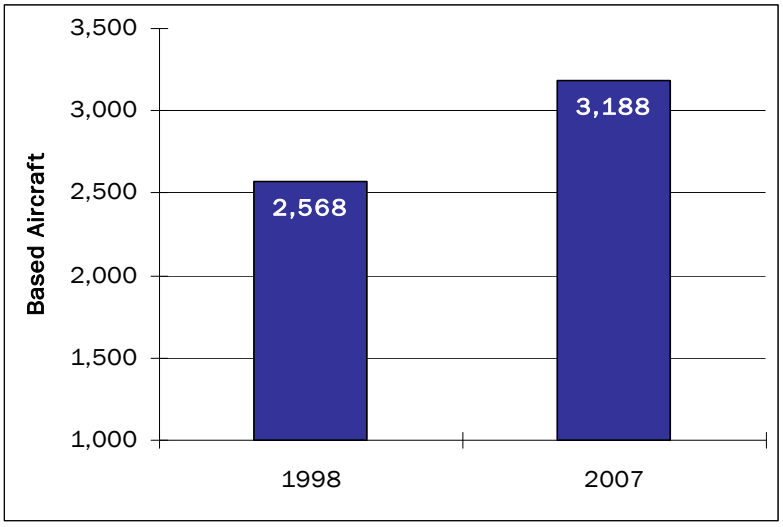
For Idaho's system of airports, historic based aircraft were obtained from *The Economic Impact of Airports in Idaho* report prepared by the Airport Technology and Planning Group, Inc. in 1998. Current based aircraft were obtained through the 2008 Airport Inventory and Data Survey conducted as part of this plan. Airport managers were provided with inventory surveys and were asked to complete them prior to on-site visits. The FAA also tracks registered aircraft and these data were used as a resource for the analysis.

Based Aircraft

Figure 4-20 presents historic and current based aircraft for Idaho's airport system. Based aircraft are general aviation aircraft that are permanently stored at an airport either in hangars or on tie-down spaces. Based aircraft numbers frequently fluctuate based on a number of factors including seasonality, pilot preferences, on-airport aviation services, and the availability of storage units.

Total based aircraft in Idaho's airport system were recorded as 2,568 in *The Economic Impact of Airports in Idaho* in 1998. From 1998 to 2007, this number grew to 3,188, as reported by the airports in the inventory effort of this study[4]. This represents a total increase of 24 percent. The compound annual growth rate of this growth is 2.43 percent.

Figure 4-20: Based Aircraft in Idaho, 1998 & 2007



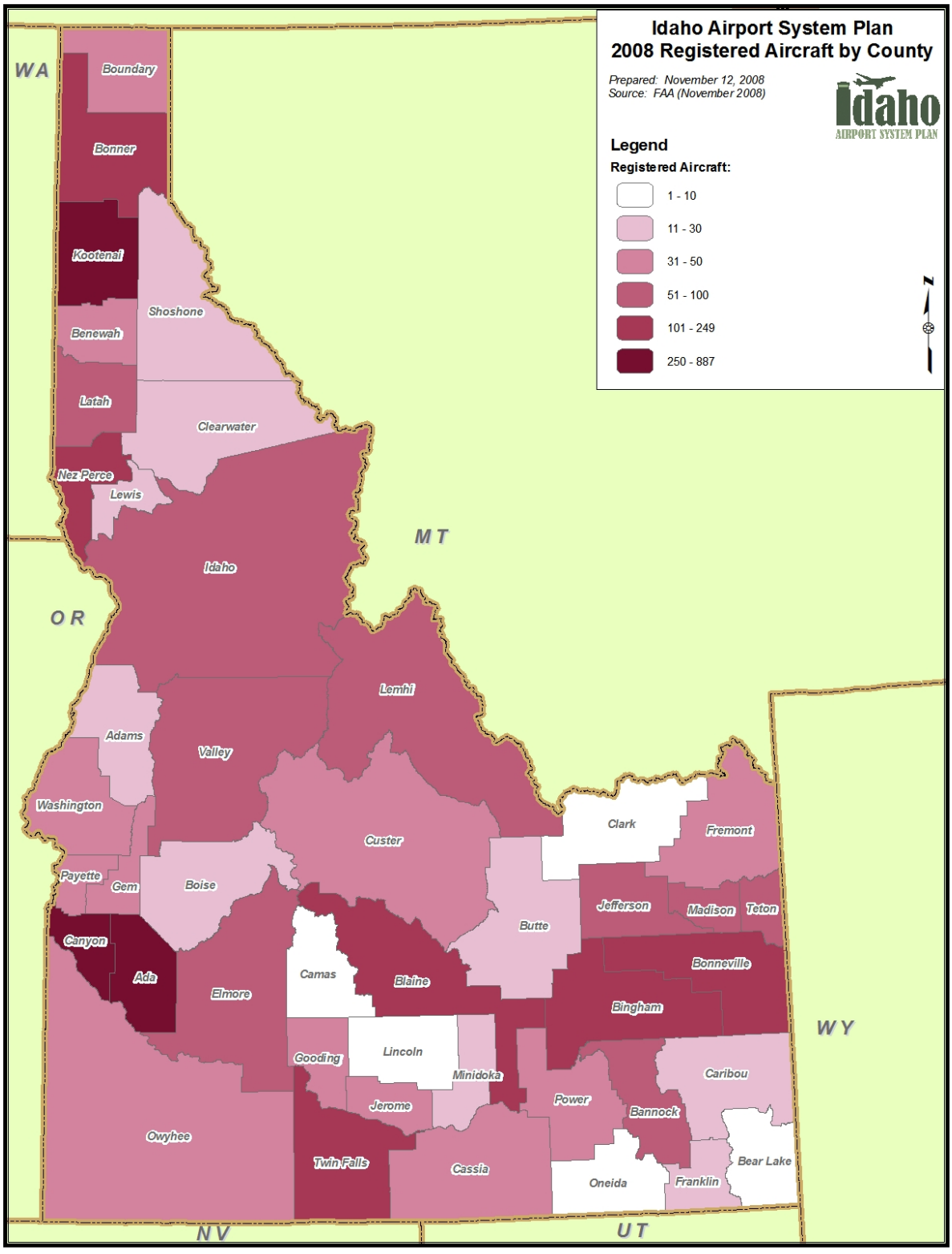
Sources: *The Economic Impact of Airports in Idaho,* prepared by the Airport Technology and Planning Group, Inc.; Wilbur Smith Associates Airport Inventory and Data Survey
Prepared: November 2008

[4] The 45 military aircraft based at Boise Air Terminal-Gowen Field are excluded from the 2007 total.

Registered Aircraft in Idaho

For the IASP, 2007 based aircraft figures were derived from the airports during the inventory effort. This data differs from the registered aircraft data compiled by the FAA. These differences may be due to a variety of reasons, including the address of the registered aircraft owner versus where the aircraft is based and other reasons. According to the FAA's Aircraft Registration Inquiry database, there were 3,954 aircraft registered in Idaho as of November 2008. Figure 4-21 shows these registered aircraft by county in Idaho.

Figure 4-21: Registered Aircraft by County



IDAHO COMMERCIAL SERVICE AIRPORT FORECASTS

This section projects based general aviation aircraft, passenger enplanements, and aircraft operations for Idaho's commercial service airports. It is anticipated that Boise Air Terminal-Gowen Field and Idaho Falls Regional will continue to be the significant providers of scheduled air service in Idaho. Friedman Memorial is anticipated to be a significant provider of scheduled air service as well, but to a lesser extent than Boise Air Terminal-Gowen Field and Idaho Falls Regional. Lewiston-Nez Perce County Regional, Pocatello Regional, Pullman-Moscow Regional, and Joslin Field-Magic Valley Regional will continue to serve the rest of Idaho's communities.

Idaho airports currently primarily rely on regional airlines such as SkyWest and Horizon Air to provide service to larger airports in the region. Boise Air Terminal-Gowen Field is served by these regional airlines as well as by legacy carriers Delta, Northwest, United, and US Airways that provide spoke service to hub airports, as well as low cost carriers Southwest and Frontier. Idaho Falls Regional is served by regional carriers Allegiant Airlines and Horizon Air as well as legacy carriers Delta, Northwest, and United. The way that all carriers cope with rising costs will undoubtedly impact Idaho air service during the 20-year forecast period. In addition, more traditional econometric factors will influence local demand for air service over the forecast period.

The most important factors that will impact demand for scheduled air service are:

- Economic growth in population, employment and per capita income
- Level of air service offered at Idaho airports
- The comparative cost of air travel from commercial airports in Idaho versus neighboring states
- Energy, agriculture and tourism property in Idaho
- New market for scheduled charter carrier to new markets

Forecasts

There are seven commercial service airports in Idaho. Each of these airports prepares its own forecasts. Where available, these forecasts were reviewed and interpolated and extrapolated to project based general aviation aircraft, passenger enplanements, and aircraft operations. For airports where forecasts were not available, the FAA's Terminal Area Forecast (TAF) was reviewed and interpolated and extrapolated to project based aircraft, enplanements, and operations.

Forecasts of based general aviation aircraft are presented in **Figure 4-22.** The based aircraft forecasts for Boise Air Terminal-Gowen Field, Friedman Memorial, Idaho Falls Regional, and Pocatello Regional were derived from existing master plans, and the based aircraft forecasts for Lewiston-Nez Perce County Regional, Pullman-Moscow Regional, and Joslin Field-Magic Valley Regional were derived from the TAF. Overall, based general aviation aircraft at Idaho commercial service airports are expected to grow from 921 in 2007 to 1,423 in 2027, a compound annual growth rate of 2.20 percent.

Figure 4-22: Commercial Service Airport Based Aircraft Forecasts

Associated City	Airport Name	Based Aircraft 2007 *	2012	2017	2027	CAGR 2007-2027
Commercial Service Airports						
Boise	Boise Air Terminal-Gowen Field [1]	286	458	493	571	3.52%
Hailey	Friedman Memorial [1]	150	163	177	200	1.45%
Idaho Falls	Idaho Falls Regional [1]	95	100	105	116	1.00%
Lewiston	Lewiston-Nez Perce County [2]	144	151	157	171	0.86%
Pocatello	Pocatello Regional [1]	70	125	142	179	4.81%
Pullman	Pullman-Moscow Regional [2]	71	74	77	81	0.66%
Twin Falls	Joslin Field - Magic Valley Regional [2]	105	105	105	105	0.00%
Total		**921**	**1176**	**1256**	**1423**	**2.20%**

* Data collected through Wilbur Smith Associates Airport Inventory and Data Survey
Notes: [1] 2012-2027 forecasts derived from Airport Master Plan; [2] 2012-2027 forecasts derived from FAA Terminal Area Forecast
Prepared: November 2008

Figure 4-23 presents the forecasts of enplaned passengers. The enplanement forecasts for Boise Air Terminal-Gowen Field, Friedman Memorial, Idaho Falls Regional, Lewiston-Nez Perce County Regional, and Joslin Field-Magic Valley Regional were derived from existing master plans, and the enplanement forecasts for Pocatello Regional and Pullman-Moscow Regional were derived from the TAF. Overall, passenger enplanements in Idaho are expected to grow from approximately 2.0 million in 2007 to nearly 4.0 million in 2027, a compound annual growth rate of 3.27 percent.

Figure 4-23: Commercial Service Airport Enplanement Forecasts

Associated City	Airport Name	Enplanements 2007 *	2012	2017	2027	CAGR 2007-2027
Commercial Service Airports						
Boise	Boise Air Terminal-Gowen Field [1]	1,689,046	2,127,900	2,423,400	3,143,200	3.15%
Hailey	Friedman Memorial [1]	67,143	76,800	92,900	212,800	5.94%
Idaho Falls	Idaho Falls Regional [1]	166,503	197,000	226,000	297,400	2.94%
Lewiston	Lewiston-Nez Perce County [1]	69,726	85,300	104,400	156,200	4.12%
Pocatello	Pocatello Regional [2]	29,491	33,300	37,600	47,900	2.45%
Pullman	Pullman-Moscow Regional [2]	24,856	25,600	28,400	34,800	1.70%
Twin Falls	Joslin Field - Magic Valley Regional [1]	33,523	44,800	51,600	68,700	3.65%
Total		**2,080,288**	**2,590,700**	**2,964,300**	**3,961,000**	**3.27%**

* Federal Aviation Administration CY 2007 Enplanement Data
Notes: [1] 2012-2027 forecasts derived from Airport Master Plan; [2] 2012-2027 forecasts derived from FAA Terminal Area Forecast
Prepared: November 2008

Figure 4-24 shows projections for aircraft operations at the commercial service airports. Growth in operations is projected to be less than growth in enplanements. Increases in passenger levels are likely to result in larger aircraft utilization before additional flights are provided at the airports to serve the enplanement growth. Operations are forecast to grow 2.60 percent per year with the largest growth in operations forecast at Lewiston-Nez Perce County Regional and Pullman-Moscow Regional.

Figure 4-24: Commercial Service Airport Operations Forecasts

Associated City	Airport Name	Aircraft Operations 2007 *	2012	2017	2027	CAGR 2007-2027
Commercial Service Airports						
Boise	Boise Air Terminal-Gowen Field [1]	184,023	226,700	245,700	289,100	2.28%
Hailey	Friedman Memorial [1]	46,809	47,500	48,900	57,700	1.05%
Idaho Falls	Idaho Falls Regional [1]	42,375	61,600	65,900	75,400	2.92%
Lewiston	Lewiston-Nez Perce County [1]	41,484	53,600	68,100	110,200	5.01%
Pocatello	Pocatello Regional [2]	45,999	50,700	54,800	62,500	1.54%
Pullman	Pullman-Moscow Regional [2]	30,000	75,300	77,500	82,000	5.16%
Twin Falls	Joslin Field - Magic Valley Regional [2]	39,460	37,800	39,200	41,800	0.29%
Total		**430,150**	**553,200**	**600,100**	**718,700**	**2.60%**

* Data collected through Wilbur Smith Associates Airport Inventory and Data Survey
Notes: [1] 2012-2027 forecasts derived from Airport Master Plan; [2] 2012-2027 forecasts derived from FAA Terminal Area Forecast
Prepared: November 2008

IDAHO GENERAL AVIATION AIRPORT FORECASTS

General aviation activity represents all facets of civil aviation, except the activity of certified route air carriers, commuters, and the military. Projections of activity at Idaho general aviation airports are presented in the following sections. As with the commercial service airport forecasts, the time horizon is 20 years and the base year for the forecast is 2007. Key components of the general aviation forecasts include:

- **Based aircraft** are the total number of active general aviation aircraft that are either hangared or tied down at an airport.
- **Operations** are defined as the number of takeoffs and landings. If an aircraft takes off from an airport, and then lands, this is counted as two operations.

Various methodologies used to project activity at Idaho general aviation airports were evaluated and a preferred projection selected. Preferred projections are used in various components of the system planning process to examine future needs of Idaho's public-use airport system.

Based Aircraft Projections

Several methodologies were used to project based aircraft at Idaho general aviation airports. To ensure a reasonable forecast, the existing characteristics of the state's based aircraft fleet were examined and used as a baseline from which future based aircraft are projected. The process used to develop projections of based aircraft is described in the following sections:

- Existing Based General Aviation Aircraft
- Based Aircraft Projection Methodologies
- Selection of Preferred Based Aircraft Projection

Projection methodologies that use "top-down" and "bottom-up" approaches are compared and a preferred based aircraft projection is selected for the general aviation airports.

Existing Based General Aviation Aircraft

To establish a baseline of information for the forecasts, data on existing based aircraft was gathered from FAA 5010 forms. This data was verified or updated in July 2008 through an Airport Inventory and Data Survey conducted at study airports. Through this process, it was determined that there were a total of 2,312 based aircraft at the general aviation airports in 2007.

Based Aircraft Projection Methodologies

Projections of based aircraft at the general aviation airports were developed using three separate methodologies. The results of these different methodologies depict the impacts that different variables may have on activity at study airports. From these projection scenarios, a preferred projection of based aircraft is selected. The different projection methodologies utilized in this analysis for the general aviation airports are summarized as follows:

- U.S. Market Share Approach – The market share methodology uses a top-down approach. In this scenario, Idaho's share of total U.S. active general aviation aircraft and the market share of general aviation airports of the state total in 2007 are assumed to remain constant through the projection period. Based on these assumptions and active general aviation aircraft projections presented in *FAA Aerospace Forecasts Fiscal Years 2008-2025*, a statewide projection of based aircraft is developed. Using this approach, based aircraft at general aviation airports in Idaho are projected to increase from 2,312 aircraft in 2007 to approximately 3,026 in 2027, representing a compound annual growth rate of 1.35 percent.

- Population Growth Methodology – The population growth methodology uses projections of Idaho's population growth to develop projections of based aircraft through the planning period. Based on current population and based aircraft statistics, a ratio of population per based aircraft was developed for each Idaho county. This methodology assumes that each county's ratio will remain constant through the planning period. For the milestone years, each county's ratio of population per based aircraft is applied to its corresponding population projection to develop a county-specific estimate of based aircraft. The results are summed to develop a projection of statewide based aircraft. In this methodology, based aircraft at general aviation airports are projected to increase from 2,312 aircraft in 2007 to approximately 2,984 aircraft in 2027, representing a compound annual growth rate of 1.28 percent.

- Employment Growth Methodology – The employment growth methodology is similar to the population growth methodology but uses projections of Idaho's employment growth in place of population growth to develop projections of based aircraft through the planning period. Based on current employment and based aircraft statistics, a ratio of employment per based aircraft was developed for each Idaho county. This methodology assumes that each county's ratio will remain constant through the planning period. For the milestone years, each county's ratio of employment per based aircraft is applied to its corresponding employment projection to develop a county-specific estimate of based aircraft. The results are

summed to develop a projection of statewide based aircraft. In this methodology, based aircraft at general aviation airports are projected to increase from 2,312 aircraft in 2007 to approximately 3,084 aircraft in 2027, representing a compound annual growth rate of 1.45 percent.

Selection of Preferred Based Aircraft Projection

After comparing the results and the compound annual growth rates of the three methodologies, the ITD's Division of Aeronautics selected the population growth methodology as the preferred methodology because it more closely mirrors the actual growth that Idaho has experienced in general aviation aircraft that are based in the state. Through a series of subsequent discussions, the ITD chose to modify the population growth methodology to better reflect conditions at the local level.

The modifications to the population growth methodology first involved splitting the general aviation airports into two groups, a normal growth and a low growth group. The normal growth group included all airports having primary runways with paved surfaces. The low growth group included all airports that had other than hard-surface runways.

Each airport was then assigned to one of three tiers based upon the rate of population growth of the county in which the airport was located. Figure 4-25 shows the cutoffs in county population growth rates that were used to group the airports into tiers. Growth rates were then assigned to each tier. For normal growth airports in the fastest growing counties (Tier 3), an aviation activity growth rate of 2.30 percent was used, based upon the midpoint between the county with the highest growth rate in Tier 3 (3.20 percent) and the lower limit of Tier 3 (1.50 percent). The growth rate of Tier 2 airports was assumed to be half that of Tier 3 (or 1.15 percent), and Tier 1 airports were assigned a growth rate of 0.05 percent.

Figure 4-25: Growth Rates Assigned to Tiers

Tier	Growth Rates		
	County Population Growth Rate Change	Normal Growth Airports CAGR	Low Growth Airports CAGR
Tier 1	Less than 0.50%	0.05%	0.00%
Tier 2	0.50% to 1.50%	1.15%	0.05%
Tier 3	Greater than 1.50%	2.30%	1.00%

Sources: Idaho Transportation Department Division of Aeronautics; Wilbur Smith Associates
Prepared: November 2008

For low growth airports, Tier 3 was assigned a growth rate of 1.00 percent and Tier 2 was assigned half the value of Tier 3 (or 0.50 percent). Tier 1 airports received a zero growth rate.

Using this preferred methodology, based aircraft at the general aviation airports are projected to increase from 2,312 aircraft in 2007 to approximately 3,005 aircraft in 2027, representing a compound annual growth rate of approximately 1.32 percent.

Figure 4-26 compares the results of the projection methodologies used. Detailed airport-specific based aircraft forecasts using the preferred population growth methodology are presented in Figure 4-27.

Figure 4-26: Based Aircraft Forecast Methodology Comparison

Methodology	Total Based Aircraft 2007	2012	2017	2027	CAGR 2007-2027
U.S. Market Share	2,312	2,482	2,663	3,026	1.35%
Population Growth	2,312	2,469	2,637	2,984	1.28%
Employment Growth	2,312	2,498	2,691	3,084	1.45%
Preferred Population Growth	2,312	2,462	2,633	3,005	1.32%

Sources: FAA Aerospace Forecasts, Fiscal Years 2008-2025; Woods & Poole 2007 Complete Economic and Demographic Data Source; FAA 5010 Forms; Idaho Transportation Department Division of Aeronautics; Wilbur Smith Associates Airport Inventory and Data Survey
Prepared: November 2008

Figure 4-27: Based Aircraft Forecast Summary

Associated City	Airport Name	Based Aircraft 2007 [1]	2012	2017	2027	CAGR 2007-2027
General Aviation Airports						
Aberdeen	Aberdeen Municipal	8	8	9	10	1.12%
American Falls	American Falls	32	32	32	32	0.05%
Arco	Arco-Butte County	8	8	8	8	0.05%
Bancroft	Bancroft Municipal	2	2	2	2	0.00%
Big Creek	Big Creek	0	0	0	0	0.00%
Blackfoot	McCarley Field	64	68	72	80	1.12%
Bonners Ferry	Boundary County	50	53	56	63	1.16%
Buhl	Buhl Municipal	31	33	35	39	1.15%
Burley	Burley Municipal	56	59	63	70	1.12%
Caldwell	Caldwell Industrial [2]	535	566	600	672	1.15%
Carey	Carey	7	7	8	9	1.26%
Cascade	Cascade	18	19	20	23	1.23%
Challis	Challis	21	22	24	26	1.07%
Coeur D'Alene	Brooks Seaplane Base	2	2	2	2	0.00%
Coeur D'Alene	Coeur D'Alene Air Terminal	141	158	177	222	2.30%
Coolin	Cavanaugh Bay	0	0	0	0	0.00%
Cottonwood	Cottonwood Municipal	6	6	7	8	1.45%
Council	Council Municipal	10	10	10	10	0.05%
Craigmont	Craigmont Municipal	8	8	8	8	0.05%
Donnelly	Donald D. Coski Memorial	1	1	1	1	0.00%
Downey	Downey-Hyde Memorial	2	2	2	3	2.05%
Driggs	Driggs-Reed Memorial	100	112	126	158	2.31%
Dubois	Dubois Municipal	0	0	0	0	0.00%
Elk City	Elk City	1	1	1	1	0.00%
Emmett	Emmett Municipal	21	22	24	26	1.07%
Fairfield	Camas County	5	5	5	6	0.92%
Galena	Smiley Creek	0	0	0	0	0.00%
Garden Valley	Garden Valley	5	11	12	13	4.89%
Glenns Ferry	Glenns Ferry Municipal	4	4	4	5	1.12%
Gooding	Gooding Municipal	77	82	86	97	1.16%

Figure 4-27: Based Aircraft Forecast Summary (cont.)

Associated City	Airport Name	Based Aircraft 2007 [1]	2012	2017	2027	CAGR 2007-2027
General Aviation Airports						
Grangeville	Idaho County	13	14	15	16	1.04%
Hazelton	Hazelton Municipal	5	5	5	6	0.92%
Homedale	Homedale Municipal	24	25	27	30	1.12%
Howe	Howe Municipal	3	3	3	3	0.00%
Jerome	Jerome County	60	64	67	75	1.12%
Kamiah	Kamiah Municipal	11	11	12	12	0.44%
Kellogg	Shoshone County	12	11	11	12	0.00%
Kooskia	Kooskia Municipal	4	4	4	4	0.00%
Leadore	Leadore	1	1	1	1	0.00%
Lewiston	Snake River Seaplane Base	0	0	0	0	0.00%
Mackay	Mackay	2	2	2	3	2.05%
Malad City	Malad City	5	5	6	6	0.92%
McCall	McCall Municipal	136	144	152	171	1.15%
Midvale	Lee Williams Memorial	4	4	4	5	1.12%
Mountain Home	Mountain Home Municipal	29	31	33	36	1.09%
Mud Lake	Mud Lake-West Jefferson Co.	7	7	8	9	1.26%
Murphy	Murphy	0	0	0	0	0.05%
Nampa	Nampa Municipal	353	374	396	444	1.15%
Nez Perce	Nez Perce Municipal	2	2	2	2	0.05%
Oakley	Oakley Municipal	2	2	2	2	0.00%
Orofino	Orofino Municipal	19	19	19	19	0.05%
Paris	Bear Lake County	9	9	9	9	0.05%
Parma	Parma	3	3	3	4	1.45%
Payette	Payette Municipal	13	14	15	16	1.04%
Porthill	Eckhart International	0	0	0	0	0.00%
Preston	Preston	8	8	9	10	1.12%
Priest River	Priest River Municipal	16	18	20	25	2.26%
Rexburg	Rexburg-Madison County	76	85	95	120	2.31%
Rigby	Rigby-Jefferson	42	44	47	53	1.17%
Rockford	Rockford Municipal	0	0	0	0	0.05%
Salmon	Lemhi County	53	56	59	67	1.18%
Sandpoint	Sandpoint	76	85	95	120	2.31%
Soda Springs	Allen H. Tigert	8	8	8	8	0.05%
St. Anthony	Stanford Field	18	19	20	23	1.23%
St. Maries	St. Maries Municipal	22	23	25	28	1.21%
Stanley	Stanley	4	4	4	4	0.00%
Weiser	Weiser Municipal	57	57	61	68	0.89%
Yellow Pine	Johnson Creek	0	0	0	0	0.00%
Total		**2,312**	**2,462**	**2,633**	**3,005**	**1.32%**

[1] Data collected through Wilbur Smith Associates Airport Inventory and Data Survey and from FAA 5010 Forms

[2] 2007 based aircraft figure obtained from the airport's 5010 Form dated February 8, 2008 and was verified and updated by airport management during an onsite visit in July 2008

Sources: Woods & Poole 2007 Complete Economic and Demographic Data Source; Idaho Transportation Department Division of Aeronautics; Wilbur Smith Associates Airport Inventory and Data Survey

Prepared: November 2008

Aircraft Operations Projections

Two methodologies were tested to project operations at Idaho general aviation airports. The process used to develop projections of aircraft operations is described in the following sections:

- Aircraft Operations Projection Methodologies
- Selection of Preferred Aircraft Operations Projection

Projection methodologies that implement "top-down" and "bottom-up" approaches are compared and a preferred aircraft operation projection is selected for general aviation airports.

Aircraft Operations Projection Methodologies

Projections of aircraft operations at general aviation airports were developed using two separate methodologies. The results of these different methodologies depict the impacts that different variables may have on operations at the airports. From these projections, a preferred projection of aircraft operations is selected. The different methodologies utilized in this analysis are summarized as follows:

- Operations Per Based Aircraft (OPBA) Methodology – The OPBA methodology uses each airport's projected number of based aircraft and multiplies that number by an appropriate OPBA ratio to yield projected total annual aircraft operations for each airport. The OPBA ratio represents all general aviation operations, not just those conducted by the based aircraft. Each general aviation airport's estimated 2007 OPBA ratio was used to develop these projections. The preferred based aircraft projections previously presented were used as part of this projection technique. This methodology produces a 2027 projection of 1,296,510 aircraft operations at Idaho general aviation airports; 2007 total aircraft operations for these airports were 1,002,908. Using the OPBA methodology, annual aircraft operations are projected to grow at a compound annual growth rate of 1.29 percent over the 20-year planning period.

- Socioeconomic Methodology – The socioeconomic methodology uses projections of Idaho's total employment to develop projections of aircraft operations at general aviation airports. Based on current and projected total employment in Idaho, the compound annual growth rate of Idaho's employment growth from 2007 and 2027 was determined. This methodology assumes that the employment growth rate will remain constant through the planning period. For the milestone years, the employment growth rate is applied to each airport's total number of projected aircraft operations from the previous year to develop a county-specific estimate of aircraft operations. The results are summed to develop a projection of statewide aircraft operations. In this methodology, operations at general aviation airports are projected to increase from 1,002,908 operations in 2007 to 1,419,100 operations in 2027, representing a compound annual growth rate of 1.75 percent.

Selection of Preferred Aircraft Operations Projection

The results from the two methodologies were compared. Based on the review of the two methodologies, as shown in Figure 4-28, the ITD selected the OPBA methodology as the preferred aircraft operations projection as it more closely mirrors the general aviation environment experienced in Idaho over the last several years. Detailed airport-specific aircraft operations forecasts using the preferred OPBA methodology are presented in Figure 4-29 and are rounded to the nearest hundred.

Figure 4-28: Aircraft Operations Forecast Methodology Comparison

Methodology	Total Aircraft Operations 2007	2012	2017	2027	CAGR 2007-2027
OPBA	1,002,908	1,067,210	1,139,410	1,296,510	1.29%
Socioeconomic	1,002,908	1,094,300	1,193,100	1,419,100	1.75%

Sources: Woods & Poole 2007 Complete Economic and Demographic Data Source; FAA 5010 Forms; Idaho Transportation Department Division of Aeronautics; Wilbur Smith Associates Airport Inventory and Data Survey
Prepared: November 2008

Figure 4-29: Aircraft Operations Forecast Summary

Associated City	Airport Name	Aircraft Operations 2007 *	2012	2017	2027	CAGR 2007-2027
General Aviation Airports						
Aberdeen	Aberdeen Municipal	7,500	7,900	8,400	9,400	1.14%
American Falls	American Falls	18,025	18,100	18,100	18,200	0.05%
Arco	Arco-Butte County	8,550	8,600	8,600	8,600	0.05%
Bancroft	Bancroft Municipal	2,150	2,200	2,200	2,200	0.12%
Big Creek	Big Creek	4,000	4,000	4,000	4,000	0.00%
Blackfoot	McCarley Field	21,600	22,900	24,200	27,200	1.16%
Bonners Ferry	Boundary County	18,900	20,000	21,200	23,800	1.16%
Buhl	Buhl Municipal	15,010	15,900	16,800	18,900	1.16%
Burley	Burley Municipal	27,750	29,400	31,100	34,900	1.15%
Caldwell	Caldwell Industrial	147,325	156,000	165,200	185,200	1.15%
Carey	Carey	2,400	2,500	2,700	2,900	0.95%
Cascade	Cascade	13,400	14,200	15,000	16,800	1.14%
Challis	Challis	17,725	18,800	19,900	22,300	1.15%
Coeur D'Alene	Brooks Seaplane Base	2,900	3,000	3,200	3,500	0.94%
Coeur D'Alene	Coeur D'Alene Air Terminal	123,048	137,900	154,500	193,900	2.30%
Coolin	Cavanaugh Bay	4,500	4,500	4,500	4,500	0.00%
Cottonwood	Cottonwood Municipal	5,200	5,500	5,800	6,500	1.12%
Council	Council Municipal	7,150	7,200	7,200	7,200	0.05%
Craigmont	Craigmont Municipal	12,750	12,800	12,800	12,800	0.05%
Donnelly	Donald D. Coski Memorial	1,125	1,200	1,200	1,200	0.32%
Downey	Downey-Hyde Memorial	2,550	2,700	2,900	3,200	1.14%
Driggs	Driggs-Reed Memorial	7,600	8,500	9,500	12,000	2.31%
Dubois	Dubois Municipal	1,000	1,000	1,000	1,000	0.00%
Elk City	Elk City	2,300	2,400	2,400	2,500	0.42%
Emmett	Emmett Municipal	5,000	5,300	5,600	6,300	1.16%
Fairfield	Camas County	4,010	4,100	4,200	4,400	0.47%
Galena	Smiley Creek	4,600	4,600	4,600	4,600	0.00%
Garden Valley	Garden Valley	2,800	3,500	6,500	7,200	4.84%

Figure 4-29: Aircraft Operations Forecast Summary (cont.)

Associated City	Airport Name	Aircraft Operations 2007 *	2012	2017	2027	CAGR 2007-2027
General Aviation Airports						
Glenns Ferry	Glenns Ferry Municipal	900	1,000	1,000	1,100	1.01%
Gooding	Gooding Municipal	38,400	40,700	43,100	48,300	1.15%
Grangeville	Idaho County	17,000	18,000	19,100	21,400	1.16%
Hazelton	Hazelton Municipal	2,900	3,000	3,000	3,200	0.49%
Homedale	Homedale Municipal	7,000	7,400	7,800	8,800	1.15%
Howe	Howe Municipal	4,750	4,800	4,800	4,800	0.05%
Jerome	Jerome County	24,510	26,000	27,500	30,800	1.15%
Kamiah	Kamiah Municipal	1,250	1,300	1,300	1,400	0.57%
Kellogg	Shoshone County	10,000	10,900	11,700	13,400	1.47%
Kooskia	Kooskia Municipal	550	600	600	600	0.44%
Leadore	Leadore	500	500	500	600	0.92%
Lewiston	Snake River Seaplane Base	10	10	10	10	0.00%
Mackay	Mackay	1,700	1,800	1,900	2,100	1.06%
Malad City	Malad City	4,450	4,700	5,000	5,600	1.16%
McCall	McCall Municipal	43,600	46,200	48,900	54,800	1.15%
Midvale	Lee Williams Memorial	2,200	2,200	2,300	2,600	0.84%
Mountain Home	Mountain Home Municipal	22,500	23,800	25,200	28,300	1.15%
Mud Lake	Mud Lake-West Jefferson Co.	5,705	6,000	6,400	7,200	1.17%
Murphy	Murphy	6,200	6,200	6,200	6,200	0.05%
Nampa	Nampa Municipal	124,875	132,200	140,000	157,000	1.15%
Nez Perce	Nez Perce Municipal	2,500	2,500	2,500	2,500	0.05%
Oakley	Oakley Municipal	1,500	1,500	1,600	1,700	0.63%
Orofino	Orofino Municipal	7,400	7,400	7,400	7,500	0.05%
Paris	Bear Lake County	2,400	2,400	2,400	2,400	0.05%
Parma	Parma	3,450	3,700	3,900	4,300	1.11%
Payette	Payette Municipal	7,500	7,900	8,400	9,400	1.14%
Porthill	Eckhart International	4,150	4,200	4,200	4,200	0.06%
Preston	Preston	2,400	2,500	2,700	3,000	1.12%
Priest River	Priest River Municipal	10,000	11,200	12,600	15,800	2.31%
Rexburg	Rexburg-Madison County	25,000	28,000	31,400	39,400	2.30%
Rigby	Rigby-Jefferson	15,000	15,900	16,800	18,900	1.16%
Rockford	Rockford Municipal	2,000	2,000	2,000	2,000	0.05%
Salmon	Lemhi County	24,500	25,900	27,500	30,800	1.15%
Sandpoint	Sandpoint	29,900	33,500	37,500	47,100	2.30%
Soda Springs	Allen H. Tigert	8,300	8,300	8,300	8,400	0.05%
St. Anthony	Stanford Field	2,890	3,100	3,200	3,600	1.10%
St. Maries	St. Maries Municipal	13,100	13,900	14,700	16,500	1.16%
Stanley	Stanley	3,300	3,400	3,500	3,600	0.44%
Weiser	Weiser Municipal	22,000	22,100	23,400	26,200	0.88%
Yellow Pine	Johnson Creek	5,750	5,800	5,800	5,800	0.04%
Total		**1,002,908**	**1,067,210**	**1,139,410**	**1,296,510**	**1.29%**

* Data collected through Wilbur Smith Associates Airport Inventory and Data Survey and from FAA 5010 Forms

Sources: Woods & Poole 2007 Complete Economic and Demographic Data Source; Idaho Transportation Department Division of Aeronautics

Prepared: November 2008

COMPARISON OF IASP FORECASTS TO FAA TAF

The forecasts developed in this chapter are not the only projections created for Idaho's airports. The FAA, as part of the TAF, also develops projections of activity and based aircraft for many individual airports, some of which are included in the National Plan of Integrated Airport Systems (NPIAS). A total of 38 airports (31 of which are general aviation airports) included in the IASP also have operations and based aircraft forecasts developed by the FAA in the TAF. The following sections discuss the difference between IASP and FAA TAF projections for Idaho general aviation airports.

In the December 2007 publication of the TAF, the out-year time horizon is 2025. Therefore, the projected compound annual growth rate in the TAF was used to extrapolate the out-year horizon numbers to 2027.

Based Aircraft

Figure 4-30 details differences between the IASP preferred forecast of based aircraft and projections in the TAF. Of the 31 system general aviation airports included in the FAA TAF, seven are projected to show no increase in their based aircraft. Of these, differences between the preferred forecast and the TAF are all greater than 15 percent, except for Craigmont Municipal. Year 2027 results for some airports are very similar, such as only a one percent difference in 2027 based aircraft at Burley Municipal or only a two percent difference at Mountain Home Municipal; others showed a much larger variance. In the FAA TAF, based aircraft at Arco-Butte County are expected to reach 18 by 2027, 123 percent higher than the preferred forecast in this plan. In all, the TAF based aircraft forecasts for 21 general aviation airports showed at least a 15 percent difference from the preferred forecast.

Figure 4-30: Comparison of Preferred Based Aircraft Forecast with FAA TAF

		Actual	Preferred Forecast		FAA Terminal Area Forecast		
Associated City	Airport Name	2007	CAGR	2027	CAGR	2027*	Difference
Aberdeen	Aberdeen Municipal	8	1.12%	10	0.92%	6	-40%
American Falls	American Falls	32	0.05%	32	NA	NA	NA
Arco	Arco-Butte County	8	0.05%	8	2.46%	18	123%
Bancroft	Bancroft Municipal	2	0.00%	2	NA	NA	NA
Big Creek	Big Creek	0	0.00%	0	NA	NA	NA
Blackfoot	McCarley Field	64	1.12%	80	0.88%	76	-5%
Bonners Ferry	Boundary County	50	1.16%	63	2.10%	58	-9%
Buhl	Buhl Municipal	31	1.15%	39	0.58%	40	4%
Burley	Burley Municipal	56	1.12%	70	1.07%	69	-1%
Caldwell	Caldwell Industrial	535	1.15%	672	2.09%	604	-10%
Carey	Carey	7	1.26%	9	NA	NA	NA
Cascade	Cascade	18	1.23%	23	0.37%	14	-39%
Challis	Challis	21	1.07%	26	0.00%	17	-35%
Coeur D'Alene	Brooks Seaplane Base	2	0.00%	2	NA	NA	NA
Coeur D'Alene	Coeur D'Alene Air Terminal	141	2.30%	222	3.55%	386	74%
Coolin	Cavanaugh Bay	0	0.00%	0	NA	NA	NA
Cottonwood	Cottonwood Municipal	6	1.45%	8	NA	NA	NA
Council	Council Municipal	10	0.05%	10	-2.03%	5	-54%
Craigmont	Craigmont Municipal	8	0.05%	8	0.00%	7	-13%
Donnelly	Donald D. Coski Memorial	1	0.00%	1	NA	NA	NA

Figure 4-30: Comparison of Preferred Based Aircraft Forecast with FAA TAF (cont.)

		Actual	Preferred Forecast		FAA Terminal Area Forecast		
Associated City	Airport Name	2007	CAGR	2027	CAGR	2027*	Difference
Downey	Downey-Hyde Memorial	2	2.05%	3	NA	NA	NA
Driggs	Driggs-Reed Memorial	100	2.31%	158	2.34%	160	2%
Dubois	Dubois Municipal	0	0.00%	0	NA	NA	NA
Elk City	Elk City	1	0.00%	1	NA	NA	NA
Emmett	Emmett Municipal	21	1.07%	26	NA	NA	NA
Fairfield	Camas County	5	0.92%	6	NA	NA	NA
Galena	Smiley Creek	0	0.00%	0	NA	NA	NA
Garden Valley	Garden Valley	5	4.89%	13	NA	NA	NA
Glenns Ferry	Glenns Ferry Municipal	4	1.12%	5	NA	NA	NA
Gooding	Gooding Municipal	77	1.16%	97	2.52%	137	41%
Grangeville	Idaho County	13	1.04%	16	0.44%	12	-25%
Hazelton	Hazelton Municipal	5	0.92%	6	NA	NA	NA
Homedale	Homedale Municipal	24	1.12%	30	2.02%	16	-45%
Howe	Howe Municipal	3	0.00%	3	NA	NA	NA
Jerome	Jerome County	60	1.12%	75	0.00%	44	-41%
Kamiah	Kamiah Municipal	11	0.44%	12	0.00%	9	-25%
Kellogg	Shoshone County	12	0.00%	12	2.29%	19	57%
Kooskia	Kooskia Municipal	4	0.00%	4	NA	NA	NA
Leadore	Leadore	1	0.00%	1	NA	NA	NA
Lewiston	Snake River Seaplane Base	0	0.00%	0	NA	NA	NA
Mackay	Mackay	2	2.05%	3	NA	NA	NA
Malad City	Malad City	5	0.92%	6	NA	NA	NA
McCall	McCall Municipal	136	1.15%	171	4.78%	275	61%
Midvale	Lee Williams Memorial	4	1.12%	5	NA	NA	NA
Mountain Home	Mountain Home Municipal	29	1.09%	36	2.16%	35	-2%
Mud Lake	Mud Lake-West Jefferson Co.	7	1.26%	9	NA	NA	NA
Murphy	Murphy	0	0.05%	0	NA	NA	NA
Nampa	Nampa Municipal	353	1.15%	444	2.66%	473	7%
Nez Perce	Nez Perce Municipal	2	0.05%	2	NA	NA	NA
Oakley	Oakley Municipal	2	0.00%	2	NA	NA	NA
Orofino	Orofino Municipal	19	0.05%	19	1.23%	18	-6%
Paris	Bear Lake County	9	0.05%	9	4.44%	12	32%
Parma	Parma	3	1.45%	4	NA	NA	NA
Payette	Payette Municipal	13	1.04%	16	NA	NA	NA
Porthill	Eckhart International	0	0.00%	0	NA	NA	NA
Preston	Preston	8	1.12%	10	0.00%	7	-30%
Priest River	Priest River Municipal	16	2.26%	25	2.67%	29	15%
Rexburg	Rexburg-Madison County	76	2.31%	120	0.00%	76	-37%
Rigby	Rigby-Jefferson	42	1.17%	53	NA	NA	NA
Rockford	Rockford Municipal	0	0.05%	0	NA	NA	NA
Salmon	Lemhi County	53	1.18%	67	2.52%	89	33%
Sandpoint	Sandpoint	76	2.31%	120	3.24%	149	25%
Soda Springs	Allen H. Tigert	8	0.05%	8	NA	NA	NA
St. Anthony	Stanford Field	18	1.23%	23	NA	NA	NA
St. Maries	St. Maries Municipal	22	1.21%	28	0.00%	22	-21%
Stanley	Stanley	4	0.00%	4	NA	NA	NA
Weiser	Weiser Municipal	57	0.89%	68	1.70%	55	-20%
Yellow Pine	Johnson Creek	0	0.00%	0	NA	NA	NA

* Forecast derived through extrapolation of FAA Terminal Area Forecast (December 2007)

Sources: Woods & Poole 2007 Complete Economic and Demographic Data Source; FAA 5010 Forms; Idaho Transportation Department Division of Aeronautics; Wilbur Smith Associates Airport Inventory and Data Survey; FAA Terminal Area Forecast (December 2007)

Prepared: November 2008

Aircraft Operations

Figure 4-31 details differences between the preferred aircraft operations forecast and those in the FAA TAF. The 2027 IASP preferred forecasts are rounded to the nearest hundred. Of the 31 System Plan general aviation airports included in the FAA TAF, six are projected to show zero increase in their aircraft operations. Of these, differences between the preferred forecast and the TAF are all greater than 15 percent, except for Craigmont Municipal. For the general aviation airports projected to show growth in operations, the differences between the 2027 results vary greatly, such as a two percent difference at Mountain Home Municipal and a three percent difference at Coeur d'Alene-Pappy Boyington Field versus a 1005 percent difference at Kamiah Municipal and an 877 percent difference at Bear Lake County. In all, the TAF operations forecasts for 23 general aviation airports showed at least a 15 percent difference from the preferred forecast.

Figure 4-31: Comparison of Preferred Aircraft Operations Forecast with FAA TAF

			Preferred Forecast		FAA Terminal Area Forecast		
Associated City	*Airport Name*	*Actual 2007*	*CAGR*	*2027*	*CAGR*	*2027**	*Difference*
Aberdeen	Aberdeen Municipal	7,500	1.14%	9,400	0.47%	11,259	20%
American Falls	American Falls	18,025	0.05%	18,200	NA	NA	NA
Arco	Arco-Butte County	8,550	0.05%	8,600	1.95%	15,320	78%
Bancroft	Bancroft Municipal	2,150	0.12%	2,200	NA	NA	NA
Big Creek	Big Creek	4,000	0.00%	4,000	NA	NA	NA
Blackfoot	McCarley Field	21,600	1.16%	27,200	0.95%	40,315	48%
Bonners Ferry	Boundary County	18,900	1.16%	23,800	2.08%	53,304	124%
Buhl	Buhl Municipal	15,010	1.16%	18,900	0.49%	17,320	-8%
Burley	Burley Municipal	27,750	1.15%	34,900	1.07%	42,446	22%
Caldwell	Caldwell Industrial	147,325	1.15%	185,200	2.28%	213,176	15%
Carey	Carey	2,400	0.95%	2,900	NA	NA	NA
Cascade	Cascade	13,400	1.14%	16,800	0.69%	10,259	-39%
Challis	Challis	17,725	1.15%	22,300	0.00%	16,350	-27%
Coeur D'Alene	Brooks Seaplane Base	2,900	0.94%	3,500	NA	NA	NA
Coeur D'Alene	Coeur D'Alene Air Terminal	123,048	2.30%	193,900	3.02%	198,761	3%
Coolin	Cavanaugh Bay	4,500	0.00%	4,500	NA	NA	NA
Cottonwood	Cottonwood Municipal	5,200	1.12%	6,500	NA	NA	NA
Council	Council Municipal	7,150	0.05%	7,200	1.16%	15,426	114%
Craigmont	Craigmont Municipal	12,750	0.05%	12,800	0.00%	12,750	0%
Donnelly	Donald D. Coski Memorial	1,125	0.32%	1,200	NA	NA	NA
Downey	Downey-Hyde Memorial	2,550	1.14%	3,200	NA	NA	NA
Driggs	Driggs-Reed Memorial	7,600	2.31%	12,000	1.51%	10,410	-13%
Dubois	Dubois Municipal	1,000	0.00%	1,000	NA	NA	NA
Elk City	Elk City	2,300	0.42%	2,500	NA	NA	NA
Emmett	Emmett Municipal	5,000	1.16%	6,300	NA	NA	NA
Fairfield	Camas County	4,010	0.47%	4,400	NA	NA	NA
Galena	Smiley Creek	4,600	0.00%	4,600	NA	NA	NA
Garden Valley	Garden Valley	2,800	4.84%	7,200	NA	NA	NA
Glenns Ferry	Glenns Ferry Municipal	900	1.01%	1,100	NA	NA	NA
Gooding	Gooding Municipal	38,400	1.15%	48,300	2.33%	32,095	-34%
Grangeville	Idaho County	17,000	1.16%	21,400	0.51%	15,903	-26%
Hazelton	Hazelton Municipal	2,900	0.49%	3,200	NA	NA	NA
Homedale	Homedale Municipal	7,000	1.15%	8,800	2.76%	16,284	85%
Howe	Howe Municipal	4,750	0.05%	4,800	NA	NA	NA

Figure 4-31: Comparison of Preferred Aircraft Operations Forecast with FAA TAF (cont.)

			Preferred Forecast		FAA Terminal Area Forecast		
Associated City	Airport Name	Actual 2007	CAGR	2027	CAGR	2027*	Difference
Jerome	Jerome County	24,510	1.15%	30,800	0.00%	24,510	-20%
Kamiah	Kamiah Municipal	1,250	0.57%	1,400	1.46%	15,468	1005%
Kellogg	Shoshone County	10,000	1.47%	13,400	1.71%	14,569	9%
Kooskia	Kooskia Municipal	550	0.44%	600	NA	NA	NA
Leadore	Leadore	500	0.92%	600	NA	NA	NA
Lewiston	Snake River Seaplane Base	10	0.00%	10	NA	NA	NA
Mackay	Mackay	1,700	1.06%	2,100	NA	NA	NA
Malad City	Malad City	4,450	1.16%	5,600	NA	NA	NA
McCall	McCall Municipal	43,600	1.15%	54,800	2.75%	103,046	88%
Midvale	Lee Williams Memorial	2,200	0.84%	2,600	NA	NA	NA
Mountain Home	Mountain Home Municipal	22,500	1.15%	28,300	1.71%	28,735	2%
Mud Lake	Mud Lake-West Jefferson Co.	5,705	1.17%	7,200	NA	NA	NA
Murphy	Murphy	6,200	0.05%	6,200	NA	NA	NA
Nampa	Nampa Municipal	124,875	1.15%	157,000	2.98%	191,759	22%
Nez Perce	Nez Perce Municipal	2,500	0.05%	2,500	NA	NA	NA
Oakley	Oakley Municipal	1,500	0.63%	1,700	NA	NA	NA
Orofino	Orofino Municipal	7,400	0.05%	7,500	0.47%	13,003	73%
Paris	Bear Lake County	2,400	0.05%	2,400	4.30%	23,458	877%
Parma	Parma	3,450	1.11%	4,300	NA	NA	NA
Payette	Payette Municipal	7,500	1.14%	9,400	NA	NA	NA
Porthill	Eckhart International	4,150	0.06%	4,200	NA	NA	NA
Preston	Preston	2,400	1.12%	3,000	0.00%	3,970	32%
Priest River	Priest River Municipal	10,000	2.31%	15,800	2.37%	15,796	0%
Rexburg	Rexburg-Madison County	25,000	2.30%	39,400	0.00%	31,200	-21%
Rigby	Rigby-Jefferson	15,000	1.16%	18,900	NA	NA	NA
Rockford	Rockford Municipal	2,000	0.05%	2,000	NA	NA	NA
Salmon	Lemhi County	24,500	1.15%	30,800	2.19%	49,480	61%
Sandpoint	Sandpoint	29,900	2.30%	47,100	2.28%	57,722	23%
Soda Springs	Allen H. Tigert	8,300	0.05%	8,400	NA	NA	NA
St. Anthony	Stanford Field	2,890	1.10%	3,600	NA	NA	NA
St. Maries	St. Maries Municipal	13,100	1.16%	16,500	0.00%	13,100	-21%
Stanley	Stanley	3,300	0.44%	3,600	NA	NA	NA
Weiser	Weiser Municipal	22,000	0.88%	26,200	1.91%	23,985	-8%
Yellow Pine	Johnson Creek	5,750	0.04%	5,800	NA	NA	NA

*Forecast derived through extrapolation of FAA Terminal Area Forecast (December 2007)

Sources: Woods & Poole 2007 Complete Economic and Demographic Data Source; FAA 5010 Forms; Idaho Transportation Department Division of Aeronautics; Wilbur Smith Associates Airport Inventory and Data Survey; FAA Terminal Area Forecast (December 2007)

Prepared: November 2008

FORECAST SUMMARY

The projections developed in this chapter will be used in the evaluation of the Idaho airport system's ability to accommodate future demand. The projections provided in this chapter are considered planning estimates and are based on information gathered from all available sources. These projections were generated to a system planning, rather than a master planning, level of detail. Comprehensive airport development plans will continue to provide guidance for actual airport development as individual airport plans are developed from an examination of each airport's local conditions and operating environment. Figure 4-32 summarizes the preferred statewide forecasts for the study airports.

Figure 4-32: Summary of Preferred Statewide Forecasts

	2007	2012	2017	2027
Commercial Service Airports				
Based Aircraft	921	1,176	1,256	1,423
Passenger Enplanements	2,080,614	2,590,900	2,964,300	3,961,000
Aircraft Operations	456,153	563,500	600,100	718,700
General Aviation Airports				
Based Aircraft	2,312	2,462	2,633	3,005
Aircraft Operations	1,002,908	1,067,210	1,139,410	1,296,510

Source: Wilbur Smith Associates
Prepared: December 2008