



Chapter Two

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## FORECAST UPDATE

# Grand Canyon

★ NATIONAL PARK AIRPORT ★  
TERMINAL AREA PLAN

## CHAPTER TWO

# FORECAST UPDATE

Terminal planning begins with the definition of demand that currently exists and that may reasonably be expected to occur during the useful life of the facility. In airport planning, this involves projecting potential aviation activity at least over a twenty year period. Forecasts of passengers, operations, and based aircraft serve as a basis for terminal area planning.

The Federal Aviation Administration (FAA) has a responsibility to review aviation forecasts that are submitted to the agency in conjunction with airport planning, including master plans, CFR Part 150 Studies, and environmental studies. The FAA reviews such forecasts with the objective of including them in its *Terminal Area Forecasts* (TAF) and the

*National Plan of Integrated Airport Systems* (NPIAS). In addition, aviation activity forecasts are an important input to the benefit-cost analyses associated with airport development, and FAA reviews these analyses when federal funding requests are submitted.

As stated in FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems* (NPIAS), dated December 4, 2004, forecasts should be:

- Realistic
- Based on the latest available data
- Reflect current conditions at the airport
- Supported by information in the study
- Provide adequate justification for the airport planning and development



The forecast process for an airport master plan consists of a series of basic steps that can vary depending upon the issues to be addressed and the level of effort required to develop the forecast. The steps include a review of previous forecasts, determination of data needs, identification of data sources, collection of data, selection of forecast methods, preparation of the forecasts, and evaluation and documentation of the results.

This forecast analysis for Grand Canyon National Park Airport (GCN) was produced following these basic guidelines. The analysis is intended to be an update of the forecasts prepared as part of the airport's Master Plan completed in 2006. Other forecasts prepared since the Master Plan were also examined and compared against current and historic activity.

The historical aviation activity was then examined along with other factors and trends since the Master Plan that could affect demand. The intent was to confirm the master plan forecasts were still valid and update components if necessary. This will ensure a valid set of aviation demand projections for GCN that will permit the Arizona Department of Transportation (ADOT) to make planning adjustments as necessary to maintain a viable, efficient, and cost-effective facility.

## ***NATIONAL AVIATION TRENDS***

Each year, the FAA updates and publishes a national aviation forecast. Included in this publication are forecasts

for the large air carriers, regional/commuter air carriers, general aviation, and FAA workload measures. The forecasts are prepared to meet budget and planning needs of the constituent units of the FAA and to provide information that can be used by state and local authorities, the aviation industry, and the general public.

The current edition when this chapter was prepared was *FAA Aerospace Forecasts - Fiscal Years (FY) 2009-2025*, released on March 31, 2009. The forecasts use the economic performance of the United States as an indicator of future aviation industry growth. Similar economic analyses were applied to the outlook for aviation growth in international markets.

The aviation industry in the United States has experienced an event-filled decade. Since the turn of the century, the industry has faced the impacts of the events of September 11, 2001, scares from pandemics such as SARS, the bankruptcy of four network air carriers, all-time high fuel prices, and a serious economic downturn with global ramifications. The Bureau of Economic Research has determined that the current economic recession in the United States began in December 2007. Eight of the world's top 10 economies were in recession by January 2009.

The end of the recession is still to be determined, and many economists are suggesting it could be the deepest recession since World War II. The average length of periodic recessions since that time has been 10 months. This recession does not face the high infla-

tionary environment of the recession in the early 1980s, or the high energy costs of the mid-1970s recession. There was a 3.8 million loss of jobs in the first 14 months of the recession, with unemployment rising to eight percent, which is three percent above the long term norm.

The most recent U.S. Administration forecast used in preparing the FAA Aerospace forecasts anticipated the recession in the U.S. would end by the third quarter of FY 2009 (April-June), with a modest recovery over the next six quarters. Economic growth measured in gross domestic product (GDP) was projected to go from a -4.3 percent in the second quarter of FY 2009 to +3.8 percent in the third quarter of 2010. Between 2010 and 2013, GDP was projected to grow at rates ranging from 2.4 percent in 2010 to 4.5 percent in 2012. Economic growth was projected to slow to an average of 2.6 percent per year beyond 2013. The following subsections examine the FAA's forecasts for commercial air service and for general aviation.

## **COMMERCIAL AVIATION**

After posting a net profit in 2007 for the first time since the events of 9-11, commercial aviation faced some significant challenges in 2008. Fuel prices became highly unpredictable at a time when a downturn in the economy was hitting the industry. U.S. carriers experienced a net loss for the year, with the same expected for foreign carriers. The losses were managed somewhat with moderate fare increases and a

decrease in capacity (measured in available seat-miles or ASMs).

The FAA forecast carrier capacity and passenger demand to decline even further in 2009. Overall capacity was forecast to decline 6.7 percent with mainline domestic carriers forecast to decline 9.5 percent and regional airline capacity expected to decline 5.5 percent. Internationally, capacity was forecast to decline approximately 1.0 percent with slow growth in the Atlantic and Latin market, and shrinkage in the Pacific market. Over the long term, system capacity was projected to grow at an average of 3.1 percent annually.

Domestically, revenue passenger miles (RPMs) were forecast to decline by 8.9 percent in 2009. As the economy recovers, domestic RPMs are expected to grow by 2.7 percent in 2010. Continued economic growth and declining real yields are expected to generate an annual average RPM increase of 3.4 percent from 2010 through 2025.

Domestic enplanements were forecast to decline by 7.8 percent in 2009, with volume growing by 2.0 percent as the economy begins to recover. For the long term beyond 2010, domestic enplanements were projected to grow at an average of 2.7 percent per year.

International visitors are a significant portion of the total visitors to the Grand Canyon. Total passenger traffic between the U.S. and the rest of the world actually grew by 2.8 percent in 2008. The worldwide recession, however, was expected reduce international passengers to and from the U.S.

by 0.9 percent in 2009. An economic recovery is expected to bring 4.2 percent growth in 2010. After 2010, international passenger growth is expected to average 4.6 percent per year. **Exhibit 2A** depicts the history and projected growth in U.S. passenger enplanements.

## GENERAL AVIATION

Deliveries of general aviation aircraft by U.S. manufacturers were down 3.1 percent in 2008 to 3,079 aircraft. Turbine aircraft deliveries were up, with jets growing 17.2 percent and turboprops 14.8 percent. In contrast, piston deliveries were down 17.6 percent. This was driven by a 18.9 percent decline in single-engine piston aircraft which dominate the market, while multi-engine aircraft deliveries were up 18.2 percent.

While shipments were down, the active general aviation fleet increased by an estimated 1.0 percent. Despite the increased fleet, general aviation activity at FAA towered airports declined 5.6 percent in 2008. Flight hours for general aviation aircraft decreased by 0.02 percent in 2008. The number of student pilots fell by 4.0 percent, the fourth consecutive year that student numbers have declined despite industry-wide programs to attract new pilots.

The FAA projects that the business use of aircraft will continue to grow faster than the personal and sport use. The active general aviation fleet is projected to increase at an annual average rate of 1.0 percent through 2025.

Turbine-powered aircraft will continue to lead the way, growing at 3.2 percent per year.

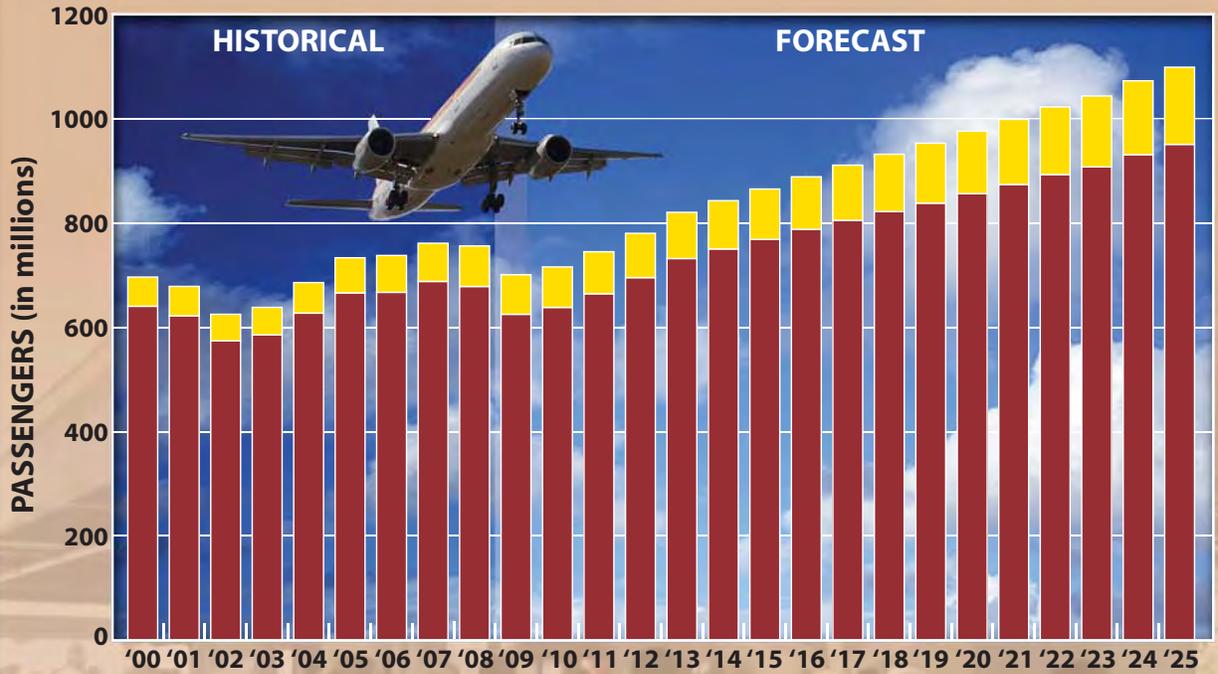
The turbine jet fleet is projected to increase at 4.8 percent annually. In recent years, the very light jets (VLJs) were expected to add as many as 500 jets annually to the fleet. The bankruptcy of Eclipse and the closing of DayJet have reduced the expectations for rapid growth in the VLJ market. VLJ deliveries in 2008 totaled 262. Deliveries are expected to total 200 over the next two years, then increase to 270 to 300 annually after that.

Piston-powered aircraft are expected to decrease through 2013, then slowly increase for the remainder of the planning period for a net increase of just 0.1 percent annually. It is also expected that VLJs and the new light sport category will erode the high and low ends of the piston markets over the forecast period.

Active aircraft in the light sport category are expected to grow by 11.5 percent annually through 2013, then slow to 2.6 percent annual growth through 2025. **Exhibit 2B** depicts the FAA forecast for active general aviation aircraft.

General aviation hours flown is forecast to increase by 1.8 percent annually. As with active aircraft, turbine aircraft are forecast for the highest increases at 3.6 percent per year. Piston-powered aircraft are forecast for a 0.4 percent annual increase. The increasing size of the turbine fleet combined with the expanded fractional ownership fleet combine for the larger growth rate.

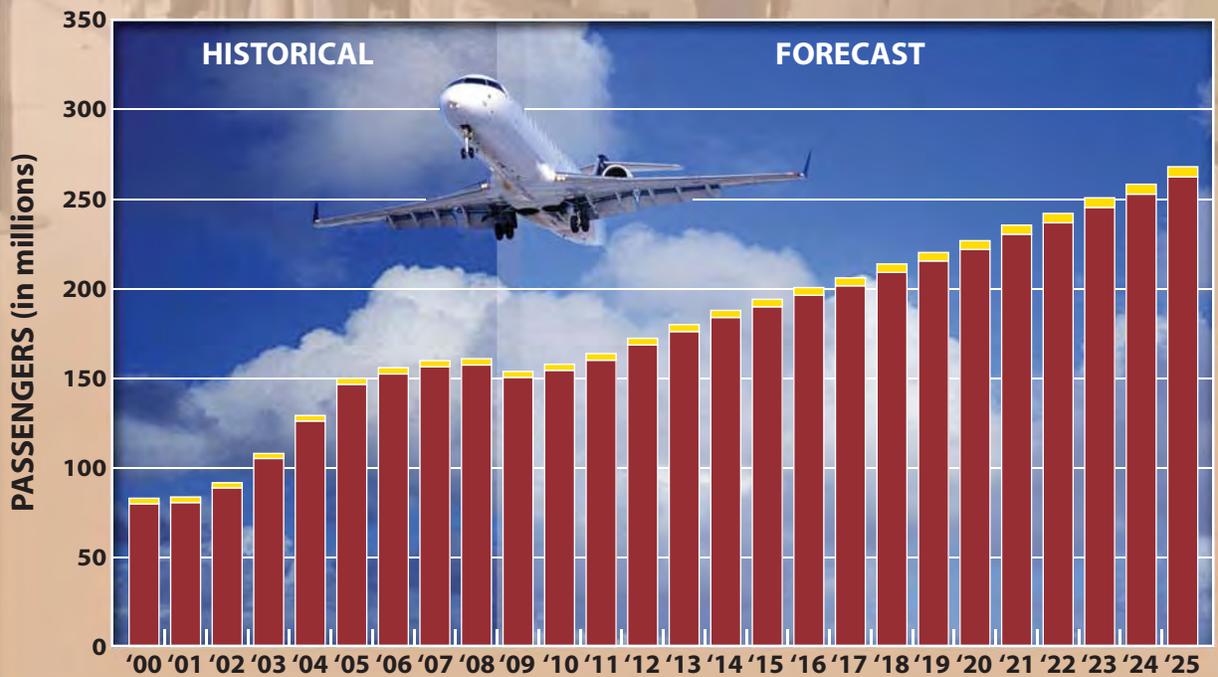
### U.S. SCHEDULED COMMERCIAL AIR CARRIER PASSENGER ENPLANEMENTS



Source: FAA Aerospace Forecasts, FY 2008-2025

Domestic International

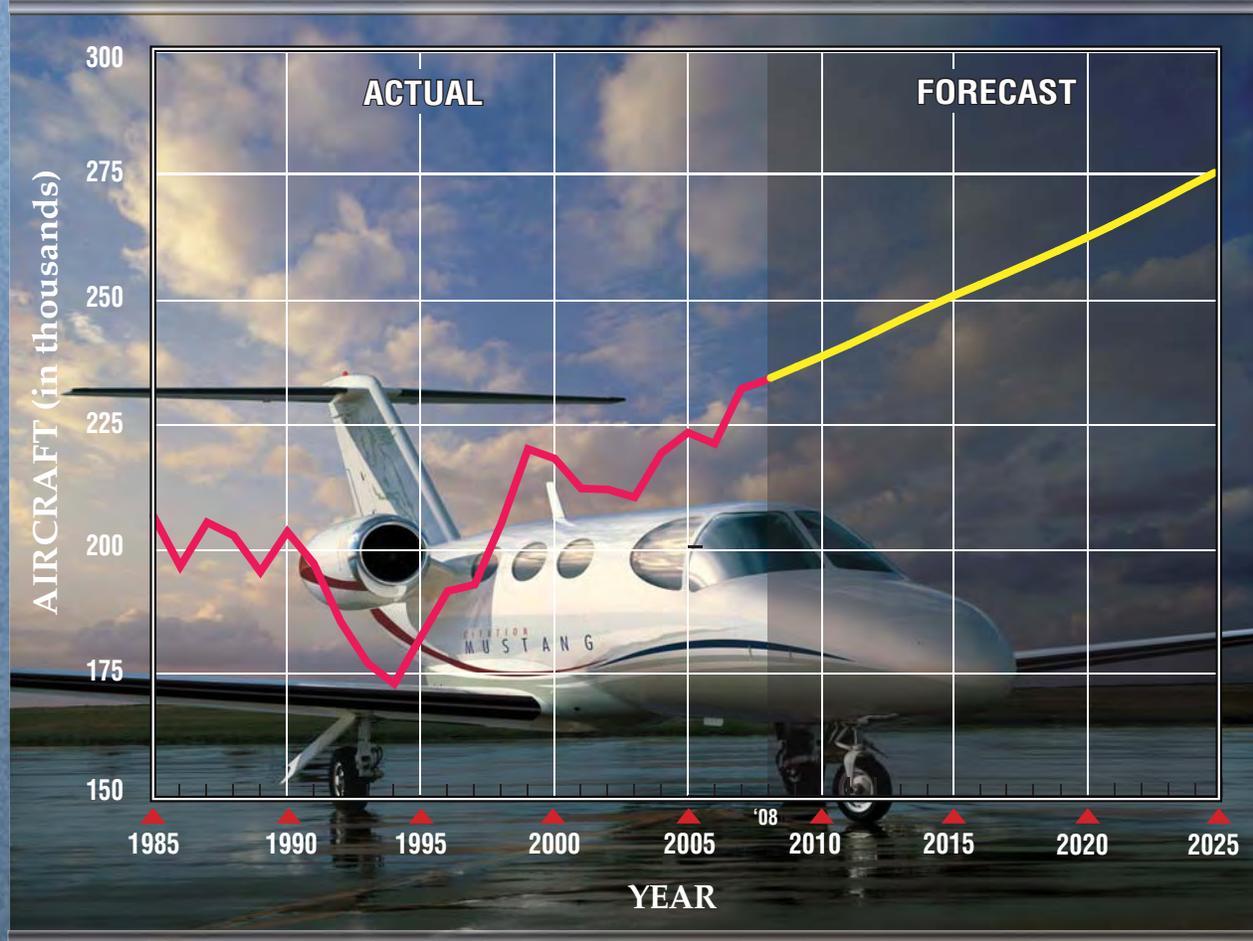
### U.S. REGIONAL/COMMUTER SCHEDULED PASSENGER ENPLANEMENTS



Source: FAA Aerospace Forecasts, FY 2009-2025



# U.S. ACTIVE GENERAL AVIATION AIRCRAFT



## U.S. ACTIVE GENERAL AVIATION AIRCRAFT (in thousands)

Year	FIXED WING				ROTORCRAFT			Sport Aircraft	Other	Total
	PISTON		TURBINE		Piston	Turbine	Experimental			
	Single Engine	Multi-Engine	Turboprop	Turbojet						
2008 (Est.)	146.6	19.1	9.6	11.4	3.1	7.1	24.1	7.0	6.0	234.0
2015	143.5	17.9	10.5	17.1	4.6	9.0	29.1	12.7	6.1	250.5
2020	144.9	17.0	11.5	20.9	5.3	9.9	32.0	14.4	6.0	261.8
2025	148.5	16.0	12.2	25.2	5.9	10.9	34.6	15.9	6.0	275.2

Source: FAA Aerospace Forecasts, Fiscal Years 2009-2025.

Notes: An active aircraft is one that has a current registration and was flown at least one hour during the calendar year.



## ***SOCIOECONOMIC TRENDS***

Local and regional forecasts developed for key socioeconomic variables provide an indicator of the potential for creating growth in aviation activities at an airport. Typical variables used in evaluating potential for traffic growth include population and employment. This data is readily available on an annual historic basis at the state and county level.

The service area for the Grand Canyon National Park Airport, however, is extremely unique in its remote setting

and the limited population and business that is not related to the National Park and its visitors. **Table 2A** presents the population forecasts for the area. The population of Tusayan was 562 in the 2000 census and was estimated at just over 600 in 2006. The Grand Canyon Village, which is an employee housing area in Grand Canyon National Park (GCNP), has a population that is generally around 1,460. The Arizona Department of Security, Research Division projects that Tusayan will grow to 711 residents in 2030, while Grand Canyon Village will remain at 1,460.

<b>TABLE 2A</b>				
<b>Population Forecast</b>				
<b>Grand Canyon National Park Airport</b>				
<b>Year</b>	<b>Tusayan</b>	<b>Grand Canyon Village</b>	<b>Coconino County</b>	<b>State of Arizona</b>
<b><i>HISTORIC</i></b>				
2000	562	1,460	116,320	5,130,632
2006	605	1,460	132,826	6,239,482
<b><i>FORECAST</i></b>				
2010	627	1,460	141,457	6,999,810
2015	652	1,460	151,150	7,915,629
2020	673	1,460	159,345	8,779,567
2025	693	1,460	166,730	9,588,745
2030	711	1,460	173,829	10,347,543

Source: Arizona Department of Security, Research Division

While the population of Coconino County is projected to grow by over 30 percent by 2030, the majority of that population is located in and around communities such as Flagstaff, Page, and Williams, all at least 65 miles away. As a result, the economy of the community and the activity at GCN are more related to the visitors to the area. The following subsections discuss the park attendance and a recent tourism study related to the park.

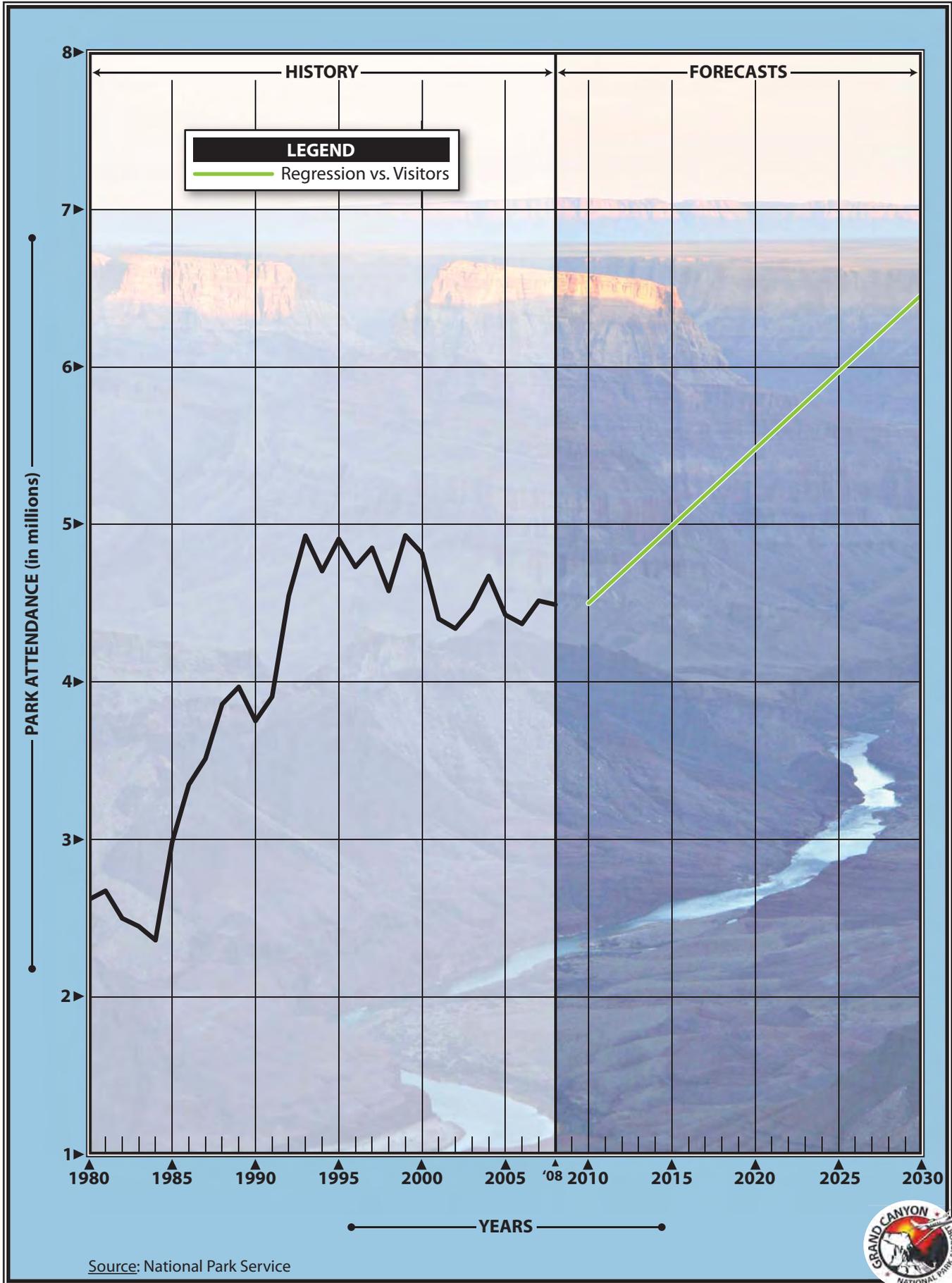
## **PARK ATTENDANCE**

**Table 2B** and **Exhibit 2C** present the annual attendance at Grand Canyon National Park as reported by the National Park Service (NPS). Between 1980 and 1995, attendance grew from 2.62 million visitors to 4.91 million, for an average annual growth rate of 4.3 percent. The GCNP's all-time high attendance was set in 1999 with 4.93 million visitors. Since the events of 9-

11, park attendance has flattened somewhat, fluctuating between 4.34

million and 4.67 million. In 2008, attendance was recorded as 4.49 million.

<b>TABLE 2B</b>					
<b>Air Tour Enplanement Forecast</b>					
<b>Grand Canyon National Park Airport</b>					
	<b>GCN Air Tour Enplanements</b>	<b>Park Attendance</b>	<b>Enpl. % Of Visitors</b>	<b>U.S. Enplanements (millions)</b>	<b>U.S. Market Share %</b>
1980	183,000	2,618,713	7.0%	312.0	0.0587%
1981	157,000	2,674,117	5.9%	295.9	0.0531%
1982	205,000	2,499,799	8.2%	305.8	0.0670%
1983	199,000	2,448,545	8.1%	329.3	0.0604%
1984	186,000	2,360,767	7.9%	357.3	0.0521%
1985	69,000	2,983,436	2.3%	394.7	0.0175%
1986	136,000	3,347,872	4.1%	429.3	0.0317%
1987	450,000	3,513,084	12.8%	470.6	0.0956%
1988	421,800	3,858,708	10.9%	475.5	0.0887%
1989	393,687	3,968,605	9.9%	480.4	0.0819%
1990	207,734	3,752,901	5.5%	497.9	0.0417%
1991	436,049	3,905,989	11.2%	485.1	0.0899%
1992	483,243	4,547,027	10.6%	507.3	0.0953%
1993	533,808	4,928,509	10.8%	515.6	0.1035%
1994	549,113	4,704,070	11.7%	557.6	0.0985%
1995	535,656	4,908,073	10.9%	579.7	0.0924%
1996	642,221	4,730,680	13.6%	608.1	0.1056%
1997	533,867	4,851,932	11.0%	631.4	0.0846%
1998	537,404	4,578,084	11.7%	644.7	0.0834%
1999	599,338	4,930,153	12.2%	665.8	0.0900%
2000	563,574	4,816,560	11.7%	697.6	0.0808%
2001	411,138	4,400,823	9.3%	682.5	0.0602%
2002	330,980	4,339,139	7.6%	626.3	0.0528%
2003	334,985	4,464,813	7.5%	641.2	0.0522%
2004	376,782	4,672,911	8.1%	689.0	0.0547%
2005	406,000	4,426,394	9.2%	737.0	0.0551%
2006	390,420	4,368,810	8.9%	740.0	0.0528%
2007	373,716	4,515,733	8.3%	765.3	0.0488%
2008	368,672	4,491,141	8.2%	757.4	0.0487%
<b><i>Regression vs. visitors</i></b>					
2010	457,673	4,500,000	10.2%	716.5	0.0639%
2015	534,200	4,990,000	10.7%	867.3	0.0616%
2020	610,727	5,480,000	11.1%	978.3	0.0624%
2030	763,781	6,460,000	11.8%	1,238.5	0.0617%
<b><i>Market Share of U.S. Domestic Enplanements</i></b>					
2010	380,763	4,500,000	8.5%	716.5	0.0531%
2015	460,901	4,990,000	9.2%	867.3	0.0531%
2020	519,889	5,480,000	9.5%	978.3	0.0531%
2030	658,165	6,460,000	10.2%	1,238.5	0.0531%
<b><i>Market Share of Grand Canyon Visitors</i></b>					
2010	<b>382,500</b>	4,500,000	8.5%	716.5	0.0534%
2015	<b>449,100</b>	4,990,000	9.0%	867.3	0.0518%
2020	<b>548,000</b>	5,480,000	10.0%	978.3	0.0560%
2030	<b>742,900</b>	6,460,000	11.5%	1,238.5	0.0600%



Source: National Park Service



In its *Environmental Assessment/Assessment of Effect* for the South Rim Visitor Transportation Plan, published in February 2008, the NPS forecast attendance to remain relatively flat around 4.5 million through 2010. Attendance was then projected to begin to grow to 5.48 million by 2020. These projections are presented on **Table 2B** and **Exhibit 2C** along with an interpolation for 2015 and an extrapolation for 2030.

### **GCNP TOURISM STUDY**

In May of 2005, the Arizona Hospitality Research Center of Northern Arizona University published the *Grand Canyon National Park & Northern Arizona Tourism Study*. The study was prepared for the Arizona Department of Transportation in cooperation with the U.S. Department of Transportation, Federal Highway Administration. The primary purpose of the study was to look at visitor's highway usage and travel patterns, but it also examined other travel modes, including commercial air service.

The study included a year-long random sampling of 7,800 GCNP visitors who completed a short intercept survey in the park and 4,500 visitors who completed a longer in-depth survey. Some of the highlights of the survey as they relate to commercial service:

- A total of 16.4 percent of the visitors utilized commercial airlines in their trip to the GCNP.
- The majority (59 percent) were first time visitors to GCNP. First time visitors tended to

utilize commercial airlines more (18.4 percent).

- GCNP was the primary destination of 37 percent of the visitors. These visitors also tended to use commercial airlines more (18.8 percent).
- Phoenix Sky Harbor International Airport (PHX) at 44.3 percent and Las Vegas International Airport (LAS) at 37.5 percent were the most commonly used airports. GCN was the arrival airport for 2.3 percent of the commercial airline users.
- Visitors who used commercial airlines tended to stay longer in the park (9.6 hours) than the average visitor (7.3 hours). Commercial service visitors, however, tended to stay less time in the area (4.8 days) than the average stay (5.3 days).

Since the vast majority of the passenger traffic at GCN is currently related to air tours, the information from the tourism study will be utilized later in this chapter to examine destination passenger potential.

### **COMMERCIAL SERVICE ACTIVITY FORECASTS**

Commercial service activity at Grand Canyon National Air Park has historically been primarily comprised of air tour/sightseeing flights. While there has been scheduled service in the past, it is very limited today. The Official Airline Guide (OAG) included just two

scheduled airline flights during August 2008: a Papillon helicopter flight five days a week to and from Havasupai, and a Scenic Airlines flight five days a week to Las Vegas. Neither requires security under F.A.R. Part 139. The following commercial service analysis is divided into two parts: first is the demand for air tour/sightseeing flights, and second is the potential for scheduled service to serve non-air tour or “destination” passengers.

## **AIR TOUR/SIGHTSEEING PASSENGERS**

**Table 2B** and **Exhibit 2D** depict the history of enplanements at GCN. As is evident from the table and exhibit, passenger activity increased three-fold in one year from 1986 to 1987. This occurred in spite of a mid-air collision between two air tour flights over the canyon in the summer of 1986. This led Public Law 100-91, the *National Overflights Act*, which was enacted in August 1987.

The increased popularity in aerial sightseeing tours brought an increased concern not only for safety, but for protecting the natural quiet in the park. In June 1987, the FAA issued Special Federal Aviation Regulation (SFAR) 50 to establish flight regulations in the vicinity of the park. Public Law 100-91 required the analysis of 1) the effects of overflights on National Parks, 2) whether SFAR 50 was successful in restoring natural quiet, and 3) the designation of flight-free zones in the park.

In June 1988, the FAA published SFAR 50-2, which revised flight procedures over the GCNP, established flight-free zones, and established routes for commercial air tour operators. By 1990, passenger traffic had declined more than two-fold from 1987, but began to increase once again in 1991. In 1996, the airport reached an all-time high of 642,221 enplanements.

That year, President Clinton directed the Secretary of Transportation to issue proposed regulations for GCNP that would limit sightseeing to immediately reduce aircraft noise and further restore the natural quiet in accordance with the *Overflights Act*.

Enplanements remained in the 500,000 to 600,000 range through the remainder of the decade. In 2001, enplanements declined to 411,000 and have been below that level since. The level of regulation and limitations of air tour flights to preserve the natural quiet remains today as an on-going issue. This is being addressed in part by operators acquiring and increasing the use of quieter technology rotorcraft and aircraft, as well as aircraft with increased seating capacity, thereby increasing the number of passengers per flight.

**Exhibit 2D** presents the air tour enplanement forecast as included in the 2005 Master Plan. The forecasts were prepared with 2002 as the base year. This was the first full year of activity after 9-11, and passenger traffic was at the lowest level since 1990. A strong recovery in activity was projected in the short term, while over the

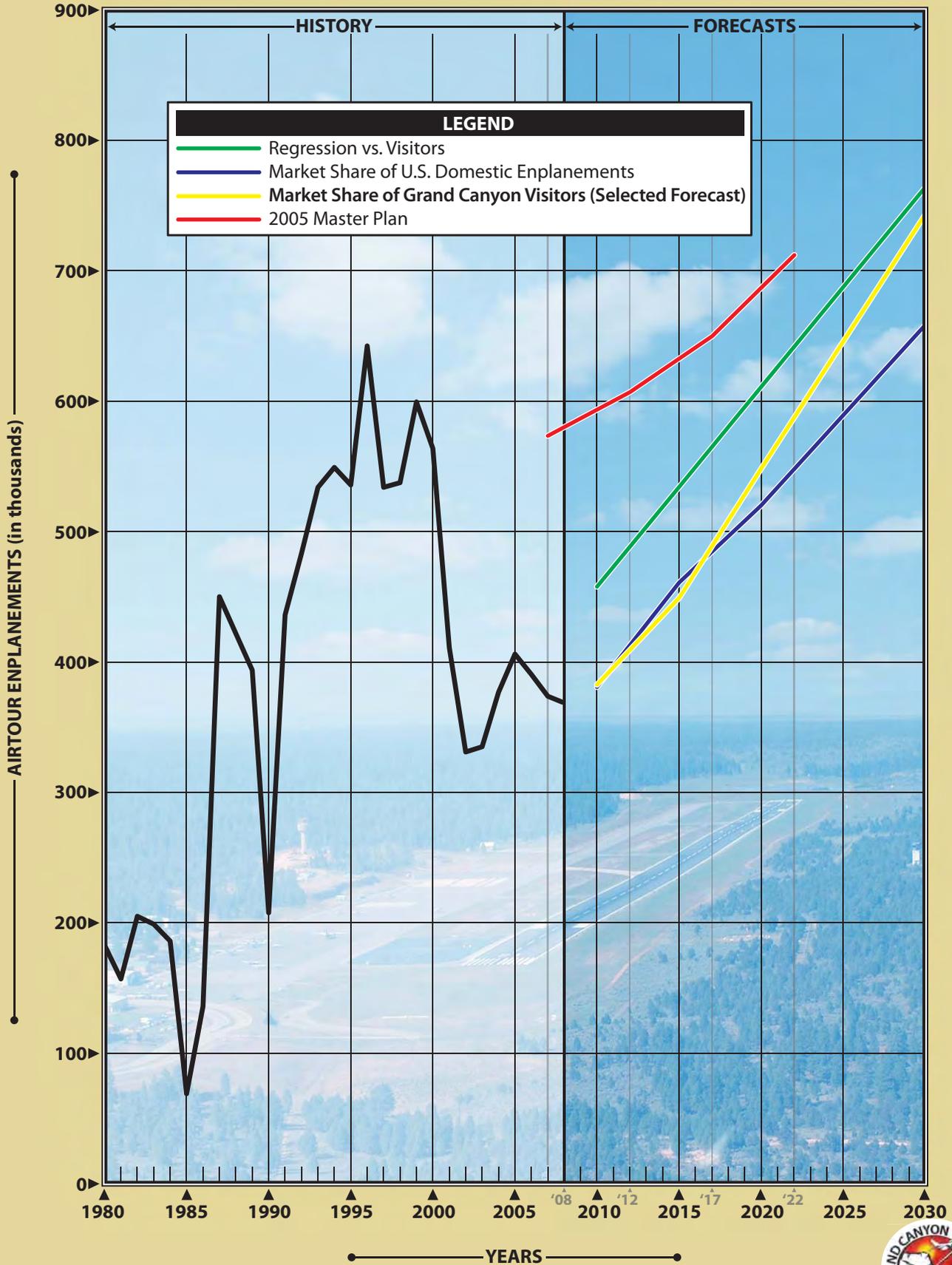


Exhibit 2D  
AIR TOUR ENPLANEMENT FORECASTS

long term it was recognized that SFAR 50-2 would eventually limit the number of additional overflights and subsequently enplanement levels. For purposes of the Master Plan, the maximum allowable air tour enplanement level was estimated at 711,900.

As the exhibit shows, actual traffic has lagged significantly behind the projections. For example, 2007 enplanements totaled 406,000 compared to the forecast of 573,300, and actual enplaned passengers have declined to 368,672 since.

**Table 2B** examines GCN enplanements as a percentage of park attendance and as a percentage of U.S. enplanements. The park attendance percentage was over 10 percent during the 1990s, with a peak of 13.6 percent in 1996. Since 2001, the percentage of enplanements to park visitors has generally been in the eight to nine percent range. Similarly, the airport's share of U.S. enplanements was higher during the 1990s and has generally been declining since 2001.

A regression analysis was run for GCN enplanements with park attendance and U.S. enplanements as the independent variables. While neither provided a high correlation, the park attendance regression was best with a correlation factor (Pearson's "r") of 0.847. The resulting projection from this regression is presented on **Table 2B** and **Exhibit 2D**.

A second projection was developed based upon the airport maintaining a constant "market share" of U.S. en-

planements. The average market share since 2001 was utilized with the results included for comparison on the table and exhibit.

While both are below the master plan forecast for the short term, the regression is slightly higher in the long term, while the market share is lower. Given the economic times, an increase in enplanements as a percentage of GCNP visitors should not be expected in the short term. Over the long term, however, a growth in that percentage similar to the regression analysis is more probable. It is also somewhat in line with the air tour ceiling that will eventually be reached due to SFAR 50-2 restrictions.

The third projection on the exhibit and table takes this into account. It projects the air tour share of the visitor market to gradually grow from current levels back to a share level similar to just prior to 9-11 before reaching an estimated maximum level between 700,000 and 750,000 enplanements long term. This projection is recommended for use in the Terminal Area Master Plan.

## **DESTINATION PASSENGERS**

With nearly 5.0 million annual visitors, the Grand Canyon National Park is one of the most popular tourist destinations in the United States. Over 80 percent of those visitors come to the South Rim. With limited permanent population, these visitors form the potential passenger traffic for Grand Canyon National Park Airport.

As has been indicated in the previous section, virtually all of the current passenger traffic at GCN is related to aerial sightseeing tours. While some may fly in on a scenic tour flight from Las Vegas or Phoenix, then get on a charter vehicle for a ground tour, there is currently very little traffic that could be considered as destination without that air tour tie-in. The airport currently has a Class II Part 139 certification, which limits it to scheduled service by small airplanes and unscheduled charter operations by

large air carrier aircraft. To provide scheduled service by large aircraft, a Class I certificate would be required.

The *Grand Canyon National Park & Northern Arizona Tourism Study* discussed in an earlier section provides insight into how visitors to GCNP access the area, and their overall trip plan. This information was utilized to examine the destination passenger potential for GCN if scheduled airline service were available. **Table 2C** outlines this potential.

<b>TABLE 2C</b>					
<b>Destination Passenger Forecast</b>					
<b>Grand Canyon National Park Airport</b>					
	<b>Actual</b>		<b>Forecast</b>		
	<b>2004</b>	<b>2008</b>	<b>2015</b>	<b>2020</b>	<b>2030</b>
Total Park Visitors	4,672,911	4,491,141	4,990,000	5,480,000	6,460,000
Visitor Airline Use					
% using commercial airlines	16.4%	16.4%	16.4%	16.4%	16.4%
Total using comm.. airlines	766,357	736,547	818,360	898,720	1,059,440
% using GCN	2.3%	2.3%	2.3%	2.3%	2.3%
Total GCN enplanements	17,626	16,941	18,822	20,671	24,367
South Gate % Visitors	67.2%	75.9%	76.0%	76.0%	76.0%
South Gate Visitors (NPS)	3,140,318	3,407,695	3,792,400	4,164,800	4,909,600
% using commercial airlines	16.7%	16.7%	16.7%	16.7%	16.7%
Total using commercial airlines	524,433	569,085	633,331	695,522	819,903
East Gate % Visitors	13.9%	16.1%	16.0%	16.0%	16.0%
East Gate Visitors (NPS)	649,966	723,608	798,400	876,800	1,033,600
% using commercial airlines	14.0%	14.0%	14.0%	14.0%	14.0%
Total using commercial airlines	90,995	101,305	111,776	122,752	144,740
Total South Rim Visitors	3,790,284	4,131,303	4,590,800	5,041,600	5,943,200
Total using commercial airlines	615,428	670,390	745,107	818,274	964,607
Capture rate (all comm.. airline visitors)	2.86%	2.53%	2.53%	2.53%	2.53%
Primary Destination Visitors					
% Grand Canyon Primary destination	37.0%	37.0%	37.0%	37.0%	37.0%
Primary destination total	1,728,977	1,661,722	1,846,300	2,027,600	2,390,200
% using commercial airlines	18.8%	18.8%	18.8%	18.8%	18.8%
Total primary dest. using comm. airlines	325,048	312,404	347,104	381,189	449,358
<b>Destination Enplanement Forecast</b>	<b>17,626</b>	<b>16,941</b>	<b>52,066</b>	<b>114,357</b>	<b>269,615</b>
Current and Potential GCN Capture Rate	5.4%	5.4%	15.0%	30.0%	60.0%

Source: Park Attendance – National Park Service Public Use Statistics Office Web Site; Park Attendance Forecast – South Rim Visitor Transportation Plan Environmental Assessment, February 2008; Grand Canyon National Park & Northern Arizona Tourism Study, Arizona Hospitality Research Center, Northern Arizona University, May 2005

The surveys indicated that 16.4 percent of the GCNP visitors used commercial airlines as part of their trip.

This would suggest an overall airline passenger potential of approximately 737,000 in 2008. It is recognized,

however, that the vast majority of these (82 percent) flew into large hub airports in Phoenix or Las Vegas and then used other transportation modes to access the GCNP. The survey indicated that just 2.3 percent indicated flying into GCN. This represents approximately 17,000 in 2008.

Assuming that only South Rim visitors would consider flying into GCN, the maximum destination passenger potential for 2008 would be 670,000. The survey results suggest that GCN is currently capturing approximately 2.5 percent of this traffic.

In many cases, the Grand Canyon is just one of many planned stops on a visitor's itinerary. For example, a trip to the Grand Canyon may be a side trip for Las Vegas travelers, or just part of a vacation trip that includes other attractions in Arizona and the southwest United States. The study survey indicated that the Grand Canyon was the primary destination for 37 percent of the visitors. Of those that indicated the Grand Canyon as their primary destination, 18.8 percent indicated that they used commercial airline service as part of their trip.

Applying these percentages to the 2008 visitor census provides a destination passenger potential of 312,464. Those indicating they currently use GCN comprise 5.4 percent of this total.

Thus, the survey does indicate good passenger potential. The ability to capture a larger share of the potential destination passenger market, however, will be highly dependent upon the level of air service (frequency, destina-

tions, aircraft type, etc.) and air fares. Small commuter turboprop service, such as what is currently available to northern Arizona communities such as Page and Kingman, could capture 10 to 20 percent of the market potential. A slightly higher level of service such as is available to Flagstaff (30-70 seat turboprops and regional jets) could increase the capture rate to between 30 and 60 percent with reasonable air fares and code-sharing agreements with major airlines. The high end capture rate would likely include several commercial jet charters and very competitive air fares and schedules as well as generate new visitors to the area.

**Table 2C** depicts a destination passenger forecast based upon this range in capture rate. A 15 percent capture is depicted for 2015. This assumes that service would initially provide a five to 10 percent capture and grow. A 30 percent capture by 2020 represents a market continuing to be built, with perhaps a second entrant. 2030 is intended to depict a mature capture rate in the long term. This would likely need to include multiple airlines providing service to several destinations.

One of the airlines currently providing air tours has a charter operation that utilizes Boeing 737 aircraft. They are currently considering operating flights to GCN that would provide a vehicular tour service, but allow passengers flexibility to stay at GCNP for more than the day. Increased TSA security will need to be provided at the airport for this to occur.

For purposes of this plan, the forecast on **Table 2C** will be utilized to represent the reasonable range in destination passengers that GCN could potentially attract over the planning period.

## **COMMERCIAL SERVICE OPERATIONS**

The commercial service fleet mix is needed to project airline operations for the airport. A projection of the fleet mix for Grand Canyon National Park Airport has been developed by reviewing the equipment used by the carriers serving the airport and by evaluating the equipment used by other airlines that could potentially serve the airport in the future.

### **Air Tour Operations**

Changes in equipment, airframes, and engines have always had a significant impact on airlines and airport planning. There are many ongoing programs by the manufacturers to improve performance characteristics. These programs continue to focus on improvements in fuel efficiency. GCN has experienced these changes with the airlines providing air tours from the airport. **Table 2D** depicts the air tour fleet mix by seating capacity for the last four years (2005-08). The fixed wing fleet mix has grown from an average of 17.5 average seats per

flight in 2005 to 19.5 in 2008. As can be seen from the table, the fleet has transitioned from 76 percent aircraft with at least 17 seats to over 93 percent in 2008. Boarding load factors are also up from 73 percent in 2006 to 81.1 percent in 2008. Thus, average enplanements per departure have grown from 13.0 to 15.8.

The fleet mix for helicopter air tours has remained in the 6-7 seat range, but the boarding load factor has increased from 81.7 percent to 85.6 percent. As a result, despite little growth in seating capacity, the average enplanements per departure on the helicopters has grown from 5.3 to 5.6.

At the bottom of the table is a summary of the total air tour activity. Although the enplanements per departure has grown for both the helicopters and the fixed wing air tours, the combined ratio has actually declined. The number of fixed wing enplanements and subsequent departures have been declining the past four years, while helicopter activity has actually increased, particularly in the last year (2008). The percentage of air tour enplanements carried by fixed wing aircraft has declined from 58.0 percent in 2006 to 41.2 percent in 2008. Fixed wing departures have declined from 34.8 percent to 19.8 percent of the total air tour departures. This has resulted in a decline in the overall seats per departure average from 10.6 to 9.1 in the past year.

<b>TABLE 2D</b>				
<b>Historic Air Tour Fleet Mix and Operations</b>				
<b>Grand Canyon National Park Airport</b>				
<b>Fixed Wing Fleet Mix</b>				
<b>Seating Capacity</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
<b>Air Tour Operators</b>				
> 79	0.0%	0.0%	0.0%	0.0%
60-79	0.0%	0.0%	0.0%	0.0%
40-59	0.0%	0.0%	0.0%	0.0%
20-39	23.4%	23.0%	27.2%	23.7%
12-19	52.8%	57.7%	55.8%	69.6%
8-11	2.3%	2.1%	2.9%	3.3%
5-7	18.7%	14.1%	11.8%	3.3%
< 5	2.7%	3.0%	2.2%	0.0%
<b>Totals</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Seats/Departure</b>				
Seats/Departure	17.5	17.9	18.7	19.5
Boarding Load Factor	76.7%	72.9%	78.0%	81.1%
Enplanements/Departure	13.4	13.0	14.6	15.8
<b>Annual Enplanements</b>				
Annual Enplanements	233,074	226,505	198,408	151,803
Annual Departures	17,350	17,364	13,593	9,617
Annual Operations	34,700	34,728	27,186	19,234
Average Daily Flights	48	48	38	27
<b>Helicopters</b>				
Seats/Departure	6.5	6.5	6.5	6.5
Boarding Load Factor	81.7%	82.6%	85.2%	85.6%
Enplanements/Departure	5.3	5.4	5.5	5.6
<b>Annual Enplanements</b>				
Annual Enplanements	172,926	163,915	175,308	216,869
Annual Departures	32,553	30,527	31,640	38,991
Annual Operations	65,106	61,054	63,280	77,982
Average Daily Flights	90	85	88	108
<b>Total Air Tour Activity</b>				
Seats/Departure	10.3	10.6	10.2	9.1
Boarding Load Factor	78.8%	76.7%	81.2%	83.7%
Enplanements/Departure	8.1	8.2	8.3	7.6
Total Tour Enplanements	406,000	390,420	373,716	368,672
Fixed Wing Enplaned Percentage	57.4%	58.0%	53.1%	41.2%
Total Tour Departures	49,903	47,891	45,233	48,608
Fixed Wing Departure Percentage	34.8%	36.3%	30.1%	19.8%

**Table 2E** depicts a projection of the future fleet mix and operations for air tour operators. This assumes that, over time, the ratio of fixed wing passengers will return to 2004 levels. As

passenger traffic increases, the need to carry more passengers per flight for the noise considerations of the park could drive this shift back to more fixed wing passenger traffic.

**TABLE 2E**  
**Air Tour Fleet Mix and Operations Forecasts**  
**Grand Canyon National Park Airport**

<b>Fixed Wing Fleet Mix</b>				
<b>Seating Capacity</b>	<b>2008</b>	<b>2015</b>	<b>2020</b>	<b>2030</b>
<b>Air Tour Operators</b>				
> 79	0.0%	0.0%	0.0%	0.0%
60-79	0.0%	0.0%	0.0%	0.0%
40-59	0.0%	0.0%	0.0%	10.0%
20-39	23.7%	36.0%	40.0%	40.0%
12-19	69.6%	60.0%	55.0%	50.0%
8-11	3.3%	2.0%	1.0%	0.0%
5-7	3.3%	2.0%	1.0%	0.0%
< 5	0.0%	0.0%	0.0%	0.0%
<b>Totals</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
<b>Fixed Wing Operations</b>				
Seats/Departure	19.5	21.3	23.0	25.5
Boarding Load Factor	81.1%	82.0%	83.0%	85.0%
Enplanements/Departure	15.8	17.5	19.1	21.7
<b>Fixed Wing Activity</b>				
Annual Enplanements	151,803	202,095	274,000	408,595
Annual Departures	9,617	11,600	14,400	18,900
Annual Operations	19,234	23,200	28,800	37,800
Average Daily Flights	27	32	39	52
<b>Helicopters</b>				
Seats/Departure	6.5	6.5	6.5	6.5
Boarding Load Factor	85.6%	86.0%	87.0%	88.0%
Enplanements/Departure	5.6	5.6	5.7	5.7
<b>Helicopter Activity</b>				
Annual Enplanements	216,869	247,005	274,000	334,305
Annual Departures	38,991	44,200	48,500	58,400
Annual Operations	77,982	88,400	97,000	116,800
Average Daily Flights	108	123	135	162
<b>Total Air Tour Activity</b>				
Seats/Departure	9.1	9.6	10.3	11.1
Boarding Load Factor	83.7%	84.0%	84.8%	86.2%
Enplanements/Departure	7.6	8.0	8.7	9.6
Total Tour Enplanements	368,672	449,100	548,000	742,900
Fixed Wing Enplaned Percentage	41.2%	45%	50%	55%
Total Tour Departures	48,608	55,800	62,900	77,345
Fixed Wing Departure Percentage	19.8%	20.8%	22.9%	24.5%

### Destination Airline Operations

In the late 1980s and early 1990s, Grand Canyon National Park Airport had scheduled destination service by American West Express using the 34-seat DeHaviland Dash 8 turboprop.

That airline is now USAirways Express and still provides service to some airports in Arizona using the Dash 8 as well as Canadair Regional Jets (CRJs). Other small commercial airports in the state receive service

from Great Lakes Airways utilizing 19-seat Beech 1900 aircraft.

GCN has been served by non-scheduled charters using larger commercial service jets over the years as well. While charters will continue to serve the airport, there may also be future potential to develop scheduled jet service. In today's airline environment, there are several airlines that provide service on less than a daily basis. Airlines such as Allegiant and Sun Country provide this type of service at airports in Arizona today. A current air tour operator, Vision Air,

also operates Boeing 737 aircraft in its fleet and is considering some flights to GCN.

**Table 2F** provides a projected fleet mix based upon the GCN destination passenger forecast. At lower enplanement levels, the regional aircraft mentioned above can be expected to carry most of the destination passengers, with some allowance for charter or non-daily scheduled flights by larger commercial jets. As traffic grows, the mix can be expected to shift more towards these aircraft as well as regional jets.

<b>TABLE 2F</b>				
<b>Destination Airline Fleet Mix and Operations Forecast</b>				
<b>Grand Canyon National Park Airport</b>				
<b>Fleet Mix</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2030</b>
<b>Seating Capacity</b>				
<b>Major Airlines</b>				
> 165	0.0%	0.0%	0.0%	0.0%
135-164	5.0%	5.0%	20.0%	30.0%
105-134	0.0%	0.0%	0.0%	0.0%
80-104	0.0%	0.0%	0.0%	20.0%
60-79	0.0%	0.0%	35.0%	30.0%
40-59	0.0%	20.0%	0.0%	0.0%
20-39	45.0%	45.0%	45.0%	20.0%
< 20	50.0%	30.0%	0.0%	0.0%
<b>Totals</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
Seats/Departure	30.0	36.2	66.0	87.0
Boarding Load Factor	70.0%	72.0%	74.0%	75.0%
Enplanements/Departure	21.0	26.1	48.8	65.3
Annual Enplanements	31,302	52,066	114,357	269,615
Annual Departures	1,500	2,000	2,000	4,100
Annual Operations	3,000	4,000	4,600	8,200
Average Daily Flights	4	6	7	12

# **GENERAL AVIATION ACTIVITY FORECASTS**

## **BASED AIRCRAFT**

Based aircraft at GCN are unique in that most are associated with the air tour operators. The number of non-commercial, general aviation based aircraft is limited by the area's population and its remote location. Of the 46 aircraft currently considered as based at GCN, 44 are associated with the air tour operators. Helicopters comprise 32 of these aircraft.

**Table 2G** presents a history of based aircraft as recorded by the FAA in its Terminal Area Forecast Detail Report for GCN issued December 2008. The number of based aircraft grew from 20 to 35 between 1990 and 1995. During this period, air tour passenger enplanements grew from 207,000 to 535,000. By 2000, based aircraft grew to 52, although enplanements remained relatively constant at 563,000. After 9-11, the air tour enplanements declined sharply, but have been growing back slowly. Based aircraft have declined to the current 46.

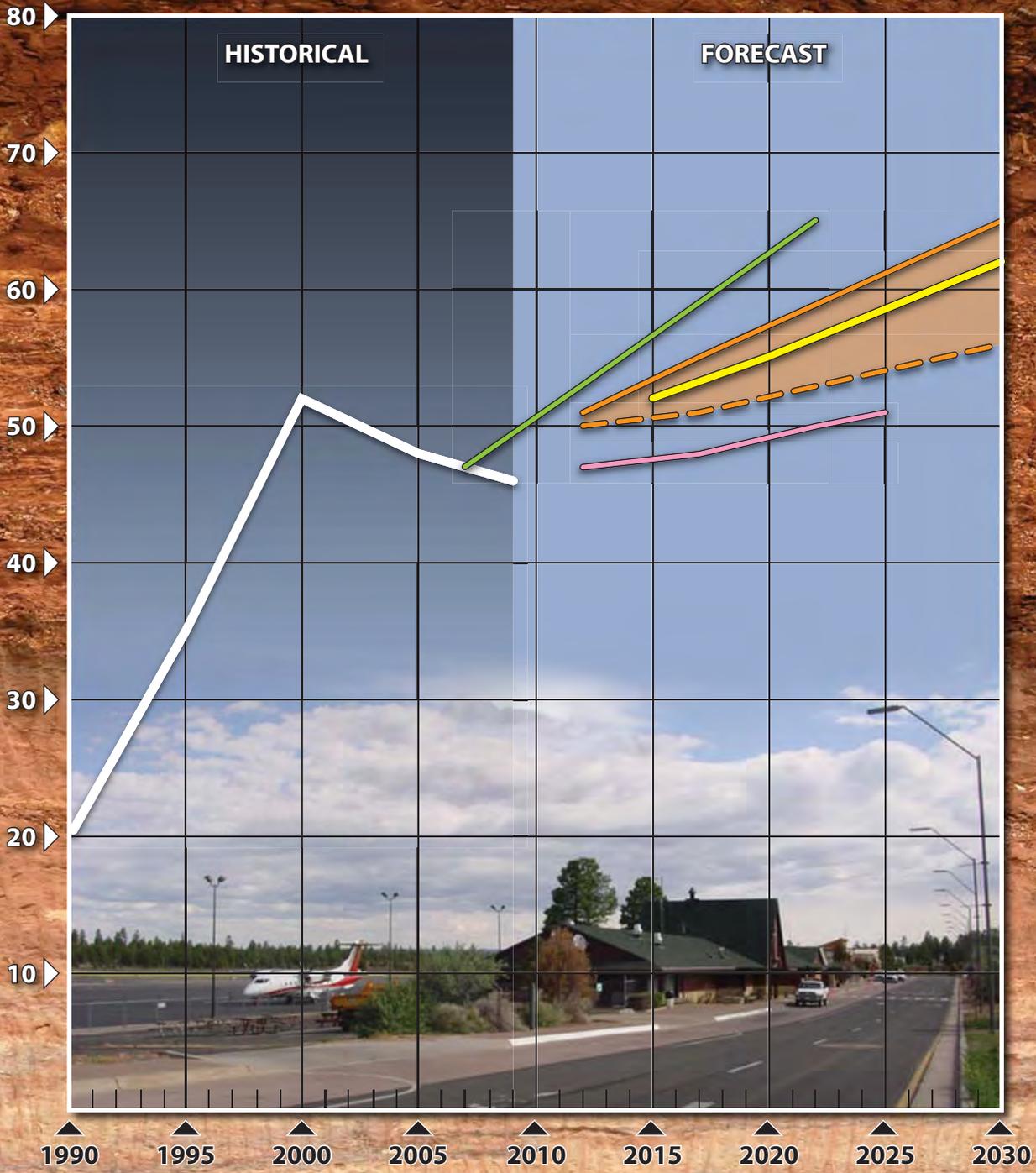
**Table 2G** also presents three recent forecasts of based aircraft. The first is from the 2005 Master Plan, which projected based aircraft to grow from 51 in 2003 to 53 by 2012 and 65 by 2022. The Arizona State Airport System Plan (AzSASP), which is currently in draft form provided a range of forecasts through 2030. From 48 based aircraft in 2007 the range projected 50 to 51 based aircraft by 2012, and 56 to 65 by 2030. The FAA Terminal Area Forecast (TAF), issued in December

2008 projected based aircraft to grow from 46 to 47 by 2012 and 51 in 2025.

**Exhibit 2E** graphically presents these projections for comparison. The entire range of the AzSASP forecasts falls between the Master Plan (high) and TAF (low) projections.

<b>TABLE 2G Previous Based Aircraft Forecasts Grand Canyon National Park Airport</b>	
<b>Year</b>	<b>Based Aircraft</b>
<b>Actual</b>	
1990	20
1991	20
1992	35
1993	35
1994	35
1995	35
1996	35
1997	47
1998	47
1999	52
2000	52
2001	51
2002	51
2003	51
2004	48
2005	48
2006	41
2007	46
2008	46
<b>2005 Master Plan</b>	
2007	47
2012	53
2017	59
2022	65
<b>2007 AzSASP (low range)</b>	
2012	51
2017	50
2030	51
<b>2007 AzSASP (high range)</b>	
2012	62
2017	56
2030	65
<b>2008 FAA TAF</b>	
2015	48
2020	50
2025	51

BASED AIRCRAFT



**LEGEND**

- 2005 Master Plan
- 2007 AzSASP (High Range)
- 2007 AzSASP (Low Range)
- 2008 FAA Terminal Area Forecast (TAF)
- Selected Forecast



Based aircraft can be expected to increase as air tour operations increase; however, the rate of growth should not be expected to be identical. A portion of the operations increase can be absorbed within the current based fleet. Some of it may also be served by aircraft that are brought in, but would

not be considered based at the airport. This could be especially true during peak periods of the year. As a result, a forecast that lies within the range of the AzSASP projections was selected for the purposes of the Terminal Area Plan. This forecast is depicted on **Exhibit 2E** and **Table 2H**.

<b>TABLE 2H Based Aircraft Forecast</b>						
		<b>Piston</b>		<b>Turbine</b>		
	<b>Total</b>	<b>Single Engine</b>	<b>Multi-Engine</b>	<b>Prop</b>	<b>Jet</b>	<b>Helicopter</b>
<b>ACTUAL.</b>						
2008	46	6	8	0	0	32
<b>FORECAST</b>						
2015	52	7	10	0	0	35
2020	55	7	10	1	0	37
2030	62	8	11	4	0	39

**Table 2H** also presents the based aircraft fleet mix forecast. The air tour fleet is expected to add seating capacity over the planning period. This will be accomplished primarily with additional multi-engine piston and turbo-prop aircraft.

itinerant operations increase with business and commercial use, since business aircraft are operated on a higher frequency.

## **GENERAL AVIATION OPERATIONS**

General aviation operations are classified by the airport traffic control tower (ATCT) as either local or itinerant. A local operation is a take-off or landing performed by an aircraft that operates within sight of the airport, or which executes simulated approaches or touch-and-go operations at the airport. Itinerant operations are those performed by aircraft with a specific origin or destination away from the airport. Generally, local operations are characterized by training operations or aircraft check flights. Typically,

## **ITINERANT OPERATIONS**

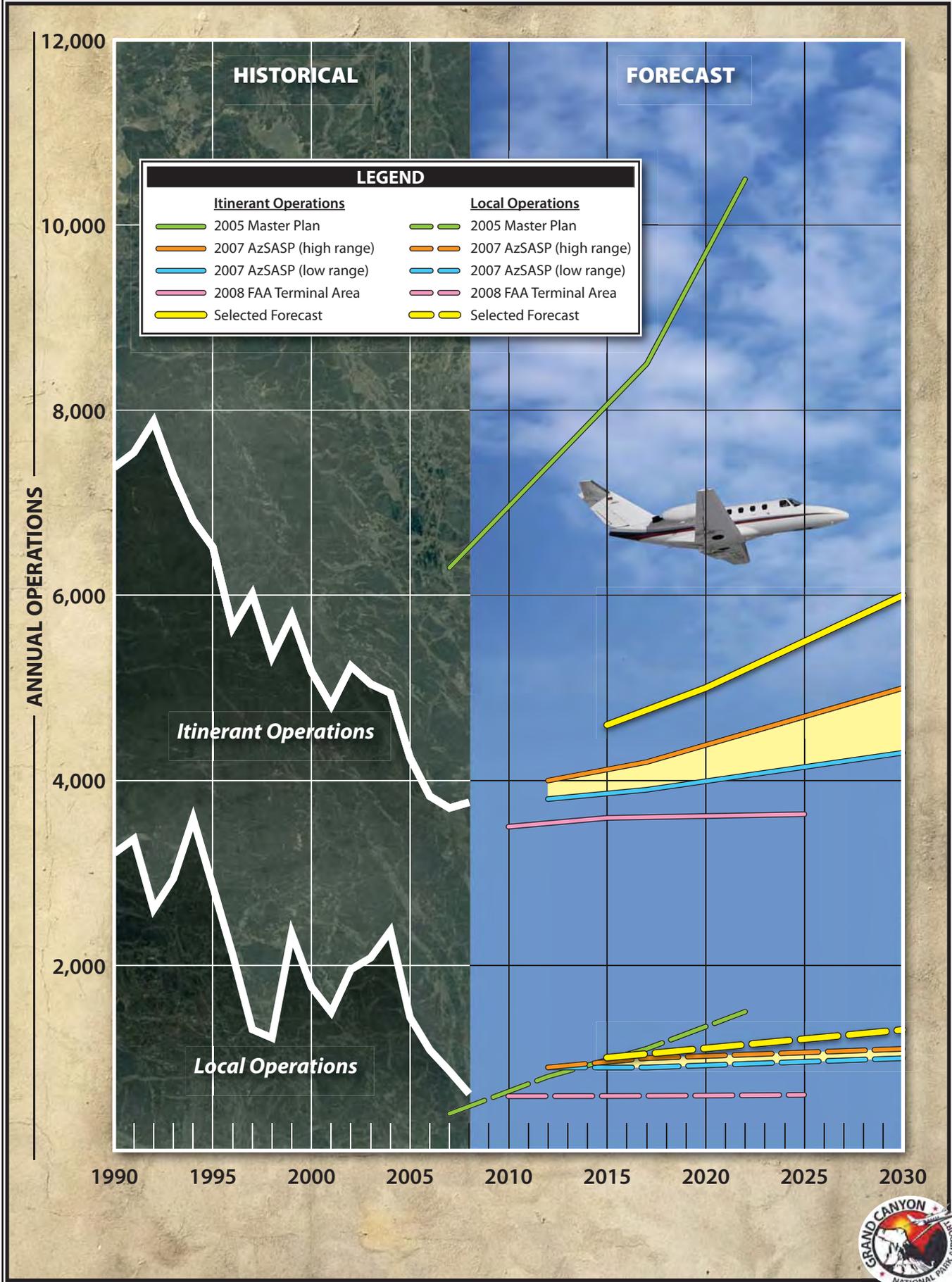
**Table 2J** and **Exhibit 2F** depict general aviation itinerant operations, as counted by the ATCT at Grand Canyon National Park Airport since 1990. As is evident from examination of the table and exhibit, GA itinerant operations have been in a general state of decline since 1992. Between 1992 and 2007, itinerant operations declined by nearly 63 percent to 3,701. In 2008, operations increased slightly to 3,763. In the first four months of 2009, however, GA itinerant operations were up over 14 percent. If this remains positive for the entire year, it will be the first consecutive year increase since 1991-92.

**TABLE 2J****General Aviation Itinerant Operations  
Grand Canyon National Park Airport**

<b>Year</b>	<b>GCN Itinerant Operations</b>	<b>US ATCT GA Itinerant (millions)</b>	<b>GCN Share %</b>
1990	7,382	23.10	0.0320%
1991	7,543	22.20	0.0340%
1992	7,880	22.10	0.0357%
1993	7,293	21.14	0.0345%
1994	6,812	21.06	0.0323%
1995	6,519	20.86	0.0313%
1996	5,649	20.82	0.0271%
1997	6,013	21.70	0.0277%
1998	5,338	22.09	0.0242%
1999	5,778	23.02	0.0251%
2000	5,177	22.84	0.0227%
2001	4,810	21.43	0.0224%
2002	5,234	21.45	0.0244%
2003	5,042	20.23	0.0249%
2004	4,943	20.01	0.0247%
2005	4,245	19.32	0.0220%
2006	3,829	18.74	0.0204%
2007	3,701	18.58	0.0199%
2008	3,763	17.37	0.0217%
<b>2005 Master Plan</b>			
2012	7,400	16.54	0.0447%
2017	8,500	17.86	0.0476%
2022	10,500	19.26	0.0545%
<b>2007 AzSASP (low range)</b>			
2012	3,800	16.54	0.0230%
2017	3,900	17.86	0.0218%
2030	4,300	22.02	0.0195%
<b>2007 AzSASP (high range)</b>			
2012	4,000	16.54	0.0242%
2017	4,200	17.86	0.0235%
2030	5,000	2.57	0.0222%
<b>2008 FAA TAF</b>			
2015	3,596	17.33	0.0208%
2020	3,616	18.70	0.0193%
2025	3,636	20.44	0.0178%
<b>Terminal Plan Forecast</b>			
2015	4,600	17.33	0.0267%
2020	5,000	18.70	0.0267%
2030	6,000	22.57	0.0267%

**Table 2J** also depicts the number of GA itinerant operations counted at towered airports across the country

over the same time period. Nationally, operations declined from 1990 through 1996, then recovered what



was lost over the next three years. From that point in 1999, however, the decline in operations began again and has continued through the current decade. Even with the national decline, GCN's market share as a percentage of GA itinerant operations at towered airports across the country generally declined from 0.0251 percent in 1999 to 0.199 percent in 2007. For 2008, the market share stood at 0.0217 percent.

In *FAA Aerospace Forecasts Fiscal Years 2009-2025*, the FAA projects itinerant general aviation operations at towered airports. **Table 2J** presents this forecast as well. With itinerant GA operations decreasing at an annual average rate of 3.4 percent over the last eight years, the FAA forecasts a similar rate of decline through at least 2010. After that an annual average increase of 1.5 percent is forecast through 2020. Overall, the average annual growth rate between 2008 and 2025 is projected to be 1.0 percent.

The three recent forecasts for general aviation itinerant operations are also presented on the same table and exhibit. As with based aircraft, the 2005 Master Plan forecast is the highest, with the AzSASP range of forecasts in the middle, and the FAA TAF being the lowest projection. In fact, the FAA TAF shows a continued decline to 3,501 annual operations in 2010 followed by a growth of just 115 operations through 2025.

The market share for each of these forecasts is also compared on the table. The Master Plan forecast would result in an increase in market share

over the planning period, while the other two would see a decreasing market share, although the decrease resulting from the TAF forecast is more significant.

The 2008 operations level is above the level forecast in the TAF for 2025, and the first four months indicate that traffic is up by 14 percent in 2009. This would suggest that the TAF is pessimistic for the purposes of this Terminal Area Plan. If this growth rate were maintained, operations would reach 4,300 for 2009, matching the 2025 low range forecast of the AzSASP. It would also represent a 0.0265 percent market share which is similar to the average market share the airport has experienced over the last 19 years (0.0267 percent).

For planning purposes, a projection that recaptures the average market share of the last 19 years was developed. It is presented on **Table 2J** and **Exhibit 2F**. While it represents a larger percentage growth in operations, it is still a relatively small growth in overall general aviation operations.

## LOCAL OPERATIONS

**Table 2K** and **Exhibit 2F** present the historic local general aviation operations at GCN. Over the past 19 years, local operations have comprised from 10 to 29 percent of the airport's general aviation operations with an overall average of 20 percent. The percentage has been below the average each of the last four years. The highest level of local GA operations over the period

was 3,456 in 1994, and the lowest was 613 in 2008. In the first four months of 2009, however, local operations were up 92 percent over the same pe-

riod in 2008. If this increase is maintained over the entire year, local operations would exceed 1,000 again after two consecutive years below that level.

<b>TABLE 2K</b>			
<b>General Aviation Local Operations</b>			
<b>Grand Canyon National Park Airport</b>			
<b>Year</b>	<b>GCN Itinerant Operations</b>	<b>US ATCT GA Itinerant (millions)</b>	<b>GCN Share %</b>
1990	3,212	17.10	0.0188%
1991	3,368	16.60	0.0203%
1992	2,609	16.31	0.0160%
1993	2,938	15.46	0.0190%
1994	3,586	15.19	0.0236%
1995	2,854	15.07	0.0189%
1996	2,121	14.48	0.0146%
1997	1,308	15.16	0.0086%
1998	1,217	15.96	0.0076%
1999	2,343	16.98	0.0138%
2000	1,769	17.03	0.0104%
2001	1,494	16.19	0.0092%
2002	1,956	16.17	0.0121%
2003	2,082	15.29	0.0136%
2004	2,371	14.96	0.0158%
2005	1,439	14.85	0.0097%
2006	1,088	14.38	0.0076%
2007	859	14.56	0.0059%
2008	613	13.92	0.0044%
<b>2005 Master Plan</b>			
2012	800	13.23	0.0060%
2017	1,100	13.41	0.0082%
2022	1,500	13.72	0.0109%
<b>2007 AzSASP (low range)</b>			
2012	900	13.23	0.0068%
2017	900	13.41	0.0067%
2030	1,000	15.09	0.0066%
<b>2007 AzSASP (high range)</b>			
2012	900	13.23	0.0068%
2017	1,000	13.41	0.0075%
2030	1,100	15.09	0.0073%
<b>2008 FAA TAF</b>			
2015	590	13.31	0.0044%
2020	595	13.59	0.0044%
2025	603	14.18	0.0043%
<b>Terminal Plan Forecast</b>			
2015	1,000	13.31	0.0075%
2020	1,100	13.59	0.0081%
2030	1,300	15.09	0.0086%

Like itinerant operations, local GA operations at U.S. towered airports have generally been declining over the past two decades. Since 2000, they have been declining at an annual average rate of 2.5 percent. In *FAA Aerospace Forecasts Fiscal Years 2009-2025*, the FAA projects local operations to continue a similar rate of decline through 2010, then begin to grow slowly at 0.3 percent through 2020.

**Table 2K** and **Exhibit 2F** present the three most recent GA local operations forecasts as presented prepared for the GCN Master Plan, the Arizona SASP, and the FAA TAF. These projections all remain within a very limited range from 600 to 1,500 annual operations. The TAF is the lowest projection and essentially forecasts local operations to remain flat around 600. The Master Plan is the high end projection with local operations forecast to reach 1,500 by 2022. The SASP is located between the other two with its high range operations projected to grow to 1,100 by 2030.

This year’s increase in local operations over the first four months indicates at least a recovery to the levels of 2005. This would make the TAF projections obsolete and would match the long range forecast of the SASP. For planning purposes, a forecast was selected that is between the SASP and the Master Plan projection. It is also depicted in the table and on the exhibit. This anticipates local GA operations to continue to remain generally around the 1,000 to 1,300 level over the planning period.

## OTHER AIR TAXI

Air taxi operations as reported by the ATCT include commuter passenger, commuter cargo, as well as for-hire general aviation operations. Some operations by aircraft operated under fractional ownership programs are also counted as air taxi operations. Since the airline and air tour operations have been forecast, this section reviews the growth potential for the “other air taxi” operations at GCN.

**Table 2L** presents the other air taxi operations for the past three years. These operations have declined significantly in the last four years. Because of the relationship to general aviation activity, other air taxi operations were projected to increase in line with that of general aviation itinerant operations. The resulting forecast is also presented on **Table 2L**.

<b>TABLE 2L</b>	
<b>Other Air Taxi Operations</b>	
<b>Grand Canyon National Park Airport</b>	
<b>Year</b>	<b>Other Air Taxi</b>
<i>Actual</i>	
2005	10,474
2006	7,620
2007	4,718
2008	2,374
<i>Forecast</i>	
2015	2,900
2020	3,200
2030	3,800

## MILITARY

Military activity accounts for the smallest portion of the operational

traffic at GCN. Since 1990, annual military operations have fluctuated between a high of 1,204 in 2002 and a low of 163 in 1997. Over the last four years, military operations have averaged approximately 1,000 annually. While the percentage fluctuates from year-to-year, operations are approximately equally split between itinerant and local operations.

The 2005 Master Plan projected military operations to grow from 600 to

1,900 by 2022. It is extremely difficult to project future military options without knowledge of potential changes in mission or fuel contracts. Since operations have remained relatively constant for several years, for the purposes of this Master Plan update, military operations were projected to average 1,000 per year over the planning period. **Table 2M** includes the military forecast.

<b>TABLE 2M</b>				
<b>Activity Forecast Summary</b>				
	<b>Actual 2008</b>	<b>2015</b>	<b>2020</b>	<b>2030</b>
<b><i>AIRLINE ENPLANEMENTS</i></b>				
Airline Enplanements				
Air Tour Airlines	368,372	449,000	548,000	743,000
Destination Airlines	-	52,000	114,000	270,000
<b>Total Airline Enplanements</b>	<b>368,372</b>	<b>501,000</b>	<b>662,000</b>	<b>1,013,000</b>
Annual Operations				
Airline				
Air Tour Airlines	97,216	111,600	125,700	154,700
Destination Airlines	-	4,000	4,600	8,200
<b>Total Airline Operations</b>	<b>97,216</b>	<b>115,600</b>	<b>130,300</b>	<b>162,900</b>
General Aviation				
Itinerant	3,763	4,600	5,000	6,000
Local	613	1,000	1,100	1,300
<b>Total General Aviation Operations</b>	<b>4,376</b>	<b>5,600</b>	<b>6,100</b>	<b>7,300</b>
Other Air Taxi Operations	2,374	2,900	3,200	3,800
Military Operations	929	1,000	1,000	1,000
<b>Total Annual Operations</b>	<b>104,895</b>	<b>125,100</b>	<b>140,600</b>	<b>175,000</b>
Based Aircraft				
Single Engine Piston	6	7	7	8
Multi-Engine Piston	8	10	10	11
Turboprop	0	0	1	4
Jet	0	0	0	0
Helicopter	32	35	37	39
<b>Total Based Aircraft</b>	<b>46</b>	<b>52</b>	<b>55</b>	<b>62</b>