San Antonio International Airport

Terminal Area Forecast and Runway Feasibility Study
FINAL REPORT

PREPARED FOR:

PREPARED BY:

PBS&J®

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TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

San Antonio International Airport

1

The San Antonio Airport System is owned by the City of San Antonio and operated by the City of San Antonio's Department of Aviation, which manages both San Antonio International Airport (SAT or Airport) and Stinson Municipal Airport (SSF). SAT is located within the city limits of San Antonio, approximately eight miles from the downtown area. As illustrated in **Figure 1-1**, SAT is easily accessible by State Route 281 and Interstate 410.

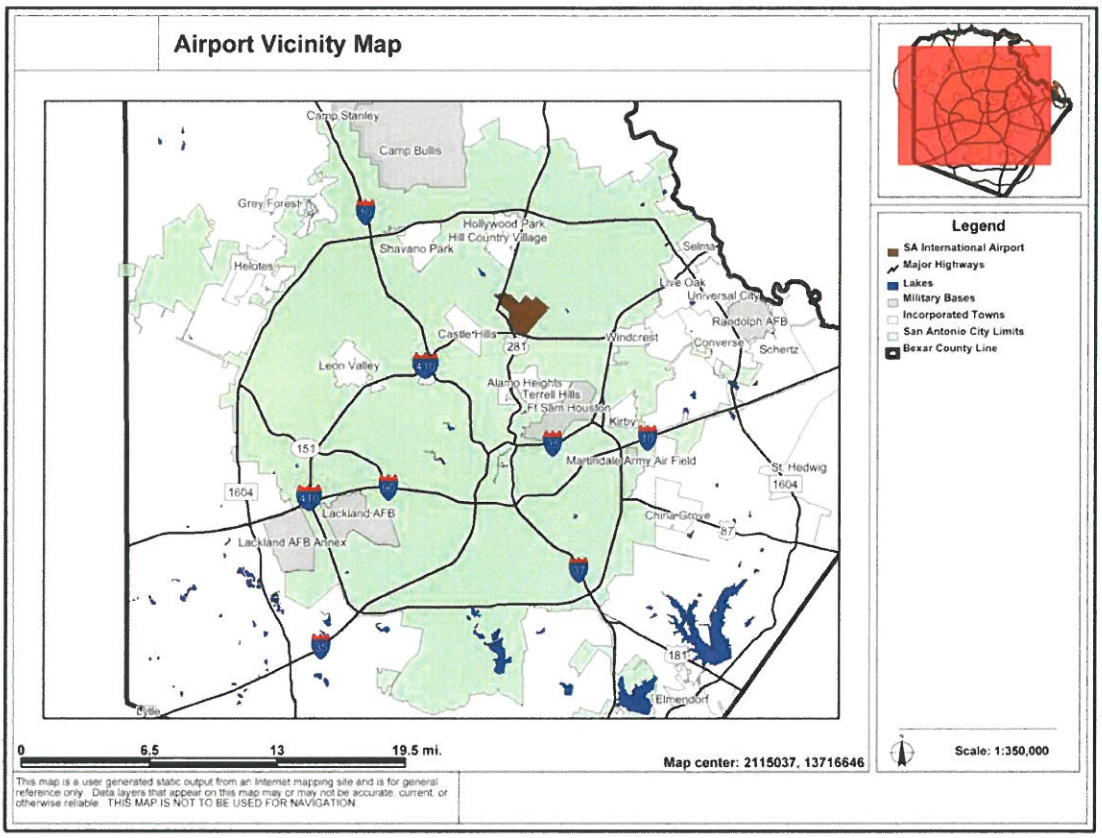
SAT is the primary commercial service airport serving the air transportation needs of the people and businesses in and around the San Antonio metropolitan area. Although the Airport is located within the city's jurisdiction, there are other municipal jurisdictions and military bases (Randolph Air Force Base and Lackland Airforce Base) located in close proximity of the Airport. These other jurisdictions and military installation are self-governing entities with laws and ordinances separate from those of the City of San Antonio.

The Airport is vitally important to the prosperity of the region and links the City of San Antonio to the rest of the U.S. and the World. The services provided at SAT facilitate the movement of people and products, and help to ensure that the region remains competitive in the global marketplace. To this end, the San Antonio Airport System is moving forward with focused planning efforts to ensure that the future aviation needs of the region are met. Two critical planning efforts consist of reviewing, validating and/or updating the Federal Aviation Administration's (FAA) Terminal Area Forecast (TAF) for SAT and evaluating the existing capacity of and feasibility of extending Runway 12L.

The TAF is a detailed FAA forecast planning database that is produced each year by the Statistics and Forecast Branch of the FAA Office of Aviation Policy and Plans covering airports in the National Plan of Integrated Airport Systems (NPIAS). The TAF is prepared to assist the FAA in meeting its planning, budgeting, and staffing requirements. The TAF contains both historical and forecast data for enplanements, airport operations, instrument operations, and based aircraft. The TAF assumes an unconstrained demand for aviation services based upon local and national economic conditions as well as conditions within the aviation industry.

The main objective in the Runway Capacity Feasibility Study is to evaluate the existing airfield configuration in terms of the adequacy of Runway 12L to meet the current and future operational demands. In accordance with FAA Order 5090.3c, *Field Formulation of the NPIAS*, calculated airfield capacity will be developed by methods, parameters, and assumptions as described in FAA Advisory Circular (AC) 1250/5060-5, *Airport Capacity and Delay*. The result of the assessment will be expressed in terms of the hourly visual flight rules (VFR), instrument flight rules (IFR), and annual service volume (ASV) of the airfield.

Figure 1-1. Airport Vicinity Map



Source: City of San Antonio GIS.

In addition to the manual computational analysis of SAT's existing capacity, SIMMOD was another tool used as part of this analysis. SIMMOD is a fast time, event-step simulation tool designed to assist airfield and airspace planning efforts, developed through the FAA, and used extensively throughout the world. SIMMOD traces the movement of individual aircraft as they travel from a gate through the ramp, taxiway, runway, and airspace system. The model detects and resolves violations of separations and operational procedures as they occur, providing a relatively quick set of standard simulation results, plus animated display of the simulation. Additional steps in this analysis include:

- Collecting air traffic data from the SAT Air Traffic Control Tower (ATCT) and validating operational characteristics.
- Analyzing the base year schedule of airport operations.
- Determining existing and future aircraft fleet mix.
- Identifying and analyzing the impacts to land use based on the preferred alternative including:
    - Necessary land acquisition areas and appraised values,
    - Potential avigation easement locations and appraised values, and

    - Potential land use restrictions cause by the Runway 12L reconstruction/extension.

- Evaluating potential environmental impacts associated with the Runway 12L reconstruction/extension; assessing the potential significance of the impacts; and discussing possible abatement and mitigation measures which may reduce or eliminate any potentially significant adverse impacts. All preliminary examinations of the environmental impact categories will be done in conformance with FAA Order 5050.4B, *Airport Environmental Handbook*, and all current applicable federal, state, and local regulations.
- Constructing 3D airspace models of the Airport's Obstacle Clearance Surfaces (OCS), such as Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace*, FAA *Terminal Instrument Approach (TERPS)*, navigational aid critical areas, and FAA AC 150/5300-13, *Airport Design* Appendix-2 surfaces for each alternative, and utilize the models to assess airspace obstructions caused from each.
- Preparing an ATCT line-of-sight (LOS) analysis.

HISTORICAL AVIATION ACTIVITY

San Antonio International Airport

2

2.0 INTRODUCTION

The identification of forecast assumptions and methodologies requires understanding the history of growth and fluctuations in enplaned passengers (persons boarding a flight) and operational activity at San Antonio International Airport (SAT or Airport). This chapter provides an overview of the historical fluctuations that have occurred in both passenger enplanements and aircraft operations in order to provide an understanding of the factors that need consideration in forecasting future activity at SAT.

2.1 PASSENGER ENPLANEMENTS

The Federal Aviation Administration (FAA) classifies SAT as a medium hub facility based on its percentage of nationwide enplanements.[1] The Airport ranked 48th nationwide in terms of total passengers in the FAA's 2008 fiscal year.[2] **Table 2-1** presents historical data on enplaned passengers at the Airport between 1998 and 2008. As shown, the total number of enplaned passengers at SAT increased from approximately 3.4 million in 1998 to 4.1 million in 2008, an annual average growth rate of 1.2 percent. The most significant increase took place with commuter enplanements increasing at an average annual rate of 20.9 percent from 26,012 enplanements in 1998 to 651,817 in 2008.

Table 2-1. Historical Passenger Enplanements

Fiscal Year	Air Carrier	Commuter	Total
1998	3,353,325	26,012	3,379,337
1999	3,381,891	2,216	3,384,107
2000	3,527,149	8,119	3,535,268
2001	3,424,256	10,638	3,434,894
2002	3,079,324	83,182	3,162,506
2003	2,984,157	137,388	3,121,545
2004	2,973,917	337,016	3,310,933
2005	3,135,255	386,283	3,521,538
2006	3,398,177	486,709	3,884,886
2007	3,442,456	461,186	3,903,642
2008	3,484,051	651,817	4,123,912
Average Annual Growth Rate			
1998-2008	0.2%	20.9%	1.2%

Source: Federal Aviation Administration Terminal Area Forecast, downloaded January 22, 2009.

[1] A medium hub airport is defined as an airport that enplanes from 0.25 to 0.99 percent of total U.S. air passenger traffic.
[2] *FAA Terminal Area Forecast Summary Fiscal Years 2009-2030.*

As shown in **Table 2-2**, as of February 2009, eleven air carrier airlines and four commuter airlines provided the primary scheduled passenger service at the Airport. Additionally, a number of cargo carriers and smaller operators provide air charter and other air taxi services to and from SAT.

Table 2-2. Scheduled Airlines Serving SAT (as of February 9, 2009)

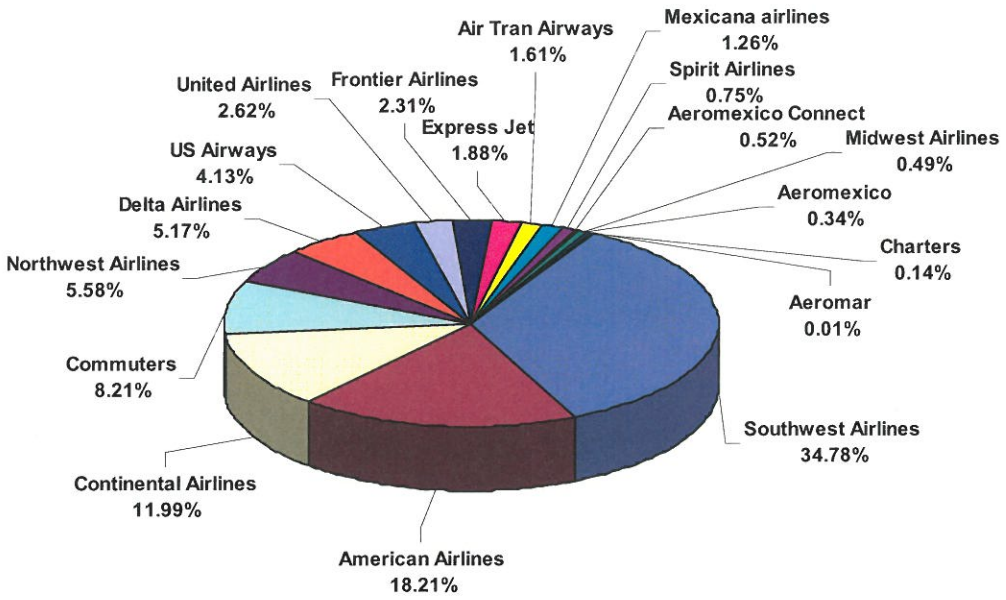
Air Carrier	No. of Nonstop Markets	Commuter Airline	No. of Nonstop Markets
AeroMéxico	2	American Connection/Chautauqua	1
AirTran	1	Delta Connection/Comair	1
American	2	Delta Connection/SkyWest	2
Continental	2	Northwest Airlink/Compass	3
Delta	1	United Express/GoJet	1
Frontier	1	United Express/Mesa	2
Mexicana	1	United Express/Shuttle America	2
Northwest	1	United Express/SkyWest	3
Southwest	15	United Express/Republic	1
Spirit	1		
United	1		

Source: City of San Antonio Aviation Department, 2009.

Figure 2-1 presents market share by airline grouping at SAT in 2008. As shown, Southwest enplaned the largest share of passengers, accounting for approximately 34.8 percent of the Airport's total. American Airlines enplaned the second-highest share of passengers at the Airport in 2008, with 18.2 percent.

Table 2-3 presents total numbers of enplaned passengers at SAT by month from January 2004 through December 2008. As the table shows, SAT has experienced consistent monthly percentages of the total annual enplanements. The peak months are typically June and July.

Figure 2-1. 2008 Total Passenger Market Share



Source: City of San Antonio Aviation Department.

2.2 AIRCRAFT OPERATIONS

Table 2-4 presents historical operations at SAT from 1998 through 2008. During this period, operations by the air carriers fluctuated up and down but increased at an average annual growth rate of 3.1 percent. All other operational categories experienced a continual decline. Commuter and air taxi operations have decreased at an average annual rate of -6.3 percent from 40,775 operations in 1998 to 21,356 in 2008. General aviation operations also declined at an average annual growth rate of -5.1 percent from 148,685 operations in 1998 to 88,193 in 2008. Military operations declined at an average annual growth rate of -8.8 percent from 10,464 operations in 1998 to 4,155 in 2008. The reduction in operations is due to various factors including the terrorist events of September 11, 2001, a subsequent nationwide economic downturn, and fundamental operational changes within the air carrier industry such as high operating costs and market competition.

Table 2-3. Historical 5-Year Monthly Total Enplanements (Calendar Years 2004-2008)

	Total Enplanements									
Month	2004	% of Annual	2005	% of Annual	2006	% of Annual	2007	% of Annual	2008	% of Annual
January	238,109	6.8%	258,125	7.0%	294,898	7.4%	289,810	7.3%	296,863	7.2%
February	253,427	7.2%	253,544	6.8%	288,571	7.2%	284,566	7.1%	307,403	7.4%
March	306,140	8.8%	309,219	8.3%	359,749	9.0%	347,180	8.7%	362,298	8.7%
April	305,220	8.7%	310,676	8.4%	347,234	8.7%	337,355	8.5%	348,920	8.4%
May	300,127	8.6%	335,447	9.1%	366,922	9.2%	347,864	8.7%	367,490	8.9%
June	318,834	9.1%	345,087	9.3%	367,433	9.2%	366,453	9.2%	394,731	9.5%
July	326,894	9.3%	339,032	9.1%	366,785	9.2%	364,265	9.2%	394,731	9.5%
August	289,284	8.3%	302,523	8.2%	318,640	8.0%	339,085	8.5%	362,413	8.7%
September	265,778	7.6%	280,806	7.6%	298,554	7.5%	304,182	7.6%	289,849	7.0%
October	306,181	8.8%	325,982	8.8%	329,941	8.2%	336,597	8.5%	349,458	8.4%
November	294,283	8.4%	321,153	8.7%	332,866	8.3%	332,873	8.4%	330,126	8.0%
December	293,886	8.4%	324,213	8.7%	328,103	8.2%	329,744	8.3%	338,029	8.2%
Total	3,498,163		3,705,807		3,999,696		3,979,974		4,142,311	

Source: City of San Antonio Aviation Department (website).

Table 2-4. Historical Aircraft Operations

Fiscal Year	Air Carrier	Commuter & Air Taxi	General Aviation	Military	Total
1998	80,671	40,775	148,685	10,464	280,595
1999	80,532	37,643	120,945	11,918	251,038
2000	81,332	37,367	125,468	11,455	255,622
2001	74,947	38,989	109,030	11,457	234,423
2002	67,374	45,970	110,346	12,499	236,189
2003	66,360	53,813	113,909	14,629	248,711
2004	81,663	40,199	104,678	11,783	238,323
2005	92,710	26,348	90,558	6,716	216,332
2006	101,636	18,963	89,317	5,032	214,948
2007	104,293	21,844	83,258	4,607	214,002
2008	109,797	21,356	88,193	4,155	223,501
Average Annual Growth Rate					
1998-2008	3.1%	-6.3%	-5.1%	-8.8%	-2.2%

Sources: FAA's Air Traffic Activity Data System (ATADS) and SAT ATCT.

FORECASTING TRENDS AND CONSIDERATIONS

3

San Antonio International Airport

3.0 INTRODUCTION

Recent trends, both national and statewide, are important considerations in the development of aviation activity projections. At the national level, fluctuating trends regarding aviation usage and economic swings resulting from the nation's business cycle and record high oil prices have likely impacted aviation demand. At the state level, demographic and economic growth experienced in Texas has likely impacted aviation demand. This chapter examines commercial service, air cargo and general aviation (GA) trends, and the numerous factors that have influenced those trends in the U.S. and the State of Texas.

3.1 REVIEW OF NATIONAL TRENDS

3.1.1 Commercial Airline Service

Commercial service includes all scheduled passenger flights, including air tours. Following September 11, 2001, aviation forecasters anticipated that it would take many years for commercial demand to return to levels seen in 2000. By 2005, most commercial airports exceeded their 2000 activity levels. However, the economic downturn has impacted the aviation industry and in 2008, approximately 680 million domestic passengers and 78 million international passengers enplaned commercial service flights in the U.S. The most recent *Federal Aviation Administration (FAA) Aerospace Forecasts for Fiscal Years 2009-2025* predicted that domestic enplanements will grow at an average annual rate of 2.0 percent and international enplanements at an average rate of 3.9 percent from 2008 to 2025. Other notable information includes the following:

- Available Seat Miles (ASMs) – domestic ASMs have increased from 727 billion miles in 2000 to 749 billion miles in 2008. International ASMs have increased from 239 billion miles in 2000 to 292 billion miles in 2008. The FAA forecasts domestic and international ASMs to increase at an average annual growth rate of 2.6 and 4.3 percent, respectively, from 2008 to 2025.

- Revenue Passenger Miles (RPMs) - domestic RPMs have increased from 513 billion miles in 2000 to 595 billion miles in 2008. International RPMs have increased from 182 billion miles in 2000 to 233 billion miles in 2008. The FAA forecasts domestic and international RPMs to increase at an average annual growth rate of 2.6 and 4.3 percent, respectively, from 2008 to 2025.

- Average Aircraft Size – since 2000, the average domestic aircraft size has decreased from 129 passenger seats to 120 passenger seats; a 7 percent decrease. The FAA forecasts that this negative trend will drastically slow down and by 2025 the domestic average aircraft size will equate to 122 passenger seats.

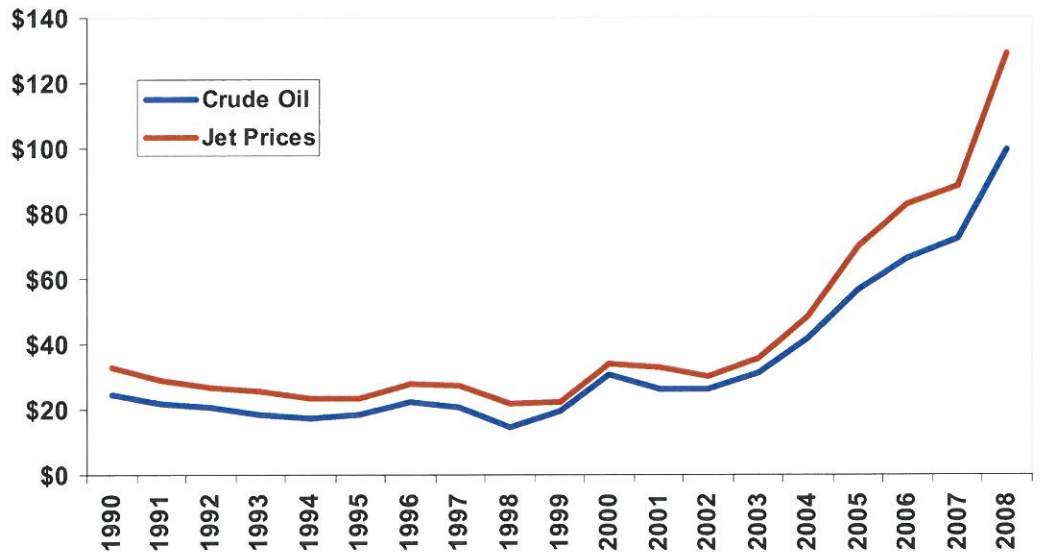
- Load Factors – load factors have increased from 72 percent in 2000 to 80 percent in 2008. The FAA forecasts that by 2025, load factors will remain at 80 percent.

It is worth noting that the FAA projections do not account for the 2008 surge in fuel costs and ongoing difficulties experienced by U.S. carriers. These impacts are discussed below.

3.1.1.1 Jet Fuel Prices

The dramatic spike in fuel prices in 2007 and 2008 changed the economics of the aviation industry as higher fuel prices disrupt the financial recovery of the commercial airlines. **Figure 3-1** 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 per barrel range. In the 1990s, the price fluctuated between $20 and $30 per barrel until mid-2003. In 2008, crude oil increased to $134 per barrel (as of early July 2008).

Figure 3-1. Average Annual Crude Oil and Jet Fuel Prices ($/Barrel)



Source: Air Transport Association.

3.1.1.2 Airline Mergers & Acquisitions

Five of the Country's six major airlines were engaged in merger negotiations in early 2008, and Delta and Northwest Airlines agreed to merge. The U.S. Department of Justice approved Delta's plan to acquire Northwest on October 29, 2008. United Airlines was communicating with Continental and US Airways regarding possible merger opportunities. No merge was established between US Airways and United Airlines; however, Continental Airlines and United announced a "Comprehensive Plan for Global Cooperation" on June 19, 2008. US airline mergers are expected to again be considered

in 2009 as the industry clearly has excess capacity, is adding surcharges, and is facing international competitors that are likely to consolidate significantly in the coming year.

Table 3-1 provides a summary of airlines that have shutdown and/or filed for bankruptcy in 2008.

Table 3-1. Airline Shutdowns and Bankruptcies

Airline	Date of Shutdown
MAXjet	December 25, 2007
Big Sky	January 7, 2008
Aloha	March 31, 2008
ATA	April 2, 2008
Skybus	April 5, 2008
EOS	April 27, 2008
Champion Air	May 31, 2008
Air Midwest	June, 30, 2008
Vintage Props & Jets	July 18, 2008
Gemini Air Cargo	August 12, 2008
Express Jet	September 22, 2008
Airline	**Chapter 11 Filing Date**
Frontier	April 11, 2008
Sun Country	October 6, 2008
Primaris	October 15, 2008

Source: Air Transport Association, 2008.

In an effort to survive, some airlines have considering merging in the hope that by joining forces, they can save money on rising fuel costs and gain cost savings from combining international and domestic routes. Airlines hope to create efficient carriers that can effectively compete and win in the global marketplace. The drawback to airline mergers is that their consolidation increases the likelihood for service cuts to small communities and higher fares. Consumer advocates believe that airlines are attempting to become "mega-airlines" and that consumers have become reliant on air travel since it is the only rapid form of transportation for a trip exceeding 400 miles.

3.1.2 Air Cargo Trends

Air cargo demand is generated when there is a need for transportation of material or goods between two points in an expeditious manner. In the business world, logistics managers must justify the use of air cargo as their preferred mode of transport. Shipping by air is greater in cost than shipping via truck, rail, or barge. Several factors are involved in the logistics process when it comes to deciding if it is appropriate to move material via air cargo. These factors include:

- Cost of transporting the material
- Level of service commitment to the customer or end user
- Value of the material
- Magnitude of the time-sensitivity of the material

Products that benefit from increased speed of distribution or better stock availability that can be gained through air cargo shipping include those such as automotive, computers,

and perishable items such as flowers, vegetables and seafood. All of these are high value, relatively lightweight, and time critical. The types of commodities that typically rely on air cargo are as follows:

- Aerospace - Equipment & Parts
- Automotive - Equipment & Parts
- Pharmaceuticals
- Computers & Computer Components
- Diagnostic Equipment
- Medical Devices and Equipment
- Software
- Textiles – Garments
- Consumer Electronics
- Perishables - Flowers, Fruit, Vegetables & Seafood
- Economically Perishable Materials - Printed Material
- Telecommunications Equipment - Cell Phones, Blackberries, etc.
- Photographic Film Air Cargo Service Options

Air cargo is big business from the standpoint of the economic value it helps to support. The International Air Cargo Association estimates that the air cargo industry transports 40 percent of world trade by value, but a mere two percent by weight. In 2007, the U.S. domestic air freight and express market activity was valued at $34 billion, whereas the international air freight/express market was valued at $69 billion. When combined, the worldwide air cargo industry was valued at $103 billion in 2007.

According to the *Boeing World Aviation Cargo Forecast 2008-2009*, freight traffic worldwide is expected to grow approximately 7 percent per year; this indicates that the air cargo market will double in size approximately every 12 years. Approximately 50 percent of all air cargo shipped worldwide is carried in the lower deck of passenger aircraft (known as "belly haul cargo"). The remaining 50 percent is being shipped by freighter aircraft operators such as Atlas and Polar Air Cargo or by integrated express carriers such as Federal Express (FedEx) and UPS (which now ships all of DHL's U.S. air cargo).

Over the last 10 years, air freight has been the fastest growing segment of the U.S. cargo industry according to a report by the U.S. Department of Transportation's Bureau of Transportation Statistics. Air freight has grown rapidly as U.S. businesses sought timely delivery of valuable goods. This growth has also created greater demand for truck and inter-modal services, since most air shipments begin and end their journeys by truck. The *FAA Aerospace Forecasts, Fiscal Years 2009-2025* provides forecasts of revenue ton miles (RTMs) of both domestic and international air cargo activity. The forecasts project RTMs for all-cargo carriers to increase at an annual rate of 4.0 percent from approximately 28 million to a future value of more than 57 million RTMs. Passenger carrier RTMs are projected to increase at an annual rate of 3.8 percent from 11 million in 2008 to approximately 21 million in 2025.

3.1.3 General Aviation Trends

GA includes all aviation with exception to scheduled passenger or air cargo operations. It includes personal and recreational flights, corporate and executive flights, business transportation, instructional flights, sight-seeing flights, and on-demand Part 135 operations (including air tax, charter and aero-medical). GA aircraft types include 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 GA industry. The *FAA Aerospace Forecasts, Fiscal Years 2009-2025* provides information on the Nation's GA fleet size, hours flow, and utilization. The GAMA *2008 General Aviation Statistical Databook & Industry Outlook* provides information on GA aircraft billings and shipments. The following summarizes information contained in the aforementioned reports.

3.1.3.1 Active Shipments and Billings

GAMA statistics for 2008 indicate continued growth of the GA aircraft manufacturing industry. As presented in **Table 3-2**, during 2008, GA aircraft shipments totaled 3,969, a decrease of approximately 7.1 percent from 2007. Estimated billings for new manufactured GA shipments in 2008 totaled approximately $21.9 billion dollars, an increase of more than 12.9 percent over 2007.

Table 3-2. General Aviation Aircraft Shipments and Billings

Year	Total Aircraft Shipments					Total Value of Shipments (millions)		
	SE Piston	ME Piston	Turbo Prop	Turbo Jet	**Total**	Piston	Turbo Prop	Turbo Jet
1997	1,043	80	279	438	**1,840**	$238	$913	$6,019
1998	1,508	98	336	515	**2,457**	$377	$1,011	$7,216
1999	1,689	112	340	667	**2,808**	$440	$930	$10,190
2000	1,877	103	415	752	**3,147**	$512	$1,323	$11,661
2001	1,645	147	422	784	**2,998**	$541	$1,210	$12,117
2002	1,591	130	280	676	**2,677**	$483	$868	$10,427
2003	1,825	71	272	518	**2,686**	$545	$837	$8,616
2004	1,999	52	319	591	**2,961**	$692	$997	$10,229
2005	2,326	139	375	750	**3,590**	$805	$1,189	$13,161
2006	2,513	242	412	886	**4,053**	$857	$1,389	$16,569
2007	2,417	258	459	1,138	**4,272**	$897	$1,582	$19,431
2008	1,943	176	535	1,315	**3,969**	$945	$1,947	$21,946

Source: General Aviation Manufacturers Association (GAMA) 2008 General Aviation Statistical Databook.

3.1.3.2 Active GA Fleet

In 2008, the FAA estimated that the Nation's active GA fleet consisted of 234,015 aircraft. As presented in **Table 3-3**, the growth of the active GA aircraft fleet was forecast to increase by an annual average rate of 1.0 percent through 2025, growing to 275,230

in 2025. Single-engine piston aircraft are the dominant aircraft in the GA fleet mix but are expected to grow annually by just 0.1 percent overall through 2025.

The more expensive, turbine-powered fleet is projected to grow at an average annual rate of 1.4 percent for turbo prop and 4.8 percent for turbo jet through 2025. The FAA attributes the growth of turbine aircraft to the success of fractional ownership, the introduction of new types of turbine aircraft that have piqued buyer interest and a transition from commercial air travel to corporate/business air travel by many business travelers and corporations. Helicopters continue to show continual growth. In 2005, a new category of aircraft was created and at the end of 2008 a total of 6,975 light sport aircraft (LSA) were active. The FAA assumes that relatively inexpensive very light jet (VLJ) aircraft as well as new LSA will dilute or weaken the replacement market for piston-engine aircraft. The FAA Forecasts project a 5.0 percent average annual growth rate to 15,865 sport aircraft by 2025.

Hours Flown

As presented in **Table 3-4**, the number of GA hours flown is projected to increase by 1.8 percent annually from 27,784,000 in 2008 to 37,846,000 in 2025. Much of the increase reflects increased flying by business and corporate aircraft as well as steady, if relatively small, annual percentage increases in utilization rates for piston aircraft. Hours flown by turbine aircraft are forecast to increase by 3.6 percent annually over the forecast period, compared to 0.4 percent annual growth for piston-powered aircraft. Helicopter hours flown are forecast to increase annually by 2.9 percent through the forecast period. The most notable projected increase in annual hours flown is in the sport aircraft which are expected to grow at an average rate of 7.1 percent over the forecast period.

Active Pilots

The number of active general aviation pilots declined from 625,581 in 2000 to 613,741 in 2008. The FAA has predicted that this decline will continue through year 2015. However, between 2015 and 2025, the FAA predicts that the number of active GA pilots will increase from 608,000 pilots in 2015 to 665,550 in 2025. Critical to GA and the aviation industry as a whole are the number of active student pilots. The number of active student pilots is projected to increase from 80,989 in 2008 to 86,600 in 2025, an average annual rate of 0.4 percent. The largest existing and projected growth is in the sport pilot category. In 2008, the number of sport pilot certificates issued was 2,623. The FAA projected that 20,600 new sport pilots will be certified during the forecast period, an average annual increase of 12.9 percent.

Table 3-3. Active General Aviation Aircraft

	Fixed Wing Piston		Fixed Wing Turbine		Rotorcraft					
	Single Engine	Multi-Engine	Turbo Prop	Turbo Jet	Piston	Turbine	Experi-mental	Sport	Other	Total Fleet
Historical										
2000	149,422	21,091	5,762	7,001	2,680	4,470	20,407	NA	6,700	217,533
2001	145,034	18,192	6,596	7,787	2,292	4,491	20,421	NA	6,633	211,446
2002	143,503	17,483	6,841	8,355	2,351	4,297	21,936	NA	6,478	211,244
2003	143,265	17,491	7,689	7,997	2,123	4,403	20,550	NA	6,088	209,606
2004	146,613	18,469	8,379	9,298	2,315	5,506	22,800	NA	5,939	219,319
2005	148,101	19,412	7,942	9,823	3,039	5,689	23,627	170	6,459	224,262
2006	145,036	18,708	8,063	10,379	3,264	5,895	23,047	1,273	6,277	221,942
2007	147,569	19,337	9,514	10,385	2,769	6,798	23,228	6,066	5,940	231,606
2008	146,590	19,130	9,600	11,400	3,070	7,145	224,100	6,965	6,015	234,015
Forecast										
2010	144,960	18,795	9,740	13,155	3,565	7,735	25,615	8,765	6,085	238,415
2015	143,530	17,910	10,540	17,100	4,550	8,970	29,125	12,665	6,060	250,450
2020	144,880	16,965	11,480	20,945	5,250	9,920	32,025	14,365	6,010	261,840
2025	148,545	16,005	12,245	25,165	5,925	10,870	34,625	15,865	5,985	275,230
Average Annual Growth Rate										
2000-2008	-0.2%	-1.2%	6.6%	6.3%	1.7%	6.0%	2.1%	NA	-1.3%	0.9%
2008-2025	0.1%	-1.0%	1.4%	4.8%	3.9%	2.5%	2.2%	5.0%	0.0%	1.0%

Source: Federal Aviation Administration Aerospace Forecast Fiscal Years 2009-2025.

Table 3-4. Active General Aviation Aircraft Hours Flown (in thousands)

	Fixed Wing Piston		Fixed Wing Turbine		Rotorcraft					
	Single Engine	Multi-Engine	Turbo Prop	Turbo Jet	Piston	Turbine	Experi-mental	Sport	Other	Total Fleet
Historical										
2000	18,089	3,400	1,986	2,755	531	1,777	1,307	NA	374	30,219
2001	16,549	2,644	1,773	2,654	474	1,478	1,157	NA	287	27,016
2002	16,325	2,566	1,850	2,745	453	1,422	1,345	NA	333	27,039
2003	16,680	2,317	1,922	2,704	448	1,687	1,293	NA	264	27,315
2004	15,363	2,763	2,161	3,719	514	2,020	1,322	NA	249	28,111
2005	13,739	2,677	2,160	3,767	678	2,438	1,340	9	271	27,078
2006	13,976	2,550	2,162	4,077	918	2,528	1,218	66	211	27,705
2007	13,571	2,686	2,661	3,938	704	2,541	1,275	260	215	27,852
2008	13,530	2,591	2,594	4,043	703	2,484	1,316	305	219	27,784
Forecast										
2010	13,150	2,479	2,640	4,745	785	2,615	1,385	399	224	28,420
2015	12,867	2,161	2,849	6,283	1,015	3,070	1,614	636	228	30,723
2020	13,498	2,011	3,041	7,835	1,186	3,438	1,820	796	232	33,856
2025	14,643	2,019	3,219	9,569	1,355	3,815	2,017	971	237	37,846
Average Annual Growth Rate										
2000-2008	-3.6%	-3.5%	3.4%	4.3%	3.6%	5.2%	0.1%	NA	-6.5%	-1.0%
2008-2025	0.5%	-1.5%	1.3%	3.9%	3.9%	2.6%	2.5%	7.1%	0.5%	1.8%

Source: Federal Aviation Administration Aerospace Forecast Fiscal Years 2009-2025.

AIRPORT SERVICE AREA AND SOCIOECONOMIC INFLUENCES

4

San Antonio International Airport

4.0 INTRODUCTION

Socioeconomic data and analysis for an airport's market area provides an indication of the air travel demand at the airport. This chapter presents historical and future socioeconomic data in order to develop an understanding of the characteristics of the region, the change in these characteristics over time, and to identify any associated regional trends.

4.1 DEFINED AIRPORT SERVICE AREA

As shown in **Figure 4-1**, the Airport Service Area (ASA) for the San Antonio International Airport (SAT or Airport) consists of a primary and secondary market. The primary market of the ASA is the area immediately surrounding SAT, whose population and economic activity generate the majority of the aviation activity. That area is defined as the San Antonio Metropolitan Statistical Area (MSA), which includes the following counties: Bexar, Kendall, Comal, Guadalupe, Wilson, Atacosta, Medina, and Bandera.

On a regional level, SAT draws passengers from the north in the Texas Hill County to the west as far as Del Rio, south to Laredo and Harlingen, and east to Corpus Christi.[1] The secondary market includes the following counties in Texas: Dimmit, Edwards, Frio, Gillespie, Gonzales, Karnes, Kerr, Kimble, Kinney, LaSalle, Maverick, McMullen, Real, Uvalde, Valverde, and Zavala.

4.2 SOCIOECONOMIC INFLUENCES

The socio-economic characteristics of the surrounding community and overall region are important factors in estimating the demand for aviation services at an airport and evaluating the overall opportunity for future development. Population demographics, in addition to employment and earnings statistics, provide indications of the community's ability to support aviation activities over an extended time period. The statistical link between those social and economic indicators can be used to gauge the overall community demand for aviation services and is often used to support aviation activity forecasts and airport development planning. Thus, varieties of historical and forecast socio-economic characteristics were obtained for use in developing the Terminal Area Forecast (TAF) Update portion of this study. The socioeconomic factors that were evaluated for the SAT MSA and ASA include historical and projected levels of population, employment, total earnings, and per capita income. Each factor is described below. Information for those factors was obtained from Woods and Poole Economics, Inc. of Washington, D.C.

[1] San Antonio International *Airline Competition Plan Fiscal Years 2003-2004.*

Figure 4-1. SAT Airport Service Area

Sources: San Antonio Aviation Department and PBS&J, 2009.

4.2.1 Population

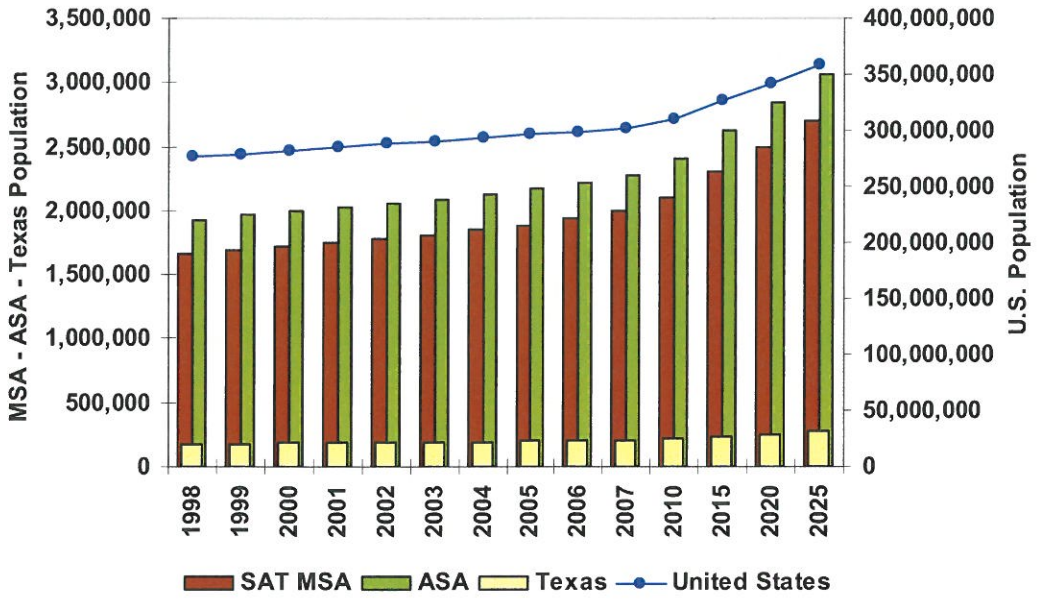
The size and changes of local population often relate directly to the size of the pilot population and extent of aircraft ownership within a given market. Historical and projected levels of population in the SAT MSA, ASA, State of Texas, and the United States are summarized in **Table 4-1** and illustrated in **Figure 4-2**. The population in the SAT MSA increased at an average annual growth rate of 2.0 percent from 1.7 million in 1998 to 2.0 million in 2008. The population of the State of Texas grew at a slightly lower rate of 1.9 percent during the same period. The projection of population for the SAT MSA and ASA is expected to experience an average annual growth rate of 1.7 and 1.6 percent, respectively, through 2025.

Table 4-1. Historical and Projected Population

Year	SAT MSA	ASA	State of Texas	United States
Historical				
1998	1,659,847	1,929,672	20,157,531	275,854,104
1999	1,689,009	1,961,770	20,558,220	279,040,168
2000	1,719,409	1,994,339	20,948,843	282,194,308
2001	1,744,550	2,019,974	21,340,494	285,112,030
2002	1,779,168	2,057,251	21,730,350	287,888,021
2003	1,810,903	2,091,169	22,085,973	290,447,644
2004	1,847,636	2,129,992	22,454,811	293,191,511
2005	1,882,785	2,167,278	22,843,999	295,895,897
2006	1,936,750	2,223,686	23,407,629	298,754,819
2007	1,990,675	2,279,795	23,904,380	301,621,157
2008	2,028,428	2,322,050	24,293,680	304,579,417
Forecast				
2010	2,104,564	2,407,285	25,080,201	310,603,348
2015	2,297,146	2,622,995	27,074,443	326,038,477
2020	2,493,389	2,842,929	29,112,715	342,020,014
2025	2,691,857	3,065,435	31,177,079	358,302,480
Average Annual Growth Rates				
1998-2008	2.0%	1.9%	1.9%	1.0%
2008-2025	1.7%	1.6%	1.5%	1.0%

Sources: Woods & Poole Economics, Inc. and PBS&J, 2009.

Figure 4-2. Historical and Projected Population



Sources: Woods & Poole Economics, Inc. and PBS&J, 2009.

4.2.2 Employment

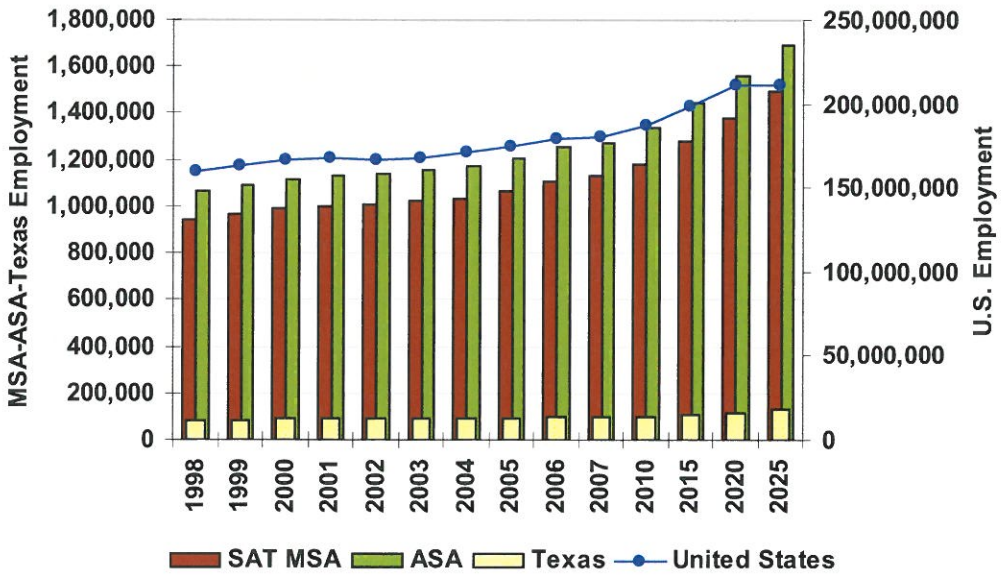
The level of employment provides another perspective into the economic stability of a given geographic area and the propensity for aviation activity. The historical and projected levels of employment for the SAT MSA, ASA, State of Texas, and United States are summarized in **Table 4-2** and illustrated in **Figure 4-3**. Historical growth in employment in the SAT MSA and ASA between 1998 and 2008 was robust with an average annual growth rate of 2.0 percent. The employment growth rate of the State of Texas outpaced the United States with an average annual growth rate of 1.8 percent verses 1.4 percent. The projection of employment for the SAT MSA and ASA is expected to increase at an average annual growth rate of 1.6 percent through 2025.

Table 4-2. Historical and Projected Employment

Year	SAT MSA	SAT ASA	State of Texas	United States
Historical				
1998	940,950	1,063,546	11,645,767	159,628,114
1999	965,792	1,090,607	11,895,285	162,955,412
2000	988,991	1,117,013	12,244,694	166,758,669
2001	1,000,691	1,129,557	12,356,255	167,014,580
2002	1,009,139	1,140,023	12,370,458	166,633,047
2003	1,021,711	1,158,141	12,490,478	167,553,448
2004	1,034,998	1,172,678	12,656,185	170,512,658
2005	1,064,910	1,207,411	13,018,374	174,176,362
2006	1,110,219	1,255,804	13,514,136	178,332,932
2007	1,127,593	1,275,452	13,714,312	180,481,565
2008	1,145,348	1,295,460	13,916,829	182,657,692
Forecast				
2010	1,181,741	1,336,509	14,331,396	187,088,401
2015	1,278,120	1,445,281	15,424,728	198,640,326
2020	1,382,724	1,563,474	16,605,376	210,905,689
2025	1,496,223	1,691,905	17,880,700	210,905,689
Average Annual Growth Rates				
1998-2008	2.0%	2.0%	1.8%	1.4%
2008-2025	1.6%	1.6%	1.5%	0.8%

Sources: Woods & Poole Economics, Inc. and PBS&J, 2009.

Figure 4-3. Historical and Projected Employment



Sources: Woods & Poole Economics, Inc. and PBS&J, 2009.

4.2.3 Per Capita Income

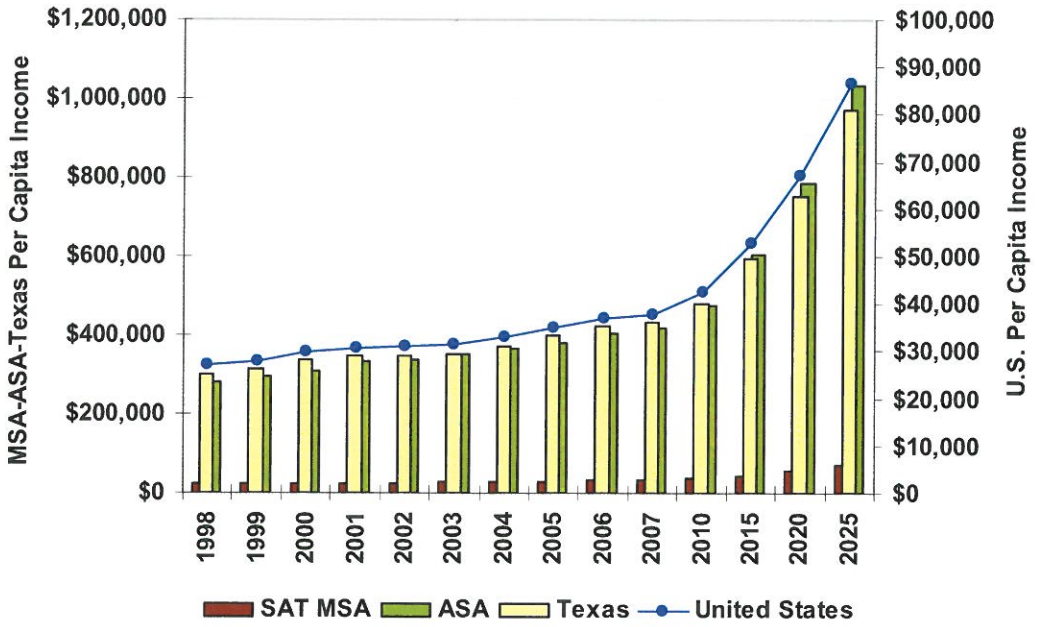
Per Capita Income (PCI) represents the average income of a particular area, and is calculated by dividing the gross (total) income of an area by its population. PCI can be a valuable indication of the economic conditions of a particular area. Strong income coupled with strength in overall employment levels and specific categories of employment are typically needed to support business and leisure traveling as well as the use and ownership of aircraft by both business and recreational user categories. Historical and projected PCI for the SAT MSA, ASA, State of Texas, and the United States are summarized in **Table 4-3** and illustrated in **Figure 4-5**. The SAT MSA grew at an average annual growth rate of 4.1 percent from 1998 to 2008. The ASA grew at an average annual growth rate of 4.6 percent from 1998 to 2008. During the same time period, the State of Texas and the United States grew at 4.0 and 3.8 percent, respectively. Projections of future PCI obtained through 2025 indicate that the PCI for the State of Texas and the SAT MSA is expected to increase at an average annual growth rate of 4.7 percent. Meanwhile, the ASA is projected to continue to experience a very strong average annual growth rate of 5.2 percent through 2025.

Table 4-3. Historical and Projected Per Capita Income

Year	SAT MSA	ASA	Sate of Texas	United States
Historical				
1998	$22,397	$279,679	$25,186	$26,883
1999	$23,523	$294,912	$26,250	$27,939
2000	$25,472	$308,823	$28,314	$29,845
2001	$25,918	$331,041	$29,036	$30,574
2002	$25,974	$336,624	$28,835	$30,821
2003	$26,750	$350,571	$29,404	$31,504
2004	$27,978	$368,771	$30,948	$33,123
2005	$30,062	$383,181	$33,253	$34,757
2006	$31,648	$404,687	$35,166	$36,714
2007	$32,369	$421,046	$36,107	$37,743
2008	$33,480	$437,103	$37,355	$39,097
Forecast				
2010	$36,091	$475,385	$40,262	$42,269
2015	$44,720	$603,519	$49,758	$52,653
2020	$56,746	$783,360	$62,858	$66,914
2025	$73,468	$1,034,809	$80,909	$86,469
Average Annual Growth Rates				
1998-2008	4.1%	4.6%	4.0%	3.8%
2008-2025	4.7%	5.2%	4.7%	4.8%

Sources: Woods & Poole Economics, Inc. and PBS&J, 2009.

Figure 4-4. Historical and Projected Per Capita Income



Sources: Woods & Poole Economics, Inc. and PBS&J, 2009.