

APPENDIX A

FORECAST VALIDATION

SUMMARY

This forecast validation was prepared to assess the appropriateness of the Master Plan forecast, which was developed using 1999 base year historical data. The introduction section below details the reasons and the basis for the updated forecast, which uses 2003 base year data. **Table A-1** provides a comparison of the Master Plan forecast and the Updated Forecast.

Year	Annual Enplaned Passengers		Total Annual Air Cargo¹		Total Annual Aircraft Operations	
	Master Plan Forecast	Updated Forecast	Master Plan Forecast	Updated Forecast	Master Plan Forecast	Updated Forecast
2005	5,170,900	4,964,100	239,071,600	168,255,000	188,800	157,000
2010	6,009,800	6,131,300	293,495,800	199,833,000	209,000	178,000
2015	7,261,800	7,283,600	354,189,000	237,340,000	239,000	198,000
2020	7,980,900	8,486,000	419,039,100	281,884,000	256,000	213,000

Source: PB Aviation

Note: (1) Air cargo forecast data in pounds.

As shown in Table A-1, the 2020 passenger forecast is within six percent of the Master Plan base forecast for the year 2020; this is a nominal variance given the assumptions and uncertainties in forecasting. While the Master Plan passenger forecast includes eight alternative forecast scenarios, the base case has been used for planning and is the basis for this comparison. There is a substantial difference between the two forecasts in the projection of air cargo activity, due to structural changes in the cargo industry and a shift in activity between the Airport and other airports in the region. The updated forecast projects approximately 33 percent fewer pounds of cargo will be handled at the Airport in 2020. The operations forecasts for the year 2020 are approximately 20 percent lower because of the shift of cargo flights to other airports, the increase in size of aircraft and reduction of turbo-prop and regional jet flights.

Given the close correlation between the Master Plan and the Updated Forecast for passengers, it is clear that the Master Plan forecast remains valid for planning purposes. It is recommended that the Sacramento County Airport System (SCAS) closely monitor the cargo activity levels to determine the appropriateness of developing additional cargo facilities, given the variance between the two cargo forecasts and the uncertainties regarding future cargo activity at the Airport.

INTRODUCTION

The purpose of this supplemental analysis is to evaluate whether or not the Master Plan forecast of aviation activity at Sacramento International Airport (SMF, the Airport) remains valid for long-term facility planning. An unavoidable delay in completion of the Master Plan has led to questions concerning the currency and appropriateness of the forecast. The Master Plan forecast was based upon actual Airport activity in 1999, while this analysis updates the base year to 2003 – a period in which the aviation industry have undergone substantial change.

A forecast evaluation is needed to determine if the Master Plan recommendations are appropriate and sufficient for implementation. Two additional reasons suggest a review of aviation demand in the Sacramento market is prudent. First, the national aviation market has been in turmoil following the events of September 11, 2001 and only now appears to be returning to a growth trend. Second, while national aviation activity has declined, SMF has experienced above-average growth of passengers. This analysis will evaluate why Sacramento is running counter to the national trends and if there will be any divergence from the Master Plan forecast over the long-term.

Factors influencing the national aviation industry in the recent past have included:

- Economic recession in the early part of the decade.
- Suspension of commercial and general aviation air travel in the U.S. for a short period following the events of September 11, 2001.

- Significantly increased security at all U.S. airports and the delays and inconveniences to passengers, as well as the increased security costs.
- Increased cost of jet fuel leading to higher operating costs for the airlines.
- Bankruptcy or threat of bankruptcy for many of the network air carriers and the continued growth of low fare airlines.
- The transition from turboprop aircraft to regional jet (RJ) operations.

In combination, these issues and events have led to a nationwide decrease in the propensity for commercial passenger air travel. However, the Federal Aviation Administration (FAA) expects levels of air passengers to return to a more typical growth pattern; the FAA, at the national level expects the future growth of air passengers to follow traditional indicators such as population and economic trends.

Specifically for the Airport, the number of commercial air passengers has been up for each year since 1991 and the projection is that 2004 will have substantially more passengers than 2003. In fact, 2004 passengers are projected to be 8.2 percent higher than 2003 based on August year-to-date traffic. While this analysis is based on calendar year 2003 data, it is important to note the very strong growth trend that is occurring in 2004.

Since the Master Plan forecast was prepared, the following aviation factors and changes have occurred at SMF, and competing airports, that are material to future activity levels:

- The post 9/11 aviation industry environment, including the decrease in short-haul trips, the financial instability of the air carriers, and the decline in the use of turbo-props.
- The entry of Jet Blue into the SMF market and the expectation that other low fare carriers will add/increase service at SMF.
- The changes to the fleet mix with significantly more RJs than contained in the Master Plan forecast and the introduction of new-technology 70 and 100 passenger RJs.
- The continued strength of the economic climate in the Sacramento region.
- The growth of air traffic at Oakland and the expected short-term decline at San Francisco; these passenger activity level changes at other regional airports may be tied to the level of airport costs and the strengths/weakness of the main carrier at each of the airports in the region.
- The expected start-up of Virgin America service in the Bay Area.

- The initiation of scheduled international service at SMF and a greater than expected increase in international enplanements.

Particularly significant is the introduction since 1999 of other new airlines at the Airport in addition to Jet Blue, such as Hawaiian, Aloha, Frontier and Mexicana.

FORECAST METHODOLOGY

Activity forecasts are intended for use in planning the facility needs of the Airport. The forecasts are used to determine the expected activity levels for the airside, terminal, vehicle access/parking, air cargo, general aviation, and other facilities. Because future activity levels cannot be guaranteed, these forecasts are recommended to identify the long-term trends in aviation activity and not the specific activity in any given year. The forecast output is a trend line with every five years indicated to identify the long-term levels and types of aviation activity. Given the variability in known factors and the potential for unknown factors to arise, individual forecast years might be above or below the long-term trend line.

To evaluate the validity of the Master Plan forecast, this analysis is based on a fresh, independent forecast using more current data to:

- Identify the Airport's service region (Air Trade Area).
- Provide economic and demographic data on the Air Trade Area and provides other local economic indicators.
- Identify the current scheduled passenger service and compare this to similar regional markets.
- Present the historical passenger aviation traffic at the Airport by airline and market.
- Present and analyze the passenger origin and destination information.
- Present the passenger forecast assumptions and develop the projections based on updated information.
- Develop the air cargo forecast.
- Identify general aviation and military traffic projections.
- Calculate the aircraft operations projections.

In general, the historical traffic, local economic indicators, and national trends, as well as other stated factors, will be used to develop projections of aviation activity at the Airport over the forecast period.

IDENTIFICATION OF THE AIR TRADE AREA

The prime geographic region served by an airport is referred to as an “air trade area.” For purposes of this report, the Air Trade Area of the Airport is defined as the Sacramento, California, Primary Metropolitan Statistical Area (PMSA). This PMSA is the official Bureau of Census definition of the Sacramento market and consists of three counties: El Dorado, Placer, and Sacramento. It is recognized that air passengers can (and will) come into the Air Trade Area from outside the PMSA and local residents/visitors can use airports other than the Airport; however, the majority of air traffic demand is focused within the PMSA. These counties in the Air Trade Area with their 2000 Census Bureau populations are shown on **Table A-2**.

TABLE A-2		
<i>Sacramento International Airport</i>		
AIR TRADE AREA POPULATION		
County	2000 Population	Share of Region
El Dorado	156,299	9.6%
Placer	248,399	15.3%
Sacramento	1,223,499	75.1%
Total	1,628,197	100.0%

Source: Bureau of Census, 2004

As shown on the table, Sacramento County (the location of the City of Sacramento) has more than 75 percent of the PMSA population.

The County of Sacramento is adjacent to six additional counties of importance besides the two (El Dorado and Placer) that are in the Air Trade Area. These six additional counties form a secondary market for the Airport and are identified in **Table A-3** with the Census population for 2000.

TABLE A-3	
<i>Sacramento International Airport</i>	
SECONDARY MARKET AREA POPULATION	
County	2000 Population
Amador	35,100
Contra Costa	948,816
San Joaquin	563,598
Solano	394,542
Sutter	78,930
Yolo	168,660
Total	2,189,646

Source: Bureau of Census, 2004

The population of the secondary market represents over two million residents and exceeds the Air Trade Area in population. However, the three largest of these counties (Contra Costa, San Joaquin, and Solano) have their densest population closer to the San Francisco Bay area and thus their residents/visitors may more easily use alternative airports. In fact, the counties of Solano and Contra Costa are in the San Francisco Consolidated Metropolitan Statistical Area. While this does not mean that residents and visitors of these counties would not use the Airport, it indicates a competition for these air travelers.

Because no other commercial passenger service airports are located in the Air Trade Area, the Airport serves as the primary commercial passenger airport for the region. For the purposes of the remainder of this report, the analysis will focus on the three-county PMSA identified as the Air Trade Area.

AIR TRADE AREA DEMOGRAPHIC AND ECONOMIC BACKGROUND

Demographic and economic factors typically provide the foundation for passenger air service demand at an airport. This section provides historical data on the factors influencing air traffic demand in the Air Trade Area and compares the region to California and national averages.

Population

The population of the Air Trade Area is estimated at 1,754,440 in 2003 according to National Planning Association (NPA) data, which is based on and updated from United States Census data. The NPA data is an independent source that provides projections that have been used in forecasting. The area has grown at an average annual compound growth rate of 1.9 percent between 1990 and 2003. In comparison, both California and the United States grew at lower average annual growth rates (1.3 percent and 1.2 percent, respectively) in the same period.

In the future, NPA projects that the Air Trade Area population will continue to grow at a rate of 2.1 percent annually, while California and the United States are expected to grow at 1.3 percent and 1.0 percent, respectively. Thus, both the population of the Air Trade Area and the State of California are growing at a faster rate than that of the United States, with the Air Trade Area growing at rates substantially higher than the state. **Table A-4** presents the historic and forecast population of the Air Trade Area, California, and the United States; **Exhibit A-1** presents the Air Trade Area's population graphically.

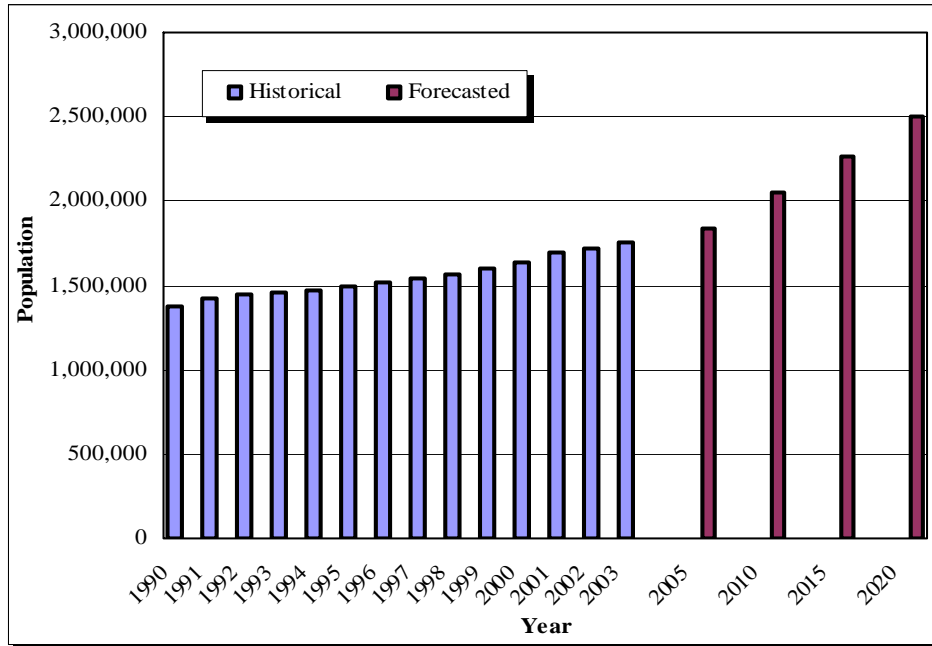
TABLE A-4
Sacramento International Airport
HISTORICAL AND PROJECTED POPULATION

Year	Air Trade Area	California	United States
1990	1,379,250	29,959,600	249,624,270
1991	1,421,890	30,470,750	252,982,420
1992	1,444,800	30,974,670	256,515,720
1993	1,459,920	31,274,980	259,920,100
1994	1,471,470	31,484,500	263,127,230
1995	1,492,470	31,696,640	266,279,690
1996	1,517,230	32,018,880	269,395,520
1997	1,541,620	32,486,020	272,648,420
1998	1,570,110	32,987,690	275,855,570
1999	1,601,960	33,499,200	279,217,167
2000	1,639,000	34,010,370	282,403,128
2001	1,692,760	34,578,650	285,318,000
2002	1,723,720	34,997,020	288,369,000
2003	1,754,440	35,420,410	291,339,000
2005	1,837,020	36,369,350	297,086,528
2010	2,046,830	38,825,490	312,293,218
2015	2,269,880	41,441,480	328,938,087
2020	2,501,840	44,173,020	346,697,662
Average Annual Compound Growth Rates			
1990-2003	1.9%	1.3%	1.2%
2003-2020	2.1%	1.3%	1.0%
1990-2020	2.0%	1.3%	1.1%

Source: NPA Data Services, Inc.

Note: NPA data can vary slightly from U.S. Census data due to updating.

EXHIBIT A-1
Sacramento International Airport
HISTORICAL AND PROJECTED POPULATION



Source: NPA Data Services, Inc.

Population growth has historically been one of the principal driving factors in the increase in air service and number of passengers; therefore, it is important in this analysis.

Employment

An estimated 1,012,330 persons were employed in the Air Trade Area in 2003. The rate of growth for this local employment was 2.2 percent between 1990 and 2003 versus 1.3 percent for California and 1.5 percent for the United States.

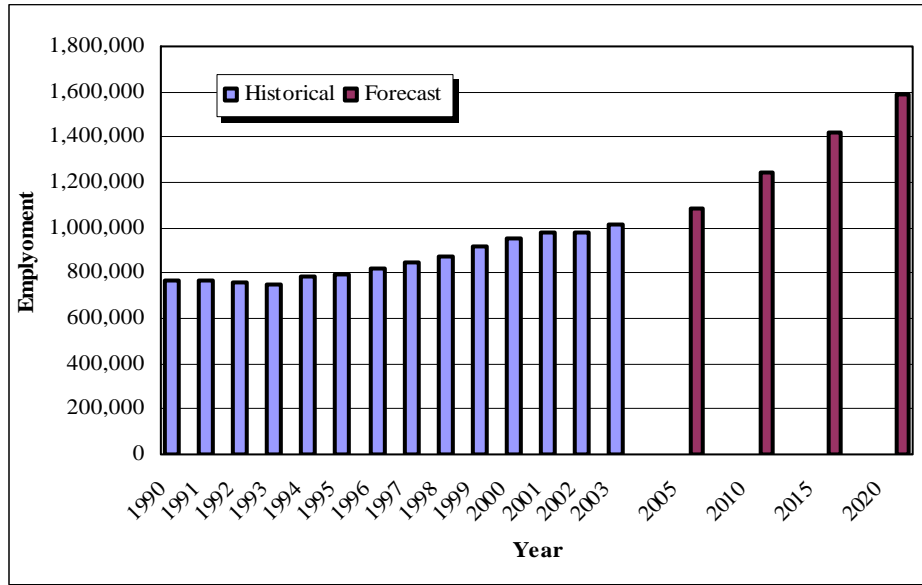
Through 2020, the Air Trade Area’s employment is projected to grow at a 2.7 percent average annual rate while California and the United States will grow at slower rates of 1.9 and 1.6 percent, respectively. The employment history and growth

projections are a very important indicator of the strong economic conditions in the region. This information is shown on **Table A-5** and **Exhibit A-2**.

TABLE A-5			
<i>Sacramento International Airport</i>			
HISTORICAL AND PROJECTED EMPLOYMENT			
Year	Air Trade Area	California	United States
1990	763,830	16,970,360	139,424,720
1991	766,050	16,877,630	138,652,790
1992	758,040	16,527,010	139,300,380
1993	753,210	16,505,960	141,993,910
1994	784,390	16,692,040	145,563,270
1995	797,860	17,093,640	149,364,070
1996	824,560	17,505,690	152,612,820
1997	848,650	17,841,960	156,213,900
1998	877,200	18,559,600	160,213,000
1999	920,050	19,049,590	163,448,801
2000	954,840	19,657,880	167,385,454
2001	975,910	19,833,580	167,638,923
2002	982,030	19,749,700	166,505,928
2003	1,012,330	20,159,770	169,344,055
2005	1,082,520	21,151,940	176,467,047
2010	1,247,240	23,505,060	193,117,181
2015	1,423,610	25,827,870	209,422,279
2020	1,584,780	27,805,050	222,947,810
Average Annual Compound Growth Rates			
1990-2003	2.2%	1.3%	1.5%
2003-2020	2.7%	1.9%	1.6%
1990-2020	2.5%	1.7%	1.6%

Source: NPA Data Services, Inc.

EXHIBIT A-2
Sacramento International Airport
HISTORICAL AND PROJECTED EMPLOYMENT



Source: NPA Data Services, Inc.

Total Earnings

The combined earnings of all the residents of the Air Trade Area have grown at a 3.6 percent average annual rate in the 1990-2003 period. During this same period, California grew at 2.8 percent, and earnings for the entire United States grew at 3.1 percent.

Through 2020, the Air Trade Area’s earnings are expected to grow at 3.9 percent annually, while California will grow at a 3.3 percent and the United States will grow at 3.0 percent. The economic health of the region is clearly evident in these projections. The amounts and growth rates are shown on **Table A-6** and **Exhibit A-3**.

TABLE A-6
Sacramento International Airport
HISTORICAL AND PROJECTE EARNINGS¹

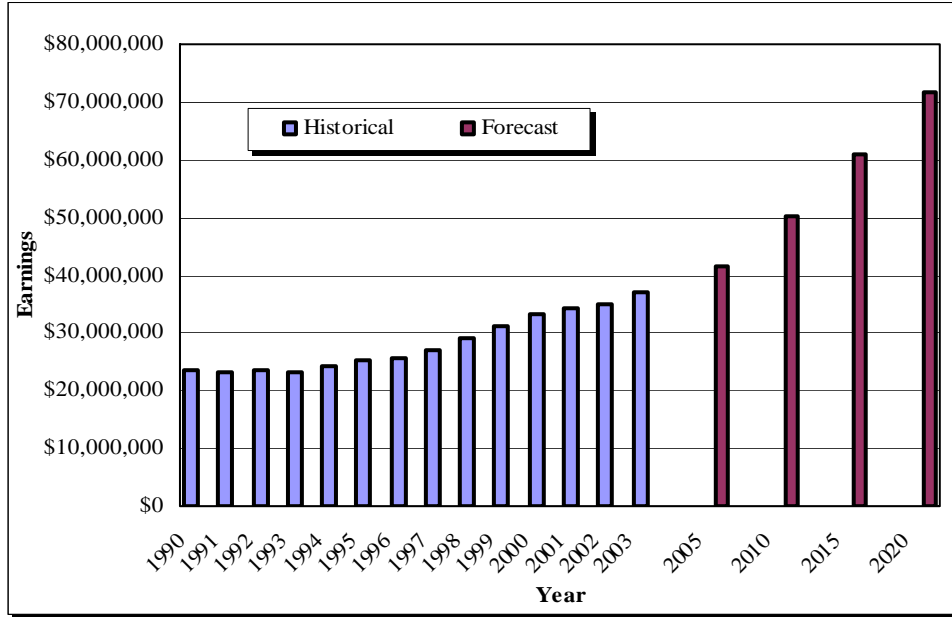
Air Trade			
Year	Area	California	United States
1990	\$23,502,890	\$555,785,130	\$4,045,708,850
1991	\$23,357,220	\$545,277,390	\$4,010,887,690
1992	\$23,635,250	\$552,433,240	\$4,156,801,090
1993	\$23,368,980	\$546,805,180	\$4,238,508,840
1994	\$24,359,400	\$549,526,760	\$4,353,981,650
1995	\$25,246,110	\$558,621,650	\$4,469,062,970
1996	\$25,660,760	\$576,433,950	\$4,603,815,430
1997	\$27,150,600	\$605,466,530	\$4,797,977,420
1998	\$29,192,960	\$650,239,440	\$5,099,521,460
1999	\$31,046,520	\$692,872,100	\$5,356,425,004
2000	\$33,243,300	\$755,642,230	\$5,634,735,374
2001	\$34,330,920	\$752,411,990	\$5,663,515,963
2002	\$35,042,320	\$761,023,580	\$5,712,348,217
2003	\$37,187,380	\$800,706,430	\$5,987,747,815
2005	\$41,457,520	\$878,001,240	\$6,520,203,558
2010	\$50,381,230	\$1,038,549,100	\$7,595,601,024
2015	\$60,784,720	\$1,210,702,390	\$8,743,307,007
2020	\$71,568,460	\$1,382,378,600	\$9,881,224,046
Average Annual Compound Growth Rates			
1990-2003	3.6%	2.8%	3.1%
2003-2020	3.9%	3.3%	3.0%
1990-2020	3.8%	3.1%	3.0%

Source: NPA Data Services, Inc.

Note:

(1) Earnings are represented in thousands.

EXHIBIT A-3
Sacramento International Airport
HISTORICAL AND PROJECTED EARNINGS



Source: NPA Data Services, Inc.

Note:

(1) Earnings are represented in thousands.

Per Capita Personal Income

The per capita personal income growth within the Air Trade Area has been comparable to the growth experienced in California and the United States during the 1990 through 2003 period. Through 2020, the three geographic areas are expected to continue growing at comparable rates, about 1.8 percent annually. The historical and projected per capita income are shown on **Table A-7** and **Exhibit A-4**.

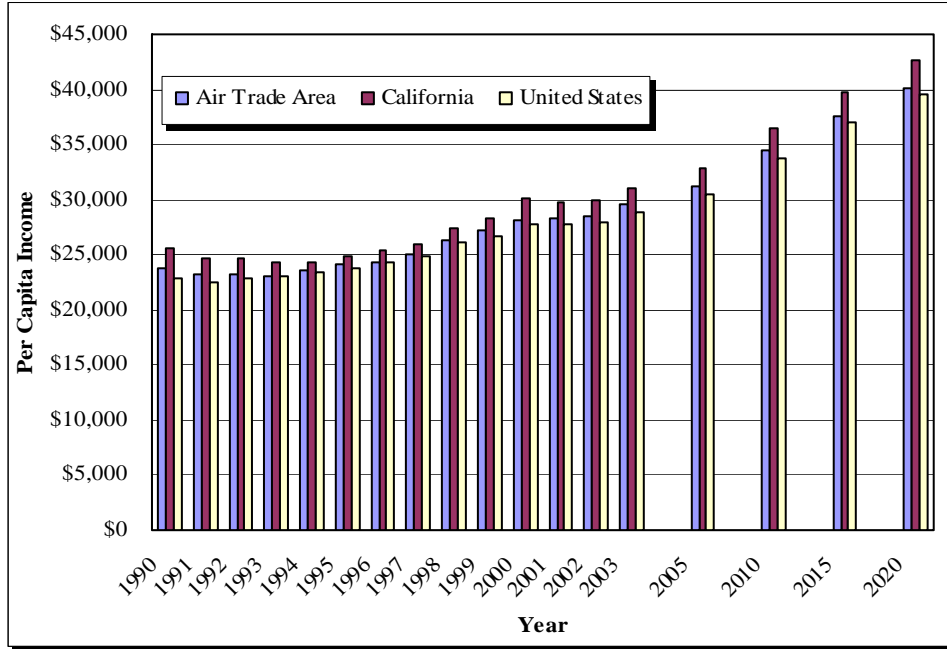
TABLE A-7			
<i>Sacramento International Airport</i>			
HISTORICAL AND PROJECTED			
PER CAPITA PERSONAL INCOME¹			
Year	Air Trade Area	California	United States
1990	\$23,805	\$25,554	\$22,856
1991	\$23,177	\$24,725	\$22,520
1992	\$23,294	\$24,722	\$22,877
1993	\$22,979	\$24,342	\$22,963
1994	\$23,595	\$24,397	\$23,344
1995	\$24,217	\$24,861	\$23,754
1996	\$24,303	\$25,373	\$24,270
1997	\$25,079	\$26,016	\$24,928
1998	\$26,293	\$27,412	\$26,108
1999	\$27,172	\$28,370	\$26,621
2000	\$28,168	\$30,136	\$27,712
2001	\$28,227	\$29,824	\$27,778
2002	\$28,551	\$30,030	\$27,969
2003	\$29,592	\$31,067	\$28,889
2005	\$31,235	\$32,875	\$30,532
2010	\$34,425	\$36,428	\$33,827
2015	\$37,537	\$39,784	\$36,954
2020	\$40,170	\$42,615	\$39,606
Average Annual Compound Growth Rates			
1990-2003	1.7%	1.5%	1.8%
2003-2020	1.8%	1.9%	1.9%
1990-2020	1.8%	1.7%	1.8%

Source: NPA Data Services, Inc.

Note:

(1) PCPI is presented in 1996 Dollars.

EXHIBIT A-4
Sacramento International Airport
HISTORICAL AND PROJECTED PER CAPITA PERSONAL INCOME¹



Source: NPA Data Services, Inc.
 Note: (1) PCPI is presented in 1996 Dollars.

CURRENT AIR SERVICE

For the Updated Forecast, the current air service at the Airport was evaluated and compared to national air service levels.

Current Weekly Flights

The Airport currently has non-stop commercial passenger flights to 26 cities via 13 airlines, including commuter airlines as part of the parent/affiliate air carriers. The number of weekly aircraft departures in the week October 10, 2004 schedule is shown on **Table A-8**.

TABLE A-8
Sacramento International Airport
OCTOBER 2004 WEEKLY NON-STOP AIR SERVICE

Destination	Number of Weekly Flights	Airline	Aircraft Type
Eureka	13	United Express	Turboprop
Atlanta	21	Delta	Mainline Jet
Boise	13	Horizon (Alaska)	Turboprop
Burbank	65	Southwest	Mainline Jet
Denver	60	Frontier & United	Mainline Jet
Dallas/Ft. Worth	34	American	Mainline Jet
Guadalajara	7	Mexicana	Mainline Jet
Honolulu	7	Hawaiian	Mainline Jet
Washington Dulles	14	JetBlue & United	Mainline Jet
Houston Intercontinental	14	Continental	Mainline Jet
John F Kennedy (NY)	7	JetBlue	Mainline Jet
Las Vegas	67	America West & Southwest United Express, Southwest, &	Mainline Jet
Los Angeles	75	United	Regional Jet & Mainline Jet
Kansas City	7	Southwest	Mainline Jet
Minneapolis/St. Paul	21	Northwest	Mainline Jet
Kahului Maui	7	Aloha	Mainline Jet
Ontario	75	Southwest	Mainline Jet
Chicago O'Hare	48	American & United	Mainline Jet Regional Jet, Mainline Jet, &
Portland Oregon	69	Alaska, Horizon, & Southwest	Turboprop
Phoenix	91	America West & Southwest	Mainline Jet
Palm Springs	7	Horizon	Turboprop
San Diego	92	Southwest	Mainline Jet
Seattle	72	Alaska & Southwest	Mainline Jet
San Francisco	60	United Express	Regional Jet & Turboprop
Salt Lake City	28	Delta & Skywest	Mainline Jet & Regional Jet
Santa Ana (John Wayne)	46	Southwest	Mainline Jet
TOTAL	1,020		

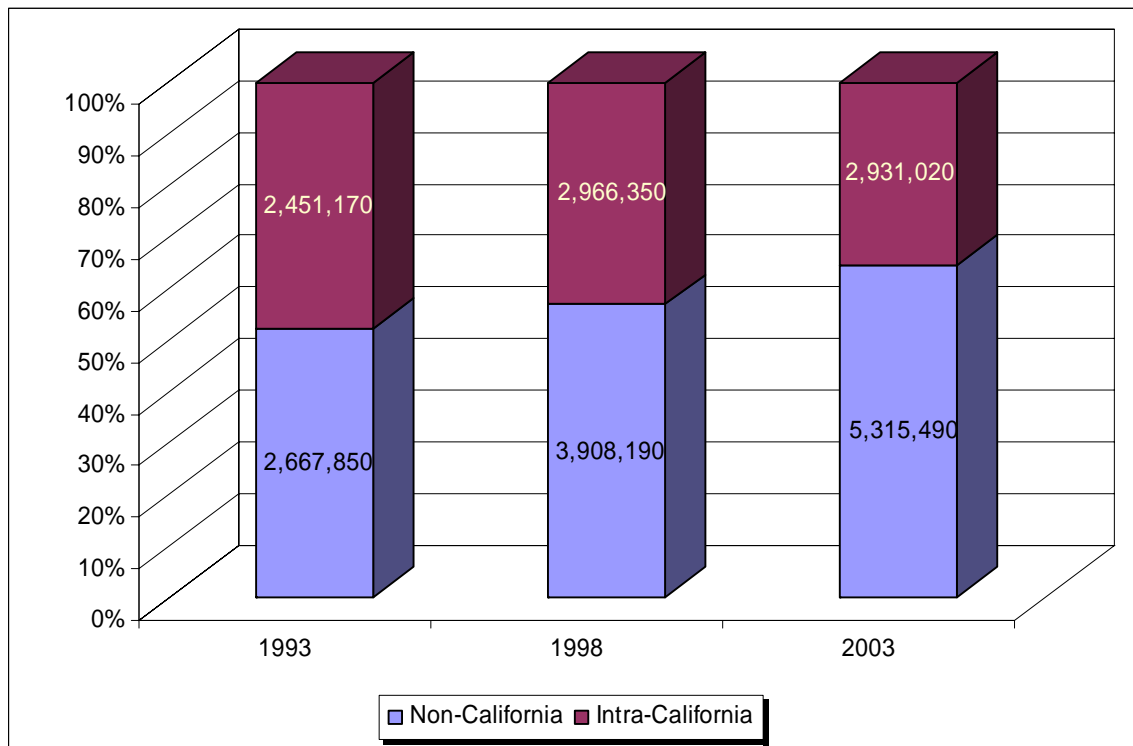
Source: Official Airline Guide, September 2004

The number of weekly scheduled commercial passenger flights totals 1,020 or approximately 146 per day. The schedule includes one daily international flight to Guadalajara, which will be addressed in the international service section; however, international and domestic passengers will be aggregated in most sections of the passenger forecast.

Comparison of Air Service to/from California Airports

Traditionally, the Airport may have been viewed as a facility serving intrastate travel in connection with state capital business and ten years ago that was generally true. In 1993, the number of passengers on flights to and from points within the state was nearly equal to out of state travel, but since that time the number of in-state travelers has grown by only 19 percent, while the number of out of state travelers has more than doubled. From the 50 percent of the market represented by in-state travelers ten years ago, the percentage in 2003 is down to approximately one-third. The share of intrastate versus out of state travel for 1993, 1998, and 2003 is shown in **Exhibit A-5**.

EXHIBIT A-5
Sacramento International Airport
Share of O&D Passengers – In and Out of California



Source: FAA, O&D Statistics, 2004

A review of the in-state and out-of-state statistics leads to two questions:

- Why has intra-California traffic remained generally static?
- Why has out of state traffic grown so dramatically?

There are no absolute answers to these questions; however, in this period driving has competed with many short and medium length trips as the cost and inconvenience of air travel has increased. The Airport has seen a substantial increase in out-of-state air service in the period and the fares on these routes have dropped. In the future, continued faster growth of out of state and international travel is likely as intra-state air travel will continue to compete with the automobile.

HISTORICAL PASSENGER AIR TRAFFIC AND AIR SERVICE

The historical passenger levels at the Airport are a key factor in forecasting future activity. Both annual and monthly passenger totals will be examined, as well as traffic by airline.

Historical Enplaned Passengers

The Airport has a very strong record of historical passenger activity increases as shown in **Table A-9**.

TABLE A-9
Sacramento International Airport
HISTORICAL ENPLANED PASSENGERS

Enplaned Passengers					
Year	Domestic	International	Charter	Total	Annual Change
1980	1,133,306	0	N/A	1,133,306	-
1981	1,135,931	0	N/A	1,135,931	0.2%
1982	1,224,782	0	N/A	1,224,782	7.8%
1983	1,293,688	0	N/A	1,293,688	5.6%
1984	1,312,700	0	N/A	1,312,700	1.5%
1985	1,446,003	0	N/A	1,446,003	10.2%
1986	1,734,118	0	N/A	1,734,118	19.9%
1987	1,913,292	0	N/A	1,913,292	10.3%
1988	1,880,609	0	N/A	1,880,609	-1.7%
1989	1,886,797	0	N/A	1,886,797	0.3%
1990	1,815,896	0	N/A	1,815,896	-3.8%
1991	2,175,982	0	N/A	2,175,982	19.8%
1992	2,562,597	0	N/A	2,562,597	17.8%
1993	2,661,316	0	N/A	2,661,316	3.9%
1994	2,963,948	0	N/A	2,963,948	11.4%
1995	3,343,472	0	10,484	3,353,956	13.2%
1996	3,455,635	0	9,142	3,464,777	3.3%
1997	3,482,362	0	1,552	3,483,914	0.6%
1998	3,591,211	0	2,436	3,593,647	3.1%
1999	3,761,890	0	2,733	3,764,623	4.8%
2000	3,961,040	0	2,593	3,963,633	5.3%
2001	4,018,618	0	3,687	4,022,305	1.5%
2002	4,244,553	11,090	2,281	4,257,924	5.9%
2003	4,358,985	26,215	2,607	4,387,807	3.1%

Source: Sacramento County Airport System

N/A: not available

The growth of annual passengers appears relatively steady from 1980 until 2003 with only two declining annual traffic years in the period. Southwest Airlines entered the Sacramento market in late 1991 further stimulating air travel; however, there had been a ticket price war in California prior to that date as US Air (now US Airways) had acquired PSA and was in vigorous competition with American and other airlines.

In the last five years, the Airport has seen passenger growth continue while most U.S. airports experienced decreases. The 2004 estimated passenger level is 4,748,000 based on traffic in the first eight months; this indicates 2004 (at an 8.2 percent increase) may be the best year for passenger growth since 1995. Data on 2004 passenger

enplanements is presented as anecdotal information only and has not been used in the Updated Forecast analysis.

Note that “domestic” in the table indicates that passengers left the Airport on a flight to another domestic destination. Many of these passengers changed to international flights later in their journey at a “gateway” airport. “International” indicates a departure from the Airport directly to a foreign destination.

Historical Passengers by Airline

Southwest Airlines has the largest market share at the Airport, while United (including its affiliated commuter carriers) and Alaska (including wholly-owned subsidiary Horizon) are the second and third largest, respectively. Together, the three largest airlines carried more than 70 percent of Airport passengers in 2003. The most recent five years of enplaned passengers by airline is shown in **Table A-10**.

TABLE A-10						
<i>Sacramento International Airport</i>						
ENPLANED PASSENGERS BY AIRLINE						
Airline	1999	2000	2001	2002	2003	2003 Share
Southwest	1,829,547	1,994,952	2,038,192	2,221,805	2,256,124	51%
United	760,755	751,219	697,608	563,115	628,897	14%
Alaska/Horizon	275,727	262,838	257,855	279,904	305,314	7%
Delta	254,801	250,302	237,209	261,080	267,445	6%
America West	252,741	289,090	343,333	305,391	261,627	6%
American	160,327	157,883	158,150	286,400	255,780	6%
Northwest	94,959	112,436	115,917	130,106	123,003	3%
Continental	-	43,046	73,104	85,911	97,682	2%
Other Airlines	135,766	101,867	100,937	124,212	190,940	4%
Total	3,764,623	3,963,633	4,022,305	4,257,924	4,386,812	100%

Source: Sacramento County Airport System

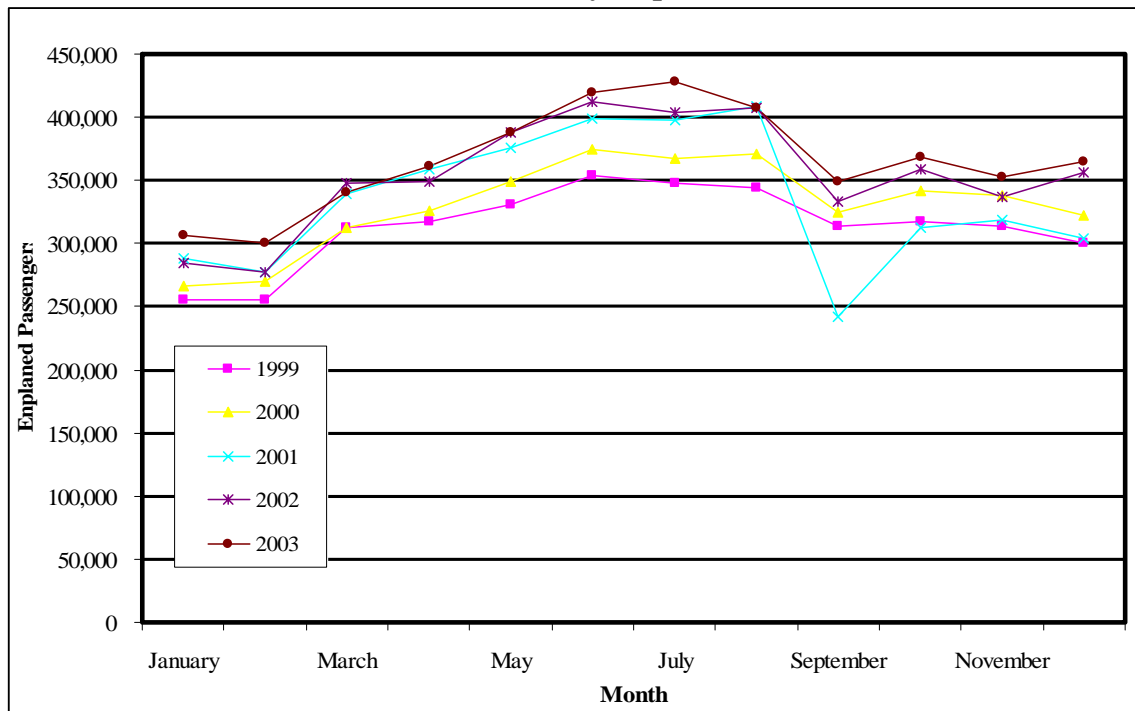
In 1999, Southwest had slightly less than a 50 percent share of the market, but in 2000, 2001, 2002, and 2003 carried more than half the passengers. This concentration of market share in one airline would be a concern except that Southwest is a financially strong and growing airline.

Monthly Passenger Traffic

Airlines generally prefer to serve markets consisting of business travelers rather than leisure travelers in order to, among other things, charge higher ticket prices. Airlines also prefer to serve airports with relatively consistent travel, allowing for a generally stable schedule throughout the year. The monthly air passenger traffic is an indicator of the nature of a community's air passenger traffic.

The monthly enplaned passenger levels for the Airport are shown in **Exhibit A-6** for the last five years, indicating a growing traffic trend. While each year has a differing number of enplanements, within each year the monthly enplanements are generally consistent with a slight increase during the summer months. The only noticeable decrease occurred in September of 2001 due to the temporary closure of U.S. airspace to commercial and general aviation air travel.

EXHIBIT A-6
Sacramento International Airport
Historical Monthly Enplanements



Source: Sacramento County Airport System

Generally, passenger levels are relatively constant throughout the year, and are more constant on a monthly basis than the national variance. January and February are the lowest months while June, July, and August are highest; however, this is the same trend apparent at almost all airports. However, no months have a statistically significant dominance or dearth of passengers. This stable history indicates that the Airport is more of a business market with steady demand rather than a tourist market with extreme seasonal peaks. In contrast, many recreational and “destination” markets (e.g. Palm Springs, Aspen, Orlando, San Juan, etc.) only see significant air travel for a few months of the year, making these markets more difficult for the airlines to serve.

This steady level of monthly travel is a positive sign for future passenger growth at the Airport since airlines are more attracted to steady, business-type markets rather than serving a market for only a few months each year in “season.” In addition, airport facilities are easier to plan because passenger demand is relatively steady throughout the year.

HISTORICAL ORIGIN/DESTINATION (O&D) PASSENGERS

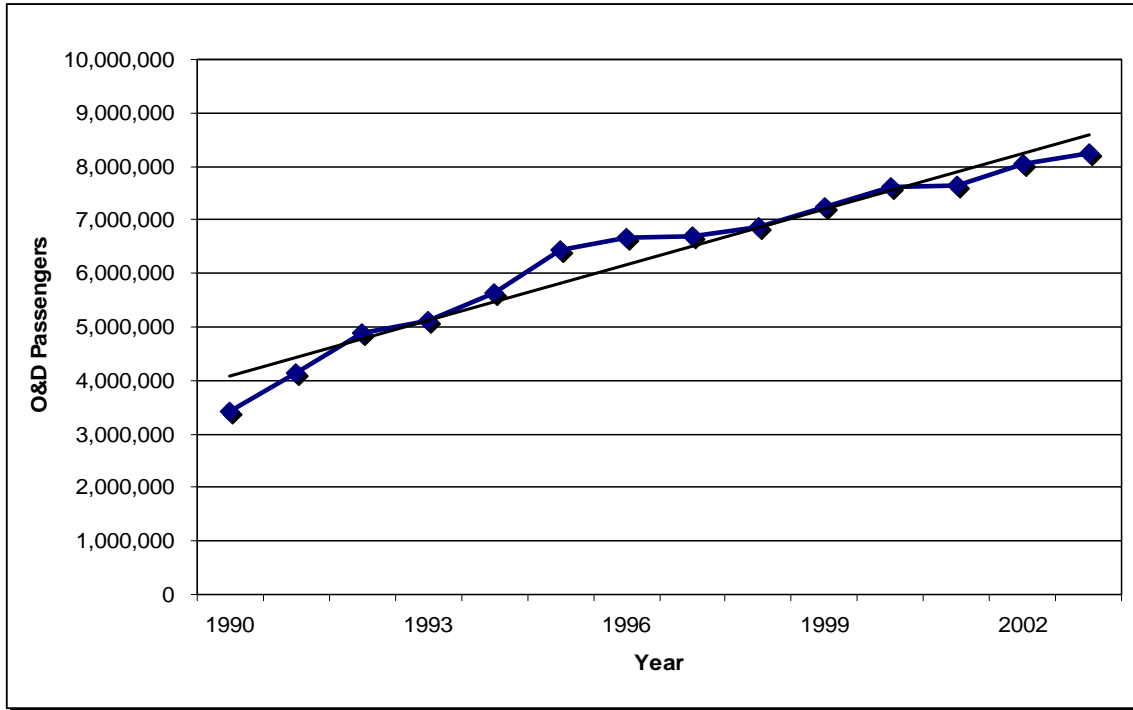
The FAA collects information on every tenth passenger ticket sold in the United States, which is available to provide airline data on ultimate origins/destinations and fares, by airport. Analyzing historical O&D passengers at the Airport and comparing between airports is important in understanding why passengers choose flights to/from Sacramento and what causes the trends of passenger volumes.

Total O&D Passengers

The historical record of total passengers recorded in the O&D statistics for the Airport indicates an increasing trend. From 1990 to 2003, the Airport’s O&D passengers appeared to be in an upwards trend, with the exception of a slight decrease in 2001.

These O&D passenger totals are shown on **Exhibit A-7**.

EXHIBIT A-7
Sacramento International Airport
Historical O&D Passengers



Source: Federal Aviation Administration, PB Aviation

In addition, Exhibit A-7 provides a trend-line of passenger traffic over the 13-year period shown. Clearly the trend shows a consistently increasing level of O&D passengers, and this is an important element in the forecast preparation.

Historical Origin/Destination Passengers by Market

Origin and destination (O&D) data defines where each air passenger actually begins and ends an air trip. Therefore, this data excludes connecting points, such as when passenger travel between Sacramento and Charlotte, North Carolina includes a change-of-plane in Atlanta. Provided by the FAA, O&D information is useful in helping predict future travel patterns.

According to 2003 data, the San Diego area was the largest single domestic O&D market for Sacramento, attracting approximately 719,980 passengers or 8.7 percent of the total Airport O&D market. This figure counts passengers traveling both directions and therefore averages 986 passengers arriving each day from San Diego and 986 departing for San Diego. Again, the passenger counts exclude those persons, if any, who travel to San Diego to change aircraft.

The second largest market in 2003 was Ontario, which accounted for 594,980 annual O&D passengers, 7.2 percent, or 815 per day, each way. Los Angeles (LAX) had almost the same number of passengers as Ontario, having 594,660 annual O&D passengers or approximately 815 per day each way. The fourth and fifth markets are Burbank with 543,490 total passengers (745 per day, each way) and Las Vegas with 501,040 total passengers (686 per day, each way). The largest 25 Sacramento O&D markets account for 77.5 percent of the traffic and are shown on **Table A-11**.

TABLE A-11
Sacramento International Airport
TOP 25 ORIGIN & DESTINATION PASSENGER MARKETS
(RANKED ON 2003 O&D MARKET SHARE)

Rank	Market	2003 Domestic		Average Daily One-Way Passengers
		O&D Passengers	2003 O&D Market Share	
1	San Diego	719,980	8.7%	986
2	Ontario	594,980	7.2%	815
3	Los Angeles	594,660	7.2%	815
4	Burbank	543,490	6.6%	745
5	Las Vegas	501,040	6.1%	686
6	Seattle/Tacoma	414,330	5.0%	568
7	Santa Ana	414,040	5.0%	567
8	Portland	405,510	4.9%	555
9	Phoenix	392,090	4.8%	537
10	Denver	195,750	2.4%	268
11	Salt Lake City	160,920	2.0%	220
12	Chicago ¹	155,900	1.9%	214
	<i>O'Hare Intl</i>	<i>125,060</i>	<i>1.5%</i>	<i>171</i>
	<i>Chicago Midway</i>	<i>30,840</i>	<i>0.4%</i>	<i>42</i>
13	Dallas/Fort Worth ²	129,850	1.6%	178
	<i>Dallas/Ft Worth In</i>	<i>126,840</i>	<i>1.5%</i>	<i>174</i>
	<i>Love Field</i>	<i>3,010</i>	<i>0.0%</i>	<i>4</i>
14	New York/Newark ³	126,690	1.5%	174
	<i>Newark Intl</i>	<i>58,610</i>	<i>0.7%</i>	<i>80</i>
	<i>La Guardia</i>	<i>41,010</i>	<i>0.5%</i>	<i>56</i>
	<i>John F Kennedy I</i>	<i>27,070</i>	<i>0.3%</i>	<i>37</i>
15	Baltimore/Wash I	120,060	1.5%	164
16	Atlanta	114,800	1.4%	157
17	Orlando	114,460	1.4%	157
18	Honolulu (Intl)	105,930	1.3%	145
19	Minneapolis/St P	104,830	1.3%	144
20	Houston ⁴	103,650	1.3%	142
	<i>George Bush Intc</i>	<i>76,810</i>	<i>0.9%</i>	<i>105</i>
	<i>Hobby Airport</i>	<i>26,240</i>	<i>0.3%</i>	<i>36</i>
	<i>Ellington Field</i>	<i>600</i>	<i>0.0%</i>	<i>1</i>
21	Kansas City	79,030	1.0%	108
22	Washington ⁵	78,220	0.9%	107
	<i>Ronald Reagan Nt</i>	<i>44,190</i>	<i>0.5%</i>	<i>61</i>
	<i>Dulles Intl</i>	<i>34,030</i>	<i>0.4%</i>	<i>47</i>
23	New Orleans	75,580	0.9%	104
24	Spokane	74,970	0.9%	103
25	St Louis	69,920	0.8%	96
	Top 25 Markets	6,390,680	77.5%	8,754
	All Other Markets	1,855,830	22.5%	2,542
	Total - All Markets	8,246,510	100.0%	11,297

Source: Origin & Destination Survey of Airline Passenger Traffic, U.S. DOT, Table 8

Notes:

- (1) Chicago markets include O'Hare and Midway airports.
- (2) Dallas markets include Love Field and Dallas/Ft Worth airports.
- (3) New York markets include John F. Kennedy, La Guardia and Newark airports.
- (4) Houston markets include Ellington Field, Hobby, and George Bush Intercontinental airports.
- (5) Washington D.C. markets include Reagan National and Dulles airports.

The most significant factor from these O&D statistics is that four of the five largest markets are in California and five of the top ten markets also are in California. This is an unusual concentration of service within the same state, but it is logical because the state is very large geographically and Sacramento is the capital. Together, the Southern California markets of San Diego, Ontario, Los Angeles, Burbank, and Santa Ana (Orange County – John Wayne), represented 34.7 percent of the Airport’s O&D passengers in 2003. Note that San Francisco, Oakland, and San Jose are not listed in the table of the top 25 O&D markets because they are markets more easily reached by car from the Sacramento area.

Existing Air Service by Route

The O&D data also identifies the airlines serving the passengers on each route. In combination with the historical total volume of passengers, average fares, current air service, and other factors, this information also provides a basis for the expectation of future air traffic.

The San Diego area is the largest single market from the Airport and in 2003 passengers reached that market via Southwest, United, and America West. However, Southwest maintains the greatest market share on this route at 98.2 percent. The second largest market from the Airport is Ontario, which is also dominated by Southwest (99.7 percent). Eight of the top ten markets are dominated by Southwest. The exceptions are Seattle, which is dominated by Alaska Airlines, and Denver, which is dominated by United. However, Southwest’s dominance significantly drops in the markets outside of the top ten, where American, Continental, Delta, Hawaiian, Northwest, United, and America West each carry the largest number of passengers in specific markets.

In conclusion, the competitiveness of the Sacramento air market is demonstrated by the numerous airlines competing on each route. No one carrier has the largest market share to every city served. The airline market share of the 25 largest O&D markets is shown in more detail on **Table A-12**.

TABLE A-12
Sacramento International Airport
TOP 25 ORIGIN & DESTINATION PASSENGER MARKETS
AIRLINE MARKET SHARE ¹
(RANKED BY 2003 O&D MARKET SHARE)

Market Share					
Rank	Market	Largest	2nd Largest	3rd Largest	4th Largest
1	San Diego	Southwest (98.2%)	United (1.7%)	Am. West (0.1%)	
2	Ontario	Southwest (99.7%)	United (0.2%)	Am. West (0.1%)	
3	Los Angeles	Southwest (74.2%)	Unident (15.3%)	United (10.3%)	Am. West (0.1%)
4	Burbank	Southwest (97.2%)	Hawaiian (2.4%)	United (2.4%)	
5	Las Vegas	Southwest (86.4%)	Am. West (11.8%)	United (1.5%)	Delta (0.3%)
6	Seattle/Tacoma	Alaska (63.2%)	Southwest (35.4%)	United (1.2%)	Delta (0.1%)
7	Santa Ana	Southwest (97.1%)	United (2.6%)	Am. West (0.2%)	
8	Portland	Southwest (66.2%)	Alaska (32.3%)	United (1.5%)	
9	Phoenix	Southwest (68.1%)	Am. West (30.3%)	United (1.2%)	Delta (0.3%)
10	Denver	United (51.4%)	Frontier (38.2%)	Am. West (5.9%)	Delta (2.7%)
11	Salt Lake City	Delta (69.1%)	Southwest (18.2%)	Unident (10.9%)	Am. West (1.0%)
	Chicago ²				
12	<i>O'Hare Intl</i>	United (75.8%)	Am. West (12.2%)	American (4.8%)	Northwest (3.0%)
	<i>Chicago Midway</i>	Southwest (73.7%)	Frontier (18.9%)	Northwest (4.7%)	American (1.8%)
	Dallas/Fort Worth ³				
13	<i>Dallas/Ft Worth</i>	American (58.1%)	Am. West (21.4%)	United (6.6%)	Frontier (6.6%)
	<i>Love Field</i>	Southwest (88.0%)	Continental (12.0%)		
	New York/Newark ⁴				
14	<i>Newark Intl</i>	United (34.1%)	American (19.4%)	Am. West (17.3%)	Continental (12.2%)
	<i>La Guardia</i>	United (39.4%)	American (24.0%)	Northwest (19.3%)	Frontier (7.6%)
	<i>John F Kennedy I</i>	Am. West (35.2%)	United (28.7%)	Delta (23.9%)	American (7.2%)
15	Baltimore/Wash I	United (29.2%)	Southwest (26.1%)	American (13.6%)	Delta (8.5%)
16	Atlanta	Delta (60.3%)	Am. West (15.5%)	United (10.1%)	American (6.6%)
17	Orlando	Delta (28.2%)	United (22.3%)	American (17.8%)	Southwest (12.4%)
18	Honolulu (Intl)	Hawaiian (85.3%)	United (13.0%)	Hawaiian (1.3%)	Delta (0.3%)
19	Minneapolis/St P	Northwest (56.4%)	Am. West (15.2%)	United (13.3%)	Frontier (9.6%)
	Houston ⁵				
20	<i>George Bush</i>	Continental (61.4%)	Am. West (21.3%)	United (7.1%)	Frontier (4.0%)
	<i>Hobby Airport</i>	Southwest (93.9%)	American (5.8%)	Delta (0.3%)	
	<i>Ellington Field</i>	Continental (100.0%)			
21	Kansas City	Southwest (50.0%)	United (17.2%)	American (9.3%)	Delta (6.8%)
	Washington ⁶				
22	<i>Ronald Reagan Nat.</i>	United (27.8%)	American (26.3%)	Am. West (14.4%)	Delta (10.7%)
	<i>Dulles Intl</i>	United (59.6%)	Am. West (14.4%)	American (10.8%)	Delta (6.1%)
23	New Orleans	American (23.8%)	Southwest (23.4%)	United (20.1%)	Continental (17.2%)
24	Spokane	Southwest (51.3%)	Alaska (46.5%)	Delta (1.7%)	United (0.4%)
25	St Louis	American (52.9%)	Southwest (22.2%)	Am. West (12.7%)	United (8.6%)

Source: Origin & Destination Survey of Airline Passenger Traffic, U.S. DOT, Table 8 and the Official Airline Guide (OAG)

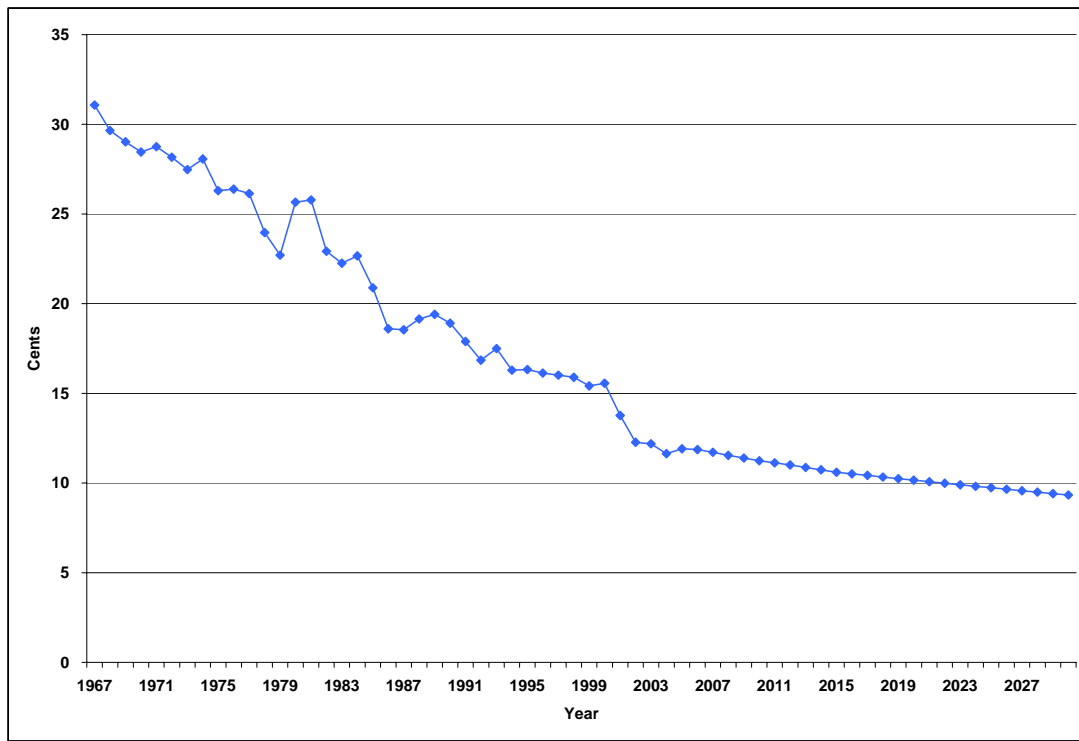
Notes:

- (1) Carriers contained in this market share matrix are the parent carrier and not necessarily the operator.
- (2) Chicago markets include O'Hare and Midway airports.
- (3) Dallas markets include Love Field and Dallas/Ft Worth airports.
- (4) New York markets include John F. Kennedy, La Guardia and Newark airports.
- (5) Houston markets include Ellington Field, Hobby, and George Bush Intercontinental airports.
- (6) Washington D.C. markets include Reagan National and Dulles airports.

Historical Air Fares

In general, air fares have declined in the Sacramento market over the past 24 years. This trend parallels the U.S. trend, and it is very important in stimulating air passenger demand. FAA projections indicate that the nationwide trend of decreasing ticket prices is expected to continue. The national record and FAA projection of average per mile revenue is shown on **Exhibit A-8**.

EXHIBIT A-8
Sacramento International Airport
U.S. Domestic Yield



Source: Federal Aviation Administration

Examining the individual 32 airports that are the Airport's largest 25 markets reveals that average ticket prices (fares) in Sacramento are comparable to those in Oakland and Reno, but much lower than fares paid in San Francisco. For four of the individual O&D markets, Sacramento has lower average fares than Oakland, Reno, and San Francisco. However, these are average fares and individual tickets purchased by consumers can vary widely from the average. The record of average fares in 2003 of the Airport's largest 25 markets compared to Oakland, Reno, and San Francisco is shown in **Table A-13**.

TABLE A-13
Sacramento International Airport
TOP 25 ORIGIN & DESTINATION PASSENGER MARKETS
AVERAGE FARE COMPARISON
(RANKED BY 2003 O&D MARKET SHARE)

2003 Average Fare					
Rank	Market	Sacramento	Oakland	Reno	San Francisco
1	San Diego	\$69	\$73	\$84	\$129
2	Ontario	\$67	\$60	\$80	\$121
3	Los Angeles	\$76	\$66	\$80	\$112
4	Burbank	\$67	\$67	\$79	\$129
5	Las Vegas	\$82	\$80	\$66	\$102
6	Seattle/Tacoma	\$91	\$89	\$72	\$112
7	Santa Ana	\$74	\$69	\$78	\$126
8	Portland	\$67	\$79	\$61	\$99
9	Phoenix	\$84	\$84	\$84	\$117
10	Denver	\$146	\$163	\$115	\$150
11	Salt Lake City	\$96	\$89	\$86	\$119
12	Chicago ¹	\$177	\$128	\$146	\$163
	<i>O'Hare Intl</i>	\$191	\$200	\$150	\$180
	<i>Chicago Midway</i>	\$123	\$94	\$118	\$106
13	Dallas/Fort Worth ²	\$179	\$185	\$155	\$205
	<i>Dallas/Ft Worth</i>	\$181	\$192	\$159	\$205
	<i>Love Field</i>	\$81	\$62	\$29	\$220
14	New York/Newark ³	\$195	\$158	\$169	\$262
	<i>Newark Intl</i>	\$193	\$182	\$159	\$215
	<i>La Guardia</i>	\$207	\$174	\$179	\$227
	<i>John F Kennedy</i>	\$183	\$155	\$181	\$324
15	Baltimore/Wash I	\$141	\$133	\$141	\$210
16	Atlanta	\$172	\$139	\$171	\$205
17	Orlando	\$122	\$143	\$127	\$195
18	Honolulu (Intl)	\$191	\$242	\$222	\$170
19	Minneapolis/St P	\$169	\$229	\$155	\$200
20	Houston ⁴	\$167	\$169	\$137	\$214
	<i>George Bush</i>	\$177	\$182	\$151	\$216
	<i>Hobby Airport</i>	\$140	\$136	\$106	\$167
	<i>Ellington Field</i>	\$147	\$158	\$119	\$180
21	Kansas City	\$132	\$138	\$107	\$136
22	Washington ⁵	\$190	\$159	\$203	\$288
	<i>Ronald Reagan Nat.</i>	\$211	\$197	\$203	\$171
	<i>Dulles Intl</i>	\$177	\$157	\$202	\$334
23	New Orleans	\$114	\$126	\$127	\$169
24	Spokane	\$89	\$91	\$79	\$113
25	St Louis	\$167	\$140	\$130	\$173
Average Fare to Top 25 O&D		\$97	\$94	\$95	\$176

Source: Origin & Destination Survey of Airline Passenger Traffic, U.S. DOT, Table 8

Notes:

- (1) Chicago markets include O'Hare and Midway airports.
- (2) Dallas markets include Love Field and Dallas/Ft Worth airports.
- (3) New York markets include John F. Kennedy, La Guardia and Newark airports.
- (4) Houston markets include Ellington Field, Hobby, and George Bush Intercontinental airports.
- (5) Washington D.C. markets include Reagan National and Dulles airports.

In a comparison of fares to all markets at all California airports for 2003, the Airport's average one way fare of \$97 is typical. However, because the Airport's average one-way trip length is less than average at 880 miles, the cost to travel by mile (the yield) is higher at the Airport than many other California airports.

PASSENGER FORECAST

The passenger projection is the most critical element of the forecast analysis because many of the other elements are derived from the passenger forecast. Included in this section are the methodology and logic of the forecast, the detailed analysis, and a discussion of the share of international and charter passengers.

Forecast Assumptions and Approach

Forecasting is an uncertain science because the factors that have influenced past levels of passenger traffic may not reoccur. For any airport, various share of market, trend projection, regression analysis, and other methods might be appropriate. With the advent of domestic airline deregulation in 1978, new market dynamics became apparent and now, with the arrival of newer, single aisle aircraft capable of non-stop transcontinental service, additional factors are influencing West Coast air service. The legacy airlines such as American, Delta, and United and their hub-systems are under vigorous attack by the low cost carriers providing point-to-point service. However, the local market characteristics typically remain the key element in passenger projections; that is, the Airport market area population, economic base, and competitive position relative to other airports, in this analysis represent the basis of the forecast.

The previous sections of this analysis have identified the prime market area and its demographic and economic profile. The historical and current air service was documented. These factors are integrated into a "bottom up" approach to projecting future passenger levels via a regression analysis of critical socio-economic and demographic variables tied to passenger traffic and air service issues.

At the Airport, the historical levels of international and charter traffic are such a small share of the total passengers that they have been integrated into the overall passenger forecast. An additional reason for this approach is that these types of air service are interchangeable. That is, passengers could board a domestic flight at the Airport and change planes at a hub to reach an international destination or they could potentially board an international flight directly at Sacramento. In the same manner, passengers have a choice of scheduled and charter service to reach any point, although at the Airport very little charter service has been recorded in recent years. Charter service would most likely take passengers from scheduled service or if charter service was unavailable, these passengers would use scheduled service. Therefore, subsequent sections of this analysis will discuss the future of international and charter traffic at the Airport, but their total passenger levels are aggregated for statistical purposes.

Another issue regarding the presentation of “passengers” is that some previous forecasts have separated O&D from connecting passengers. Current data indicates that virtually all of the Airport passengers are either originating or terminating their flight at the Airport. That is, the Airport is a “spoke” at the beginning or end of each flight – it is not an airline hub. Discussions with Airport management and examination of FAA data confirm the validity of this assumption. Therefore, all passengers in this analysis are assumed to be O&D passengers and the Airport is not envisioned to become an airline hub in the future.

It should be noted that some commuter airlines and all foreign airlines are not required to submit O&D statistics to the FAA and some portion of the records that are submitted by the domestic airlines are incomplete. This typically results in a five to ten percent shortfall in O&D statistics versus an airport’s passenger records.

General assumptions of the long-term passenger forecast include:

- **Economic Growth** – The continued strength of both the national and local economies are assumed. Based on recent trends, this assumption appears reasonable.

- **Airline Competition** – The public is typically better served if there is competition among numerous airlines. Continued vigorous competition among airlines is assumed with free entry on routes and choice of carriers. The existing airlines serving the Airport may or may not remain, but it is assumed that other carriers will take their places given the robust passenger market.
- **Decreasing Fares** – Over the long-term airline fares have decreased and this continued decrease (in real terms) is assumed to continue.
- **Fuel Cost and Availability** – Continued availability and reasonable prices for jet fuel are basic assumptions for commercial air travel to continue. However, short-term disruptions of supply or price increases may occur.
- **Environmental Issues** – Impacts of noise, air quality, and similar issues are becoming more important to the operation of airports. It is assumed that environmental restrictions will not be a significant impediment to service growth over the forecast period.
- **Airspace Constraints** – The sky over many major metropolitan airports is becoming filled with aircraft and runway capacity at some cities is limited. In general, however, it is assumed that technological or other means will permit an increase in U.S. air traffic over the forecast period. This forecast is based on future unconstrained airspace capability.
- **Air Travel Trends** – The analysis assumes that the propensity or need to travel by air will continue to increase. The reasons for choosing air transportation are numerous; therefore, a continued need for business, leisure, and other types of air travel is expected to continue. In recent years, there has been a decrease in the proportion of business to leisure travel via air. The low fares and the relative ease of air travel have made weekend getaways and shorter, more frequent trips possible. These trends of increasing overall U.S. air travel are expected to continue.

The passenger projections in this analysis are not constrained by the availability of Airport facilities and, as noted above, by airspace constraints. The assumption is that Airport facilities will not be limited in their future growth.

The Airport has seen a dramatic increase in passengers since approximately 1986. This has likely resulted from expanded air service, new low cost carriers such as Southwest Airlines and strong growth in the regional population and economy. Various other factors, as described below, may also have been contributors.

- Previously the Airport may have lost air travelers to/from its Air Trade Area who drove to airports located in San Francisco, Oakland, or other points. With increased highway congestion to/from the other airports, lower convenience at these other airports and better air service at the Airport itself, these passengers likely have returned.

- The highway and airport congestion at San Francisco, Oakland, Napa, Sonoma, and other points has likely driven many Bay Area residents/visitors to use Sacramento, rather than the Bay Area airports.
- The volume of passengers at the Airport has reached the point where the number of destinations, choice of airlines, variety of flight times, and other factors is similar or comparable to competitive airports such as Oakland. Equally important, this analysis indicates the fare levels are comparable between the Airport and Oakland (versus several years ago), no longer giving passengers a reason to choose a Bay Area airport over the Airport. That is, the Airport has become an equal to other Bay Area airports in many key areas.
- Similar to the issue above, the Airport has seen the introduction of low fare airlines that have stimulated passenger traffic growth. The Oakland airport has traditionally been a center for low fare and charter airlines; the Airport now has this same level of competitiveness.
- The population and economic growth levels, as well as the propensity to travel in the Air Trade Area, appear to be significantly higher than other regional airports. As a state capital, the Airport's Air Trade Area likely sees a more stable trend than other cities. For example, the airports in Indianapolis, Columbus, and Austin all appear to have stronger recent traffic growth trends than the average U.S. airport.
- In a similar manner, high population growth levels in the Airport secondary market area appears to have contributed to the increase the number of passengers at the Airport.
- As noted previously, airlines are flying more 150-seat aircraft on non-stop coast-to-coast routes. Previously passengers often had to drive or take a connecting flight to airports such as San Francisco in order to obtain non-stop flights to long-haul destinations such as New York or Washington.

Other unknown or transparent factors may also be involved in the growth of passenger activity at the Airport. The air service levels at other airports may also be an influencing factor, for example, as United retrenches at San Francisco International, some of its passengers may be migrating to the Airport.

In general, these positive trends are expected to continue; however, the actual influences are hard to measure quantitatively.

Passenger Forecast Projections

Regression analysis of socio-economic and demographic data together with historical passenger statistics provide a basic structure set of relationships on which an

updated air passenger demand forecast was developed. The steps involved with the regression analysis process included:

- Collection and validation of the base data including identification of the Air Trade Area.
- Development of the appropriate regression equations and analysis of dependent and independent variables.
- Verification of the reasonableness of the output.

The Updated Passenger Forecast is based on a regression that includes:

- Historical enplanements
- Population
- Income

The correlation (known as the “R square”) of the equation using these variables is 0.91 and with this strong fit, it is recommended for airport planning purposes.

Historical enplaned passenger levels and three forecasts are provided in **Table A-14** and **Exhibit A-9**. These forecasts include the Updated Forecast (2003 base year), the previous Master Plan forecast (1999 base year), and the FAA Terminal Area Forecast (TAF).

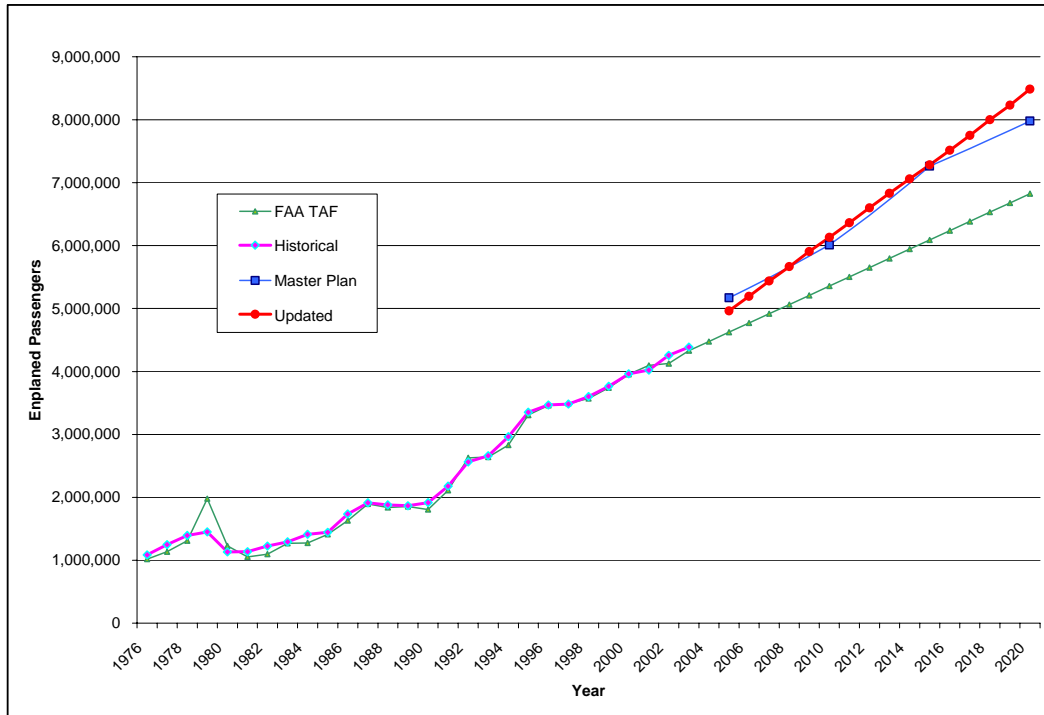
<u>Year</u>	<u>Historical</u>	<u>Enplanement Forecasts</u>			<u>Forecast Comparisons</u>	
		<u>FAA TAF</u>	<u>MP Forecast (1999)</u>	<u>Updated (2003)</u>	<u>MP vs. TAF</u>	<u>Updated vs. TAF</u>
1995	3,414,286					
1996	3,531,697					
1997	3,561,754					
1998	3,686,882					
1999	3,859,663					
2000	3,963,633					
2001	4,022,305					
2002	4,257,924					
2003	4,386,812					
2005		4,623,358	5,170,900	4,964,100	12%	7%
2010		5,356,969	6,009,800	6,131,300	12%	14%
2015		6,090,580	7,261,800	7,283,600	19%	20%
2020		6,824,192	7,980,900	8,486,000	17%	24%
AAG ¹		2.6%	2.9%	3.6%		

Source: Sacramento County Airport System and PB Aviation

Note: 2004 Estimated Enplanements 4,748,000; 8.2% increase over 2003

¹ AAG: average annual growth rate 2005 to 2020

EXHIBIT A-9
Sacramento International Airport
Passenger Traffic Activity Projections



Source: Sacramento County Airport System, Federal Aviation Administration, PB Aviation

The previous Master Plan forecast (while calculated in a different manner using older base year data) is generally similar to the Updated Forecast in its number of enplaned passengers except in the 2020 period where the Updated Forecast projects slightly higher enplanements. This minor divergence is not unexpected given the last few years of strong activity growth at SMF. The six percent difference between the year 2020 Master Plan forecast and the Updated Forecast is nominal given the uncertainties involved in aviation forecasting.

The FAA TAF is based on FY 2002 data does not reflect the above average population and economic growth trends in the greater Sacramento area, as well as the improvements in air service that are occurring (i.e. new airlines and new routes). The impact of late 2003 and 2004 passenger traffic increases also were not considered by the FAA in preparation of the TAF.

International Service

It is expected that international passengers will continue to increase at the Airport at a faster rate than domestic traffic; however, many international passengers will continue to depart Sacramento and connect to international flights at other airports. The exception is Mexican and Canadian service, which are expected to grow on a route-by-route basis based on airline service decisions. Therefore, the international passengers of the Airport are accounted for in the passenger forecast above; however, the operations forecast includes the addition of non-stop foreign flights. The Master Plan forecast provides an identification of expected international markets and passenger levels and this is recommended for planning use given the good correlation between the Master Plan forecast and the Updated Forecast.

On a nationwide basis, approximately eight percent of U.S. air passengers are on an international journey. As shown in the FAA Aerospace Forecasts for Fiscal Years 2004-2015, the percentage of international passenger has been consistent over the past few years as shown in **Table A-15**.

TABLE A-15				
<i>Sacramento International Airport</i>				
SHARE OF U.S. INTERNATIONAL PASSENGERS				
<u>Enplanements (millions)</u>				
<u>Year</u>	<u>Domestic</u>	<u>International</u>	<u>System</u>	<u>International Share</u>
1998	590.4	54.2	644.7	8.4%
1999	610.9	54.9	665.8	8.2%
2000	641.2	56.4	697.6	8.1%
2001	626.8	56.7	683.4	8.3%
2002	574.5	51.2	625.8	8.2%
2003E	587.3	54.1	641.4	8.4%

Source: FAA, 2004.

The worldwide range of international destinations is enormous; therefore, trying to identify and accommodate the range of travelers at any one airport is difficult. Destinations in Canada and Mexico represent most of the international travelers from the

U.S. because they are geographically close. The Caribbean and Bermuda routes are also strong on a national basis, but less so as a destination from Sacramento because of its California location. On a long-distance basis, the previous Master Plan forecast indicated that the United Kingdom and Germany were the largest single destinations, but each had an average of less than 20 departing passengers per day currently departing directly from the Airport.

International passengers to/from the Air Trade Area have three choices:

- Drive to an airport with non-stop international service, such as San Francisco International.
- Take a connecting flight to an airport, such as those located in Los Angeles, Chicago, Washington Dulles, or JFK with extensive international service.
- Take an available non-stop from the Airport.

The amount of non-stop international service in the past at the Airport has been limited; therefore, passengers were faced with driving or taking connecting flights.

However, the number of international flights to/from the Airport will likely will remain somewhat limited due to:

- The relatively small number of passengers to any one destination from the Air Trade Area and the highly seasonal nature of international travel that results in many of these flights being, for example, to Europe in the summer.
- The need for wide-bodied, long-range aircraft to many international destinations that demand a very large catchment area to provide sufficient passenger volumes.
- The relative proximity of, for example, San Francisco International to drive and the easy one-flight access to, for example, Los Angeles, Seattle, Chicago, and other international hub cities from the Airport.
- The limits of bilateral treaties that constrain service to certain points and/or the congestion at foreign airports that preclude new service. This limitation is particularly acute for Japan, China, and other points most desirable for non-stop service from the Airport.
- The behavior of both U.S. and foreign airlines to force passengers through their existing hubs or gateways to generate economies of scale and to use larger and larger aircraft such as the B747 and A380.

The result is that the largest volume of international flights to/from the U.S. can be expected to be largely channeled to the largest few airports. The exceptions are Canada and Mexico. However, for the FAA's statistical purposes, Canada is almost

considered a “domestic” market and most major Canadian cities have U.S. Customs pre-clearance. Therefore, Canadian service can be handled, in most cases, as if it were a domestic flight.

Mexicana established non-stop service to the Airport to/from Guadalajara in 2002 and more service to Mexico is anticipated because:

- Mexico is growing as a tourist destination from the United States.
- Increased numbers of persons in the Air Trade Area have a Mexican heritage and therefore travel to/from Mexico is increasing.
- Increased air service rights for airlines have been negotiated between the two countries “opening-up” opportunities to add service.

No specific forecast of the number of international passengers is included in this analysis because international passengers historically represent two percent of airport activity. However, based on previous analysis, more than 300,000 international enplanements will occur in 2020 and this demand will be sufficient to justify non-stop flights to serve those markets.

Charter Passengers

In assessing the magnitude of the SMF charter passenger potential, it is important to note that most charters in the U.S. are to gambling destinations and the Airport has extensive non-stop service to Las Vegas. Further, the Reno and Stateline areas of Nevada are within driving distance, providing significant competition for air service. Analyses prepared for other airports indicates many of the charter flights in the U.S. are to Tunica, Mississippi, Biloxi, Mississippi, or Laughlin, Nevada, as well as Las Vegas and Reno. Based on the convenience of Nevada to Sacramento, as well as the growth of Indian gaming within California, few gambling charters are anticipated at the Airport. The Airport also has scheduled service to Hawaii, thereby reducing the demand for charters to this destination.

In 2003, charter passengers numbered only 2,607 at the Airport, representing a negligible share of the total passengers. The previous years also saw only a very limited

number of charter passengers. On a nationwide basis the number of charter passengers is also a negligible share. The number of projected charter passengers is included in the Updated Forecast, therefore no separate charter passenger analysis is included.

Summary of Passenger Projections

Passenger enplanements are projected to grow at an average annual rate of 3.6 percent from 2005 to 2020 according to the Updated Forecast; this is slightly higher than the Master Plan forecast which projects an average annual growth rate of 2.9 percent. In addition, the Updated Forecast accounts for current air service improvements and reflects the above average population and economic growth trend in the Sacramento region, which is not taken into account for the FAA Terminal Area Forecast. Increased international service, included in the Updated Forecast, is anticipated; however, this increase in international service will remain somewhat limited with the exception of service to Mexico and Canada. Although charter passengers represent a negligible share of the total passengers, projected charter passengers were also included in the Updated Forecast. In summary, the Updated Forecast shows less than a one percent difference from the Master Plan forecast; therefore, for planning purposes, the Master Plan forecast remains valid.

AIR CARGO PROJECTIONS

Air cargo consists of air freight and mail. Within the SCAS, air cargo service and volume have shifted back and forth between the Airport and Mather Airport and relocations to or from other regional airports also are possible. Further, the amount of air cargo is carried by only a few airlines; therefore, their business decisions and level of activity can greatly influence the totals. For these reasons, it is recommended that individual interviews with each airline be conducted and further study occur before cargo facility decisions are implemented. Because of the flexible nature of air cargo service, the statistics for both the Airport and Mather will be presented for completeness.

Historical Air Cargo

In the past five years, the amount of air cargo handled at SCAS airports has varied substantially. The System total peaked at over 500 million pounds in 2000, but was below 300 million pounds in 2002 and 2003. The statistics between the two airports indicate that Mather had more air cargo in 1999, 2000, and 2001, because of air mail volume, but the Airport had more in 2002 and 2003. The System air cargo statistics are shown on **Table A-16**.

TABLE A-16						
<i>Sacramento International Airport</i>						
SACRAMENTO COUNTY AIRPORT SYSTEM AIR CARGO STATISTICS (IN POUNDS)						
		1999	2000	2001	2002	2003
Sacramento International Airport - SMF						
Air Mail	On	23,230,230	25,387,364	18,153,462	16,090,602	15,804,971
	Off	8,358,146	8,480,961	9,455,344	6,546,087	8,257,786
Total Air Mail		31,588,376	33,868,325	27,608,806	22,636,689	24,062,757
Air Freight	On	51,686,827	49,399,061	51,011,904	58,761,097	59,317,862
	Off	50,444,563	52,277,493	54,117,500	74,373,561	73,686,528
Total Air Freight		102,131,390	101,676,554	105,129,404	133,134,658	133,004,390
Mather Airport - MHR						
Air Mail	On	28,957,266	110,481,799	55,597,372	-	-
	Off	27,897,109	109,223,902	56,177,853	-	-
Total Air Mail		56,854,375	219,705,701	111,775,225	-	-
Air Freight	On	78,145,197	68,914,947	68,281,324	63,365,753	57,019,618
	Off	78,414,432	80,711,034	64,026,427	60,244,915	63,229,817
Total Air Freight		156,559,629	149,625,981	132,307,751	123,610,668	120,249,435
Total SCAS Air Cargo		347,133,770	504,876,561	376,821,186	279,382,015	277,316,582

Source: Sacramento County Airport System

The use of Mather for air mail stopped in 2001 when Kitty Hawk ceased service. Currently there are no air mail carriers in or out of Mather. Previously, on a nationwide basis, the US Postal Service contracted with the scheduled commercial passenger airlines to carry most mail, with certain charter carriers contracted to carry parcels. The events of September 11, 2001 forced the Post Office to shift larger volumes to trucks and charter

airlines; FedEx currently has the largest air mail contract, but this arrangement could change over the forecast period.

The Airport had 56.6 percent of the SCAS air freight volume in 2003, an increase from the 38.5 percent that it had in 1999. However, this increase is largely due to the discontinuance of service by Kitty Hawk at Mather. The share of SCAS air mail, air freight, and total cargo at the Airport is shown in **Table A-17**.

TABLE A-17					
<i>Sacramento International Airport</i>					
SHARE OF SYSTEM AIR CARGO HANDLED AT THE AIRPORT					
	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
Air Mail	35.7%	13.4%	19.8%	100.0%	100.0%
Air Freight	39.5%	40.5%	44.3%	51.9%	52.5%
Total	38.5%	26.8%	35.2%	55.8%	56.6%

Source: Sacramento County Airport System

Over 90 percent of the Airport’s air freight is carried by all-cargo airlines. FedEx represents approximately 80 percent of the total. Almost all the Airport’s passenger airlines carry some freight and Airborne (now part of DHL), DHL, United Parcel Service, and Westair Industries also carry air freight. This market share of air freight volumes in 2003 are shown in **Table A-18**.

TABLE A-18
Sacramento International Airport
2003 AIR FREIGHT BY CARRIER (IN POUNDS)

<u>Carrier</u>	<u>Air Freight - On</u>		<u>Air Freight - Off</u>	
	<u>Amount</u>	<u>Share</u>	<u>Amount</u>	<u>Share</u>
Alaska Airlines	372,645	0.6%	284,035	0.4%
America West	680,797	1.1%	603,341	0.8%
American Airlines	116,547	0.2%	187,806	0.3%
Continental Airlines	113,362	0.2%	251,166	0.3%
Delta Air Lines	832,986	1.4%	738,936	1.0%
Frontier Airlines	86,808	0.1%	133,143	0.2%
Hawaiian Airlines	1,375,640	2.3%	226,264	0.3%
Horizon Air	30,924	0.1%	46,124	0.1%
Northwest	51,953	0.1%	172,815	0.2%
Southwest	1,199,342	2.0%	2,750,927	3.7%
United Airlines	239,260	0.4%	433,809	0.6%
Major Airline Total	5,100,264	8.6%	5,828,366	7.9%
Airborne Express	1,613,726	2.7%	1,619,579	2.2%
DHL Airlines	2,563,388	4.3%	2,068,850	2.8%
Federal Express	47,040,943	79.3%	60,220,721	81.7%
United Parcel Service	331,473	0.6%	559,737	0.8%
West Air Industries	2,667,908	4.5%	3,388,130	4.6%
All-Cargo Carrier Total	54,217,438	91.4%	67,857,017	92.1%
Commuters	160	0.0%	1,145	0.0%
Others	-	0.0%	-	-
Others Total	160	0.0%	1,145	0.0%
TOTAL	59,317,862	100.0%	73,686,528	100.0%

Source: Sacramento County Airport System

Cargo Forecast

The historical trend of air cargo at both Mather and the Airport has not been consistent. Further, the large number of airports in Central California provides multiple options for operators of second and third day delivery service companies. That is, while the “overnight” delivery carriers such as FedEx, UPS, and DHL may have to use the Airport or Mather to service the greater Sacramento region, other carriers with less time-sensitive clients can seek alternative airports. In the same manner, favorable conditions at the Airport may attract additional air cargo activity to the Airport or result in a substantial increase in volume. The location of the Airport to a given carrier’s customers

also is important as this affects flight closure times for departing flights which are a key aspect of cargo hubbing operations. Continued substitution of service between the Airport and Mather is expected. It is assumed most international shipments to/from the greater Sacramento region would be trucked to/from LAX or San Francisco because these are two of the largest international cargo hubs in the world.

Therefore, it is difficult to forecast the growth of air cargo at the Airport; however, several factors suggest the Airport's cargo volume will rise:

- The Airport (and/or Mather) serve a very large geographic area, and to consistently meet regional deadlines extensive air cargo service at the Airport is needed. This is particularly true because Sacramento is the hub of a roadway system with six interstate or limited access highways radiating from the city. In addition, the Airport is located on Interstate Highway 5, providing excellent accessibility.
- Many of the Bay Area airports located west of the Airport are constrained with airspace capacity, runway capacity, limited land area, congested highway access, or other limitations. Other regional airports may not have the runway length, all-weather landing systems, available aircraft services, and other facilities and services to handle a major air cargo operation, making the Airport ideal for growth.
- The Airport's Air Trade Area and adjunct areas are densely populated, growing, and affluent. In addition, substantial business and industry is located in the region and economic conditions are excellent.
- The amount of air cargo in the United States continues to grow at annual rates faster than passenger growth. Therefore, the Airport would be expected to share in this growth, particularly because the State capital should continue to be a major source and destination for business documents.

The result of this analysis is the expectation that the Airport's air cargo volume will grow at least as fast as the national average as presented in the FAA Aerospace Forecasts – Fiscal Years 2004-2015, March 2004. The FAA foresees national domestic air cargo Revenue Ton Miles (RTMs) growing at a 3.5 percent average annual rate between 2004 and 2015. A RTM is equivalent to tonnage, if the length of haul remains constant, which should be the case for the Airport over the forecast period.

The Airport's cargo forecast indicates that freight and mail will almost double between 2003 and 2020 as presented in **Table A-19**.

TABLE A-19			
<i>Sacramento International Airport</i>			
AIR CARGO FORECAST (in Pounds)			
Actual	Freight	Mail	Total Cargo
2003	133,004,390	24,062,757	157,067,147
Forecast			
2005	142,478,000	25,777,000	168,255,000
2010	169,219,000	30,614,000	199,833,000
2015	200,980,000	36,360,000	237,340,000
2020	238,700,000	43,184,000	281,884,000
Average Annual Growth Rate			
	3.5%	3.5%	3.5%

Source: Sacramento County Airport System, PB Aviation

In comparison, the previous Master Plan forecast used an 8.3 percent average annual growth rate in the first ten years of the planning period for air freight and a 3.8 percent average annual growth in the second ten years. For mail, the rates were 4.1 and 2.7 percent respectively. Over the twenty-year forecast period of the Master Plan, the average annual growth rate was 6.1 percent for air freight and 3.4 percent for mail.

AIRCRAFT OPERATIONS AND FLEET MIX

This section will project the number of passenger, cargo, general aviation, and military flights at the Airport. The expectation of number of enplaned passengers and pounds of cargo lead to the projection of aircraft operations in those categories, while historical trends will be used to project the general aviation and military operations.

In the five years since 1998, total operations at the Airport have increased by five percent. However, the change within categories and between years has been erratic. Commercial operations of passenger and cargo carriers have increased more than 10 percent in the period, while general aviation and military operations fell by over 10 percent. A review of annual data indicates no clear pattern with some years higher and some lower as shown on **Table A-20**.

TABLE A-20
Sacramento International Airport
HISTORICAL AIRCRAFT OPERATIONS

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>Change 1998-2003</u>
Air Carriers	81,722	83,902	87,665	90,239	95,709	100,732	
Commuters	26,792	25,182	20,387	22,688	25,231	19,943	
Total Airline	108,514	109,084	108,052	112,927	120,940	120,675	10.1%
Annual Change	-	0.5%	-1.0%	4.3%	6.6%	-0.2%	
General Aviation	38,230	40,901	35,630	33,462	33,149	34,736	-10.1%
Annual Change	-	6.5%	-14.8%	-6.5%	-0.9%	4.6%	
Military	4,461	5,543	6,287	5,253	4,113	3,810	-17.1%
Annual Change	-	19.5%	11.8%	-19.7%	-27.7%	-8.0%	
Total Operations	151,205	155,528	149,969	151,642	158,202	159,221	5.0%
Annual Change	-	2.8%	-3.7%	1.1%	4.1%	0.6%	

Source: Sacramento County Airport System

Despite the possible short-term ambiguities in historical levels of flight frequencies, they are one basis for the operations forecast. The type of aircraft used at the Airport are another indicator, while expected changes in activity and types of aircraft and/or service also contribute to the basis of the projections.

Passenger Aircraft Operations

The Airport is a “spoke” point for all its passenger airlines and this role in the aviation system is expected to continue. The aircraft currently used at the Airport are principally single aisle jets such as the Boeing 737 series, McDonald-Douglas MD-80 series, and Airbus A-320 series. This same type of operation is generally expected to continue. For example, the Airport’s largest airline (Southwest) utilizes 737-200, 737-500, 737-300, and 737-700s in its current schedule. Over time, Southwest is expected to switch to an all 737-700 fleet. As a cost-saving move, American Airlines used more MD-80 aircraft in the 2001-2003 period, but now is returning larger aircraft such as the B757 to meet increased passenger loads at SMF. The Airport’s projected passenger fleet forecast and aircraft mix is presented in **Table A-21**.

TABLE A-21
Sacramento International Airport
PASSENGER AIRCRAFT OPERATIONS PROJECTION

	2004	Forecast			
	Projected	2005	2010	2015	2020
Turboprops					
DH4	2,800	2,000	1,000	1,000	-
EM2	2,600	2,000	1,000	-	-
Regional Jets		-	-	-	-
CRJ	8,000	8,000	8,000	8,000	6,000
CR7	1,400	2,000	4,000	12,000	16,000
Single Aisle Jets		-	-	-	-
318	800	1,000	1,000	1,000	2,000
319	4,600	5,000	10,000	20,000	24,000
320	7,600	8,000	14,000	22,000	25,000
321	-	-	4,000	6,000	8,000
73S	200	-	-	-	-
735	2,400	2,000	-	-	-
733	35,600	35,000	30,000	10,000	-
734	1,800	2,000	1,000	-	-
73G	24,000	26,000	36,000	44,000	48,000
738	2,200	3,000	5,000	12,000	18,000
739	600	1,000	4,000	9,000	13,000
752	5,200	6,000	5,000	2,000	-
M80/83	5,400	5,000	4,000	-	-
Widebody Jets		-	-	-	-
763	800	1,000	2,000	-	-
7E7	-	-	-	3,000	5,000
OPERATIONS	106,000	109,000	130,000	150,000	165,000
Average Annual Increase		2.8%	3.6%	2.9%	1.9%

Source: Official Airline Guide, 2004 and PB Aviation

Note: - indicates less than 1,000 annual operations.

The rate of growth of aircraft operations is lower than the growth rate of passengers between 2004 and 2020. This is because the average aircraft size grows slightly. For example, few, if any, turboprop aircraft are expected to serve the Airport by the end of the forecast period. In a similar manner, today's 50-passenger Canadair regional jets are likely to be replaced, or supplemented, by 70 to 90 passenger regional jets made by Canadair, Embraer, or other firms. The Airport has limited service by widebody passenger aircraft today (specifically, an average of one scheduled departing Boeing 767-300 per day), but by 2020, approximately 5,000 annual widebody aircraft operations are forecast – an average of seven departures per day. The type of widebody

is listed in the table as the Boeing 7E7; however, Boeing 767, Airbus A-330, or other types could be substituted depending on carrier fleet mix and availability.

Charter and international scheduled passenger operations are included in the table above. Charter flights at the Airport utilize the same type of aircraft as the scheduled airlines; therefore, their pattern of aircraft use mirrors the scheduled airlines. International flights are accounted for in the growth of widebody aircraft operations, specifically with the inclusion of the 7E7 in the fleet mix. Various versions of the 7E7 are expected to be capable of stage lengths up to 7,000 miles. As noted above, other types of widebody aircraft are possible including those specifically used for foreign routes such as the Boeing 777 and Airbus A-340.

Aircraft load factors are projected to average in the 70 percent range and increase slightly throughout the forecast period. The turboprop aircraft are assumed to be in the 65 percent load factor range, while aircraft above 150 available seats per departure are assumed at a 75 percent load factor. The mid-sized aircraft are assumed to have a 70 percent load factor.

The current passengers per departure is approximately 87; this number is expected to rise to 89 in 2005, 92 in 2010, 93 in 2015, and 96 by 2020. Again, the larger size of the typical aircraft is responsible for the change.

Air Cargo Operations Forecast

The number of all-cargo aircraft operations is only partially related to the expected increase in volume of air cargo because:

- Over time, all cargo airlines generally add larger aircraft to handle increased loads rather than additional flights.
- Some of the air cargo moves via passenger aircraft, so the Airport's total cargo volume does not have a one-to-one relationship to all-cargo flights.

Further, the cargo activity at the Airport includes substantial operations of small, single or twin-engine aircraft. Relatively small changes in the airline's network or load could have a substantial change in number of flights. For example, the Federal financial regulations are allowing banks to switch to an all-electric system for check clearing. Therefore, the number of flights to transport checks (a current activity at the Airport) is expected to diminish sharply. Further, all-cargo airlines can choose between several airports in the greater Sacramento area so that future service to/from the Airport may vary depending on market forces and carrier preference. If one or more of the large integrated air cargo companies were to switch between airports in the region, this could greatly influence the Airport's number of cargo operations. This forecast assumes a continuation of current trends.

Airport records indicate there were 4,073 all-cargo aircraft *landings* in 2003 (or 8,146 total operations). FedEx accounted for 596 of those landings (15 percent). The Airport receives payment based upon the maximum certificated landing weight of the aircraft and FedEx represented 75 percent of the landing weight. West Air represented over half of the landings, but less than six percent of the landing weight.

Similarly, FedEx represented over 80 percent of the air cargo handled by the Airport in 2003, while West Air handled less than five percent. This same trend of a few airline and operations with large aircraft and a few airlines with numerous flights on small aircraft is expected to continue.

Airport records indicate there were 8,886 all-cargo operations in 2002 and 8,146 in 2003. Therefore, the annual number of air cargo operations is expected to remain at approximately 8,000 through the forecast period. While the number of all-cargo flights has dropped on a per day basis in 2004, a return of the 8,000 annual level is expected as shown on **Table A-22**.

TABLE A-22	
Sacramento International Airport	
FORECASTED ALL-CARGO	
AIRCRAFT OPERATIONS	
Actual	Operations
2002	8,886
2003	8,146
Forecast	
2005	8,000
2010	8,000
2015	8,000
2020	8,000

Source: Sacramento County Airport System and PB Aviation

For the purpose of the fleet mix projection, the same airlines and aircraft are expected to be typical users of the Airport in the future. FedEx is expected to continue utilize wide body aircraft at the Airport including the A-300, A-310, DC-10-10, DC-10-30, MD-10, and MD-11. West Air is expected to use the Cessna 208B, Dassault Falcon Jet, and/or Metro III aircraft. Ameriflight has Lear 35s, Embraer Brasilias, Fairchild Metro IIIs and Expeditors, Beech 99s and 1900s, Cessna 402s, Piper Chieftains/Navajos, and Lances in their fleet. Of course, any other type of all-cargo aircraft can be expected at the Airport in the forecast period especially the B-727F and Cessna Caravan, because they are quite common among all-cargo airline fleets.

Based upon current Airport usage, the future fleet mix is shown in **Table A-23**.

TABLE A-23		
Sacramento International Airport		
ALL-CARGO FLEET MIX		
Aircraft Type	Annual Operations	Percentage
Wide Body Jet	1,400	18%
Narrow Body Jet	400	5%
Turbo-Prop Twin	4,200	53%
Turbo-Prop Single	2,000	25%
Total	8,000	100%

Source: PB Aviation

General Aviation Operations Forecast

On a nationwide basis, the FAA recognizes the decline in general aviation operations in recent years due to economic recession, the events of September 11, 2001, and specific issues such as fuel and insurance costs faced by general aviation pilots. For the future, the FAA expects general aviation traffic to resume a growth trend as the U.S. economy recovers.

However, the general aviation market consists of several segments, each of which is likely to behave differently. The segments of general aviation include:

- Two seat, piston engine, fixed wing (generally for training flights)
- Four and six seat, piston engine, fixed wing (generally for pleasure flying)
- Turboprop, fixed wing (generally for business flying)
- Corporate jet (generally for business flying)
- Rotorcraft (mix of training, pleasure and business flying)

The corporate jet market is further divided between the traditional corporate aircraft owned by businesses and the fractional jet operators who serve many uses. Some percentage of the operations classed as general aviation represent for-hire or business-owned commercial passenger or cargo flights, but they are not counted in the commercial passenger or all-cargo categories.

Different types of general aviation activity have varying operational and growth patterns. More than any other aviation segment, these users can choose between the Airport, Sacramento Executive, Mather, and other airports in the region. Sacramento Executive in particular would be expected to experience more growth in the smaller plane segment of general aviation, given its role in the regional aviation system. While it is expected that corporate jet and the large-plane segment will grow at the Airport, attrition of the smaller aircraft to Executive will likely offset this increase. Therefore, the general level of traffic (35,000 annual operations) is expected to remain relatively constant through 2020. This forecast of general aviation operations is shown on **Table A-24**.

TABLE A-24	
<i>Sacramento International Airport</i>	
FORECAST GENERAL AVIATION OPERATIONS	
Actual	Operations
1998	38,230
1999	40,901
2000	35,630
2001	33,462
2002	33,149
2003	34,736
Forecast	
2005	35,000
2010	35,000
2015	35,000
2020	35,000

Source: Sacramento County Airport System, PB Aviation

The split between itinerant and local operations was 62 percent and 38 percent in 2002, and there was a similar split in 2001; for the purpose of this analysis, the future general aviation traffic is expected to continue a similar trend.

The general level of general aviation operations by type is expected to remain generally consistent:

- Single engine, piston, fixed wing 50 percent
- Multi-engine, piston, fixed wing 10 percent
- Turbo-prop, fixed wing 18 percent
- Corporate jet 20 percent
- Helicopter 2 percent

Military Operations

The historical level of military operations at the Airport reached a peak in 2000 and has declined since then. While the military operations in individual years have varied, the average number of annual operations since 1990 is approximately 5,000. Military aviation activity will continue to rise and fall based on geopolitical trends. However, for the purpose of this forecast, the future annual level of military operations is projected at 5,000 as shown in **Table A-25**.

TABLE A-25	
<i>Sacramento International Airport</i>	
MILITARY OPERATIONS	
Actual	Operations
1998	4,461
1999	5,543
2000	6,287
2001	5,253
2002	4,113
2003	3,810
Forecast	
2005	5,000
2010	5,000
2015	5,000
2020	5,000

Source: Sacramento County Airport System, PB Aviation

In 2001, the split between itinerant and local operations was 35 percent itinerant and 65 percent local. This mix is expected to continue.

The type of military aircraft vary as the missions and based aircraft fleet mix of the surrounding Air Force Bases changes. However, the mix is expected to continue its approximate one third, one third, and one third split between:

- Heavy Transport Aircraft – C-130, C-17, and C-5.
- Jet Powered Trainers – T-1, T-34, and T-38.
- Refueling Aircraft – KC-135 and B-767 or Airbus A-330.

Use of the Airport by executive-type government aircraft (military versions of the G-5, B-737, B-757, and B-747) is also expected to continue, but the number of annual operations is expected to continue to be limited.

Operations Summary

In total, aircraft operations are expected to increase from 159,221 in 2003 to 260,000 in 2020. All the growth is expected in passenger flights (including domestic, international, and charter), while all-cargo, general aviation, and military are expected to remain stable. The summary of operations is shown in Table A-26.

TABLE A-26					
<i>Sacramento International Airport</i>					
AIRCRAFT OPERATIONS SUMMARY					
Year	Passenger ¹	All-Cargo	General Aviation	Military	Total
2005	109,000	8,000	35,000	5,000	157,000
2010	130,000	8,000	35,000	5,000	178,000
2015	150,000	8,000	35,000	5,000	198,000
2020	165,000	8,000	35,000	5,000	213,000
Average Annual Growth Rates					
2005-2020	2.8%	0.0%	0.0%	0.0%	2.1%

Source: PB Aviation

Note: (1) Includes domestic, international and charter operations

The average annual rate of growth of passenger flights is 2.8 percent, while all-cargo, general aviation, and military are not expected to grow. The Airport’s aggregate average annual rate of growth of operations is expected to be 2.1 percent over the forecast period.

Table A-27 compares the Master Plan forecast of operation with the updated operations forecasts.

TABLE A-27			
<i>Sacramento International Airport</i>			
OPERATIONS FORECAST COMPARISON			
Total Annual Aircraft Operations			
Year	Master Plan Forecast (1999 base year)	Updated Forecast (2003 base year)	Variation
2005	188,800	157,000	-20%
2010	209,000	178,000	-17%
2015	239,000	198,000	-21%
2020	256,000	213,000	-20%

Source: PB Aviation

Given the slower economic conditions in the first few years of the decade, some variance between the two forecasts over the near term is expected. The generally strong regional economic outlook leads to a higher number of operations projected in the 2020 Updated Forecast compared with the Master Plan Forecast.

PEAK PERIOD PROJECTIONS

Airport activity is not consistently distributed over time. Future peak activity levels have been estimated for scheduled commercial passengers and flights to assist in planning passenger terminal gates and other facilities.

Passenger Peaking

Airports cannot afford to build facilities to accommodate the absolute annual traffic peak period, which in the U.S. typically occurs during the Thanksgiving holidays. Facilities are normally designed to the average day of the peak month which a relatively high activity level, but is lower than the actual annual peak level.

As previously noted for the Airport, there is little seasonal variance in passenger traffic, however June, July, and August are slightly busier while the fewest passengers use the Airport in January and February. In 2003, July was the busiest month at the Airport for domestic scheduled passengers and it appears that July will also be the busiest month in 2004. If all months were equal in passengers, each would have 8.3 percent of the passengers; however in 2003, 9.8 percent of the passengers used the Airport in July.

The activity level for the average day of the peak month is derived by dividing the peak month traffic by the number of days in the month. The peak hour of the day for aircraft arrivals and departures establishes the peak hour for enplanements and deplanements. The forecast passenger peaking activity levels at the Airport are shown in **Table A-28**.

TABLE A-28
Sacramento International Airport
FORECAST PEAK HOUR PASSENGER ACTIVITY

<u>Year</u>	<u>Enplaned Passengers</u>			<u>Peak Hour ¹</u>	
	<u>Annual</u>	<u>Peak Month</u>	<u>Average Day of Peak Month</u>	<u>Enplanements</u>	<u>Deplanements</u>
2005	4,964,100	486,500	15,700	1,730	1,400
2010	6,131,300	600,900	19,400	2,130	1,730
2015	7,283,600	713,800	23,000	2,530	2,050
2020	8,486,000	831,600	26,800	2,950	2,390

Source: PB Aviation

Note: (1) The peak enplanement and deplanement hour are different.

Based on this analysis, the average day of the peak month is 115 percent of the annual average day and the peak hour enplanement share is 8.9 percent of the peak day enplanements. For deplaning passengers, the peak hour represents 11.0 percent of the peak day passengers.

A subset of the domestic peak hour passenger projection is the number of passengers on non-stop international flights. In 2003, June was the peak month for international enplanements, and these passengers all traveled to Mexico. For the future, international service to Europe and/or other locations is expected; while the service to Mexico likely will increase during the forecast period.

Future air service to Europe is expected to utilize Boeing 767-300ER aircraft (or similar), the typical aircraft used on Atlantic routes. Fitted in a typical network airline service configuration, the 767-300ER seats a maximum of 195 passengers. The peak international hour is expected to see one departing aircraft. The peak international arriving hour is also expected to see one aircraft. This results in 195 passengers in both the arriving and departing peak hour assuming the aircraft is full. Beyond 2010, a Boeing 7E7-800 in a three class international configuration is the likely critical aircraft. This aircraft will have 217 seats and a full load is anticipated. The international passenger per hour peak projection is shown in **Table A-29**.

TABLE A-29 Sacramento International Airport FORECAST PEAK HOUR INTERNATIONAL PASSENGER ACTIVITY		
<u>Year</u>	<u>Peak Hour¹</u>	
	<u>Enplanements</u>	<u>Deplanements</u>
2005	195	195
2010	195	195
2015	217	217
2020	217	217

Source: PB Aviation

Note: (1) The peak enplanement and deplanement hour are different.

For European service, the peak arrival time is expected to be between 1 and 2 PM, while the peak departure time should be 4 to 5 PM. These arrival/departure hours fit the “window” to provide service between the West Coast and Europe (given the difference in time zones) and are typical of such flights at San Francisco and Los Angeles.

Passenger Aircraft Operations Peaks

The trend of passenger aircraft operations and peaking is expected to remain similar to existing patterns. In 2003, the peak hour for arriving aircraft in July was 2 to 3 PM. For departing flights, the 6 to 7 AM hour was busiest. The daily schedule of arriving and departing passenger flights on the average day of the peak month is shown on **Table A-30**. The peak hours are shown in a box.

TABLE A-30
Sacramento International Airport
FORECAST PEAK HOUR SCHEDULED COMMERCIAL AIRLINE FLIGHTS

<u>Hour</u>	<u>Historical</u>		<u>Forecast</u>							
	<u>2003</u>		<u>2005</u>		<u>2010</u>		<u>2015</u>		<u>2020</u>	
	<u>Arr.</u>	<u>Dep.</u>	<u>Arr.</u>	<u>Dep.</u>	<u>Arr.</u>	<u>Dep.</u>	<u>Arr.</u>	<u>Dep.</u>	<u>Arr.</u>	<u>Dep.</u>
0000-0059	0	1	0	1	0	1	0	2	0	2
0100-0159	0	0	0	0	0	0	0	0	0	0
0200-0259	0	0	0	0	0	0	0	0	0	0
0300-0359	0	0	0	0	0	0	0	0	0	0
0400-0459	0	0	0	0	0	0	0	0	0	0
0500-0559	4	1	5	1	6	1	7	2	8	2
0600-0659	0	16	0	20	0	23	0	28	0	32
0700-0759	8	8	10	10	12	12	14	14	16	16
0800-0859	7	12	9	15	10	18	12	21	14	24
0900-0959	11	11	13	13	16	16	19	19	22	22
1000-1059	10	6	12	7	15	9	17	10	20	12
1100-1159	7	10	9	12	10	15	12	17	14	20
1200-1259	9	10	11	12	13	15	16	17	18	20
1300-1359	7	10	9	12	10	15	12	17	14	20
1400-1459	13	11	16	13	19	16	22	19	26	22
1500-1559	10	5	12	6	15	7	17	9	20	10
1600-1659	6	8	7	10	9	12	10	14	12	16
1700-1759	11	7	13	9	16	10	19	12	22	14
1800-1859	8	6	10	7	12	9	14	10	16	12
1900-1959	11	8	13	10	16	12	19	14	22	16
2000-2059	11	6	13	7	16	9	19	10	22	12
2100-2159	4	7	5	9	6	10	7	12	8	14
2200-2259	5	1	6	1	7	1	9	2	10	2
2300-2359	4	2	5	2	6	3	7	3	8	4
Total Daily	146	146	178	178	213	213	252	252	290	290

Source: Sacramento County Airport System, PB Aviation

The 6 to 7 AM departure time is busiest because the first flights to West Coast destinations and major eastern cities need to depart at this time to accommodate same-

day business activity. The afternoon peak of arriving flights occurs due to the overlap between different airline scheduled arrivals.

The peak arriving hour represents 8.9 percent of the peak day flights, while the peak departing hour represents 11.0 percent of the peak day departures. Few arrivals or departures occur between midnight and 6 AM. Further, traffic generally is slow at the Airport after 9 PM, primarily due to the West Coast location.

As previously noted, the passenger airline schedule at the Airport stays relatively stable throughout the year and provides convenient arrival/departure times for passengers largely because of the relatively intense competition among airlines. Most flights at the Airport operate seven days per week, but approximately 20 percent of the flights are not available on one or both of the weekend days.