

3. AVIATION FORECASTS

The aviation forecasts are prepared by first selecting and identifying the airport service area and its associated socioeconomic data, followed by analyzing aviation trends including aircraft activity and based aircraft. The activities commonly forecast for airport planning include passengers, aircraft operations, and based aircraft. In this plan, forecasts are projected through the year 2020. These forecasts are based on the FAA Long-Range Aviation Forecasts Fiscal Years 1998-2009 and 2010, 2015 and 2020.

AIRPORT SERVICE AREA

The area served by Watsonville Municipal Airport is designated in this report as the airport service area. Geographical boundaries for airport service areas consist of a city, county, or other governmental subdivision because relevant population and economic data are readily available. Trends in aviation demand correspond with local growth trends in the governmental entity containing the main concentration of population served by an airport. Watsonville Municipal Airport is strategically located to serve general aviation demand in metropolitan Watsonville and the surrounding parts of Santa Cruz County and Monterey County, including the cities of Capitola, Santa Cruz, and Scotts Valley. This area represents the airport service area for Watsonville Municipal Airport and is supported by information on population and economic data in that area, as well as the information on business and home locations of airport users.

SOCIOECONOMIC DATA

Since its incorporation in 1868, Watsonville grew to a population of 47,700 in 2001. As indicated in Table 7, the city's growth has increased dramatically in the last 20 years. From 1960 to 1970 population growth was 1,270. Between 1970 and 1980 it was 8,970. Between 1980 and 1990 it was 7,560; from 1990 to 2000 it was 14,000.

The population of Watsonville is projected to increase to approximately 50,495 by the year 2005. This projection includes the unincorporated community of Freedom. The Watsonville City Council directed that the Watsonville 2005 General Plan provide for a future population of 50,500 by 2005, including Freedom and other adjacent areas. This represents an average

annual growth rate of 1.8 percent per year between 1990 and 2005. This rate is appreciably less than the 2.8 percent per year growth, which occurred between 1980 and 1990. The 1.8 percent rate strikes a balance among agricultural, environmental, infrastructure, social and fiscal constraints. By 2010, the City of Watsonville is projected to have a population of 51,881, which includes Freedom and other adjacent areas.

The population of Santa Cruz County has increased from 83,200 in 1960 to 255,602 in 2000. By the year 2005, the county is expected to have a population of 270,060 and by 2020, the population is expected to be 303,646.

The *Watsonville 2005 General Plan* has, as one of its primary goals, the development of a healthy economy that will provide employment opportunities. The plan projects the need for 7,500 jobs by year 2005. Improvement of the Watsonville Municipal Airport would help in attracting business and jobs to the Watsonville area.

**TABLE 7: HISTORICAL AND PROJECTED POPULATION TRENDS
City of Watsonville and Santa Cruz County**

Year	Watsonville	Santa Cruz County	Percent of Santa Cruz County
Historical			
1960	13,300	83,200	16.0%
1970	14,570	123,600	11.8%
1980	23,540	188,100	12.5%
1990	31,100	229,700	13.5%
1995	33,425	240,000	13.9%
2000	45,100	255,602	17.6%
Forecast			
2005*	50,495	270,060	18.7%
2010*	51,881	281,714	18.4%
2015*	53,816	292,988	18.4%
2020*	55,875	303,646	18.4%

*Includes Freedom

Source: Census 2000, California Department of Finance Demographics Research Unit; Association of Monterey Bay Area Governments; City of Watsonville

AVIATION TRENDS

General aviation flying can be divided into four major categories:

Business: The use of an aircraft for executive or business transportation. This category includes (1) aircraft used by a corporation or other organization and operated by professional pilots to transport its employees/property (not for compensation or hire) and (2) aircraft used by an individual for transportation required by a business in which he/she is engaged.

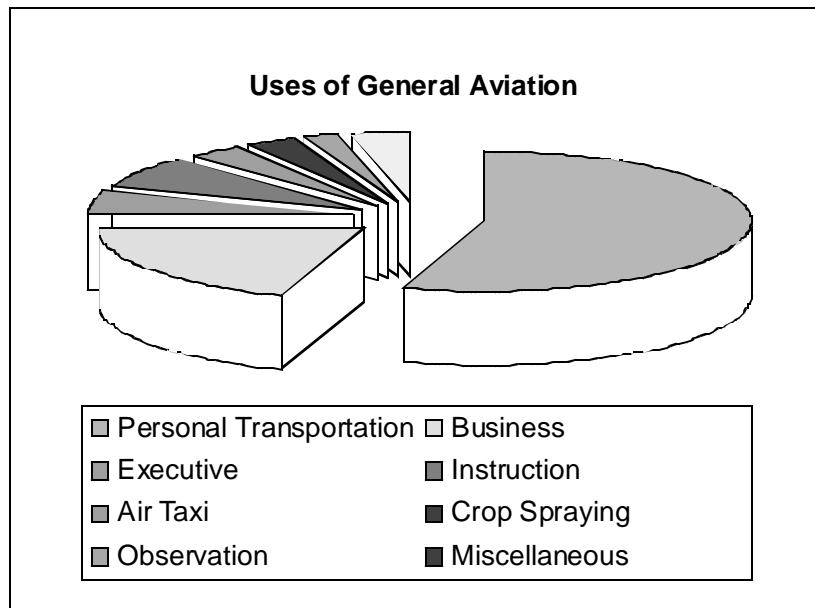
Commercial: The use of an aircraft for commercial purposes (other than the certificated air carriers) in three types of activity: (1) air taxi, involving any use of an aircraft by the holder of an air taxi operating certificate; (2) aerial application, such as the distribution of chemicals (crop dusting); and (3) industrial special, such as pipeline patrol survey advertising, and photography.

Instructional: The use of an aircraft for flight training under an instructor's supervision.

Personal: The use of an aircraft for personal reasons similar to the utilization of an automobile.

At the outset of the forecasting process, it is important to recognize the overall impact of general aviation on the nation's economy as well as anticipated growth in general aviation through future years. FAA statistics of current activity as well as forecasts through 2020 identify an increasing trend in general aviation growth. In 2000, there were 195,500 general aviation aircraft. Of these 141,200 are single engine, 16,000 are multi-engine, 5,500 are turboprop, 4,900 are turbo jet, 6,500 rotorcraft, 17,100 experimental and the 4,300 listed as other.

General aviation includes a multitude of diverse and growing uses of aircraft, ranging from personal flying to transportation of personnel by business firms in privately owned aircraft to highly specialized uses such as crop dusting, patrol, and aerial photography. Based on owner reports nationwide, approximately half of general aviation is for personal transportation, approximately 20 percent is for business travel, and the remainder is for miscellaneous uses including such things as instruction, crop spraying, and air taxis. Without a doubt, the network of general aviation airports around the United States is the backbone of the nation's air transportation system.



Historical and forecast growth of the national general aviation aircraft fleet by type of aircraft, as developed by the FAA, is set forth in Table 8. According to the FAA forecasts, the national general aviation fleet is expected to increase from 195,500 aircraft in 2000 to 233,700 aircraft by 2020, an increase of approximately 2 percent. Of these forecast aircraft, 79.3 percent are piston-powered aircraft, 6.3 percent are turbine-powered aircraft, and 3.6 percent are

categorized as "other," which are not fixed or rotary wing. Of the piston aircraft, 9.1 percent are twin engine.

**TABLE 8: NATIONAL ACTIVE GENERAL AVIATION AIRCRAFT
Type of Aircraft FY 2000-FY 2020
(In Thousands)**

	2000	2005	2010	2015	2020
Fixed					
Piston					
Single Engine	141.2	148.1	155.1	160.7	168.1
Multi-Engine	16.0	16.2	16.7	17.5	18.3
Subtotal	157.2	164.3	171.8	178.2	186.4
Turbine					
Turboprop	5.5	6.0	6.6	6.9	7.2
Turbojet	4.9	5.7	6.3	6.6	6.9
Subtotal	10.4	11.7	12.9	13.5	14.1
Rotary Wing					
Piston	2.3	2.2	2.1	2.2	2.3
Turbine	4.2	4.5	4.7	4.9	5.1
Subtotal	6.5	6.7	6.8	7.1	7.4
Experimental					
Subtotal	17.1	18.0	19.0	19.8	20.7
Other					
Subtotal	4.3	4.5	4.7	4.9	5.1
Total	195.5	205.2	215.2	223.5	233.7

Source: FAA Forecasts, Fiscal Years 1995-2006; *FAA Forecast, Fiscal Years 2010-2020

Aircraft Activity

Aircraft operations data for 1977 through 2000 at Watsonville Municipal Airport are presented in Table 9. During this period, the number of operations increased from 82,000 to 122,890 a net increase of 40,890.

General observation of the activity at Watsonville Municipal indicates that it is a busy airport, particularly on summer weekends. The annual Antique Aircraft Fly-In generates much activity. However, as with most non-towered airports, aircraft operations have not been counted on any continuing basis.

**TABLE 9: HISTORICAL AIRCRAFT OPERATIONS
Watsonville Municipal Airport**

Year	Local	Itinerant	Total
1977	33,000	49,000	82,000
1985	38,000	57,000	95,000
1990	48,000	73,200	122,000
2000	49,156	73,734	122,890

Source: Airport Manager Records; AMBAG

It was estimated that 60 percent of operations were itinerant and 40 percent local. Of these, approximately 7 percent of all operations were estimated to be by twin-engine aircraft and 1 percent by business jets. Thus, the vast majority of operations are by single-engine aircraft at Watsonville Municipal Airport.

Based Aircraft

The number of aircraft based at Watsonville Municipal Airport has shown an increase over the years. The growth has more than doubled for based aircraft from 145 in 1977, when data was assembled for a previous Master Plan, to some 326 in 2000 (i.e., number of aircraft assessed by Santa Cruz County as of January 1, 2000). An increase of about 80 aircraft occurred in 1982, following closure of Santa Cruz Sky Park, which had been the only other public-use airport in Santa Cruz County.

Watsonville Municipal Airport serves a countywide area. This is demonstrated by the geographic distribution of the airport's based aircraft owners (determined by a list of their mailing addresses), as illustrated in Table 10. Some 21 percent of Watsonville aircraft owners (including fixed base operators) had Watsonville vicinity addresses. Approximately 63 percent were from the City of Santa Cruz and vicinity. Overall, 84 percent of Watsonville based aircraft were registered to owners with Santa Cruz County addresses. Table 10 shows aircraft owners by location.

**TABLE 10: AIRCRAFT OWNERS BY LOCATION
Watsonville Municipal Airport**

Owner Jurisdiction	Percent
Santa Cruz Vicinity	63
Watsonville Vicinity	21
Santa Clara County	7
Other Northern California	4
Monterey County	2
Out of State	2
Southern California	1
Total	100

Source: Wadell Engineering Corporation Analysis of Airport Manager Records, 2000

An airport plan is primarily developed from aviation demand forecasts. The forecasts contained in this plan are based on projected growth rates contained in the 1995 AMBAG Regional Airport System Plan (RASP). According to that report, the growth rate for single- and multi-engine aircraft is essentially flat between 2000 and 2005 and then increases to one percent for ensuing years. The growth rate for helicopters, turboprops, and turbine aircraft is essentially two percent for all projection years. When these growth rates are applied to base year estimates (2000), the result is an increase of 55 aircraft between 2000 and 2020. Table 11 shows a forecast of based aircraft derived by applying AMBAG projected growth rates to base year information from the Santa Cruz County Assessor's Office.

**TABLE 11: FORECAST OF BASED AIRCRAFT
Watsonville Municipal Airport**

	2000	2005	2010	2015	2020
Single engine	291	291	306	321	338
Multi engine	24	24	26	27	28
Helicopter	1	1	1	1	1
Turboprop	5	5	6	7	7
Turbine	5	6	6	7	7
Total	326	327	345	363	381

Sources: AMBAG 1995 RASP; Santa Cruz County Assessor's Office

In forecasting, it is the number of based aircraft that "drives" a demand model. Factors that influence an aircraft owner's decision to base his aircraft are the location of the airport, the accessibility of the site, and the availability of facilities for the user. Recognizing the character and nature of aviation facilities within Santa Cruz County, the following developments should result with time:

- The growth of population in Santa Cruz County will increase aviation demand;
- The need for general aviation training, aircraft basing, and the impact of increased commercial traffic at the Monterey Airport will result in increasing demand for airport facilities in the Watsonville area.

- The opening of the small airport in Marina (formerly Fritzsche Army Airfield) did not have an impact on business jet aircraft, since the facilities are much smaller and less desirable than those at Watsonville Municipal Airport, and the user demand generated south of Watsonville is negligible.

Future events that could greatly increase the based aircraft would be (1) the reduction of based aircraft at San Jose International Airport, or (2) the closure of Reid-Hillview Airport in San Jose. Yet the impact of those two scenarios could be voided if NASA Moffett is opened to general aviation use. The impact will likely be small, since the geographic centroid of the Watsonville aircraft owners is toward Santa Cruz.

Forecasting general aviation activity in the study area cannot be separated from other general aviation issues in the area. Activity at any airport is dependent upon development at other airports as well as capacity constraints and limitations. Watsonville Municipal Airport is oriented toward general aviation operations including business, personal, and industry travel.

There is no scheduled air cargo service in operation at Watsonville, although bank courier cargo, personal, and business/industry cargo is moved in general aviation aircraft. Rail and truck transportation remain the primary means of transporting commodities. Airfreight movement exists at Monterey, but remains at a low level. There are no plans for major cargo shipments from Watsonville Airport. The attractiveness for cargo service is limited due to lack of backhaul loads on the return trip and the existing runway strength, which limits the payload of cargo and business aircraft.

AVIATION FORECASTS

For purposes of this master plan, forecasts were prepared for annual operations from 2000 through the year 2020. The forecast, as presented in Table 12, provides detailed information concerning the number of instrument operations for determination of instrument approach capabilities and needs and the aircraft operations by type for use in the airport noise analyses. Information on the number and types of based aircraft, which is calculated in Table 11 is also shown here in Table 12. This information is used for runway capacity analyses and estimates of future apron and hangar parking requirements,

Single engine, multiple engine, and helicopter aircraft operation forecasts are identified in Table 12. It is expected that additional business jet and turboprop aircraft would be based at Watsonville due to increasing business and industrial development. The forecast of aircraft operations is by type of operation, type of aircraft, and type of user. The local aircraft movements include touch-and-go training activity as well as flights in the immediate airport environs. The remaining aircraft movements are classified as itinerant, which includes flights that have origins and/or destinations away from the airport.

The instrument operations noted in Table 12 include instrument approaches (when aircraft arrive at the airport under instrument conditions using navigational aids) and instrument departures, which are the primary portion of the instrument operations. Typically there are more instrument departures than instrument approaches at general aviation airports since the instrument approach is a more precise operation and usually occurs when arriving at a destination where it is necessary to let down to the airfield through cloud conditions or fog. Instrument departures most often involve a climb-out from the airport during instrument

conditions when visual flight rule conditions exist on top of the clouds. The airport experiences a significant level of instrument training flights, including many aircraft from other airports.

**TABLE 12: AIRCRAFT & OPERATIONS FORECAST
Watsonville Municipal Airport**

Based Aircraft:	2000	2005	2010	2015	(²)2020
Single Engine	291	291	306	321	338
Multi Engine	24	24	26	27	28
Helicopter	1	1	1	1	1
Turboprop	5	5	6	7	7
Turbine	5	6	6	7	7
Total	326	327	345	363	381
Annual Aircraft Operations					
By Type of Operation					
Local	49,156	49,556	52,270	55,140	58,092
Itinerant	73,734	74,334	77,920	82,020	86,411
Total⁽¹⁾	122,890	123,890	130,190	137,160	144,503
By Type of Aircraft					
Single-engine prop.	106,430	106,880	113,180	119,600	126,003
Multi-engine prop.	12,140	12,690	12,690	13,240	13,949
Helicopter	0	0	0	0	0
Turboprop	2,820	2,820	2,820	2,820	2,971
Turbine	1,500	1,500	1,500	1,500	1,580
Total	122,890	123,890	130,190	137,160	144,503
Aircraft Operations Distribution					
Peak Month	11,675	11,770	12,368	13,030	13,728
Peak Week	2,923	2,947	3,097	3,264	3,439
Average Day of Peak Month	390	394	413	435	458
Peak Hour of Average Day of Peak Month	59	60	63	66	70
Instrument Operations	3,685	3,715	3,893	4,101	4,320
Approaches	733	739	774	815	859

Notes: ⁽¹⁾This data is from the AMBAG 1995 RASP (or in the case of the 2020 project, based on trends derived from the 1995 AMBAG RASP). Members of the public have raised questions about the accuracy of this data, arguing that these estimates/projections significantly overstate current and future operations at Watsonville Airport. While the AMBAG 1995 RASP is dated and its accuracy open to question, there is no better data available to use in its place. AMBAG is currently (August 2001) working to prepare a revised RASP, and this work is expected to be complete in early 2002. These new projections will be worked into the master plan when available, and if the projections are lowered or remain approximately the same, they are not expected to change planned improvements or the analysis of environmental impacts associated with the master plan. The rationale for lengthening the main runway would be unaffected (i.e., increasing the number of planes that can depart with 90 percent loads and thereby increasing facility efficiency), and the environmental analysis, which is based on earlier projections, will, if anything, overstate potential impacts.

⁽²⁾Projections for 2020 are based on trends derived from data in the 1995 RASP.

Source: AMBAG 1995 RASP; Watsonville Airport Manager