B) It must be demonstrated that the use is *"related to present land patterns in the area"*;
C) The use must not present a hazard to aviation operations or communications; and
D) The use must not induce high concentrations of people.

Aside from those limitations and restrictions expressed in Chapter 21-1- through 21-4-7, no additional property development standards apply to the AD District. The City's Code does not provide minimum lot area, minimum setback requirements, or similar such specifications for the AD Zone. The consultant confirmed in telephone conference with the City Community Development Director that no such standards currently apply to the airport property.

Chapter Three
Aviation Activity Forecasts

CENTURY WEST
ENGINEERING CORPORATION

Florence Municipal Airport

CHAPTER THREE
AVIATION ACTIVITY FORECASTS

Introduction

The purpose of this chapter is to update the forecasts of aviation activity for the twenty year planning period addressed in the Airport Master Plan Update (2008-2028). The updated activity forecasts will provide the basis for estimating future facility needs at Florence Municipal Airport. The 1997 Airport Layout Plan Report, 2007 Oregon Department of Aviation (ODA) forecasts; and current Federal Aviation Administration (FAA) forecasts will be compared with current and historical activity at Florence Municipal Airport to determine their applicability for use in this planning update.

POPULATION AND ECONOMIC DATA

In many ways, general aviation airports are a reflection of the communities they serve. Changes in population within an airport's service area often provide a broad indication about trends in airport activity. Although a large number of factors normally affect activities at general aviation airports, changes in population often reflect other economic conditions, which may affect airport activity more directly. However, since it is difficult to identify specific connections between airport activity and individual economic indicators such as growth in personal income, unemployment rates, or business spending, population often provides a general indication of an area's economic health. Regions with flat or declining populations often have weak underlying economic conditions. In contrast, higher rates of population growth often characterize a growing economy that can stimulate individual and business use of general aviation.

Historic Population

The Florence area population has grown considerably over the last several decades, consistently outpacing both Lane County and statewide population growth. Annual estimates of population for Oregon counties and incorporated cities are provided through the Portland State University (PSU) Population Research Center. The annual PSU estimates, coupled with the U.S. Census, conducted

every ten years, provide an indication of local area population trends.[7] Historic population data are summarized in **Table 3-1**.

The July 1, 2008 PSU population estimate for Florence (within the city's incorporated area) was 9,410, an increase of 28.6 percent (+2,092 residents) from the 2000 Census (7,318). The average annual rate of growth in Florence was 3.19 percent between 2000 and 2008. As indicated in the **Table 3-1**, Florence has grown at rate more than three times faster than Lane County and generally double Oregon's average annual growth rate dating back to the 1970s.

TABLE 3-1:
HISTORIC AREA POPULATION

Year	City of Florence	Lane County	Oregon
1960	1,642	162,890	1,768,687
1970	2,246	215,401	2,091,533
1980	4,411	275,226	2,633,105
1990	5,162	282,912	2,842,321
2000	7,318	322,959	3,421,399
2008	9,410	345,880	3,791,075
Average Annual Rates (AAR) of Growth	City of Florence	Lane County	Oregon
1960-2008	3.70%	1.58%	1.60%
1970-2008	3.84%	1.25%	1.58%
1980-2008	2.74%	0.82%	1.31%
1990-2008	3.39%	1.12%	1.61%
2000-2008	3.19%	0.86%	1.29%

Source: U.S. Census data 1960-2000; Portland State University estimate July 1, 2008.

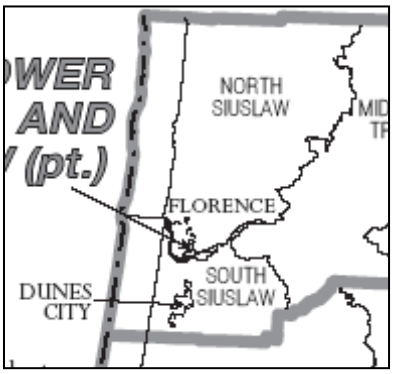
Table 3-2 compares population trends within the Florence city limits and Urban Growth Boundary (UGB), and the two local (North Siuslaw and South Siuslaw) County Census Divisions (CCD) that were defined by the U.S. Census Bureau in the most recent (2000) census.

[7] Portland State University Population Research Center, July 1, 2008 estimate; 1990, 2000 U.S. Census.

TABLE 3-2:
LOCAL POPULATION DISTRIBUTION

Community/Area	Population	% of County
Portland State University Estimate (July 1, 2008)		
Florence (within City Limits)	9,410 [1]	2.72%
Lane County	345,880 [1]	100%
2000 Census		
Florence (within City Limits)	7,263 [2]	2.3%
Florence (within urban growth boundary)	8,750 [2]	2.7%
North & South Siuslaw County Census District (CCD)	13,300 [1]	4.1%
Lane County	322,959 [1]	100%

Sources:
1. Portland State University estimate July 1, 2008.
2. City of Florence Comprehensive Plan



As a result of local development patterns, the service area for Florence Municipal Airport includes both the incorporated areas of the community and outlying areas. The North and South Siuslaw County Census Districts (CCD), which include Florence, Dunes City and areas immediately to the north and south, was first designated in the 2000 Census. As a result, census counts within the two areas were not organized in this form in earlier years. The City of Florence Comprehensive Plan contains both historic data and long-term forecasts of population within both its city limits and UGB. Based on this availability, data from the UGB will be used for purposes of evaluating the affect of local population on activity at the airport. As indicated in **Table 3-2**, the Florence UGB population accounted for approximately 66 percent of the population for the two census divisions in 2000. In future years, the population documented within the two local CCDs will provide an indication of the service area for Florence Municipal Airport that extends beyond the City of Florence boundary.

City of Florence Comprehensive Plan

The City of Florence Realization 2020 Comprehensive Plan (adopted July 2008) provides forecasts of population within the Florence city limits and the Florence urban growth boundary (UGB) to guide long-term community planning. Based on the 2008 PSU estimate of population for Florence (incorporated area only), it appears that growth within the UGB may currently be trending slightly above the long-term forecast growth rate. The 2025 forecast for the Florence UGB is 15,600, which

reflects an average annual growth rate of 3.3 percent. The comprehensive plan projects that the Florence UGB population will account for approximately 3.8 percent of Lane County's population in 2025, up from 2.7 percent in 2000.

Oregon Office of Economic Analysis (OEA)

Lane County's sustained, moderate population growth is expected to continue and is reflected in the long-term (2000-2040) population forecasts prepared by the Oregon Office of Economic Analysis (OEA) for Oregon counties to support local long-term planning.[8] The annual growth projected by OEA for Lane County averages 0.96 percent through 2030. The OEA forecasts and related data are summarized in **Table 3-3**.

As indicated above, current City of Florence forecasts maintain the long-established trend of building a growing share of county population through 2025. The expectations for population growth and the accompanying economic expansion for the community suggest that future aviation demand at Florence Municipal Airport can also be expected to also increase in the coming years.

TABLE 3-3:
POPULATION FORECASTS

	2000	2008	2010	2015	2020	2025	2030
OEA Forecasts Lane County *(0.96% AAR 2000-2030)* [1]	322,959[2]	345,880[3]	347,494	365,639	387,574	409,159	430,454
City of Florence Urban Growth Boundary Forecasts *(2.34% AAR 2000-2030)* [4]	8,750	10,529	11,027	12,379	13,896	15,600	17,513
Florence Urban Growth Boundary Forecasts % of Lane County	2.71%	3.04%	3.17%	3.39%	3.59%	3.81%	4.07%
North and South Siuslaw CDP Population	13,300[5]						
North and South Siuslaw CDP % of Lane County	4.12%						

1. Oregon Office of Economic Analysis (OEA) Forecasts, except where other sources are noted.
2. U.S. Census - 2000.
3. PSU Estimate July 1, 2008.
4. City of Florence Comprehensive Plan Forecasts (July 2008) for 2000 and 2025; other year totals are interpolated/extrapolated using the forecast average annual growth rate.

Socioeconomic/Employment Data:

Florence and the central Oregon coast have long been popular destinations for tourism and retirement. Approximately 30% of the population is of retirement age, which gives the city a

[8] Office of Economic Analysis, Department of Administrative Services, State of Oregon April 1, 2004 estimate.

relatively stable economic base. Local attractions include the Oregon Dunes National Recreation Area, Sandpines Golf Resort and Florence's Old Town District.

The local employment base is relatively diversified and includes retail trade, tourism, health services, government, education, marine services, manufacturing and professional services. According to Oregon Department of Employment data, nearly 40% of Florence employment in 2004 was in the retail trade and the leisure and hospitality sectors. Leading employers in the community include Peace Harbor Hospital, Fred Meyer, the Siuslaw School District, Three Rivers Casino, Siuslaw Care Center and Oregon Pacific Banking Company.

Economic development efforts led by the Port of Siuslaw are in part focused on attracting light industrial tenants to the Port's 40-acre industrial park located adjacent to the airport. The availability of readily-developable industrial land adjacent to the airport also has the potential of contributing to airport activity through increased business travel.

In recent years, unemployment rates in Lane County have closely followed the statewide average. In December 2008, Lane County's unemployment rate was 8.4 percent, up sharply from 5.4 percent in December 2007; the same rates occurred in the Eugene-Springfield area and statewide.

Historically, during periods of weakened economic conditions, downturns in general aviation activity often result. In contrast, growth in general aviation activity typically coincides with favorable economic conditions. It is reasonable to assume that the current economic climate has, and will continue to constrain general aviation activity locally, statewide and throughout national airport system in the near term. However, as indicated in the FAA's national long term aviation forecasts, the overall strength of the U.S. economy is expected to support sustained economic growth over the long-term, which will translate into modest to moderate growth in aviation activity.

With the nearest commercial air service available in Eugene, and a full range of business aviation services available in North Bend, Florence Municipal Airport's primary market is general aviation activity generated local residents, businesses, government and visitors. In its role as a community general aviation airport, Florence Municipal Airport provides a convenient transportation option for users operating light single-engine and multi-engine aircraft, and smaller business class aircraft. The use of private aircraft for personal and business transportation has the potential of affecting Florence's economy, particularly for existing users and in support of attracting new businesses to the community.

AVIATION ACTIVITY FORECASTS

Introduction

The purpose of this section is to prepare updated forecasts of aviation activity for the twenty-year planning period addressed in the Master Plan Update (2008-2028) for Florence Municipal Airport. The updated forecasts will provide the basis for estimating future airport facility needs. Existing Oregon Department of Aviation (ODA) and Federal Aviation Administration (FAA) Terminal Area Forecast (TAF) are reviewed and provide a basis of comparison for updated master plan forecasts. These forecasts are summarized later in the chapter and depicted in **Figures 3-1 and 3-2** at end of the chapter.

National General Aviation Activity Trends

After an extended period of decline, the U.S. general aviation industry experienced a period of sustained growth between 1994 and 2000 (coinciding with the General Aviation Revitalization Act of 1994). During this period, the general aviation fleet increased by 25 percent overall, or about 3.2 percent per year. The fastest growing fleet segments during this period were business jets, helicopters and experimental aircraft, which increased between 7.5 and 9 percent per year. The general aviation industry experienced a significant downturn in 2001, which began with an economic slowdown and then accelerated following the events associated with September 11th.

Over the last several years, a steep rise in aviation fuel prices combined with weak economic conditions has constrained the general aviation industry. The current Federal Aviation Administration (FAA) long term aviation activity forecasts[9] provide the following assessment *"High fuel prices and concerns about the economy are dampening the near-term prospects for the general aviation industry, but the long-term outlook remains favorable."* These expectations are generally in line with broad based measures of economic health such as long term forecasts of gross domestic product (GDP), consumer price index, fuel prices and interest rates. Although some segments of general aviation (primarily business aircraft usage) are expected to grow at moderately high rates, most conventional measures of the general aviation industry suggest modest, sustained growth in the range of 1 to 2 percent annually over the next 10 to 20 years.

The FAA's long term forecasts project modest growth in the U.S. active general aviation aircraft fleet, with an increase from 225,007 to 286,500 aircraft (+61,493) between 2007 and 2025 (+27.3%; average annual increase of 1.35%). Several of the FAA's general aviation activity growth assumptions are summarized in **Table 3-4.**

[9] FAA Aerospace Forecasts Fiscal Years 2008-2025.

Although single-engine piston aircraft (not including experimental or light sport aircraft) currently account for approximately 65 percent of the general aviation fleet, the rate of growth in business jets, turboprops, piston and turbine helicopters, experimental aircraft and sport aircraft has been two to four times greater than single engine aircraft over the last several years. The number of business jets in the general aviation fleet has increased by 57 percent since 2000. Strong increases in the number of corporate aircraft operators, fractional ownership of business aircraft, and aircraft charter activity appear to represent a business response to current commercial air service options throughout the U.S.

The FAA expects some general aviation activity segments to experience flat or declining numbers during the forecast period. For example, the multi-engine piston fleet is forecast to decline by 0.9 percent annually through 2025. This downward trend is attributed to fleet attrition and the lack of multi engine piston aircraft production. Similarly, the single-engine piston fleet is expected to decline slightly through 2010, before gradually increasing through 2025. The FAA projects the fleet to lose approximately 1,500 aircraft per year to attrition. While renewed production of updated established designs or new aircraft designs is expected to help arrest the downward trend, overall growth is expected to be approximately 0.5 percent annually through 2025.

It is interesting to compare forecast growth for general aviation in Oregon to national expectations. The 2007 ODA forecast projects Oregon's general aviation fleet to increase by 1,350 aircraft between 2005 and 2025, which equates to average annual growth of 2.29 percent; general aviation aircraft operations are projected to increase at an average annual rate of 1.58 percent, from 1,620,282 in 2005 to 2,216,213 in 2025.

TABLE 3-4: FAA LONG RANGE FORECAST ASSUMPTIONS

Activity Component	Forecast Annual Average Growth Rate (2008-2025)
Pilot Population (All Ratings)	0.6%
Student Pilots (indicator of flight training activity)	1.0%
Light Sport Pilots	13.7%
Hours Flown - GA Fleet (All AC Types)	3.0%
Active GA Fleet (# of Aircraft)	1.4%
AVGAS (Gallons consumed - GA only)	0.6%
Jet Fuel (Gallons consumed – GA only)	6.0%

Source: FAA Long Range Aerospace Forecasts (FY 2008-2025) March 2008

Very Light Jets (VLJ)

The FAA considers the ongoing development and deliveries of very light jets (VLJ) to be among the more significant events affecting business aviation activity over the next several years.[10] The FAA forecasts project the VLJ fleet to increase from about 350 aircraft in 2007 to 8,145 in 2025, averaging around 500 deliveries per year.

With lower acquisition and operating costs than most traditional turbine business aircraft, the FAA anticipates that VLJs will become increasingly popular for use in on-demand air taxi business service. It is worth noting that new VLJ aircraft will not require significant upgrades in airfield capabilities (longer runways, etc.) for most airports currently able to accommodate twin engine piston or turboprop aircraft. However, increased activity within these categories could be expected to affect based aircraft and transient aircraft fleet mix and stimulate demand for hangar space and aircraft services.

Although long-term growth in the VLJ segment is expected to be significant and sustained over an extended period, recent developments within the newly emerging VLJ manufacturing sector suggest that near-term growth may be tempered by a variety of market and economic conditions. VLJ deliveries in 2008 totaled 300 aircraft (101 Cessna Mustang, 161 Eclipse 500, and 38 Embraer Phenom models), up from 143 deliveries in 2007. [11] Eclipse Aviation, the leading manufacturer of VLJs in 2008 (in delivered units), filed for federal bankruptcy protection in November 2008. Cessna Aircraft, a long-established manufacturer of general aviation aircraft, including the popular Citation business jet series, appears to be well positioned to be among the leaders in manufacturing small business jets for the foreseeable future. Other aircraft manufacturers have VLJ models in various stages of development or early production. In 2009 VLJ deliveries totaled 222 units from two aircraft manufacturers (125 Cessna Mustang and 97 Embraer Phenom models.)

[10] Very Light Jets (VLJ) are small jet-powered aircraft (weighing less than 12,500 pounds) with airport-related performance characteristics (takeoff weight, approach speed, runway length requirements, physical dimensions, passenger load, etc.) comparable to a high-performance light twin-engine aircraft.
[11] General Aviation Manufacturers Association (GAMA) data.

Light Sport Aircraft (LSA) & Experimental Aircraft

FAA data indicates that the number of active experimental and light sport aircraft (LSA) in the U.S. general aviation fleet to increase by 6,213 units between 2000 and 2007.[12] These two categories of aircraft accounted for 11.8 percent of the active general aviation fleet in 2007. The LSA segment of general aviation aircraft manufacturing is expected to experience the most rapid growth over the next 18 years, projected to grow from 2,700 aircraft (FAA estimate for 2007) to 14,700 in 2025, averaging 9.9 percent per year. By 2025, the FAA predicts that certificated sport pilots will account for 3.7 percent of all general aviation pilots and light sport aircraft will account for 5.1 percent of the general aviation fleet. The FAA projects experimental aircraft to account for approximately 12.3 percent of the general aviation fleet in 2025.

Pilot Activity

Growth in the number of fixed-wing pilots is expected to be in the range of 0.2 to 1.0 percent annually through 2025. Sport pilots are expected to increase at a rate of approximately 13.7 percent annually (from 2,000 to more than 20,600 by 2025). Rotorcraft pilots are projected to increase at a rate of 2.1 percent through 2025.

The FAA's forecasts for general aviation hours flown reflect moderate growth averaging about 3 percent annually, with varying levels within different categories.

Current and Historic Aviation Activity

Based Aircraft

Based on a recent count conducted by airport officials, there are currently 33 aircraft based at Florence Municipal Airport on a year-round basis. All of the fixed wing based aircraft weigh less than 12,500 pounds and are included in Airplane Design Group I (ADG I). In addition to a wide range of single-engine piston aircraft, the airport's based aircraft fleet includes two twin-engine turboprops (Piper Cheyenne and Aero Commander 690), four piston twin-engine aircraft and one helicopter. **Table 3-5** summarizes the individual aircraft by type.

[12] Light Sport Aircraft (LSA) is a newly-defined category of aircraft with a maximum gross takeoff weight of 1,320 pounds or less (land planes) and simplified design. The new FAA Sport Pilot Certificate requires a minimum of 20 hours training for non-transitioning pilots.

TABLE 3-5:
BASED AIRCRAFT SUMMARY
(DECEMBER 2008)

Aircraft Type	Aircraft
Single Engine Piston	27
Multi-Engine Piston	2
Turboprop	2
Business Jet	0
Rotorcraft	1
Light Sport	0
Other (ultralights)	1
Total Based Aircraft	**33**

Based aircraft at Florence Municipal Airport have increased from 26 to 33 during the last fourteen years, averaging 1.72 percent annual growth. During the preceding twenty years, the number of based aircraft at the airport doubled, increasing from 12 to 26. Since 1974, the airport's based aircraft fleet has grown at an average annual rate of 3.02 percent.

Aircraft Operations

For Florence Municipal Airport, aircraft operational data (takeoffs and landings, touch and go landings, etc.) are limited to estimates. As a non-towered airport, no record of activity is regularly maintained.

Statistical operations estimates for Florence Municipal Airport are available for three separate years (1984, 1995 and 1997) through the Oregon Department of Aviation (ODA) automated acoustical (RENS) activity counting program. In the absence of air traffic control tower records, RENS counts generally provide the most reliable estimates of activity for uncontrolled airports. The RENS program uses a counting device that is triggered by specific noise level (aircraft engine noise) normally associated with an aircraft takeoff. Four seasonal on-site data samples are normally collected over a twelve-month period (October to October) for use in creating statistically-derived estimates of operations. **Table 3-6** summarizes the activity counts conducted at Florence Municipal Airport.

TABLE 3-6: ODA RENS AIRCRAFT ACTIVITY COUNTS (FLORENCE MUNICIPAL AIRPORT)

	1984	1995	1997
RENS Activity Count	2,200	6,034	4,284
Based Aircraft	11	29	29
Ratio of Operations per Based Aircraft	200	208	148

The most recent ODA estimate of activity at Florence Municipal Airport is contained in the 2007 ODA Oregon Aviation Plan Forecast. The forecasts established base year (2005) activity for Florence Municipal Airport at 31 based aircraft and 5,162 annual operations. The operations estimate reflects a slightly lower ratio than the average of the three activity counts for the airport. When other data does not exist, the FAA generally recommends a typical ratio for smaller general aviation airports of 250 operations per based aircraft. The precise cause for lower activity ratios found at Florence Municipal Airport is not entirely clear, but local weather conditions may be contributing factor. The development of an instrument approach to the airport could allow increased use of the airport during poor weather conditions, which could increase overall activity.

Based on a current count of 33 based aircraft and the range of activity ratios found through past acoustical counts, current aircraft activity at Florence Municipal Airport is estimated to total 5,445 operations. This activity reflects a ratio of 165 annual operations per based aircraft.

Other FAA Activity Data

The current FAA Airport Record Form lists 31 based aircraft and 7,000 annual operations for Florence Municipal Airport (for the 12 months ending July 2005). The FAA Terminal Area Forecast (TAF) 2008 estimate lists 35 based aircraft and 5,553 operations. The based aircraft estimates for both FAA data sets are comparable to current levels at the airport. The activity estimate on the 5010 form is considerably higher than other operations estimates from the TAF or the 2007 ODA forecasts. The activity estimate in the TAF is comparable to the 2007 ODA forecasts.

Local and Itinerant Operations

The current FAA 5010-1 Airport Record Form for the airport estimates the air traffic distribution to be 30 percent local and 70 percent itinerant. Current and forecast operations in the FAA TAF use a 42 percent local and 58 percent itinerant split. Local operations are conducted in the vicinity of an airport and include flights that begin and end the airport. Local operations include flight training (touch and goes), flightseeing, and other flights within the local area that do not involve a landing at another airport. For purposes of developing updated forecasts, a 35%/65% local/itinerant split

appears to be reasonable. The 2007 Oregon Aviation Plan forecasts do not identify the operations distribution by operational category (local versus itinerant).

EXISTING FORECASTS

1997 Airport Layout Plan

The 1997 ALP Report utilized aviation forecasts from the 1994 Oregon Aviation System Plan (OASP). The forecasts projected based aircraft to increase from 26 to 32 (+6) by 2014. Annual aircraft operations were projected to increase from 7,557 to 9,380 during the period. Both forecasts reflect average annual growth rates of approximately **1.0 to 1.1 percent**.

It is noted that OASP estimate of current airport activity for 1994 was based on previous estimates and acoustical counts conducted by ODA in 1984 and 1992. The base year and subsequent forecast operations levels reflected activity ratios in the range of 286 to 290 operations per based aircraft. A subsequent activity count conducted by ODA in 1996-1997 was approximately 30 percent lower than the previous count. The activity count coupled with an increase in based aircraft at the airport, results in a significantly lower activity ratio (approximately 148 operations per based aircraft).

During the initial 14 years of the 20-year planning period, the forecast of based aircraft has tracked very closely with actual activity at the airport. A December 2008 airport management count of 33 based aircraft is 3 above the forecast level for 2009. It appears that the aircraft utilization ratios used in the previous forecasts overestimated annual operations levels. However, the increase in flight activity associated with the airport's growing based aircraft fleet would appear to have met or exceeded the modest average annual rate of growth.

The 1997 ALP forecasts are summarized in **Table 3-7.** Due to the age of the forecasts, they do provide an effective indication of future activity for current master planning purposes.

TABLE 3-7: 1997 AIRPORT LAYOUT PLAN FORECASTS (FLORENCE MUNICIPAL AIRPORT)

	1994	1999	2004	2009	2014
Based Aircraft (1.0% AAR, 1994-2014)	26	27	29	30	32
Aircraft Operations (1.1% AAR, 1994-2014)	7,557	7,830	8,290	8,835	9,380

Oregon Department of Aviation – Oregon Aviation Plan

Updated Oregon State Aviation System Plan forecasts were developed in 2007 with projections made from 2005 to 2025. The ODA forecasts of based aircraft and operations for Florence Municipal Airport reflect moderate growth over the 20-year planning period. Based aircraft were forecast to increase from 31 to 40 between 2005 and 2025 (average annual rate of **1.28 percent**). Base year annual aircraft operations were estimated at 5,162, reflecting a ratio of 167 operations per based aircraft. Aircraft operations were forecast to increase from 5,162 to 7,554 between 2005 and 2025 (average annual rate of **1.92 percent**). The operations forecast reflect ratios of 167 to 189 operations per based aircraft, which is relatively consistent with the last activity count conducted by ODA in 1997. The ODA forecasts are considered reliable for use as a baseline projection in the airport master plan update and are summarized in **Table 3-8**.

Terminal Area Forecast (TAF)

The Federal Aviation Administration (FAA) maintains forecasts for Florence Municipal Airport in the TAF. The TAF projects an increase in based aircraft from 33 (estimated in 2005) to 48 in 2020. This projection reflects an overall increase of 45.5 percent, which equates to annual average growth of **2.53 percent** over the 15-year forecast. The 2008 forecast of 35 based aircraft is comparable to an actual based aircraft count (33) conducted in December 2008. Aircraft operations during the same period are projected to increase from 5,162 to 7,123, reflecting an overall increase of 38.0 percent and annual average growth of **2.17 percent**. Like the ODA forecasts described earlier, the TAF provides a moderate baseline projection that would be reliable for use in the airport master plan update. The TAF is summarized in **Table 3-8.**

TABLE 3-8: 2007 ODA & FAA TAF FORECASTS (FLORENCE MUNICIPAL AIRPORT)

Forecast Elements	2005	2010	2015	2025
ODA 2007 Forecast Based Aircraft (1.28% AAR 2005-2025)	31	34	36	40
ODA 2007 Forecast Aircraft Operations (1.92% AAR, 2005-2025)	5,162	5,911	6,411	7,554
FAA TAF Forecast Based Aircraft (2.53% AAR 2005-2020)	33	37	42	48
FAA TAF Forecast Aircraft Operations (2.17% AAR, 2005-2020)	5,162	5,815	6,468	7,123

UPDATED AVIATION FORECASTS

Assessment of Local Conditions

A review of the previous airport layout plan indicates that 12 new conventional hangars, including some multi-unit hangars, have been constructed at Florence Municipal Airport since the 1997 ALP was completed. Four older hangars located at the south end of airport were also removed. The hangar development activity coincided with strong growth of the local population. Although a precise statistical correlation is difficult to define, airport activity trends appear largely mirror the overall growth occurring in the community. It is reasonable that this trend will continue. In light of the robust long-term population forecasts for Florence, it is reasonable to expect an increase in airport activity during the same period.

Updated Forecasts

Two new forecasts of based aircraft and aircraft operations were developed for Florence Municipal Airport to supplement the existing forecasts described earlier in the chapter. The first projection is based on the historic relationship between airport activity and local area population. The second projection is based on the airport's share of statewide aviation activity (market share). The updated forecasts are described below, summarized in **Table 3-9** and depicted in **Figures 3-1 and 3-2** at the end of the chapter.

Projection #1 - Population-Airport Activity Ratio

This projection assumes that the historic trend established between local area population and activity at Florence Municipal Airport will continue during the current planning period.

Based Aircraft

Based aircraft totals at Florence Municipal Airport have increased at a rate slightly faster than local population growth over the last 20 to 30 years. The ratio of based aircraft to population within city limits has gradually increased from approximately 3.2 based aircraft per 1,000 residents in 1980, to about 3.5 in 2008. The ratio of based aircraft to population within the larger Florence UGB is approximately 2.91 based on 2008 population estimates.

Based on the City of Florence UGB population forecasts contained in the 2008 Comprehensive Plan, a projection of based aircraft was generated by applying a gradually increasing ratio of based aircraft to population from 3.13 to 3.27 through 2030. The projected increase in the activity ratio, relative to population growth, is about half of what has occurred since 1980. This slightly lowered

growth expectation reflects the potential for periodic economic slowdowns that can affect general aviation activity.

In this projection, based aircraft increase from 33 to 57 between 2008 and 2030, which equates to an average annual growth rate of **2.51 percent.**

Aircraft Operations

This projection assumes that aircraft operations during the 20-year planning period will increase at a rate slightly higher than projected growth in based aircraft. The ratio of aircraft operations per based aircraft are projected to marginally increase from 165 to 180 during the twenty-year planning period. This assumption reflects an expectation that future airport activity will be similar to current activity, although increased transient aircraft use of the airport is expected to coincide with local economic growth and the ability of the airport to provide facilities and services to serve this segment of activity.

In this projection, annual operations increase from 5,445 to 10,260 between 2008 and 2030. This forecast reflects and average annual growth rate of **2.92 percent.**

Projection #2 – Increased Market Share

Florence Municipal Airport's share of Oregon's general aviation activity has steadily increased in recent years. Both in terms of based aircraft and aircraft operations, the airport has outpaced statewide growth. Based on data contained in current and past state aviation system plans, the market share for Florence Municipal Airport has increased from approximately 0.4 to 0.6 percent of statewide totals for based aircraft over the last twenty years. The airport's share of general aviation operations has increased from about 0.17 percent 0.32 percent during the same period.

This projection assumes that the strong, long-established upward trend of market share increases at Florence Municipal Airport will continue during the current planning period at a slightly slower rate, based on the same industry-based assumptions used for the Projection #1.

The 2007 Oregon Aviation Plan forecasts of statewide general aviation activity were evaluated to compare current based aircraft and operations at Florence Municipal Airport with statewide totals to determine current market share. The statewide forecasts extend from 2005 to 2025. The forecast growth rates for based aircraft and operations were extrapolated to 2030 to provide a basis for comparison and a 20-year forecast for the master plan update. The master plan projections assume a slight increase in the airport's share (percentage) of forecast statewide activity through 2030.

Based Aircraft

In 2005, the 31 based aircraft at Florence Municipal Airport accounted for 0.636 percent of Oregon's statewide general aviation based aircraft total (4,875). This projection assumes an increase in market share through the 20-year planning period, from 0.636 percent to 0.950 percent. Based aircraft are projected to increase from 33 to 63 between 2008 and 2030. This forecast reflects an average annual growth rate of **2.98 percent.**

Aircraft Operations

In 2005, the ODA-estimated 5,162 annual aircraft operations at Florence Municipal Airport accounted for 0.318 percent of Oregon's statewide general aviation operations total (1,620,282). This projection assumes a slight increase in market share through the 20-year planning period, from 0.318 percent to 0.450 percent. Annual aircraft operations are projected to increase from 5,445 to 10,786 between 2008 and 2030. This forecast reflects an average annual growth rate of **3.15 percent.**

Forecast Summary

The recommended preferred forecast for Florence Municipal Airport is **Projection #1 –** Population-Airport Activity Ratio. This forecast scenario reflects and continues an established pattern of activity that extends back over the last two decades. It is interesting to note the two updated projections and the two existing forecasts (FAA TAF and Oregon Aviation) fall into two lines bracket activity within a specific range. As such, the range of forecasts can be viewed as forecast envelope with a reasonable expectation that activity will fall within. The preferred forecasts are summarized in additional detail in **Table 3-10.**

As with any long term facility demand forecast, it is recommended that adequate landside development reserves be protected to accommodate demand that may exceed current projections. For planning purposes, a reserve capable of accommodating a doubling of the 20-year forecast demand should be adequate to accommodate unforeseen facility needs during the current planning period. However, should demand significantly deviate from the airport's recent historical trend, updated forecasts should be prepared to ensure that adequate facility planning is maintained.

Design Aircraft

As noted above, all locally fixed-wing aircraft based at Florence Municipal Airport are small single-engine and multi-engine aircraft included in Airplane Design Group I (ADG I). By FAA definition, a "small" airplane weighs less than 12,500 pounds. Most single engine aircraft are included in FAA Aircraft Approach Category A (approach speeds less than 91 knots), and most twin-engine aircraft are included in Aircraft Approach Category B (approach speeds between 91 knots and 120 knots).

The airport may occasionally accommodate larger business class aircraft including turboprops and small or medium business jets. However, the current 3,000-foot runway length limits this activity to a certain degree. Locally-based and transient aircraft activity at Florence Municipal Airport could be expected to become more diverse during the forecast period in the event that the previously planned runway extension (3,430 feet) project is completed. Although small single-engine and multi-engine piston aircraft would be expected to represent the majority of based aircraft and airport operations, trends within the general aviation aircraft manufacturing suggest that the addition of new turbine aircraft, including very light jets (VLJ) and single-engine turboprops could be expected to generate activity. Most current design VLJs are included in Airplane Design Group I with airport facility needs comparable to most piston light twin-engine aircraft. As such, airfield improvements targeted at accommodating the small airplane fleet will also address most VLJ facility needs. Based on these considerations, the current and future Airport Reference Code (ARC) recommended for Runway 15/33 is B-I (small).

Fleet Mix

The preferred forecast assumes that A-I & B-I (small) piston-engine aircraft will continue to represent the majority of the based aircraft fleet and generate the majority of airport operations during the current twenty-year planning period. The current distribution of aircraft operations at Florence Airport is estimated as follows:

- A-I (small): 85 percent
- B- I (small): 13 percent
- Helicopters: <2 percent

The distribution of operations by airport reference code (ARC) is included in **Table 3-9**.

Local and Itinerant Operations

The updated forecast of aircraft operations assumes a 35%/65% distribution between local and itinerant.

Instrument Approaches

The development of instrument approach to the airport has been identified as important improvement item by local airport users. Although the feasibility of establishing an approach will require further analysis by FAA, airspace planning reflected in the updated airport layout plan will be consistent that future approach capability. Projecting the future level of instrument approaches is difficult at airports where instrument procedures have not previously been available. However, based on composition of locally based aircraft, transient aircraft activity and local weather

conditions, it appears reasonable to assume that instrument approaches could initially be in the range of 100 to 200 per year.

The airport receives a daily air cargo flight from Ameriflight, a UPS contractor operating a twin-engine Piper Chieftan. An Ameriflight pilot that flies into Florence recently indicated that the absence of instrument procedures at the airport can occasionally affect to land or depart during poor weather, which forces priority express packages to be driven to/from the nearest airport used by the carrier. Florence Municipal Airport also accommodates a locally-based turboprop operated by a local medevac carrier. The addition of an instrument approach may improve airport utilization for this type of operation.

TABLE 3-9:
EXISTING & UPDATED AVIATION FORECASTS

Source	2005	2008	2010	2015	2020	2025	2030
Based Aircraft 12/2008 Count: 33							
FAA TAF (2.53% AAR: 2005-2020)	33	35	37	42	48	--	--
2007 ODA Forecast (1.28% AAR 2005-2030)	31	--	34	36	--	40	--
Master Plan Projection #! (Population/Activity Ratio) (2.51% AAR 2008-2030) Preferred Forecast	--	33	35	39	45	51	57
Master Plan Projection #2 (Increased Market Share) (2.98% AAR 2005-2030)	--	33	35	41	47	54	63
Aircraft Operations 2008 Estimate: 5,445							
TAF (2.17% AAR: 2005-2020)	5,162	5,553	5,815	6,468	7,123	--	--
2007 ODA Forecast (1.92% AAR 2005-2030)	5,162	--	5,911	6,411	--	7,554	--
Master Plan Projection #1 (Population/Activity Ratio) (2.92% AAR 2008-2030) Preferred Forecast	--	5,445	5,775	6,630	7,875	9,180	10,260
Master Plan Projection #2 (Increased Market Share) (3.15% AAR 2008-2030)	--	5,445	5,830	6,807	7,917	9,219	10,786

TABLE 3-10:
SUMMARY OF PREFERRED AVIATION FORECASTS

Activity	2008	2010	2015	2020	2025	2030
Based Aircraft						
Single Engine Piston	27	28	29	32	35	39
Multi-Engine Piston	2	2	2	3	3	3
Turboprop/VLJ	2	2	3	3	3	3
Light Sport (LSA)	0	1	3	5	8	10
Other (Ultralight)	1	1	1	1	1	1
Helicopter	1	1	1	1	1	1
Total	**33**	**35**	**39**	**45**	**51**	**57**
Aircraft Operations						
Itinerant Operations						
General Aviation	2,849	3,064	3,600	4,379	5,197	5,879
Air Taxi	600	600	620	650	680	700
Military	90	90	90	90	90	90
Total Itinerant Operations	3,539	3,754	4,310	5,119	5,967	6,669
Local Operations						
General Aviation	1,906	2,021	2,321	2,756	3,213	3,591
Total Local Operations	1,906	2,021	2,321	2,756	3,213	3,591
Total Local & Itinerant Operations	**5,445**	**5,775**	**6,630**	**7,875**	**9,180**	**10,260**
Peak Month Operations (15%)	817	866	995	1,181	1,377	1,539
Peak Day Operations	46	49	56	67	78	87
Peak Hour Operations	12	12	14	17	19	22
Ratio of Operations Per Based Aircraft	165	165	170	175	180	180
A-I (small) Operations	4,545	4,805	5,530	6,595	7,700	8,610
B-I (small) Operations	800	870	1,000	1,180	1,380	1,540
Helicopter Operations	100	100	100	150	150	150
Airport Reference Code (ARC)	**B-I (small)**	**B-I (small)**	**B-I (small)**	**B-I (small)**	**B-I (small)**	**B-I (small)**