Chapter Two AERONAUTICAL ACTIVITY FORECAST

Aviation demand forecasts help to determine the size and timing of needed airport improvements. This chapter indicates the types and levels of aviation activity expected at the Illinois Valley Airport (Airport) during a 20-year forecast period. Projections of aviation activity for the Airport were prepared for the near-term (2014), mid-term (2019) and long-term (2029) timeframes. These projections are generally unconstrained and assume the Josephine County Department of Airports (County) will be able to develop the various facilities necessary to accommodate based aircraft and future operations. The methodology followed is from *Forecasting Aviation Activity by Airport* (GRA, Incorporated, 2001, July), which is the Federal Aviation Administration's (FAA) recommended guidance for airport forecasting.

The primary objective of a forecasting effort is to define the magnitude of change in aviation activity that can be expected over time. Because of the cyclical nature of the economy, it is virtually impossible to predict with certainty year-to-year fluctuations in activity, especially when looking 20 years into the future. However, trends can be identified and used to study long-term growth potential. While a single line is often used to express the anticipated growth, it is important to remember that actual growth may fluctuate above and below this line. Forecasts serve only as guidelines and planning must remain flexible to respond to unforeseen aviation facility needs and the economic/external conditions giving rise to those needs.

The Airport will likely continue to serve the type of aircraft it has historically served—small (maximum gross takeoff weight of 12,500 pounds), single engine piston aircraft. The

recommended future Airport Reference Code (ARC) will be addressed after the preferred forecasts are developed.

Forecasts for the following aviation activity parameters are presented in this chapter:

- Based Aircraft, including fleet mix: The number and type of based aircraft help determine the future aircraft hangar, tiedown apron and auto parking facility requirements.

- Aircraft Operations, including annual, peak, local vs. itinerant and fleet mix: This information helps in analyzing runway capacity and determining runway, taxiway and navigation aid requirements. The critical aircraft is derived from the fleet mix. The critical aircraft and its airport reference code determine many airfield design requirements, such as runway length, pavement strength, runway and taxiway width, and safety clearances needed for the runway and taxiways. The aircraft operations forecast provides some of the input for the computer modeling that estimates future aircraft noise exposure. An operation is counted as an aircraft either landing or taking off (*i.e.*, an aircraft landing then taking off counts as two operations).

Prior to projecting future activity at the Airport, national and regional aviation trends and forecasts were reviewed. Socioeconomic trends in the southern Oregon area were also analyzed to identify how they might affect aviation demand at the Airport.

NATIONAL AVIATION TRENDS AND FORECASTS

In the 1990s, general aviation (GA) in the United States of America was growing, due not only to an expanding economy, but also to the General Aviation Revitalization Act (GARA) of 1994. GARA set an 18-year limit on the liability of GA aircraft and component manufacturers, spurring production of single engine piston aircraft. This aircraft type has accounted for the majority of the nation's GA activity.

The terrorist attacks of 9/11 dampened GA activity with their effect on the national economy and the imposition of new aviation security restrictions. While the piston aircraft component of GA suffered in the aftermath of 9/11, the business, or corporate, segment of GA has grown. This growth is partly due to security measures implemented at commercial service airports and the increased personal travel times that have resulted. Business aircraft usage provides employee timesavings, increased enroute productivity, minimized time away from home, enhanced industrial security, enhanced personal safety, and management control over scheduling.

Many of the nation's employers who use GA are members of the National Business Aircraft Association (NBAA). The NBAA's *Business Aviation Fact Book 2004* indicates that approximately 75 percent of all Fortune 500 businesses operate GA aircraft and 92 of the Fortune 100 companies operate GA aircraft. Business use of GA aircraft ranges from small, single-engine aircraft rentals to multiple aircraft corporate fleets supported by dedicated flight crews and mechanics. General aviation aircraft use allows employers to transport personnel and air cargo more efficiently than commercial passenger flights. Businesses often use GA aircraft to link multiple office locations or to reach existing and potential customers. Business aircraft

use by smaller companies has escalated as various chartering, leasing, time-sharing, fractional ownership, interchange agreements, partnerships and management contracts have emerged. Fractional ownership arrangements have experienced rapid growth. NBAA estimated that 2,591 companies used fractional ownership arrangements in 1999; by 2004 that number had grown to 6,217 companies, more than doubling over the five year period. However, their usage at the Airport is unlikely.

FAA Aerospace Forecasts Fiscal Years 2009-2025 describes aviation trends and forecasts growth in GA aircraft, hours flown and pilots. Active GA pilots are projected to increase to 509,900 in 2025, which is a 0.5% annual increase over the forecast period. Additionally, the number of GA hours flown is expected to increase by 1.8% annually over the same period. Overall, the GA fleet is projected to increase by 1.0% annually over the forecast period, with the greatest increase coming from the turbine-powered fleet (fixed wing and rotorcraft).

Fractional, corporate and on-demand charter flights offer an alternative to traditional commercial air travel. The business/corporate side of GA is expected to continue growing faster than personal/sport use, resulting from corporate safety/security concerns and increase flight delays at many commercial airports. The steady growth of the turboprop and turbojet fleet is an example of the demand expected in this sector of GA.

A component of the growth in the business/corporate sector is the growing market for the new, relatively inexpensive (between $1 and $2 million) microjets. These microjets, also called very light jets (VLJs), were thought to revolutionize the aviation industry by supporting true "air taxi" service. However, recent events, such as the bankruptcy of Eclipse and the collapse of DayJet[1], have lowered industry expectations of the aircraft's induction into the GA fleet. As such, the FAA has decreased the forecast for the VLJs to 4,875 aircraft by 2025, which is only 1.7% of the total GA fleet.

The FAA projects high growth for the new category of Sport Aircraft (5.0% through 2025). In 2005, the Sport Pilot Rule was issued, requiring a driver's license rather than a medical certificate, a factor that may draw older pilots back into aviation.

Overall, rotorcraft (helicopters) and fixed-wing turbine aircraft are projected to increase at higher rates than fixed-wing piston aircraft. Increased utilization of aircraft is projected for the future, resulting in higher growth rates for hours flown than for the number of aircraft. **Table 2A** presents the FAA's forecast growth rates for GA aircraft and hours flown.

[1] DayJet was an air taxi operator formed in 2002 in Florida that launched a "per-seat, on-demand" jet service throughout the southeastern U.S. using a fleet of Eclipse 500 VLJ aircraft.

Table 2A. FAA General Aviation Forecasts, Average Annual Growth Rates through 2020

Aircraft Category	Aircraft	Hours Flown
Total GA	1.0%	1.8%
National Piston Growth Rate	0.1%	0.4%
National Turbine Growth Rate	3.2%	3.6%
Total Piston Fixed Wing	0.0%	0.2%
Single Engine	0.1%	0.5%
Multi-engine	-1.0%	-1.5%
Total Turbine Fixed Wing	3.5%	3.9%
Turboprop	1.4%	1.3%
Turbojet	4.8%	5.2%
Total Rotorcraft	3.0%	2.9%
Piston	3.9%	3.9%
Turbine	2.5%	2.6%
Experimental	2.2%	2.5%
Sport Aircraft	5.0%	7.1%

Note: Average annual growth rates are for the period 2008 through 2025.
Source: FAA Aerospace Forecasts Fiscal Years 2009-2025, Tables 27 and 28.

REGIONAL AVIATION TRENDS AND FORECASTS

While broad industry trends influence aviation activity at individual airports, regional and local factors may have a greater influence.

The Oregon Aviation Plan (OAP)[2] describes the following trends that would fuel aviation demand:

- Continued migration into the state – new residents will depend on air transportation to maintain ties with family and friends.

- Continued increases in socioeconomic indicators, such as total employment, per capita income and retail sales.

Statewide, GA operations have been projected to grow at an average annual growth rate of 1.6%, with based aircraft expected to increase at an annual rate of 1.2%. At the Illinois Valley Airport, the OAP forecasts a 1.27% annual growth for based aircraft and 2.09% annual increase for aircraft operations.

According to the OAP, there are no other public airports within the Airport's 30-minute service area (30-minute by car). The Airport's service area does overlap with the Grants Pass Airport's service area to the northwest. The Airport's service area is cutoff to the west and south due to forests and terrain.

[2] Oregon Department of Aviation. (2008, February). *Oregon Aviation Plan*

REGIONAL SOCIOECONOMIC TRENDS AND FORECASTS

Aviation activity at an airport is usually tied closely to the local and regional economy. As population around the airport grows, airport activity grows. Aviation activity has also traditionally been linked to employment and income factors because of the discretionary nature of personal and business travel as well as the recreational nature of some GA activity.

The Airport is located in Josephine County and its 30-minute service area is almost completely contained within the County. A small portion of the service area extends into California; however, the area is sparsely populated due to terrain and forestlands. As such, only Josephine County's socioeconomic data is pertinent to the Airport. **Table 2B** presents historical and projected populations for Josephine County. This table also presents average annual growth rates for population.

Table 2B. Historical and Projected Populations

Year	Josephine County	Year	Josephine County
Historical Population		**Average Annual Growth Rates**	
1970	35,746	Historical Population	
1980	58,855	1970 - 1980	5.11%
1990	62,649	1980 - 1990	0.63%
2000	75,726	1990 - 2000	1.91%
Projected Population		Projected Population	
2010	84,186	2000 - 2010	1.06%
2020	94,385	2010 - 2020	1.15%
2030	105,552	2020 - 2030	1.12%

Source: Historical Population Data - US Census Bureau; Projected Population Data - Office of Economic Analysis, Department of Administrative Services, State of Oregon, April 2009

Josephine County is projected to grow at a slightly lower rate than the State of Oregon, which experienced an annual growth rate of 1.2% from 2000 to 2008[3].

Higher income usually correlates with GA activity. Annual growth of per capita personal income in Josephine County has increased at the same rate as the state of Oregon, as shown in **Table 2C**. However, the County's growth is lower than the nation's average.

Table 2C. Per Capita Personal Income History

County	1980	1990	2000	Annual Growth 1980-2000
Josephine County	$7,815	$14,624	$21,445	5.2%
State of Oregon	$10,113	$18,010	$28,097	5.2%
U.S.	$10,114	$19,477	$29,845	5.6%

Source: US Bureau of Economic Analysis, 2009

[3] Portland State University. (2009, March). *2008 Oregon Population Report. Retrieved from* http://www.pdx.edu/sites/www.pdx.edu.prc/files/media_assets/PopRpt08c.pdf

As depicted in **Table 2D** Josephine County has a significantly higher rate of registered aircraft to population than the State of Oregon as a whole. Low-density development and the proximity of outdoor recreation opportunities may all contribute to the popularity of general aviation in Josephine County.

Table 2D. Comparison of Population and Aircraft Registration

Area	Population	Registered Aircraft	Registered Aircraft per 1,000 Population
Josephine County	83,290	285	3.4
State of Oregon Totals	3,791,075	9,521	2.5

Source: Population as of July 1, 2008, estimated by Portland State University's Population Research Center. Registered aircraft data from FAA Civil Aviation Registry, March 30, 2009.

In recent years, unemployment in Oregon has been higher than the U.S. as a whole. In March 2009, Oregon's unemployment rate[4] was 12.1%, compared to 8.5% for the U.S. Unemployment in Josephine County was 15.8%, indicating the relative instability of its economy. For the last 20 years or so, Oregon has been moving from a resource-based economy to a more mixed manufacturing and marketing economy, with an emphasis on high technology. The high-tech sector has grown in the Portland metro area, while more rural parts of the state have been less successful at changing to a new economy.[5] Some areas of Josephine area reflect a typical trend of many small communities whose economic base has been shifting from the timber industry.

The US Census 2005-07 American Community Survey reports total employment in Josephine County was 32,197. Of these jobs, 74% were in private industry, 14% were self-employed and 11% were in federal, state or local government. The leaders in industry jobs were education services, healthcare and social assistance (6,590); retail trade (5,093); manufacturing (4,217); and construction (3,294).

BASED AIRCRAFT FORECAST

The based aircraft forecast begins by presenting historical numbers of based aircraft. Then, various forecast models prepared for the Airport are analyzed and the preferred forecast for based aircraft and fleet mix through 2029 is presented.

Historical Based Aircraft Data

Table 2E indicates historical numbers of based aircraft from 1983 through 2008, as reported in the FAA's 2008 Terminal Area Forecast. Airport management and tenants; however, report the actual based aircraft number is 12, which was confirmed with hangar counts. As such, the models not based on the Terminal Area Forecast will show a base of 12 aircraft in 2009.

All of aircraft based at the Airport are single engine piston. There are approximately eight ultralight aircraft based at the Airport.

[4] Seasonally adjusted. Information from Bureau of Labor Statistics, http://www.bls.gov/lau/.
[5] Oregon Bluebook, http://bluebook.state.or.us/facts/economy/economy.htm

Table 2E. Historical Based Aircraft at Illinois Valley Airport

Year	Single Engine	Multi-Engine	Other (Ultralights)	Total	Year	Single Engine	Multi-Engine	Other (Ultralights)	Total
1983	5	0	0	5	1996	13	2	5	20
1984	5	0	0	5	1997	10	1	5	16
1985	5	0	0	5	1998	10	1	5	16
1986	7	0	0	7	1999	10	1	5	16
1987	6	0	0	6	2000	13	1	5	19
1988	6	0	0	6	2001	10	1	5	16
1989	5	0	0	5	2002	6	0	12	18
1990	7	2	0	9	2003	5	0	13	18
1991	13	2	0	15	2004	6	0	12	18
1992	13	2	0	15	2005	10	0	12	22
1993	13	2	0	15	2006*	10	0	12	22
1994	13	2	5	20	2007	10	0	12	22
1995	13	2	5	20	2008**	10	0	12	22

**Does not match based aircraft from FAA's Airport Master Record (5010 Form) for 2006, which is 5 single engine and 12 ultralight aircraft.*
***Partial calendar year figure with no significant changes anticipated through year-end.*
Source: 1980-2008, FAA Terminal Area Forecasts, 2008.

Based Aircraft Forecast Through 2029

Six different forecasts or forecasting models were analyzed to provide a range of the possible numbers of based aircraft. The average annual growth rates for these seven models ranged from 0.10% to 2.69%, as shown in **Table 2F**. Please note, the 2009 based aircraft numbers vary depending on source. Airport management reports 12 based aircraft, so all models except for the Terminal Area Forecast and the State Plan models use that number as a basis for the forecast. The Terminal Area Forecast reports 22 based aircraft in 2009, the state plan reports 22 based aircraft in 2005 and 24 in 2010. Additionally, the past based aircraft history is from the Terminal Area Forecast, so it may not accurately represent historical data.

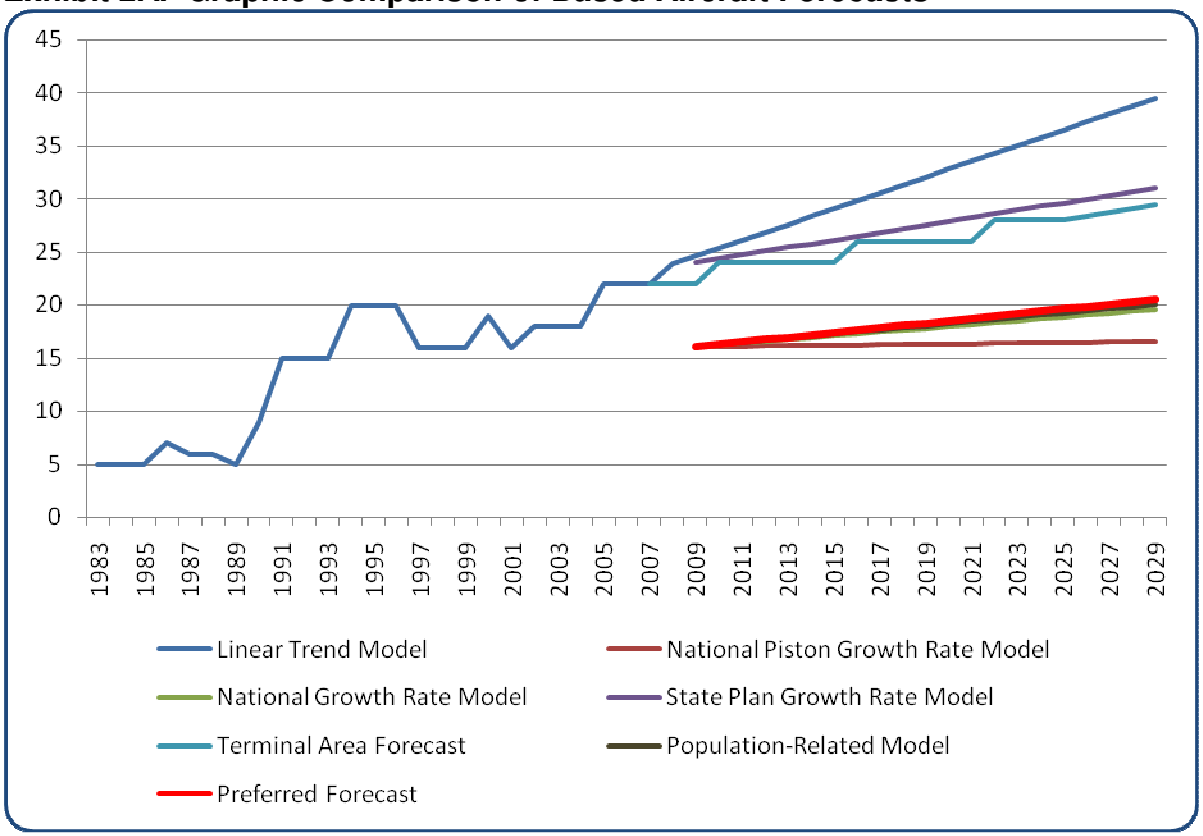
The preferred forecast was derived by a simple averaging of the six possible forecasts, which resulted in an average annual growth rate of 1.25%. Each forecast method is described and evaluated, and the methodology for selecting the preferred forecast is given, in the paragraphs to follow. **Exhibit 2A** graphically compares these forecasts. While the exhibit presents the forecasts as increasing year-by-year according to average growth rates, actual growth will occur in steps, as hangars are constructed and made available for based aircraft.

Table 2F. Comparison of Based Aircraft Forecasts

	2014	2019	2029	Average Annual Growth Rate
National Piston Growth Rate	16	16	17	0.10%
National Growth Rate Model	17	18	20	1.00%
State Plan Forecast	26	28	31	1.27%
Terminal Area Forecast	24	26	30	1.35%
Population-Related Model	17	18	20	1.10%
Linear Trend Model	28	32	39	2.69%
Preferred Forecast	17	18	21	1.25%

Note: Base year was 2009 with 16 aircraft for most forecasts. Terminal Area Forecast, State Plan Forecast and Linear Trend Model used different base years and different numbers of based aircraft in the base year.
Source: WHPacific, Inc., 2009.

Exhibit 2A. Graphic Comparison of Based Aircraft Forecasts



Source: WHPacific, Inc., 2009.

National Piston Growth Rate Model (0.10% Average Annual Growth)

All of the airplanes based at the Airport now and in the past have been piston-powered. It is reasonable to assume that the based aircraft at the Airport may grow at the rate forecast for piston airplanes nationwide, shown in Table 2A.

National Growth Rate Model (1.00% Average Annual Growth)
The FAA's projected growth rate for the national GA fleet shown in Table 2A. One potential problem with this model is that local influences on the number of based aircraft at the Airport are not considered.

State Plan Forecast (1.27% Average Annual Growth)
The average annual growth rate for Illinois Valley in the Oregon Aviation Plan is 1.27%. Unlike the National Growth Rate Model, this model accounts for local socioeconomic factors that may affect the number of based aircraft.

Terminal Area Forecast (1.35% Average Annual Growth)
The FAA's Terminal Area Forecast for the Airport, prepared in 2008, shows an annual growth rate from 2007 (its base year) to 2025 of 1.35%. The Terminal Area Forecast appears to be based upon the forecasts prepared in the 1992 Master Plan Update (which were not updated for the 2001 update). The reasoning behind the forecast is 17 years old and need updating.

Population-Related Model (1.10% Average Annual Growth)
The population of Josephine County is projected to grow at an annual rate of 1.11% from 2000 to 2030. Both the population of Josephine County and the number of based aircraft at the Airport have been growing since 1980. Based aircraft at the Airport might reasonably be expected to grow at the same rate as the population within its service area.

Linear Trend Model (2.69% Average Annual Growth)
The linear trend model projects a straight-line continuation of the historical trend into the future, using Terminal Area Forecast based aircraft data from 1983 through 2007.

Preferred Forecast (1.25% Average Annual Growth)
The average of the previous forecasts represents a 1.25% average annual growth rate from 16 based aircraft to 21 aircraft in 2029—a reasonable scenario for planning airport development. The average of the forecast reflects local, regional and national trends that will likely impact the Airport's growth.

Consistent with the demand shown, the fleet mix of aircraft will likely remain the same and single engine piston-powered aircraft will still be the predominant aircraft at the Airport. **Table 2G** presents the based aircraft fleet mix forecast. The Airport's ability to accommodate aircraft with wingspans up to 79 feet should be attractive to the owners of multi-engine and turbine aircraft, which tend to be larger than single engine aircraft. As such, a modest increase for multi-engine aircraft is included.

Table 2G. Preferred Based Aircraft Fleet Mix Forecast

Year	Single Engine	Multi-engine (Piston & Turboprop)	Turbojet	Ultralight / Light Sport	Total
2009	8	0	0	8	16
2014	9	0	0	8	17
2019	9	1	0	8	18
2029	11	1	0	9	21

Source: WHPacific, Inc., 2009.

AIRCRAFT OPERATIONS FORECAST

This section begins with a review of historical trends in aircraft operations. Previous aircraft operations forecasts are reviewed and the preferred aircraft operations forecast is explained and presented. Other forecast information presented in this section includes operations fleet mix, critical aircraft and Airport Reference Code, local vs. itinerant operations, and peak activity.

Historical Aircraft Operations Data

Table 2H presents the history of annual aircraft operations according to the FAA's Terminal Area Forecast. Operations are divided into two basic categories: itinerant and local. Local operations are defined as touch-and-go, or training operations, as well as any other operations that stay within 20 miles of the Airport. All other operations are categorized as itinerant. All operations at the Airport are considered GA at this time. A large increase in operations is reported from 1999 to 2000. The cause of the increase is not known and as a result, the operations data is questionable.

Table 2H. Historical Aircraft Operations

Year	Itinerant GA	Local GA	Total Airport Ops	Year	Itinerant GA	Local GA	Total Airport Ops
1990	1,500	200	1,700	2000	7,000	1,300	8,300
1991	1,500	200	1,700	2001	7,326	1,340	8,666
1992	1,500	200	1,700	2002	7,379	1,340	8,719
1993	1,500	200	1,700	2003	7,432	1,340	8,772
1994	1,500	200	1,700	2004	7,485	1,340	8,825
1995	1,500	200	1,700	2005	7,539	1,340	8,879
1996	1,500	200	1,700	2006*	7,590	1,340	8,930
1997	1,507	200	1,707	2007	7,790	1,376	9,166
1998	1,517	200	1,717	2008**	7,843	1,411	9,254
1999	1,527	200	1,727				

**Does not match annual operations from FAA's Airport Master Record (5010 Form) for 2006, which is 6,000.*
***Forecast numbers from Terminal Area Forecasts, FAA, 2008*
Source: Terminal Area Forecasts, FAA, 2008.

The Oregon Department of Aviation (ODA) periodically places an acoustical counter, which records the sound of aircraft takeoffs, at non-towered airports around the state. However, the acoustical counter data at the Airport is incomplete. According to ODA's website, only one count occurred, but the date range is not given. The data for that one sampling estimated 890 annual operations. This information will not be useful as a secondary source for operations data.

In an attempt to account for the type of operations occurring at the Airport, flight plan records were purchased and two tenant interviews were conducted. Although there are no instrument approaches to the Airport, many operators of larger aircraft file Instrument Flight Rules (IFR) flight plans regardless of weather conditions. The reason for this may be due to a company's operations specifications or the pilot may be IFR rated and prefer to fly IFR since they may

receive additional air traffic control services. Records were purchased from GCR to account for the number of IFR flight plans filed to or from the Airport. From 1990 to 2008, 43 IFR flight plans had been filed. Some of these operations were in ARC B-II aircraft. Airport tenants reported few multi-engine aircraft operations. Operations from Citation jets and Gulfstream aircraft into the Airport were reported, but the frequency of this type of operation is rare. The most common multi-engine operations were reported to be in light twins, with the largest being the Beechcraft King Air (ARC B-II). However, the frequency was reported to be anywhere from three to four operations yearly to once per month. Air life missions at the Airport occur in helicopters based at the Rogue Valley International Airport (Medford). Additionally, tenants reported the Airport is rarely used by any aircraft from December to April due to poor weather and visibility.

Overall, the information gathered from IFR flight plan records and tenant interviews indicate sparse operations from multi-engine aircraft of any size. The majority of operations occurring at the airport are single engine.

Other measures of activity were sought to identify trends in traffic levels at the Airport. The amount of fuel sold over a period is often used as a measurement of activity levels, but is not applicable to the Airport since no fuel is sold there.

Aircraft Operations Forecast Through 2029

The national FAA forecasts presented in Table 2A indicate that GA aircraft usage will increase. While the fleet is projected to grow 1.0% per year, hours flown are projected to grow 1.8% per year. For the piston fleet, the hours flown are projected to grow 0.4% annually, while the number of piston aircraft is projected to grow only 0.1% annually. Based upon these differences in growth rates, it would be logical to assume that aircraft operations will grow at a higher rate than based aircraft nationally.

Comparing the Terminal Area Forecast historical aircraft operations and based aircraft records in Tables 3I and 3F, respectively, the Airport's operations per based aircraft ratio has been as high as 542 (in 2001) and has low as 85 from 1994 to 1996. On average, the Terminal Area Forecast operations per based aircraft average is 273. However, the Terminal Area Forecast historical data for based aircraft seems to be overstated, so the actual ratio is likely to be higher.

In using the operations per based aircraft ratio, the FAA has recommended using 250 operations per based aircraft to estimate operations at rural/remote airports with little itinerant traffic. Alternatively, the ratio of 450 operations per based aircraft is recommended to estimate operations at very busy reliever airports.

Table 2I presents three forecasts for aircraft operations: Terminal Area Forecast, Linear Trend Forecast and Average Operations per Based Aircraft Forecast.

The FAA's Terminal Area Forecast projects an average annual growth of 2.04% through 2025 and is slightly lower than the Oregon Aviation Plan's forecast for the Airport (2.09%). The Terminal Area Forecast used data from the out-dated Master Plan Update (1992) and is most

likely not the most accurate source, as it seems overstated when compared to the Airport's Master Record.

The Linear Trend Forecast projects a straight-line continuation of the historical trend (as reported in the Terminal Area Forecast) for each component of aircraft operations, resulting in the following growth rates:

GA itinerant	4.25% average annual growth
GA local	4.41% average annual growth
Total operations	4.15% average annual growth

The Linear Trend Forecast shows growth more aggressive than anticipated, when put in context of the regional socioeconomic forecasts. Utilizing this forecast would most likely overstate operations. The validity of the Linear Trend Forecast is also questionable, given the unexplained 381% increase in operations between 1999 and 2000.

Using the ratio of 273 operations per based aircraft from the preferred forecast, the annual average growth would be 1.37%.

The preferred aircraft operations forecast uses the FAA's guidance of 250 Operations per Based Aircraft for rural airports. This was chosen as the preferred forecast because it does not rely on the accuracy of the Terminal Area Forecast data, which gives no explanation for the large increase of operations between 1999 and 2000.

To project annual operations in the future, the preferred forecast for based aircraft numbers were multiplied by 250.

Table 2I. Comparison of Aircraft Operations Forecasts

Year	Terminal Area Forecast	Linear Trend	Operations per Based Aircraft	Preferred Forecast
2009	9,485	10,483	4,368	4,000
2014	10,643	13,447	4,641	4,250
2019	11,800	16,411	4,914	4,500
2029	14,300	21,747,	5,733	5,250
Average Annual Growth	2.04%	4.15%	1.37%	1.37%

Source: WHPacific, Inc., 2009. Operation data from Terminal Area Forecast, except for columns Operations per Based Aircraft and Preferred Forecast. Operations per Based Aircraft used forecasted based aircraft from Table3G.

Table 2J presents the breakdown of the preferred forecast for aircraft operations. Following the table is an explanation of how the breakdown was determined.

Table 2J. Preferred Aircraft Operations Forecast

Year	Air Taxi	GA Itinerant	GA Local	Military Itinerant	Total
2009	0	3,160	840	0	4,000
2014	85	3,273	893	0	4,250
2019	135	3,420	945	0	4,500
2029	263	3,885	1,103	0	5,250

Source: WHPacific, Inc., 2009.

Air taxi operations have never been listed at the Airport. The Airport's distance from employment center and major recreational attractions may have contributed to this. However, tourism is rising in the region and that is likely to attract air taxi operations. As such, an increase in air taxi operations is shown in the forecast.

The reported split between itinerant and local operations has been roughly 80% itinerant and 20% local for the last ten years. The preferred forecast assumes future GA operations will be similarly divided between itinerant and local, which will account for summer fire season activity.

Military aircraft do not currently utilize the Airport and are not projected to utilize the facilities over the forecast period.

Operations Fleet Mix

Many transient aircraft use the Airport today and this situation is not anticipated to change in the future. Because of transient aircraft traffic, the fleet mix for aircraft operations is not the same as the fleet mix for based aircraft. For example, while there are no helicopters based at the Airport, there are many helicopter operations that occur during busy fire seasons. Helicopter operations are assumed to be 95% of all firefighting operations. The number of firefighting operations was assumed and held constant, as such the share of helicopter operations decreases throughout the forecast period.

Table 2K presents the estimated current (2009) and projected future operations fleet mix. The current fleet mix was estimated from interviews with Airport users. Table 2L indicates that current operations include mostly single engine piston aircraft. Occasional use by multi-engine piston aircraft, turboprops and helicopters is anticipated.

Table 2K. Preferred Operations Fleet Mix Forecast

Year	Single Engine Piston	Multi-Engine Piston	Turboprop / Turbojet	Helicopter
2009	81.15%	0.50%	0.25%	18.10%
2014	81.70%	0.70%	0.50%	17.10%
2019	81.70%	1.15%	1.00%	16.15%
2029	83.10%	1.35%	1.50%	14.05%

Source: WHPacific, Inc., 2009.

Critical Aircraft and Airport Reference Code

Based upon the estimated operations fleet mix in Table 2L for 2009, there are over 500 annual operations in single engine piston aircraft (3,246) now. By 2029, the annual number of operations by multi-engine piston, turboprop and turbojet aircraft is only projected to reach 150 (2.86% of 5,250). For existing and future conditions, the recommended Airport Reference Code is B-I (small).

The ARC designation of B-I (small) represents aircraft with a maximum gross takeoff weight less than 12,500 lbs, with wingspans less than 49 feet and approach speeds less than 121 knots.

It is recommended, based on this ARC, the County consider commissioning a global positioning system (GPS) instrument approach to accommodate operations. The approach could be either a straight in or circle to land. Neither type of approach has an advantage over the other, except if a company's operations specifications prohibit circle to land approaches.

Peak Demand Forecast

As airport activity often fluctuates from month to month, day to day, and hour to hour, airfield and landside facilities are traditionally designed to accommodate reasonable peak levels of use. Interviews with Airport users have resulted in some consensus about the peaks and valleys of airport use. The Airport is busier in the summer than in the winter, and it is busier on the weekends than during the week.

In preparing the peak demand forecast, it was useful to review the peaking characteristics reported for the Grants Pass Airport. The general aviation based aircraft fleet mix and the type of activities that occur at Grant Pass are somewhat similar to those at Illinois Valley, although Grants Pass does have an instrument approach and some larger based aircraft.

The peaking characteristics at the Grants Pass Airport were:

- An estimated 13% of annual operations are projected to occur during the peak summer month (August).
- The design day operations are the peak month operations divided by 31 days.
- The peak hour is estimated to be 20% of the design day.

For the Illinois Valley Airport, an estimated 17% of annual operations are projected to occur during the peak summer month. This increase is due to the fact that recreational aircraft tend to be more seasonal and the Illinois Valley Airport has more operations of this kind than Grants Pass. Design day operations are the peak month operations divided by 31 days and peak hour is 20% of the design day.

Table 2L presents the operations forecasts resulting from peak demand factors described above.

Table 2L. Preferred Peak Operations Forecast

	2009	2014	2019	2029
Annual Operations	4000	4250	4500	5250
Peak Month	680	723	765	893
Design Day	22	23	25	29
Peak Hour	4	5	5	6

Source: WHPacific, Inc., 2009.

SUMMARY OF FORECASTS

The long-term growth of the Airport will be influenced by national and regional trends outlined within this chapter. The elements of the aeronautical activity forecast for the Airport are summarized in **Table 2M**.

With this forecast data, the next step in the master planning process is to calculate the ability of existing facilities to meet the forecasted demand. Additionally, the next chapter will identify needed enhancements of airside and/or landside facilities to accommodate forecasted demand.

Table 2M. Summary of Preferred Airport Aeronautical Activity Forecasts

Forecast Element	2009	2014	2019	2029
BASED AIRCRAFT				
Single Engine Piston	8	9	9	11
Ultralight / Light Sport	8	8	8	9
Multi-engine (Piston & Turboprop)	0	0	1	1
Total	16	17	18	21
AIRCRAFT OPERATIONS				
Air Taxi	0	85	135	263
GA Itinerant	3,160	3,273	3,420	3,885
GA Local	840	893	945	1103
Total	4,000	4,250	4,500	5,250
OPERATIONS FLEET MIX				
Single Engine Piston	3,246	3,472	3,677	4,363
Multi-engine Piston	20	30	52	71
Turboprop/Turbojet	10	21	45	79
Helicopters	724	727	727	738
Total	4,000	4,250	4,500	5,250
PEAK DEMAND (OPERATIONS)				
Peak Month	680	722	765	893
Average Day/Peak Month	22	23	25	29
Peak Hour	4	5	5	6