CHAPTER TWO

Forecasts

This chapter will provide forecasts of aviation activity through the year 2023. Forecasts of based aircraft, based aircraft fleet mix, and annual aircraft operations will serve as the basis for facility planning. The resulting forecast may be used for several purposes including facility needs assessments, airfield capacity evaluation, and environmental evaluations. The forecasts will be reviewed and approved by the Federal Aviation Administration (FAA) and the Oregon Department of Aviation (ODA) to ensure that they are reasonable projections of aviation activity. The intent is to permit the City of Newport and the Oregon Department of Aviation to make the necessary planning adjustments to ensure the facility meets projected demands in an efficient and cost-effective manner.

NATIONAL AVIATION TRENDS

Each year, the FAA publishes its national aviation forecast. Included in this publication are forecasts for air carriers, regional/commuters, general aviation, air cargo, and military activity. The forecasts are prepared to meet budget and planning needs of the constituent units of the FAA and to provide information that can be used by state and local authorities, the aviation industry, and by the general public. The current edition when this chapter was prepared was FAA *Aerospace Forecasts-Fiscal Years 2003-2014*, published in March 2003. The forecasts use the economic performance of the United States as an indicator of future aviation

industry growth. Similar economic analyses are applied to the outlook for aviation growth in international markets.

The FAA expects modest recovery in 2003. However, a return to pre-September 11 levels is not expected to be achieved until 2005, and even then the level of enplanements may not return to, or surpass those of 2001 until 2006. The majority of this decline is forecast to occur with the large air carriers, while the regional airline industry is expected to continue its growth, possibly returning to its long-term historical growth trend in 2004. Air cargo traffic is expected to grow faster than passenger traffic. General aviation is expected to achieve low-to-moderate increases in the active fleet and hours flown, with most of the growth occurring in business/corporate flying.

The forecasts prepared by the FAA assume that aviation demand will follow a similar path to recovery, as with previous altering incidents such as the 1991 Gulf War, the 1997-98 Southeast Asia financial crisis, the 1998 Northwest Airlines' strike, or the September 11 terrorist attacks. However, these forecasts were prepared prior to the war in Iraq as well as the recent epidemic of Severe Acute Respiratory Syndrome (SARS), both of which have had a negative impact on the commercial airline industry. How deeply the aviation industry is impacted can only be determined over time.

REGIONAL/COMMUTER AIRLINES

The regional/commuter airline industry, defined as air carriers providing regularly scheduled passenger service and fleets composed primarily of aircraft having 70 seats or less, continues to be the strongest growth sector of the commercial air carrier industry. Dramatic growth in code-sharing agreements with the major carriers, followed by a wave of air carrier acquisitions and purchases of equity interests, has resulted in the transfer of large numbers of short-haul jet routes to their regional partners, fueling the industry's growth.

The impact of September 11 on regional/commuter carriers was generally more positive than negative. This was largely because major carriers transferred a large number of routes to their regional partners. This allowed the larger carriers to cut capacity while still maintaining presence in these markets.

Industry growth is expected to outpace that of the larger commercial air carriers. The introduction of new state-of-the-art aircraft, especially high-speed turboprops and regional jets with ranges of up to 1,000 miles, is expected to open up new opportunities for growth in nontraditional markets. The regional airline industry will also continue to benefit from continued integration with the larger air carriers. The further need for larger commercial air carriers to reduce costs and fleet size will insure that these carriers continue to transfer smaller, marginally profitable routes to the regional air carriers.

Likewise, the increased use of regional jets is expected to lead to another round of route rationalization by the larger commercial carriers, particularly on low-density routes in the 500-mile range. Regional jet aircraft can serve these markets with the speed and comfort of a large jet, while at the same time providing greater service frequency that is not economically feasible

with the speed and comfort of a large jet. According to the *FAA Aerospace Forecasts,* this transfer of routes is expected to be one of the major drivers of growth during the early years of the forecast.

Regional/commuter revenue passenger miles (RPMs) are expected to increase 14.6 percent (to 35.3 billion) in 2003, 13.3 percent in 2004 (to 40.0 billion), and 9.9 percent in 2005 (to 43.9 billion). The high growth rates reflect the longer stage lengths being flown by the large number of regional jets continuing to enter the fleet. Over the 12-year forecast period, the average annual rate of growth in RPMs is 7.8 percent, for a total of 75.1 billion by 2014. Domestic passenger miles are forecast to increase at rates of 14.5, 13.4, and 10.0 percent over the first three years of the forecast period, and slowing to 6.2 percent annually over the remainder of the forecast period.

Over the 12-year forecast period, the regional/commuter passenger fleet is projected to net an average annual increase of 126 aircraft, going from 2,521 aircraft in 2002 to 4,034 aircraft in 2014. During this same period, the overall fleet of turboprop aircraft will decrease by 324 aircraft. For the first three years of the forecast, 3.5 regional jets will enter the fleet for every one turboprop aircraft retired.

Regional/commuter passenger enplanements are projected to increase by 7.1 percent in 2003 (to 97.1 million), 9.7 percent in 2004 (to 106.6 million), and 7.0 percent in 2005 (to 114.0 million). The strong growth rate during this three-year period reflects the transfer of additional routes from the larger air carriers and the addition of regional jet aircraft to their fleet. It is expected that enplanements will total 174.1 million by 2014. **Exhibit 2A** depicts passenger enplanements and fleet mix forecasts for the U.S. regional/commuter market.

GENERAL AVIATION

Following more than a decade of decline, the general aviation industry was revitalized with the passage of the *General Aviation Revitalization Act* in 1994 (federal legislation which limits the liability on general aviation aircraft to 18 years from the date of manufacture). This legislation sparked an interest to renew the manufacturing of general aviation aircraft due to the reduction in product liability, as well as renewed optimism for the industry. The high cost of product liability insurance was a major factor in the decision by many American aircraft manufacturers to slow or discontinue the production of general aviation aircraft.

However, this continued growth in the general aviation industry slowed considerably in 2001 and 2002, negatively impacted by the events of September 11. Thousands of general aviation aircraft were grounded for weeks, due to "no-fly zone" restrictions imposed on operations of aircraft in security-sensitive areas. Some U.S. airports in and around Washington, D.C., and New York City remained closed to visual flight rules (VFR) traffic. This, in addition to the economic recession already taking place in 2001-02, has had a profoundly negative impact on the general aviation industry. Weak traffic demand, coupled with the failure of full-fare

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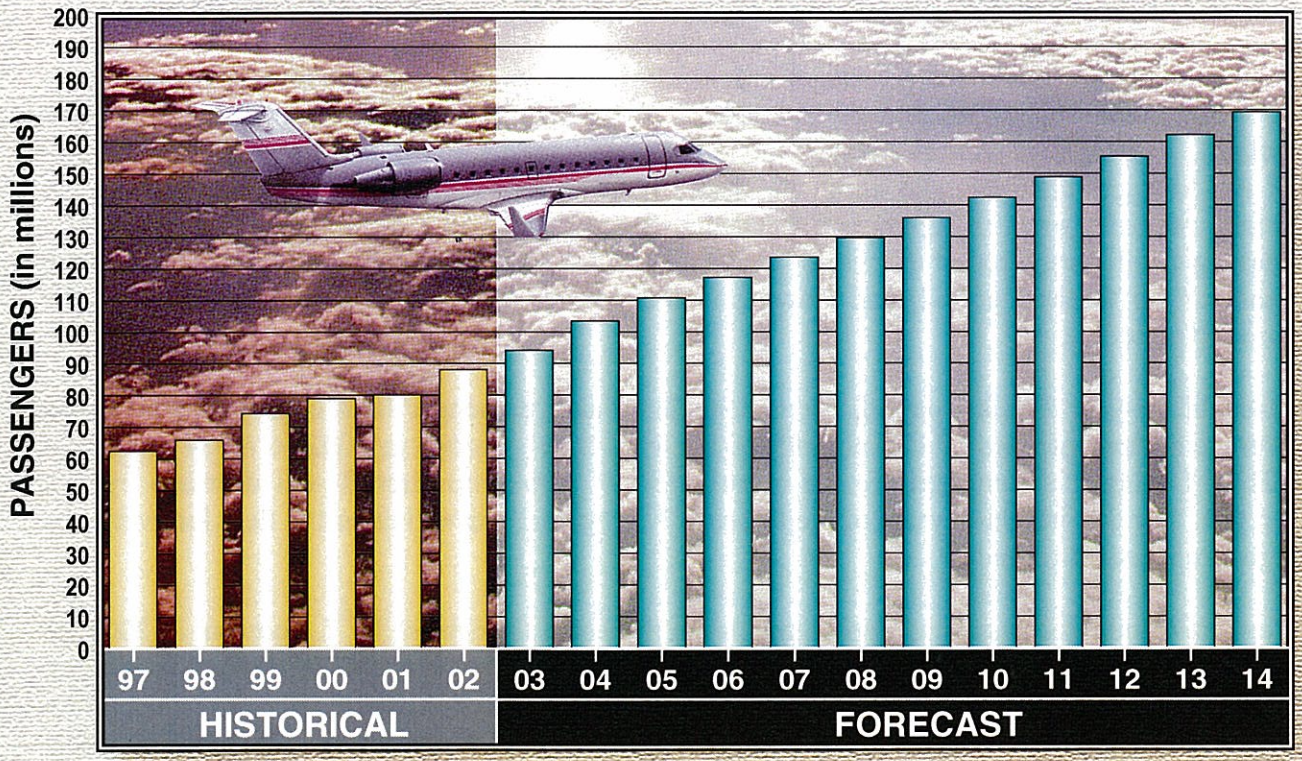
U.S. REGIONAL/COMMUTER SCHEDULED PASSENGER ENPLANEMENTS



Source: FAA Aerospace Forecasts, FY 2003-2014

PERCENT BY AIRCRAFT SEAT SIZE

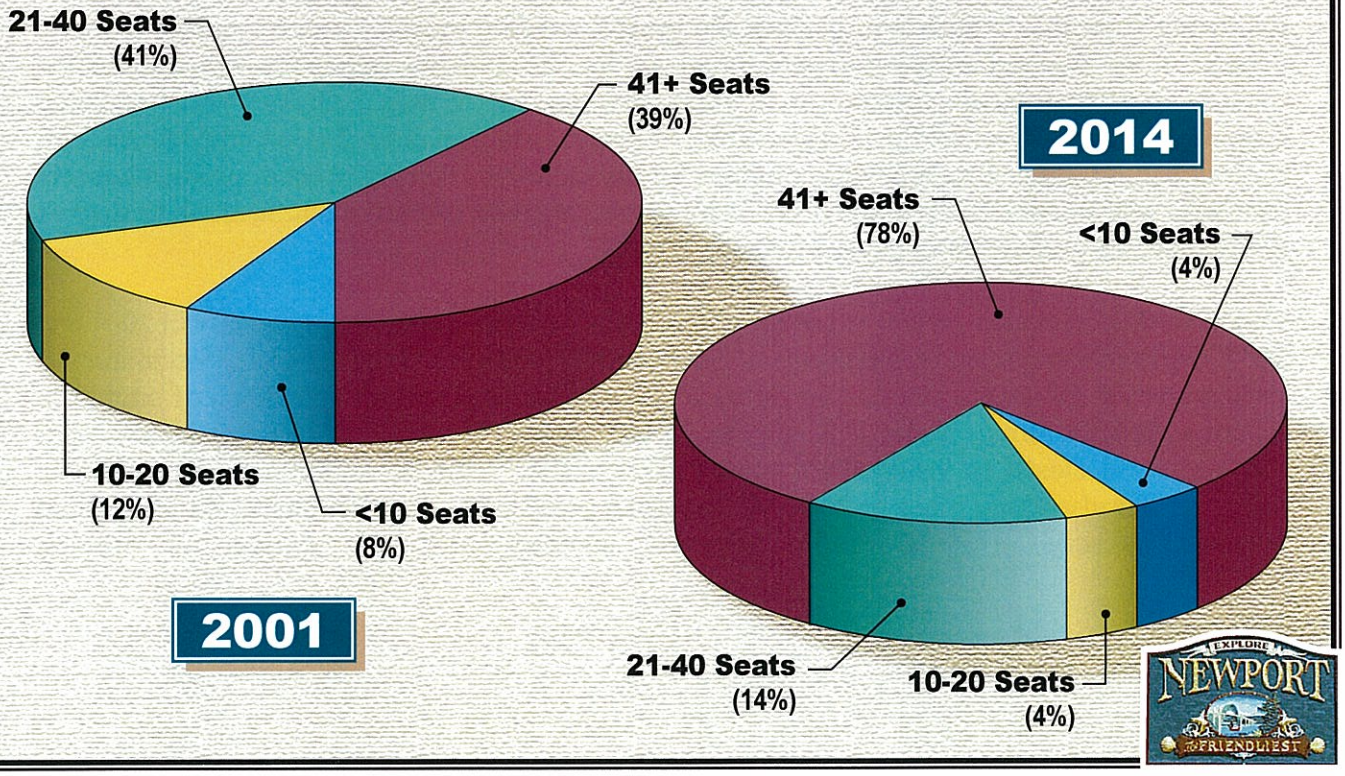


Exhibit 2A
U.S. REGIONAL/COMMUTER FORECASTS

business travelers to return in any significant numbers, forced carriers to resort to discounting to fill empty seats. This had a devastating impact on both passenger yields and profits.

According to statistics released by the General Aviation Manufacturers Association (GAMA), shipments of general aviation aircraft declined for a second consecutive year in 2002. During the first three quarters of calendar year (CY) 2002, aircraft shipments and billing declined 16.9 percent and 25.2 percent, respectively. Business jet shipments were down 5.6 percent during the same period, the first reported decline since 1996. The Aerospace Industries Association of America (AIAA) expects general aviation shipments to total 2,153 in 2002, a decline of 17.7 percent. AIAA also projects that industry billings will decline 13.8 percent to $6.9 billion in 2002. This would also be the first reported decline in billings since 1990.

At the end of 2002, the total pilot population, including student, private, commercial, and airline transport, was estimated at 661,358, an increase of almost 4,000 over 2001. Student pilots were the only group to experience a significant decrease in 2002, down 8.9 percent from 2001. It is assumed that much of this decline is due to the restrictions placed on flight schools and student pilot training, particularly with regard to foreign students after September 11.

However, the events of September 11 have not had the same negative impact on the business/corporate side of general aviation. The increased security measures placed on commercial flights has increased interest in fractional and corporate aircraft ownership, as well as on-demand charter flights for short-haul routes. The most notable trend in general aviation is the continued strong use of general aviation aircraft for business and corporate uses. The forecast for general aviation aircraft assumes that business use of general aviation will expand much more rapidly than personal/sport use, due largely to the expected growth in fractional ownership.

In 2001, there was an estimated 211,447 active general aviation aircraft, representing a decrease of 2.8 percent from the previous year. This was the second straight year of recorded decline following five consecutive years of growth. Single-engine piston aircraft continue to dominate the fleet, accounting for 68.6 percent of the total active fleet in 2001. The next largest groups are experimental aircraft (9.7 percent) and multi-engine piston aircraft (8.6 percent). Turboprops, rotorcraft, and turbojets make up relatively small shares of the active fleet, accounting for 3.1, 3.2, and 3.7 percent, respectively.

Exhibit 2B depicts the FAA forecast for active general aviation aircraft in the United States. The FAA forecasts general aviation aircraft to increase at an average annual rate of 0.7 percent over the 13-year forecast period, reaching 229,490 by 2014. Single-engine piston aircraft is expected to decrease from 145,034 in 2001 to 144,500 in 2002, and then begin a period of slow recovery, reaching 149,600 in 2014. The number of multi-engine piston aircraft is expected to decline by 0.2 percent per year over the forecast period, totaling 17,810 in 2014. The turbine-powered fleet is expected to grow at an average annual rate of 2.5 percent over the forecast period. The number of turboprop aircraft is forecast to grow 1.5 percent per year, increasing from 6,596 in 2001 to 8,020 in 2014. Turbojet aircraft are expected to provide the

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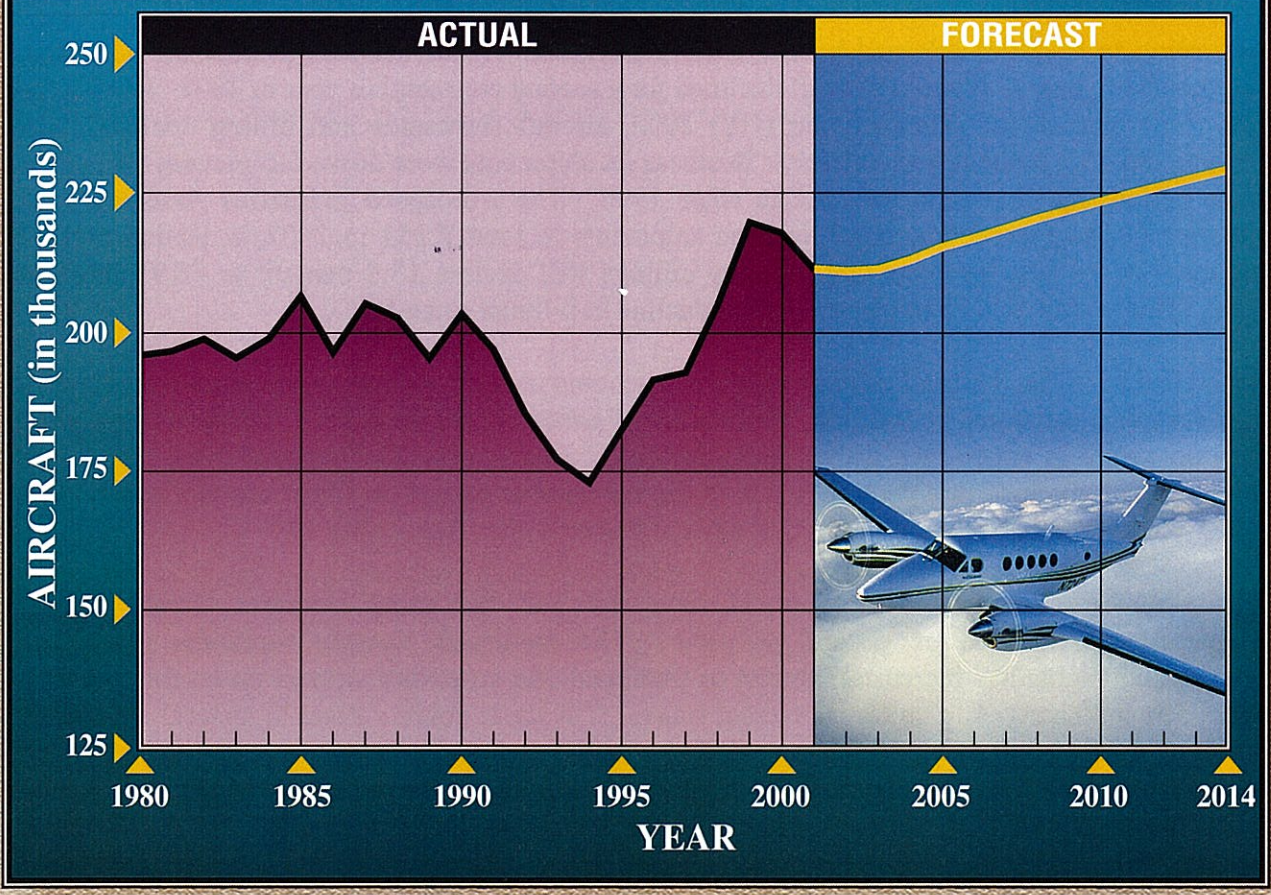
ACTIVE GENERAL AVIATION AIRCRAFT



U.S. ACTIVE GENERAL AVIATION AIRCRAFT (in thousands)

Year	FIXED WING				ROTORCRAFT		Experimental	Sport	Other	Total
	PISTON		TURBINE							
	Single Engine	Multi-Engine	Turbo-prop	Turbojet	Piston	Turbine				
2001 (Actual)	145.0	18.3	6.6	7.8	2.3	4.5	20.4	NA	6.5	211.4
2004	144.9	18.2	6.8	8.4	2.5	4.4	20.4	1.0	6.5	213.1
2009	147.6	18.0	7.4	10.3	2.6	4.5	21.0	4.1	6.6	222.2
2014	149.6	17.8	8.0	12.3	2.8	4.6	21.4	6.2	6.7	229.5

Sources: FAA General Aviation and Air Taxi Activity (and Avionics) Surveys.
FAA Aerospace Forecasts, Fiscal Years 2003-2014.

Notes: An active aircraft is one that has a current registration and was flown at least one hour during the calendar year.

Exhibit 2B
U.S. ACTIVE GENERAL AVIATION
AIRCRAFT FORECASTS

largest portion of this growth, with an annual average growth rate of 3.6 percent. This strong growth projected for the turbojet aircraft can be attributed to a strong recovery in both the U.S. and global economy, continued success and growth in the fractional ownership industry, new product offerings (which include new entry level aircraft and long-range global jets), and a shift from commercial travel by many travelers and corporations.

Over the past several years, manufacturer and industry programs and initiatives have continued to revitalize the general aviation industry. Notable initiatives include the "No Plane, No Gain" program promoted jointly by the General Aviation Manufacturers Association (GAMA) and the National Business Aircraft Association (NBAA). This program was designed to promote cost-effectiveness of using general aviation aircraft for business and corporate uses. Other programs, which are intended to promote growth in new pilot starts and to introduce people to general aviation include "Project Pilot," sponsored by the Aircraft Owners and Pilots Association (AOPA), "Be a Pilot," jointly sponsored and supported by more than 100 industry organizations, and "Av Kids," sponsored by the NBAA.

The general aviation industry is also launching new programs to make aircraft ownership easier and more affordable. Piper Aircraft Company has created Piper Financial Services (PFS) to offer competitive interest rates and/or leasing of Piper aircraft. The Experimental Aircraft Association (EAA) offers financing for kit-built airplanes through a private lending institution. Over the years, programs such as these have played an important role in the success of general aviation, and will continue to be vital to its growth in the future.

FORECASTING APPROACH

The development of aviation forecasts proceeds through both analytical and judgmental processes. A series of mathematical relationships is tested to establish statistical logic and rationale for projected growth. However, the judgment of the forecast analyst, based upon professional experience, knowledge of the aviation industry, and assessment of the local situation, is important in the final determination of the preferred forecast.

It is important to note that one should not assume a high level of confidence in forecasts that extend beyond five years. Facility and financial planning usually require at least a ten-year preview, since it often takes more than five years to complete a major facility development program. However, it is important to use forecasts which do not overestimate revenue-generating capabilities or understate demand for facilities needed to meet public (user) needs.

A wide range of factors are known to influence the aviation industry and can have significant impacts on the extent and nature of air service provided in both the local and national market. Technological advances in aviation have historically altered and will continue to change, the growth rates in aviation demand over time. The most obvious example is the impact of jet aircraft on the aviation industry, which resulted in a growth rate that far exceeded expectations. Such changes are difficult, if not impossible to predict, and there is simply no mathematical way to estimate their impacts. Using a broad spectrum of local, regional, and national economic and

aviation information, and analyzing the most current aviation trends, forecasts have been developed and presented in the following sections.

AIRPORT SYSTEM PLANNING ROLE

Airport planning exists on many levels: local, state, and national. Each level has a different emphasis and purpose. An airport master plan is the primary local airport planning document.

At the national level, the airport is included in the *National Plan of Integrated Airport Systems* (NPIAS), which identifies 3,344 existing airports which are significant to national air transportation, as well as airport development necessary to meet the present and future requirements in support of civil needs. An airport must be included in the NPIAS to be eligible for federal funding assistance. Newport Municipal Airport is classified as a commercial service airport in the NPIAS. Currently, the airport does not offer scheduled air service, but has maintained a Part 139 certificate since their last scheduled air service ended over a year and a half ago.

At the state level, the Oregon Department of Aviation provides state-wide planning through the *2000 Oregon Department of Aviation Plan*. The purpose of this plan is to identify the physical facility needs for the state's system of airports. According to this plan, there are 101 public-use airports in the State of Oregon, including nine commercial service airports that provide regularly scheduled passenger services.

The *2000 Oregon Department of Aviation Plan* has established five categories of airports based on their different functions. Newport Municipal Airport is listed as a Category 1 airport, which is classified as a commercial service airport. A criterion of Category 1 airports is the presence of scheduled commercial service, while their function is to accommodate scheduled major/national or regional/commuter commercial air carrier service. Category 1 coverage is concentrated along the Interstate 5 corridor, east of the Cascades for Redmond and Klamath Falls, and in eastern Oregon at Pendleton. Parts of eastern Oregon are served by the Boise airport in Idaho. Parts of southwest Oregon, particularly in areas surrounding Brookings, are served by the airport in Crescent City, California.

The condition of existing facilities and the most recent estimates of based aircraft and annual operations were provided in the *2000 Oregon Department of Aviation Plan*. Forecasts included in this plan, as well as the *1997 Continuous Aviation System Plan*, will be examined for their projections of based aircraft, based aircraft fleet mix, and annual operations.

LOCAL SERVICE AREA

The general aviation service area is affected by the number of nearby airfields which offer the same services. Other factors, including availability of hangars (and rates), services offered (including fuel), access to major highways, and instrument capabilities, affect the decision to base at a given airport.

There are three public-use airports within a 30 nautical mile (nm) radius of Newport Municipal Airport; Toledo State Airport (5.2nm ENE in Toledo, OR), Wakonda Beach State Airport (11.8nm S in Waldport, OR), and Siletz Bay State Airport (17.9nm N in Glenden Beach, OR). Siletz Bay State Airport has the longest runway of these three airports and measures 3,000 feet in length. None of these three airports have an airport traffic control tower and the only services offered are aircraft tiedowns. Mahlon Sweet Field Airport, which is located approximately 45nm southeast in Eugene, OR, is the nearest commercial service airport. Services offered at Mahlon Sweet Field Airport include major airframe and powerplant repair, fuel (100 LL and Jet A), flight training, aircraft rentals/charters, aircraft hangars, and tiedowns.

BASED AIRCRAFT FORECASTS

The number of based aircraft at the airport is the most basic indicator of general aviation demand. By first developing a forecast of based aircraft, the growth of other general aviation activities and demands can be projected.

According to the *1997 Oregon Continuous Aviation System Plan*, there were 22 aircraft based at Newport Municipal Airport in 1994. This number has remained relatively steady, with the airport currently reporting 24 based aircraft.

The first method used to project based aircraft examined registered aircraft in Lincoln County, which is the local service area for Newport Municipal Airport. There are currently 89 aircraft registered in the county, as compared to 66 registered in 1994. This increase represents an average annual growth rate of 3.4 percent. Applying this growth rate to the forecast years yields 105 registered aircraft by 2008; 125 registered aircraft by 2013; and 175 registered aircraft by 2023.

The next step was to examine the airport's market share of registered aircraft in Lincoln County. In 1994, the airport captured 33 percent of aircraft registered in Lincoln County. Since then, the airport's market share has decreased, currently capturing 27 percent. Forecasts of based aircraft were developed based on registered aircraft projections and the airport's market share. The first forecast assumes the airport's market share will remain constant at 27 percent, yielding 47 based aircraft by 2023. The second forecast uses a decreasing market share projection to reflect the historical trend and yields 35 based aircraft by the year 2023. The third forecast assumes an increasing share projection to reflect a return to earlier market share percentages and yields 54 based aircraft by 2023. These market share forecasts are presented in **Table 2A**.

TABLE 2A
Based Aircraft Market Share of Registered Aircraft (Lincoln County)
Newport Municipal Airport

Year	Based Aircraft	Registered Aircraft (Lincoln County)	% of Registered Aircraft Based at Newport
1994	22	66	33%
2003	24	89	27%
Constant Share Projection			
2008	28	105	27%
2013	34	125	27%
2023	47	175	27%
Decreasing Share Projection			
2008	26	105	25%
2013	29	125	23%
2023	35	175	20%
Increasing Share Projection			
2008	29	105	28%
2013	36	125	29%
2023	54	175	31%

Source: Based aircraft – *2000 Oregon Aviation Plan* (1994), FAA 5010 Form (2003); Registered aircraft - Census of U.S. Civil Aircraft (1994), FAA (2003).
* Registered aircraft projections based on historical growth rate (3.4 %).

Projections of based aircraft were also made in comparison to the percent of U.S. active general aviation aircraft based at Newport Municipal Airport. Currently, there are a reported 211,370 active general aviation aircraft in the United States. By examining the airport's historical market share, three projections were developed. First, a constant market share projection assumes the airport's market share will remain at 0.011 percent through the planning period, which yields 27 based aircraft by the year 2023. Second, a decreasing market share projection was developed to reflect the historical trend. This decreasing market share forecast yields 19 based aircraft by the year 2023. Assuming the airport would recapture its previous market share, an increasing share projection was developed and yields 36 based aircraft by the year 2023. These market share forecasts are presented in **Table 2B**.

TABLE 2B
Based Aircraft Market Share of U.S. Active General Aviation Aircraft
Newport Municipal Airport

Year	Based Aircraft	U.S. Active General Aviation Aircraft	% of U.S. Active GA Aircraft Based at Newport
1994	22	185,700	0.012%
2003	24	211,370	0.011%
Constant Share Projection			
2008	24	220,600	0.011%
2013	25	228,100	0.011%
2023	27	243,300[1]	0.011%
Decreasing Share Projection			
2008	22	220,600	0.010%
2013	21	228,100	0.009%
2023	19	243,300[1]	0.008%
Increasing Share Projection			
2008	26	220,600	0.012%
2013	30	228,100	0.013%
2023	36	243,300[1]	0.015%

Source: Historical based aircraft – *2000 Oregon Aviation Plan*, Current based aircraft – FAA 5010 Form; Historical and forecast U.S. active general aviation aircraft from FAA *Aerospace Forecasts, Fiscal Years 2003-2014.*

[1] Extrapolated by Coffman Associates.

Another forecast examined the airport's historical based aircraft at a ratio of 1,000 residents in Lincoln County. The 2003 estimated population of Lincoln County is 46,090, which equals 0.52 based aircraft per 1,000 residents. Assuming a constant share projection of 0.52 based aircraft per 1,000 residents yields 30 based aircraft by the end of the planning period. An increasing share projection was also developed to reflect the historical trend and yields 32 based aircraft at Newport Municipal Airport by 2023. Both of these forecasts are presented in **Table 2C**.

TABLE 2C
Based Aircraft Per 1,000 Population (Lincoln County)
Newport Municipal Airport

Year	Based Aircraft	Lincoln County Population	Based Aircraft Per 1,000 Residents
1994	22	43,050	0.51
2003	24	46,090	0.52
Constant Share Projection			
2008	25	48,740[1]	0.52
2013	27	51,420[1]	0.52
2023	30	57,180[1]	0.52
Increasing Share Projection			
2008	26	48,740[1]	0.53
2013	28	51,420[1]	0.54
2023	32	57,180[1]	0.56

Source: Historical based aircraft – *2000 Oregon Aviation Plan*, Current based aircraft – FAA 5010 Form; Historical population - U.S. Census Bureau, Forecast population - State of Oregon Office of Economic Analysis.
[1] Interpolated by Coffman Associates.

The airport's historical growth rate of based aircraft between 1994 and 2003 was also examined. During this time, based aircraft grew at an average annual rate of 1.0 percent. This growth rate was applied to the forecast period and yields 29 based aircraft by the year 2023.

The FAA's *Terminal Area Forecast* (TAF) was also examined. The TAF projects based aircraft for all commercial service airports in the United States. The TAF uses 2001 as a basis for their forecasts, when they estimated 25 based aircraft at Newport Municipal Airport. The TAF projects this number to remain static through the year 2020.

The *1997 Oregon Continuous Aviation System Plan* was also examined. The 1997 Plan provided statewide forecasting of aviation activity through the year 2014. The base year for this forecast was 1994, when there were a reported 22 aircraft based at Newport Municipal Airport. Projections were provided through 2014 and yield 28 based aircraft by 2014. Extrapolation of this forecast yields 32 based aircraft by the year 2023.

The *2000 Oregon Aviation Plan* provides the most recent forecasting of aviation activity at Newport Municipal Airport. Forecasts included in this plan were extrapolated from the 1997 Plan and provide projections through the year 2018, when 30 aircraft are expected to be based at the airport. This projection reflects an extension of the average annual growth rate projected between 2004 and 2014 in the 1997 Plan. Further extrapolation of this forecast yields 33 based aircraft by 2023.

For planning purposes, a mid-range forecast is generally chosen. The *2000 Oregon Aviation Plan*, which projects 26 based aircraft by 2008; 28 based aircraft by 2013; and 33 based aircraft by 2023, falls in the mid-range of all the forecasts and also reflects the current number of based

aircraft at the airport. Therefore, the projections included in the 2000 Plan are the preferred planning forecast. **Table 2D** and **Exhibit 2C** summarize the based aircraft forecasts developed for Newport Municipal Airport.

TABLE 2D
Summary of Based Aircraft Forecasts
Newport Municipal Airport

	2008	2013	2023
Market Share of Registered Aircraft (Lincoln County)			
Constant Market Share	28	34	47
Decreasing Market Share	26	29	35
Increasing Market Share	29	36	54
Market Share of U.S. Active General Aviation Aircraft			
Constant Market Share	24	25	27
Decreasing Market Share	22	21	19
Increasing Market Share	26	30	36
Aircraft Per 1,000 Population (Lincoln County)			
Constant Ratio Projection	25	27	30
Increasing Ratio Projection	26	28	32
Historical Growth Rate (1994-2003) 1.0%	25	27	29
FAA *Terminal Area Forecast*	25	25	25[2]
1997 Oregon Continuous Aviation System Plan	26[1]	28[1]	32[2]
***2000 Oregon Aviation Plan* (Preferred Planning Forecast)**	**26[1]**	**28[1]**	**33[2]**

[1]Interpolated by Coffman Associates.
[2]Extrapolated by Coffman Associates.

BASED AIRCRAFT FLEET MIX

While the number of general aviation aircraft basing at Newport Municipal Airport is projected to increase, it is important to know the fleet mix of the aircraft expected to use the airport. This will ensure the proper facilities in the future.

According to airport records, the fleet mix at Newport Municipal Airport consists of the following: 20 single-engine aircraft, one multi-engine air-craft, one jet (a Cessna Citation V), one helicopter (a Sykorski operated by the U.S. Coast Guard), and one military aircraft. In addition to the one jet based at Newport Municipal Airport, several itinerant jets utilize the airport, particularly in the summer months.

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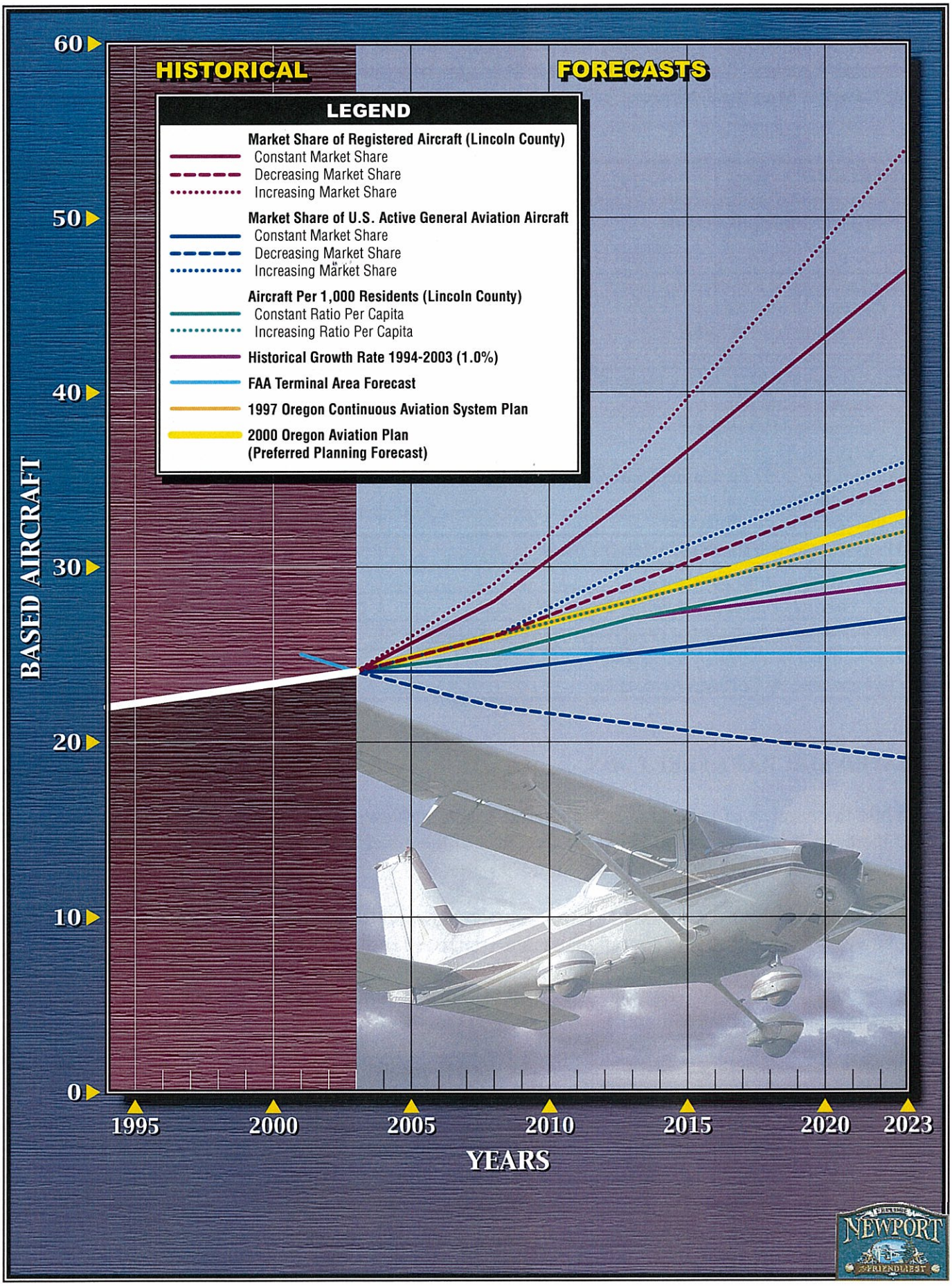


Exhibit 2C
BASED AIRCRAFT
FORECAST SUMMARY

The forecast mix of based aircraft was determined by comparing existing and forecast U.S. general aviation trends. The trend in general aviation is toward a greater percentage of larger, more sophisticated aircraft as part of the national fleet. This can be noted by the projection of additional multi-engine aircraft and jets at Newport Municipal Airport. An increase in both single-engine and helicopters can also be expected at the airport. General aviation fleet mix projections for the airport are presented in **Table 2E**.

TABLE 2E
General Aviation Fleet Mix Forecast
Newport Municipal Airport

	EXISTING		FORECAST					
Type	**2003**	**%**	**2008**	**%**	**2013**	**%**	**2023**	**%**
Single-Engine	20	83.3%	21	80.0%	22	77.0%	23	71.0%
Multi-Engine	1	4.2%	2	6.5%	2	7.0%	3	10.0%
Jets	1	4.2%	1	5.1%	2	6.0%	3	8.0%
Helicopters	1	4.2%	1	4.2%	1	5.0%	2	5.5%
Other	1	4.2%	1	4.2%	1	5.0%	2	5.5%
Total	**24**	**100.0%**	**26**	**100.0%**	**28**	**100.0%**	**33**	**100.0%**

*Multi-engine category includes turboprops.

OPERATIONS PROJECTIONS

General aviation operations are classified as either local or itinerant. A local operation is a take-off or landing performed by an aircraft that operates within sight of the airport, or which executes simulated approaches or touch-and-go operations at the airport. An itinerant operation is one that arrives at the subject airport which originated at another airport. A local operation is one where an aircraft stays in the traffic pattern, is executing instrument approaches, or is departing the local traffic pattern. Generally, local operations are characterized by training operations. Typically, itinerant operations increase with business and commercial use, since business aircraft are operated on a high frequency.

The first step in forecasting annual operations at Newport Municipal Airport was the examination of previous forecasts, including the *1997 Oregon Continuous Aviation System Plan*, the *2000 Oregon Aviation Plan*, and forecasts included in the FAA *Terminal Area Forecast* (TAF). Each of these forecasts is described in the following paragraphs.

The 1997 Plan, which uses an estimated total of 10,652 annual operations in 1994 as a base number, projects annual operations at Newport Municipal Airport to reach 16,660 by 2014. Extrapolation of this forecast yields 20,380 annual operations by 2023. The 2000 Plan, which is an update of the 1997 Plan, was also exam-ined. This forecast uses an estimated number of 13,652 annual operations in 1994 and projects annual operations at the airport to reach 17,003 by 2018. Extrapolation of this forecast yields 17,900 annual operations by 2023.

As previously mentioned, forecasts by the FAA TAF were also examined. The TAF estimates there were 20,720 annual operations at Newport Municipal Airport in 2001. Forecasts included

in the TAF project annual operations at the airport to remain static through the year 2020. However, without an airport traffic control tower, this total number of operations is only a rough estimate and therefore was not considered an accurate number from which to project annual operations.

An alternative method for forecasting annual operations at Newport Municipal Airport was also examined. This method, the *Model for Estimating General Aviation Operations at Non-Towered Airports*, was prepared for the FAA *Statistics and Forecast Branch* in July 2001. This report develops and presents a regression model for estimating general aviation (GA) operations at non-towered airports. The model was derived using a combined data set for small towered and non-towered GA airports and incorporates a dummy variable to distinguish the two airport types. In addition, the report applies the model to estimate activity at 2,789 non-towered GA airports contained in the FAA *Terminal Area Forecast*.

Forecasts of annual operations at Newport Municipal Airport were computed using the recommended equation (#15) for non-towered airports. Independent variables used in the equation include airport characteristics (i.e., number of based aircraft, number of flight schools), population totals, and geographic location. The equation yields an initial annual operations total of 11,220 which equates to 470 operations per based aircraft. Using these numbers as a basis, two forecasts of annual operations were prepared for Newport Municipal Airport. The first forecast assumes a constant level of operations per based aircraft (470), which yields 15,510 annual operations by 2023. The second forecast uses an increasing number of operations per based aircraft and yields 16,170 annual operations by 2023. Itinerant operations were estimated to account for approximately 74 percent of total operations, while local operations were estimated to account for approximately 26 percent. These forecasts are presented in **Table 2F**.

TABLE 2F
Annual Operations Per Based Aircraft Forecasts (Non-Towered Equation #15)
Newport Municipal Airport

Year	Based Aircraft	Itinerant Operations	Local Operations	Total Operations	Operations Per Based Aircraft
Current	24	8,300	2,920	11,220*	470
Constant Ratio Projection					
2008	26	9,040	3,180	12,220	470
2013	28	9,740	3,420	13,160	470
2023	33	11,480	4,030	15,510	470
Increasing Ratio Projection					
2008	26	9,140	3,210	12,350	475
2013	28	9,950	3,490	13,440	480
2023	33	11,970	4,200	16,170	490

* Current operations total derived from the *Model for Estimating General Aviation Operations at Non-Towered Airports*, Equation #15 (July 2001).

Projections of annual operations based on acoustical counts were also examined. The most recent acoustical counts for Newport Municipal Airport were performed by the Oregon Department of Aviation in 2000. According to the acoustical counts, there were an estimated 16,359 annual operations that year, which equates to 685 operations per based aircraft. Using this as a basis, two projections of annual operations were prepared.

The first projection assumes the ratio of operations per based aircraft will remain constant at 685, yielding 22,500 annual operations by 2023. Since the FAA has projected growth in annual hours flown by general aviation aircraft and air taxi aircraft in their annual forecasts, the second projection assumes that the ratio of operations per based aircraft will increase over time. The increasing ratio projection is consistent with the historical trend and yields 23,270 annual operations by 2023. These projections are presented in **Table 2G**.

TABLE 2G
Operations Per Based Aircraft Forecasts
Newport Municipal Airport

Year	Based Aircraft	Itinerant Operations	Local Operations	Total Operations	Operations Per Based Aircraft
1994	22	10,051	3,531	13,582	617
2000	24	12,106	4,253	16,359	685
Constant Ratio Projection					
2008	26	13,120	4,610	17,730	685
2013	28	14,190	4,990	19,180	685
2023	33	16,650	5,850	22,500	685
Increasing Ratio Projection					
2008	26	13,280	4,660	17,940	690
2013	28	14,400	5,060	19,460	695
2023	33	17,220	6,050	23,270	705

Source: Historical operations – acoustical counts.

A summary of the forecasts is presented in **Table 2H**. As shown in the table, the projections of operations included in the 1997 and 2000 plans are below the level recorded by the acoustical counts for 2000. Therefore, an updated forecast of annual operations was needed. The acoustical counts completed in 2000 provide the most recent data of annual operations. Therefore, the preferred planning forecast is the increasing ratio projection, which is consistent with historical trends. This forecast yields 23,270 annual operations by 2023.

It is expected that local operations will continue to account for 26 percent of total operations and itinerant operations 74 percent, as they have historically. Furthermore, air taxi and military operations are expected to account for eight percent and 17 percent of itinerant operations, respectively, through the planning period.

PEAKING CHARACTERISTICS

Most facility planning relates to levels of peak activity. The following planning definitions apply to the peak periods:

- **Peak Month** – The calendar month when peak aircraft operations occur.
- **Design Day** – The average day in the peak month.
- **Busy Day** – The busy day of a typical week in the peak month.
- **Design Hour** – The peak hour within the design day.

TABLE 2H
Annual Operations Forecasts Summary

	2000	2008	2013	2023
Acoustical Counts				
Constant Ratio Projection		17,680	19,040	22,440
Increasing Ratio Projection (Preferred Planning Forecast)		**17,940**	**19,460**	**23,270**
Equation #15 for Non-Towered Airports				
Constant Ratio Projection		12,220	13,160	15,510
Increasing Ratio Projection		12,350	13,440	16,170
FAA *Terminal Area Forecast*		20,720	20,720	20,720[2]
1997 Continuous Aviation System Plan		14,570[1]	16,290[1]	20,380[2]
2000 Oregon Aviation Plan	16,359	15,470[1]	16,170[1]	17,900[2]

[1]Interpolated by Coffman Associates/[2]Extrapolated by Coffman Associates.

It is important to note that only the peak month is an absolute peak within a given year. All other peak periods will be exceeded at various times during this year. However, they do represent reasonable planning standards that can be applied without overbuilding or being too restrictive.

Typically, the peak month for operations represents between ten and twelve percent of the airport's annual operations. Monthly operational totals were not available at Newport Municipal Airport. Therefore, for planning purposes, the peak month has been estimated at 10.0 percent of forecast annual operations. The design day was then calculated by dividing the peak month operations by 30. The busy day has been estimated at 25 percent higher than the average day in the peak month and was calculated by multiplying the design day by 1.25. Design hour operations were calculated at 12.0 percent of design day operations. **Table 2J** summarizes the general aviation peak activity forecasts.

TABLE 2J
Forecasts of Peak Activity
Newport Municipal Airport

	2000	2008	2013	2023
General Aviation Operations				
Annual	16,359	17,940	19,460	23,270
Peak Month (10.0%)	1,636	1,794	1,946	2,327
Design Day	55	60	65	78
Busy Day	68	75	81	97
Design Hour (12.0%)	7	7	8	9

ANNUAL INSTRUMENT APPROACHES

Forecasts of annual instrument approaches (AIAs) provide guidance in determining an airport's requirements for navigational aid facilities. An instrument approach is defined by the FAA as "an approach to an airport with the intent to land by an aircraft in accordance with an instrument flight rule (IFR) plan, when visibility is less than three miles and/or when the ceiling is at or below the minimum initial approach altitude." The projections of AIAs for Newport Municipal Airport, which assume a constant percentage of itinerant operations, are summarized in **Table 2K**.

TABLE 2K
Annual Instrument Approaches (AIAs)
Newport Municipal Airport

Year	AIAs	Itinerant Operations	AIAs % of Itinerant Operations
2000	512	12,106	4.2%
Forecasts			
2008	560	13,280	4.2%
2013	600	14,400	4.2%
2023	720	17,220	4.2%

Source: FAA/APO Data and Coffman Associates analysis.

SUMMARY

This chapter has provided forecasts for each sector of aviation demand anticipated over the planning period. **Exhibit 2D** presents a summary of the aviation forecasts developed for Newport Municipal Airport. The airport is expected to experience an increase in total based aircraft and annual operations, as well as an increase in turbine-powered aircraft throughout the planning period. The next step in this study is to assess the capacity of the existing facilities to accommodate forecast demand and determine what types of facilities will be needed to meet these demands.

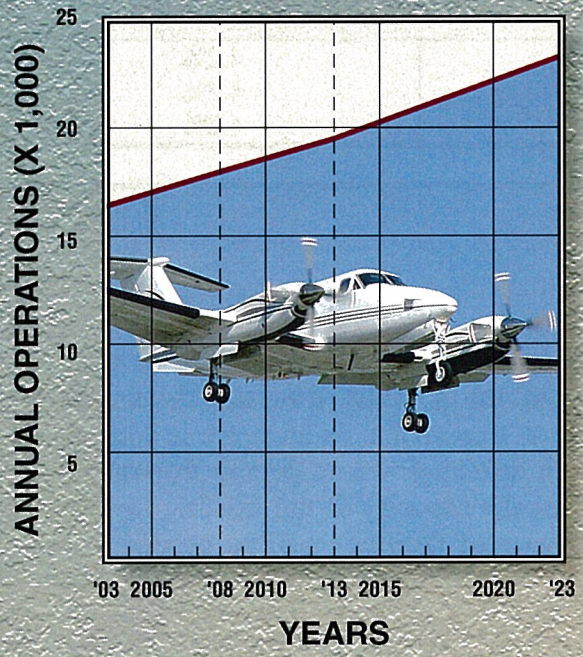
02MP14-2D-5/16/03

SUMMARY OF AVIATION ACTIVITY FORECASTS

CATEGORY	Historical 2000	Forecasts 2008	2013	2023
ANNUAL OPERATIONS				
Itinerant				
General Aviation	9,076	9,960	10,800	12,910
Air Taxi	970	1,060	1,150	1,380
Military	2,060	2,260	2,450	2,930
Total Itinerant	**12,106**	**13,280**	**14,400**	**17,220**
Local				
General Aviation	4,253	4,660	5,060	6,050
Total Operations	**16,359**	**17,940**	**19,460**	**23,270**

CATEGORY	CURRENT	2008	2013	2023
BASED AIRCRAFT				
Single Engine	20	21	22	23
Multi-Engine	1	2	2	3
Jet	1	1	2	3
Helicopter	1	1	1	2
Other	1	1	1	2
Total Based Aircraft	**24**	**26**	**28**	**33**

OPERATIONS FORECAST



BASED AIRCRAFT FORECAST

Exhibit 2D
FORECAST SUMMARY