Chapter Three:
Aeronautical Activity Forecast

Newport Municipal Airport

Airport Master Plan Update
Final Report – February 2018

WHPacific

Aviation demand forecasts help determine the size and timing of needed airport improvements. Chapter 3 indicates types and levels of aviation activity expected at the Airport during a 20-year forecast period. Projections of Airport aviation activity were prepared for near-term (2021), mid-term (2026), and long-term (2036) timeframes. These projections are generally unconstrained and assume that the City of Newport (City) has opportunity to develop the various facilities necessary to accommodate based aircraft and future operations.

The primary objective of a forecasting effort is to define the magnitude of change in aviation activity expected over time. Because of the cyclical nature of the economy, exact trends are essentially impossible to predict with certainty because of 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 shown on a graph is often used to express anticipated growth, in reality the actual growth may fluctuate above and below this projected line. Forecasts serve only as guidelines and planning must remain flexible to respond to unforeseen changes in aviation activity and resultant facility needs.

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

- **Based Aircraft**, including fleet mix: Number and type of based aircraft help determine future aircraft hangar, tiedown apron, and auto parking facility requirements.
- **Aircraft Operations**, including annual, peak, local vs. itinerant, and fleet mix: An operation is defined as either an aircraft landing or taking off (*i.e.*, an aircraft landing then taking off counts as two operations). Aircraft operation forecast data helps in analyzing runway capacity and determining runway, taxiway, and navigational aid requirements by providing input for computer modeling used to estimate future aircraft noise exposure.
- **Critical Aircraft and Airport Reference Code**: The critical, or design, aircraft is derived from the operational fleet mix (aircraft types). The critical aircraft, with its airport reference code, determines many airfield design requirements, such as runway / taxiway size and strength, as well as safety clearances around aircraft movement areas.
- **Air Cargo**: An overview of potential opportunities for growth in air cargo activity, which helps to determine cargo apron area needs.
- **Air Service**: Estimates of the possible number of enplanements that could be attracted based on the likely catchment area, and the potential aircraft types that might be used in the market, will be presented along with a discussion of Federal Aviation Regulation (FAR) Part 139 Certification requirements.

Once the current level of activity is determined and documented, various forecasts are developed; projections are based on activity correlation to one or more of the following demographic trends and forecasts: national, state, and regional aviation and aircraft ownership trends; state and local population trends and forecasts; socioeconomic trends; and existing and potential business plans for expansion at or near the Airport.

The FAA is responsible for reviewing and approving all aviation forecasts submitted to their agency in airport planning studies. The FAA reviews these forecasts with the objective to include them in its Terminal Area Forecasts (TAF) and the National Plan of Integrated Airport Systems (NPIAS). According to FAA Order 5090.3C, forecasts must be realistic, based on the latest available data, reflect current conditions at the Airport, be supported by information in the study, and provide adequate justification for airport planning and development.

Data Sources

Data sources and forecasting guidance used to prepare forecasts in this chapter are described here.

FAA Terminal Area Forecasts (TAF)

The TAF is the official FAA forecast of aviation activity for US airports. The database contains active airports in the NPIAS including FAA-towered airports, federal contract-towered airports, nonfederal-towered airports, and non-towered airports. Forecasts are prepared for major users of the National Airspace System including air carrier, air taxi / commuter, general aviation (GA), and military. Forecasts are prepared to meet the budget and planning needs of the FAA and provide information for use by state and local authorities, the aviation industry, and the public.

FAA Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*

AC 150/5070-6B, Airport Master Plans, provides guidance for the preparation of airport master plans that range in size and function from small GA to large commercial service facilities. The AC contains key guidance that explains steps required for development of master plans, including the preparation of aviation activity forecasts and which elements should be forecast.

Airport Cooperative Research Program Report (ACRP): Counting Aircraft Operations at Non-Towered Airports

Prepared for the ACRP, a research branch of the Transportation Research Board of the National Academies, this 2007 report provides methodologies used across the country to estimate operations at airports without an air traffic control tower, such as Newport Municipal Airport.

ACRP Report: Airport Aviation Activity Forecasting

The Airport Aviation Activity Forecasting document, prepared by the ACRP and issued in 2007, discusses methods and practices for aviation activity forecasting. This report identifies common aviation metrics, issues in data collection and preparation, and data sources.

Forecasting Aviation Activity by Airport

The 2001 forecast document provides guidance for preparing airport activity forecasts. FAA also utilizes this guidance when developing the TAF.

FAA Aerospace Forecasts, Fiscal Years 2015-2035

The FAA annually prepares the Aerospace Forecasts to explain the current economic and aviation outlook, as well as macro level forecasts of aviation activity and the US aircraft fleet. The Fiscal years 2015-2035 report was released in March of 2015.

General Aviation Statistical Databook & Industry Outlook

The General Aviation Manufacturers Association (GAMA) publishes the databook on an annual basis. The document contains the association's industry outlook for the coming year, as well as data on the GA fleet and flight activity, the US pilot population, airports, safety, international data, and forecast information. The report also contains the year-end shipments and billings for GA aircraft divided into four different segments: business jets, turboprops, piston engine airplanes, and helicopters.

Federal and State Data Sources

Historical and forecast socioeconomic data for the State of Oregon and Lincoln County was obtained from several sources including the US Census Bureau, the Bureau of Business and Economic Research, the US Bureau of Labor Statistics, and Portland State University.

Local Data Sources

Other sources of data, such as the Oregon Department of Aviation's Oregon Aviation Plan (2007), County Comprehensive Plans and economic development information for the county and region, were obtained and researched to understand local economic issues. Airport users and community organizations were also contacted through phone interviews and questionnaires1 to understand how the Airport is used and viewed by these groups.

Current Trends Affecting Aviation

Research has shown that trends in national, state, and local aviation activity can be correlated to the aviation activity at any particular GA airport since activity at that airport is calculated in the activity totals. This section will assess current trends and their possible influence on activity at the Airport.

National Aviation Trends and Forecasts

Newport Municipal Airport is part of an air transportation system and, as such, is a part of national and regional aviation trend analysis. This means that the Airport is directly affected by trends impacting these larger systems. As a GA Airport, Newport Municipal is mostly affected by trends in the GA segment of the industry. GA refers to a wide range of flight activity and, by general definition, is all flight activity excluding commercial airline and military aircraft.

General Aviation in the US peaked in the 1970s, then experienced years of decline until growth returned in the 1990s. The growth in the 1990s was due not only to an expanding economy, but also to the General Aviation Revitalization Act (GARA) of 1994. GARA effectively protected most aircraft manufacturers2 and aircraft parts from liability for accidents involving products that are 18 years old or older (at the time of the accident), even if manufacturer negligence was a cause. Setting these limitations spurred production of single engine piston aircraft, as reduced product liability costs reduced the purchase price to a point that was affordable. Single engine piston is the aircraft type that accounts for the majority of the nation's GA activity. General Aviation aircraft are widely varied, however the majority of GA aircraft are piston-powered, fixed-wing airplanes.

The business aviation portion of GA grew rapidly in the 1990s and into the first part of the 21st century. Since 9/11, business aviation has benefited from the increased regulations and security processing

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[1] Questionnaire was conducted during preparation for Chapter 1, *Introduction.*

[2] Aircraft carrying fewer than 20 passengers.

required by airline travel. Additional imposed airline passenger and baggage security as well as reductions in air service, particularly to smaller communities, have stimulated business use of aircraft since the economic recovery. Business aviation is predicted to show stronger growth than the personal and recreational aviation segments, as businesses avoid factors such as possible commercial airline flight delays, safety, and security issues associated with airline travel.

General Aviation growth began to decline in 2008/2009, due primarily to the economic recession that began toward the end of 2007. Soaring fuel prices in mid-2008 only reinforced the decline. The recession dampened every aspect of GA, from flight training and aircraft production to the number of pilots and the hours aircraft were flown.

GA business aircraft ranges from small, single engine aircraft rentals to multiple aircraft corporate fleets supported by dedicated flight crews and mechanics. Airplanes used for business tend to be larger and faster than those typically chosen for personal use. Until 2008, business aviation grew rapidly as various chartering, leasing, time-sharing, fractional ownership, interchange agreements, partnerships, and management contracts emerged.

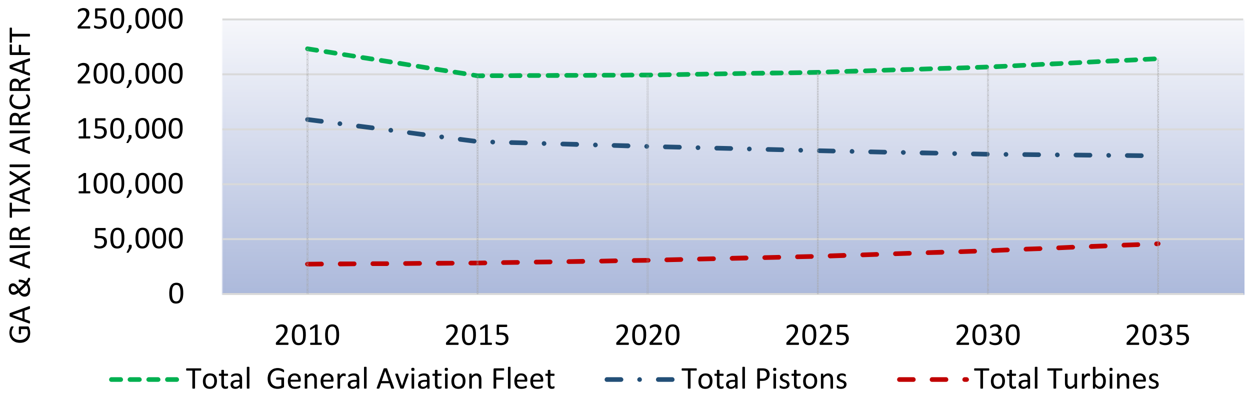
The FAA tracks individual aircraft in the fleet along with the number of hours flown by each aircraft type – common indicators of industry changes. Aircraft type is categorized by body, fixed wing or rotorcraft, or engine type, piston or turbine. **Figure 3A** shows the FAA's forecast for active GA and air taxi aircraft. An active aircraft is one currently registered and flown at least one hour during the calendar year.

The source of historical numbers is the FAA GA and Air Taxi Activity Surveys. Although the long-term outlook remains favorable, the operational environment continues to evolve and the FAA Aerospace Forecast suggests that the timing and strength of a recovery in aviation demand remains highly uncertain.

National Trends - General Aviation Fleet

The FAA projects the number of all active GA and air taxi aircraft will grow 0.4% annually over the next two decades. The more expensive and sophisticated turbine-powered fleet (including helicopters) will grow at an average of 2.4% annually over the next two decades. Of that fleet, the turbine jets will see the strongest growth of 2.8% annually. In contrast, the piston-powered aircraft fleet is projected to decrease at -0.6% annually. The FAA cautions its forecasts depend on many unknown factors. Some of these factors include the national and world economies, US unemployment, price of oil, and national fiscal issues.

Figure 3A. US Active GA and Air Taxi Aircraft Forecast



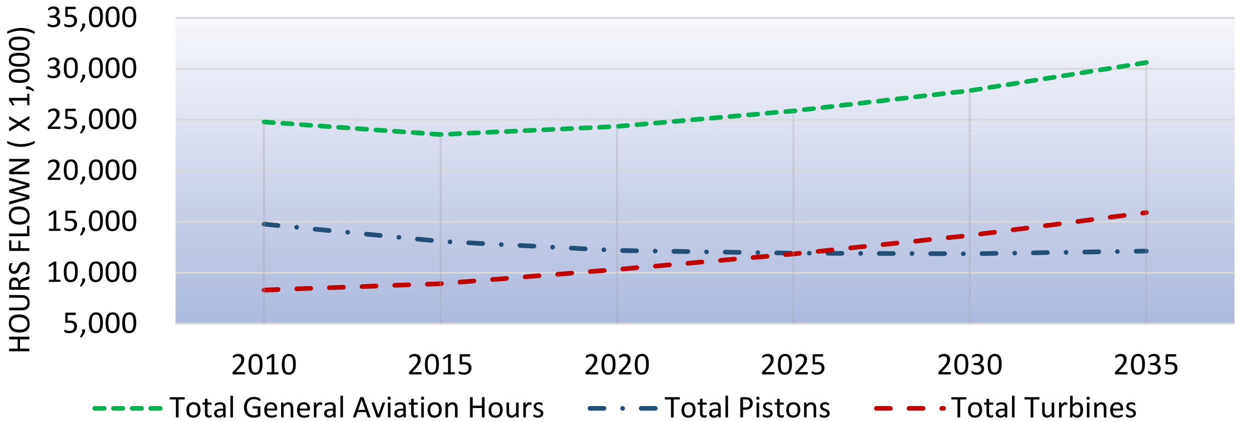
		Average Annual Growth Rate	
Aircraft Type	2014 (Estimated)	2001-2014 Historical	2013-2034 Forecast
Total Piston Fixed Wing	**136,655**	**-1.4%**	**-0.6%**
Single Engine	*123,440*	*-1.2%*	*-0.6%*
Multi-engine	*13,215*	*-2.4%*	*-0.4%*
Total Turbine Fixed Wing	**21,235**	**3.0%**	**2.2%**
Turboprop	*9,485*	*2.8%*	*1.5%*
Turbojet	*11,750*	*3.2%*	*2.8%*
Total Rotorcraft	**10,085**	**3.1%**	**2.5%**
Piston	*2,235*	*2.7%*	*2.1%*
Turbine	*6,850*	*3.3%*	*2.8%*
Experimental	**24,480**	**1.4%**	**1.4%**
Sport Aircraft	**2,200**	**N/A**	**4.3%**
Other	**4,205**	**-3.4%**	**-0.2%**
Total GA	**198,860**	**-0.5%**	**0.4%**
National Piston Growth Rate	**139,890**	**-1.3%**	**-0.5%**
National Turbine Growth Rate	**28,085**	**3.1%**	**2.4%**

Source: FAA Aerospace Forecast 2015-2035, Table 28 (Mar 2016); 2014 figures are estimates.

National Trends – General Aviation Hours Flown

As the active aircraft fleet grows, the number of GA hours flown is projected to increase at 1.4% per year. FAA annual growth rate projections vary for hours flown, from a declining rate of -0.5% for piston fixed-wing aircraft, to a high growth of 3.6% for jet aircraft. **Figure 3B** presents the FAA's forecast for aircraft hours flown. Rotorcraft hours were relatively immune to the recession compared to other categories. Turbine fixed wing aircraft utilization was also less impacted from the GA decline related to the recession when compared to other categories.

Figure 3B. US Active GA and Air Taxi Hours Flown Forecast



		Average Annual Growth Rate	
Aircraft Type	2014 (Estimated)	2001-2014 Historical	2013-2034 Forecast
Total Piston Fixed Wing	**12,228,000**	**-3.4%**	**-0.5%**
Single Engine	*10,602,000*	*-3.4%*	*-0.5%*
Multi-engine	*1,627,000*	*-3.7%*	*-0.2%*
Total Turbine Fixed Wing	**6,181,000**	**2.6%**	**2.9%**
Turboprop	*2,582,000*	*2.9%*	*1.7%*
Turbojet	*3,599,000*	*2.4%*	*3.6%*
Total Rotorcraft	**3,152,000**	**3.8%**	**3.0%**
Piston	*689,000*	*2.9%*	*2.2%*
Turbine	*2,463,000*	*4.0%*	*3.2%*
Experimental	**1,178,000**	**0.1%**	**2.4%**
Sport Aircraft	**187,000**	**N/A**	**5.1%**
Other	**133,000**	**-5.7%**	**-0.1%**
GA Total	**23,060,000**	**-1.2%**	**1.4%**
National Piston Growth Rate	**12,917,000**	**-3.2%**	**-0.3%**
National Turbine Growth Rate	**8,644,000**	**3.0%**	**2.9%**

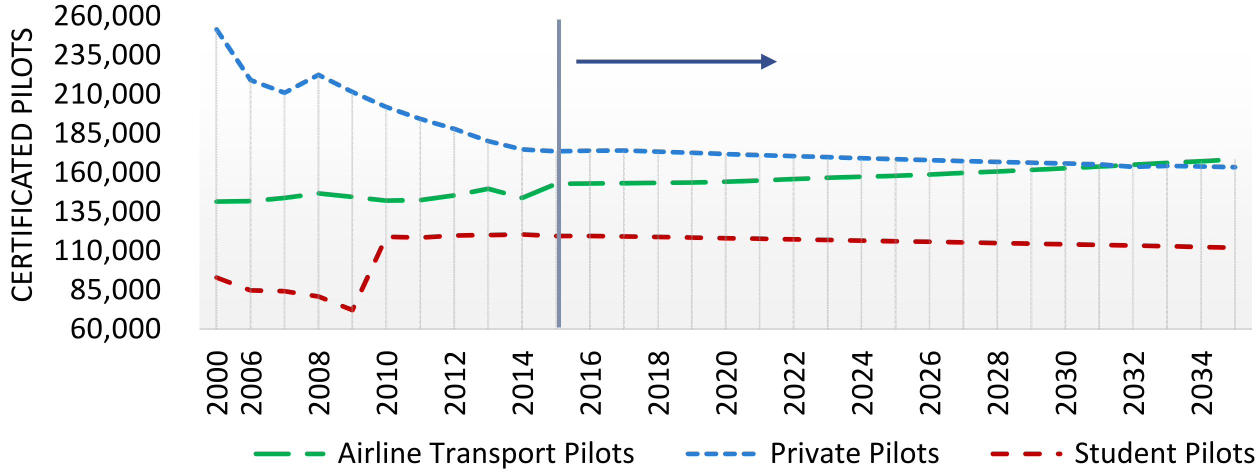
Source: FAA Aerospace Forecast 2015-2035, Table 29 (Mar 2016); 2014 figures are estimates.

Captured in a table, these figures quantify the disproportionate relationship between active aircraft types and the number of hours flown by these aircraft types discussed in the previous paragraphs. Single engine piston airplanes represent nearly 62% of the active fleet but fly less than 47% of the total hours flown, while the higher performance, more expensive aircraft often used for business represent a smaller portion of the fleet and a much larger portion of the total number of hours flown. For the first time in aviation history, turbine-powered aircraft are forecasted to exceed piston-powered aircraft for total hours flown near the year 2025.

National Trends – Pilot Certificates Held

Figure 3C shows the FAA forecast for certificated pilots. Historically, Private Pilot certificates have exceeded the number of Airline Transport Pilot certificates. This is expected to change around the year 2032. Fewer pilots are becoming certificated for recreation and personal use, and are instead learning to fly towards a career path. This likely plays a role in the declining piston-powered aircraft fleet and overall utilization of those aircraft.

Figure 3C. Historic and Forecast FAA Certificated Pilots



Source: FAA Aerospace Forecast (2015-2035)

National Trends – General Aviation Aircraft Shipments

GAMA has reported cautious optimism for recovery of GA as total airplane shipments rose in 2013 and 2014. However, recent data for 2015 may indicate a slowdown in that optimism. **Table 3A** summarizes the change between 2012 and 2015.

Table 3A. GA Airplane Shipments – Manufactured Worldwide

	2012	2013	2014	2015
Total Piston Airplanes	908	933	1,129	1,056
Total Turboprop Airplanes	584	645	603	557
Business Jets	672	678	722	N/A
Total Airplane Shipments	2,164	2,256	2,454	N/A
Total Airplane Billings	$18.9 billion	$23.4 billion	$24.5 billion	N/A

Source: GAMA 2015 GA Statistical Databook & 2016 Industry Outlook.

NextGen, short for Next Generation, is a national initiative that is anticipated to modernize aviation. The basic benefits of NextGen include increased airspace capacity (reduced congestion), enhanced safety, and economic benefits. A promising technological development, NextGen, coupled with the economic recovery, is expected to slow past declines and support positive growth trends. NextGen is already being implemented by airlines and at large commercial service airports.

State and Local Aviation Trends

While broad industry trends influence aviation activity at individual airports, regional and local factors may have a greater influence. Primary sources for discussion of state and local aviation trends are local aviation activity information and data, the Oregon Aviation Plan (OAP) completed in 2007, and the FAA Terminal Area Forecast.

The OAP describes the following trends fueling aviation demand:

- Continued migration into the state – new residents who 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.

As of 2013, there were 97 public-use and over 360 private-use airports in the State of Oregon[3]; 96 of those airports were included in the state airport system in 2007. The airports in the state system had an estimated 4,875 based aircraft in 2005 (the base year for data). In comparison, the aircraft registry shows 7,594 aircraft registered in the State of Oregon as of March 2016, 76 of which are registered in Lincoln County[4]. The 2007 OAP projected that based aircraft in the state would grow 1.23% by 2030. For the same timeframe, GA operations were projected to grow at an estimated 1.58% annual growth rate, which is slightly above the based aircraft growth rate. These growth rates were prepared prior to the economic downturn of 2008, and are not seen as applicable to the post-recession economy.

The FAA's Terminal Area Forecast (TAF) contains historical and forecast data for enplanement, airport operations, and based aircraft. It is prepared annually and generally reflects national trends shown in correlation with regional factors. The 2015 TAF reports a 1.52% average annual growth rate for both based aircraft and annual operations at the Airport. It is not known why the FAA chose the same growth rate for both categories, as FAA's Aerospace Forecast anticipates accelerated growth of aircraft operations over based aircraft. Nonetheless, the TAF is a widely accepted metric for forecasting aviation demand.

In recognizing the importance of accurate based aircraft counts at each airport, the FAA has established a National Based Aircraft Inventory Program. A website (www.basedaircraft.com) has been established to allow airport managers direct on-line entry of their based aircraft, which is then validated via cross-reference of aircraft tail numbers entered for other airports. For aircraft listed at more than one airport, there is a procedure for determining how the aircraft is counted. As part of this Master Plan Update, Airport Management has collected based aircraft information and verified those aircraft through the system. As of March 2016, the database shows the Airport has 28 based aircraft, including 23 single engine piston, four multi-engine piston, and one single engine turbine.

Fuel sales can be an indicator of aviation activity at an airport. **Figure 3D** lists fuel sales from Fiscal Year (FY) 2011/2012 through FY 2014/2015. Overall, fuel sales decreased since FY 2011/2012, but appear to have stabilized. The split between AvGas and JetA fuel has remained relatively consistent for the last three years. Partial data for FY 2015/2016 indicate a slight increase in all fuel sales, which could be an indicator of increased activity.

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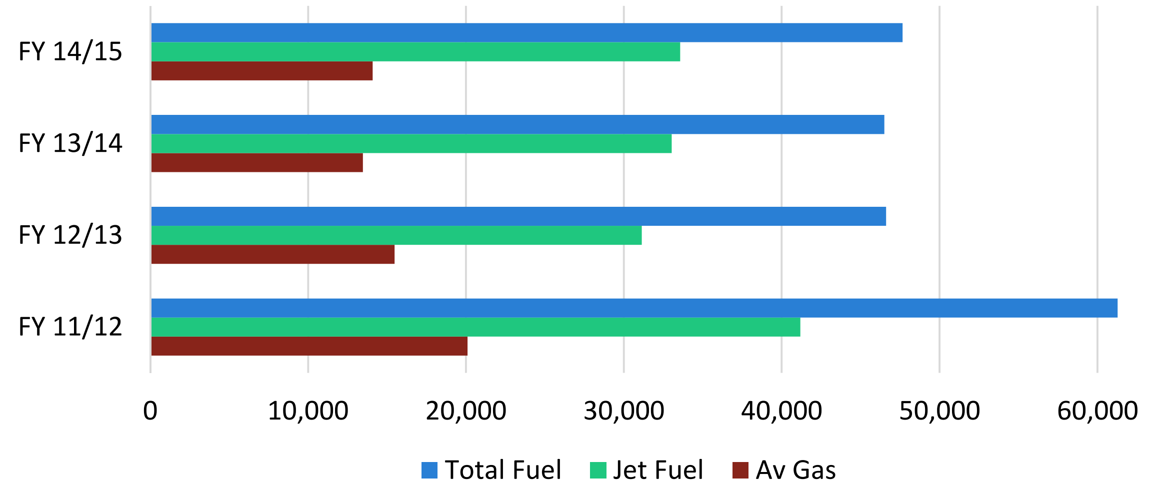
[3] Oregon Department of Aviation Annual Report, July 1, 2012 through June 30, 2013.
[4] The number of aircraft registered can often differ from based aircraft counts, particularly if many of the aircraft are inactive, stored at private airfields, or spend the majority of time at airports outside the state.

Figure 3D. Newport Municipal Fuel Sales Fiscal Years (FY) FY 11/12 through FY 14/15 in Gallons



Source: City of Newport (Mar 2016).

In addition to fuel sales, the City-operated Fixed Base Operator (FBO) has maintained an aircraft operations log since 2011. The operations reflected in the log are those that occur during normal FBO-operating hours, which are typically 8-5 on all days except major holidays. While the log does not capture operations outside of business hours, the record does provide an insight into the amount and types of operations occurring at the Airport. Between calendar years 2011 and 2015, the overall annual growth rate for total operations was 4.95%, even though a couple of years showed decelerated growth. This trend correlates with the fuel sales data, indicating operations at the Airport are increasing.

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.

Table 3B presents historical and projected populations for Lincoln County. Lincoln County has shown a steady increase in population and is expected to continue at a 0.6% average annual growth rate, which is lower than the State of Oregon's overall projection of 1.1%.

Table 3B. Historical and Projected Populations for Lincoln County, State of Oregon

Year	Lincoln County	Oregon
2000	44,317	3,429,708
2005	45,347	3,613,202
2010	45,990	3,837,083
2015 (*Base Year*)	46,490	4,003,381
2020 (*Forecast*)	48,390	4,111,076
2025 (*Forecast*)	50,183	4,160,824
2035 (*Forecast*)	52,175	4,619,031
CAGR 2015-2035	0.6%	1.1%

Sources: CDM Smith, US BEA, Portland State University.

Income can have a strong correlation with locally-based GA activity. Lincoln County's per capita personal income is lower in comparison to the State of Oregon specifically and the United States as a whole. However, the compounded annual growth rate (CAGR) from 1990-2014 shows Lincoln County's per capita personal income increasing at a similar rate to the State of Oregon, but tracking slightly behind the National growth rate, as shown in **Table 3C**. In the case of business-driven aviation activity, the correlation of income to aircraft operations is not as strong as the economic push can be sourced from elsewhere. An example of this could be Pacific Seafood, which frequently operates Learjet aircraft into the Airport, none of which is actually based at the Airport.

Table 3C. Per Capita Personal Income History, Lincoln County, Oregon, and the US

	1990	2000	2010	2014	Average Annual Growth Rate 1990-2014
Lincoln County	$15,997	$25,445	$31,956	$36,227	3.46%
State of Oregon	$18,065	$28,878	$35,791	$41,220	3.50%
United States	$19,591	$30,602	$40,277	$46,049	3.63%

Source: US Bureau of Economic Analysis, 2016 (2014 data estimates from March 2016).

Table 3D provides a comparison of registered aircraft in relationship to population for Lincoln County and Oregon. Similarly, income can be a good indicator of GA aircraft ownership. As shown, Lincoln County residents own aircraft at a lower rate than the state. This may indicate activity at Newport Municipal is predominantly itinerant, meaning it originates or ends elsewhere, which would be a sign of higher business-generated activity as compared to recreational use, similar to personal income as shown above.

Table 3D. Comparison of Population and Aircraft Registration (2016), Oregon, Lincoln County

Area	Population	Registered Aircraft	Registered Aircraft per 1,000 Population
Lincoln County	46,406	67	1.44
State of Oregon	3,970,239	7,594	1.91

Source: Population estimate for 2014 from US Census Bureau, Registered Aircraft per FAA database, March 2016.

City of Newport Outlook

Although some of the socioeconomic factors discussed above provide an uncertain influence towards airport growth, there are multiple local projects and activities with the potential to positively impact the Airport.

United States Coast Guard

One of the most publicized recent developments for the City of Newport was the passage of the Coast Guard Authorization Act of 2015, which included language to keep the Newport Coast Guard facility open at least to January 2018. The Coast Guard's presence at the Airport as a stable tenant is an asset not only for the Airport but the entire Central Coast Region.

Community Development

Recent community investments reflect a growing confidence in the future of Newport, which undoubtedly will have implications at the Airport. The citizens of Newport passed Measure 21-163 in May 2015, which is a $50 million bond to construct a new hospital to modernize and meet anticipated demand. Oregon State University (OSU) is undertaking a separate $50 million construction project for new facilities at the Hatfield Marine Sciences Center. The National Oceanic and Atmospheric Administration (NOAA) Marine Operations Center is located in Newport. NOAA and OSU are positioning Newport as a leading location for marine science and technology investment. This is reflected in the Oregon Museum of Science and Industry's expansion of a new coastal science themed camp open year around in Newport.

Seismic Resiliency

There is an ever-growing awareness of the threat of a subduction zone earthquake. The quake may trigger a tsunami that would inundate a number of coastline communities and many of the local airports. According to the Oregon Resilience Plan (Feb 2013), eight of 15 coastal airports are not expected survive a Cascadia event due to the inundation of ocean water and debris. In the absence of a complete vulnerability assessment, no analysis exists to know if the seven airports that could potentially survive the devastating tsunami would survive the initial earthquake. Newport is one of the seven Airports listed in the latter category. With completion of the seismic study recommended by the Regional Airport Committee, there is potential to resolve this uncertainty. The resiliency study is in process as of 2017. Given this preparation, the City of Newport and the Airport may become more attractive as an emergency resource than other coastal communities with less certain long term futures.

Destination Resort

According to a 2015 CNN article[5], for the third year in a row, Oregon is the most popular state for people to relocate. The destination resort zoning to the South of the Airport has the potential to result in more in-migration, or at least the opportunity to provide additional housing stock and perhaps second homes for people with higher incomes, which fits the demographic of some people moving to the region.

Given this information, which was affirmed in several discussions with local organizations, there is good cause to be optimistic about the City of Newport's future and correlated growth trend at the Airport. Additionally, the operations log from 2011 to current indicates growth at the Airport, further supporting this confidence.

Based Aircraft Forecast

The number of aircraft based at the Airport is an important consideration when planning facilities. The based aircraft forecast will directly influence the type and number of aircraft storage facilities and apron tiedowns needed. Projections of based aircraft also provide one indication of the anticipated growth in flight activity expected at the Airport.

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 2035 is presented.

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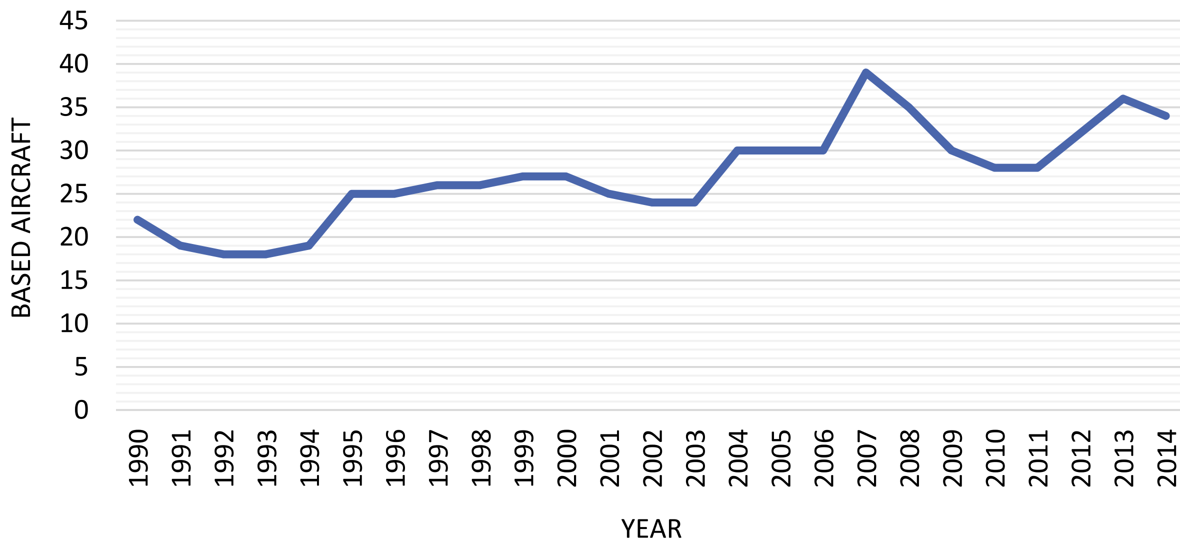
[5] http://money.cnn.com/2016/01/04/real_estate/oregon-most-popular-moving-states-2015/

Historical Based Aircraft Data

Figure 3E represents historical based aircraft numbers from 1990 through 2014, as reported in FAA's 2014 Terminal Area Forecast (TAF). The data show an overall increase in total based aircraft, although there are peaks and valleys in the reported numbers. While the TAF is valuable as a source for historical based aircraft numbers from which to discern trends, there can be discrepancies as many aircraft nationwide were being double-counted at airports prior to online verification. Airport Management reports 28 actual based aircraft in 2015, which the Master Plan assumes to be the accurate since it has been verified through the base aircraft inventory database. Of the based aircraft reported, 23 are single engine piston, four are multi-engine piston, and one is single engine turbine.

Figure 3E. Historical Based Aircraft at Newport Municipal Airport



Source: FAA Terminal Area Forecast, for data 1990-2014, issued February 2016.

Based Aircraft Forecast Through 2035

Six different forecasting models were analyzed to provide a range of the possible numbers of based aircraft. The average annual growth rates for these models range from -0.50% to 1.98%, as shown in **Table 3E**.

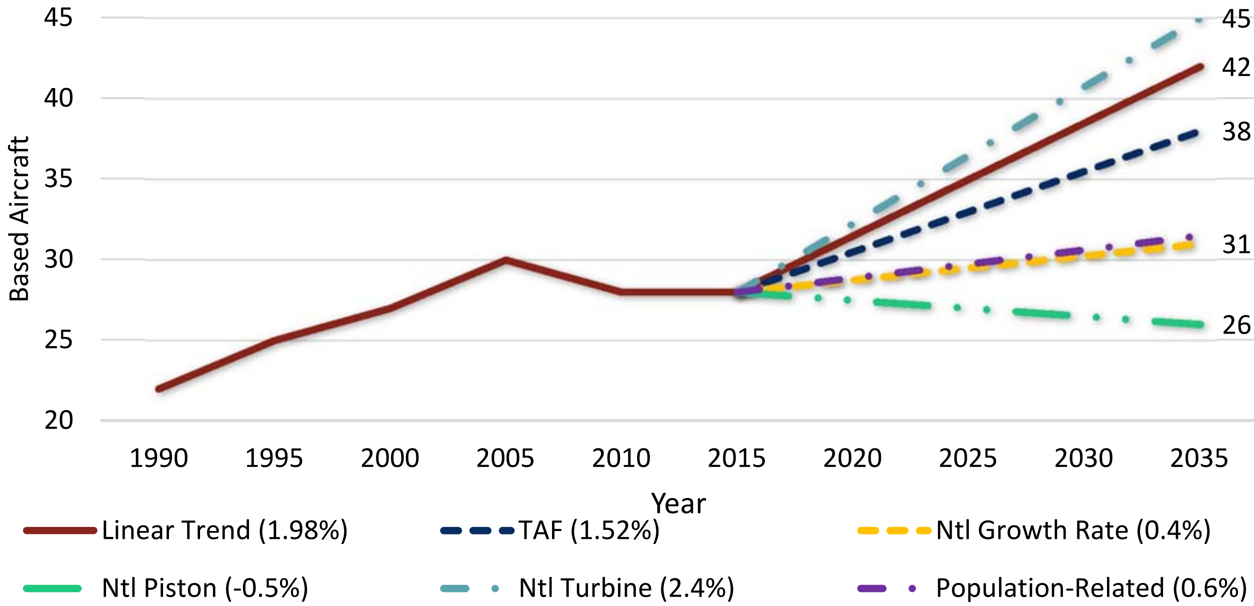
Table 3E. Comparison of Based Aircraft Forecasts for Newport Municipal Airport

	2020	2025	2035	Average Annual Growth Rate
Linear Trend	32	35	42	1.98%
Terminal Area Forecast	31	33	38	1.52%
National Growth Rate	29	30	31	0.40%
National Piston Growth Rate Model	28	27	26	-0.50%
National Turbine Growth Rate	33	37	45	2.40%
Population-Related Model	29	30	31	0.60%

Source: WHPacific, Inc., 2016.
Note: Base year was 2015 with 28 based aircraft, per Airport Management records.

The Preferred Forecast was chosen by selecting the Linear Trend Model, which represents an annual average growth rate of 1.98%. Each forecast method is described and evaluated below, and the methodology for selecting the preferred alternative is given in the paragraphs that follow. **Exhibit 3F** 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 phases as facilities are constructed and made available for based aircraft.

Exhibit 3F. Graphic Comparison of Based Aircraft Forecasts for Newport Municipal Airport



Source: WHPacific, Inc. 2016. Base year (2015) aircraft count is 28 based aircraft.

Linear Trend (1.98%)

Using TAF based aircraft data from 1990 through 2014, the linear trend model projects a continuation of the historical trend into the future. This model assumes that the historical data is defendable and reasonable, which according to those familiar with the Airport the historical data appears to be accurate. Forecasting this trend, an additional 14 based aircraft would locate to the Airport for a total of 42 by 2035.

Terminal Area Forecast (1.52%)

The FAA's TAF for the Airport, prepared in 2016, shows an increase of 10 aircraft over the 20-year planning period. This is the mid-range forecast model.

National Growth Rate Model (0.40%)

The FAA's projected growth rate for the national GA fleet is shown in **Figure 3A**. The projected growth applies to a fleet mix that is mostly single engine piston, similar to that at the Airport. This model would show an increase of three based aircraft at the Airport by 2035, for a total of 31 aircraft. One potential problem with this model is that local influences on the number of based aircraft at the Airport are not considered.

National Piston Growth Rate Model (-0.50%)

The majority of airplanes based at the Airport now and in the past have been piston-powered. Therefore, it would appear reasonable to apply the same growth rate at the Airport as forecast for piston-powered airplanes nationwide. This forecast model would decrease the total based aircraft to 26 by 2035. However, this model does not take into consideration the expected influx of larger, turbine-powered aircraft into the Airport, as the national trends and local economics would indicate.

National Turbine Growth Rate Model (2.40%)

Recent additional based aircraft at the Airport have been turbine powered; national figures trend towards an increase in turbine aircraft. However, the majority of the based aircraft are still piston powered. The turbine growth rate model is the most aggressive when compared to other models. By applying the 2.40% CAGR at the Airport, based aircraft would increase by 17 to a total of 45 by 2035.

Population-Related Model (0.60%)

The population of Lincoln County is projected to grow at an annual rate of 0.60% from 2015 to 2035. An increase in population would indicate increases in based aircraft. Using this growth model, an additional four aircraft would base at the Airport for a total of 32 by 2035.

Preferred Based Aircraft Forecast (1.98% Average Annual Growth)

The Linear Trend Model has been selected as the Preferred Forecast for the Newport Municipal Airport. This model results in a based aircraft total of 42 by 2034, which is an increase of 14 aircraft over the forecast period.

The Preferred Forecast is the most aggressive of the mid-range forecasts and models studied. It is less aggressive than the National Turbine Growth Rate, which does not appear to correlate with local activity at the Airport, but more aggressive than the other models considered. The less aggressive models were dismissed because they either weren't fully applicable to the conditions at the Airport, or they did not validate current optimism in the Newport region.

The local demographic data does not appear to fully account for activity at the Airport, as those interviewed are attracted to the Airport for business use, and less for recreational use. The influx of funding for the various community projects mentioned above is expected to have a positive impact at the Airport and influence growth of based aircraft; continuing the historic growth trend that's been experienced over the last two decades.

Forecasting is not a precise science; it is an educated estimate based on approved methods and data. In the event the Preferred Based Aircraft Forecast over or underestimates demand, the range of error is a difference of 14 aircraft (high model calculates 17 additional aircraft and the lowest positive growth rate of 0.40% predicts an additional three). If demand falls in line with any of the forecast range, there is land available for hangar development to accommodate the full range of estimates.

Based Aircraft Fleet Mix

The fleet mix of aircraft based at the Airport will likely change over the forecast period, although single engine, piston-powered aircraft will still be predominant. **Table 3F** presents the based aircraft fleet mix forecast. The forecast includes a slight increase in the number of turboprop and turbojet aircraft, with additional helicopters in the future. The increase in fleet mix reflects the national trends shown in **Figure 3A**, and would be expected from the effects of in-migration likely to occur in the Newport area.

Table 3F. Preferred Based Aircraft Fleet Mix Forecast for Newport Municipal Airport

Year	Single Engine (Piston)	Single Engine (Turbine)	Multi-Engine (Piston)	Multi-Engine (Turboprop & Turbojet)	Helicopter	Total
2015	23	1	4	0	0	28
2020	24	2	4	1	1	32
2025	25	3	4	2	1	35
2035	25	5	4	5	3	42

Source: WHPacific, Inc., 2016.

Aircraft Operations Forecast

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

Historical Aircraft Operations Data

Table 3G presents historical aircraft operations according to the FAA's TAF. 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. Another distinction for aircraft operations at the Airport is that they occur in either GA, air taxi, or military aircraft. Air taxi aircraft operations refer primarily to passenger/cargo charter or air taxi, fractional jet operations, and air ambulance. Air taxi flights usually file under Instrument Flight Rules (IFR) flight plans; however, many air taxi flights are not counted as pilots sometimes file the IFR flight plans after takeoff or cancel them before landing. IFR records were consulted for this forecasting effort and it does appear that many IFR operations are not captured at the Airport due to this reason.

Table 3G. Historical and Current Aircraft Operations at Newport Municipal Airport

Year	Itinerant				Local	Total Airport Operations
	Air Taxi	*GA*	*Military*	*Total*		
1990	1,200	8,100	2,400	11,700	2,400	14,100
1991	1,350	8,100	2,400	11,850	3,000	14,850
1992	1,300	8,900	2,400	12,600	2,500	15,100
1993	1,300	8,900	2,400	12,600	2,500	15,100
1994	1,300	8,900	3,000	13,200	2,500	15,700
1995	1,300	8,700	3,000	13,000	2,500	15,500
1996	1,300	8,700	3,000	13,000	2,500	15,500
1997	1,300	8,700	3,000	13,000	2,500	15,500
1998	1,300	8,700	3,000	13,000	2,500	15,500
1999	2,002	14,025	3,000	19,027	5,000	24,027
2000	2,002	14,025	3,000	19,027	5,000	24,027
2001	3,413	9,257	3,400	16,070	4,650	20,720
2002	970	9,076	2,060	12,106	4,253	16,359
2003	988	9,277	2,060	12,325	4,333	16,658
2004	1,006	9,476	2,060	12,542	4,412	16,954
2005	1,025	9,678	2,060	12,763	4,493	17,256
2006	1,041	9,853	2,060	12,954	4,564	17,518
2007	1,058	10,031	2,060	13,149	4,637	17,786
2008	2,002	14,025	3,000	19,027	5,000	24,027
2009	2,002	14,025	3,000	19,027	5,000	24,027
2010	2,002	14,025	3,000	19,027	5,000	24,027
2011	2,002	14,025	3,000	19,027	5,000	24,027
2012	2,100	14,000	3,500	19,600	4,500	24,100
2013	2,100	14,000	3,500	19,600	4,500	24,100
2014	1,400	10,950	3,600	15,950	3,650	19,600

*Source: Terminal Area Forecasts, FAA (March 2016). *Base year data (19,600) confirmed by Airport Management.*

Aircraft Operations Forecast Through 2035

The FAA Aerospace Forecast presented in **Figure 3B** indicates that GA aircraft usage will increase. While the nationwide fleet is projected to grow 0.4% per year, hours flown are projected to grow 1.4% per year. For the piston fleet, however, the hours flown are expected to decrease by -0.3% annually – alternatively, the turbine fleet is expected to increase usage by 2.9% annually. Although the piston and turbine fleet forecasts diverge, the overall trend is that aircraft use will increase at a faster rate than the total number of aircraft. Therefore, logic dictates that aircraft operations at any given airport will grow at a faster rate than based aircraft.

Table 3H on the following page presents the six forecasts analyzed for aircraft operations.

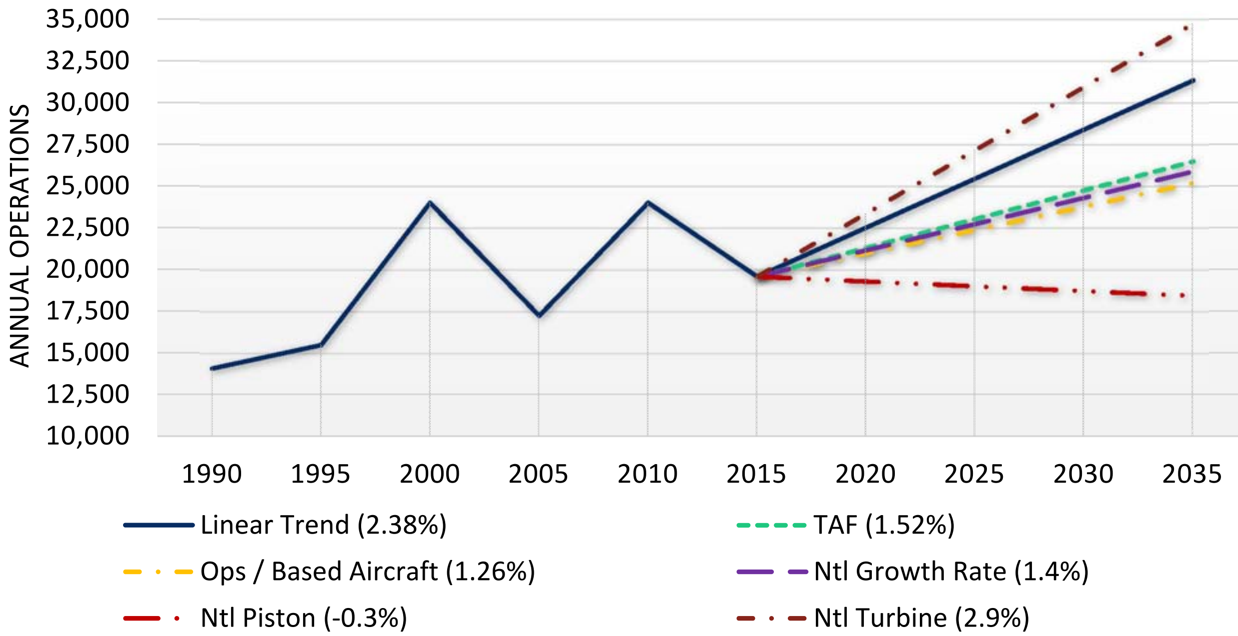
Table 3H. Comparison of Aircraft Operations Forecast for Newport Municipal Airport

	2020	2025	2035	Average Annual Growth Rate
Linear Trend	22,538	25,475	31,350	2.38%
Terminal Area Forecast	21,325	23,050	26,500	1.52%
Operations per Based Aircraft	21,000	22,400	25,200	1.26%
National Growth Rate	21,175	22,750	25,900	1.40%
National Piston Growth Rate	19,313	19,025	18,450	-0.30%
National Turbine Growth Rate	23,388	27,175	34,750	2.90%

Source: WHPacific, Inc., 2016.

For comparison, **Figure 3H** graphically combines historical activity data along with the various growth rates presented above.

Figure 3H. Graphic Comparison of Aircraft Operations Forecast for Newport Municipal Airport



Source: WHPacific, Inc., 2016.

Linear Trend (2.38%)

This forecast model analyzes historical growth from 1990 to 2014 and continues that growth trend into the future. The result is an average annual growth rate of 2.38%, with a projection of 31,350 operations in 2035.

Terminal Area Forecast (1.52%)

The FAA's TAF projects an average annual growth of 1.52% through 2035, which is an increase to 26,500 annual operations.

Operations per Based Aircraft (1.26%)

The Airport's operations and based aircraft numbers from the base year 2015 result in an average 700 operations per based aircraft. This operations-per-based-aircraft ratio is higher than FAA planning guidance, as the FAA has recommended that busier GA airports with more itinerant traffic should typically have about 350 operations per based aircraft. The higher than typical rural-GA-airport ratio is possible considering the Airport's consistent Air Taxi and business operations. This model represents 1.26% average annual growth for 25,200 operations in 2035.

National Growth Rate Model (1.40%)

The existing fleet of aircraft is expected to have higher utilization for the duration of the forecast period, which is why the National Growth Rate Model is 1.40%.

National Piston Growth Rate Model (-0.30%)

Applying the piston-only growth rate would show a decrease in annual operations over the forecast period, which would not be consistent with local development and growth.

National Turbine Growth Rate (2.9%)

There is a mix of piston and turbine-powered aircraft that consistently use the Airport, so it would not be appropriate to only account for the turbine growth rate. However, if the turbine growth rate were applied annual operations would reach nearly 35,000 in 2035. This is the highest growth rate of any model evaluated.

Preferred Operations Forecast (2.38%)

The Linear Trend is the preferred aircraft operations forecast, calculated as 2.38% average annual growth, which corresponds with the expectation of higher aircraft utilization. It would not be prudent to select a growth rate lower than the based aircraft growth rate, as the forecast model would not correlate with any of the trends applicable to Newport. The Linear Trend appears reasonable, given between 2011 and 2015 the Airport saw a 4.95% average annual growth rate. However, the more aggressive National Turbine Growth Rate, although applicable to the national trend, was not selected because it does not represent the substantial use of piston-powered aircraft at the Airport. Additionally, while there has been a recent uptick in operations, it would be improbable to assume that growth in operations would continue above the national trend forecast for a long period of time.

Table 3I presents the breakdown of the preferred forecast for aircraft operations. The operation estimates represent a similar trending of the operations by category ratio as currently exists at the Airport.

Table 3I. Preferred Aircraft Operations Forecast for Newport Municipal Airport

Year	Itinerant				Local	Total Airport Operations
	Air Taxi	*GA*	*Military*	*Total*		
2015	1,400	10,950	3,600	15,950	3,650	19,600
2020	1,500	13,268	3,700	18,468	4,070	22,538
2025	1,600	15,375	3,800	20,755	4,700	25,475
2035	1,800	19,850	4,000	25,650	5,700	31,350

Source: WHPacific, Inc., 2016.

Operations Fleet Mix

Due to the percentage of transient traffic the fleet mix for aircraft operations is not the same as the fleet mix for based aircraft. For example, there are few turbine-powered aircraft based at the Airport, but most of the business class of aircraft are turbine-powered. Some additional itinerant turbine-powered operations expected at the Airport would be freight aircraft and the fixed wing air ambulance.

The following **Table 3J** presents the estimated current (2015) and projected future operations fleet mix. In the future, it is projected that air taxi and GA aircraft using the Airport will include more turboprops, such as the King Air models, and some turbojet aircraft such as the Cessna Citation and Gates Learjet. The existing fleet mix allocation corresponds with data tracked in the FBO's operations log.

Table 3J. Preferred Aircraft Operations Fleet Mix Forecast for Newport Municipal Airport

Year	Single Engine Piston	Multi-Engine Piston	Turboprop	Turbojet	Helicopter
2015	63%	5%	10%	7%	15%
2020	61%	5%	11%	7%	16%
2025	59%	5%	12%	8%	16%
2035	55%	5%	14%	10%	16%

Source: WHPacific, Inc., 2016.

Peak Demand Forecast

Airport activity fluctuates from month to month, day to day, and hour to hour; therefore, airfield and landside facilities are traditionally designed to accommodate reasonable peak levels of use. In reviewing fuel sales and discussing sales trends with Airport Management, the Airport is consistently busier in the summer than in the winter. According to historical fuel sales, July is the busiest month, representing an average of 13% of the year's fuel sales. Using this information, an assumption can be made that the peak month consists of approximately 15% of the annual operations total. The values for average day peak month and for the peak hour were then calculated using the methodology in FAA Advisory Circular 150/5360-13, *Planning and Design Guidelines for Airport Terminal Facilities*. Under this methodology, the average day peak month is derived by taking the number of operations calculated for the peak month and dividing that figure by the number of days in the peak month (31 days). Peak hour is assumed to be 15% of the day peak. **Table 3K** summarizes the peak operations forecast.

Table 3K. Peak Operations Forecast for Newport Municipal Airport

	2015	2020	2025	2035
Annual Operations	19,600	22,538	25,475	31,350
Peak Month (15% Annual)	2,940	3,380	3,821	4,702
Design Day	94	109	123	152
Design Hour (15% of Peak Day)	14	16	18	23

Source: WHPacific, Inc., 2016.

Critical Aircraft, Runway Design and Airport Reference Codes

According to FAA criteria, a runway's design standards are selected based on the characteristics of the critical aircraft, which is the most demanding aircraft using the runway "regularly" or "substantially." The critical aircraft can either be an individual aircraft or a grouping of aircraft with similar characteristics represented by an individual aircraft. By FAA definition, "regular or substantial use" has been attained when least 500 annual itinerant operations by an aircraft or grouping of aircraft with similar characteristics is presently occurring or is projected to occur during the master plan's forecast period. The Runway Design Code (RDC) can vary for individual runways by providing standards to serve different design aircraft on different runways and taxiways. The RDC also includes a component for instrument approach visibility minimums, which will be discussed further in the Facility Requirements chapter. The largest RDC at an airport dictates the overall Airport Reference Code (ARC) for a particular airport.

The RDC and ARC is defined by the Aircraft Approach Category and the Airplane Design Group for the critical aircraft. The Aircraft Approach Category is determined by the approach speed, or 1.3 times the stall speed of the aircraft in its landing configuration at its maximum landing weight, and is represented by the letters A, B, C, D, and E. The Airplane Design Group is based on the aircraft's wingspan or tail height, and is defined by Roman numerals I, II, III, IV, V, and VI. **Table 3L** shows the RDC and ARC component definitions and typical aircraft that meet these definitions.

Table 3L. Runway Design and Airport Reference Code Components

Approach Category	**Approach Speed**	**Typical Aircraft**
A	Less than 91 knots	Cessna 150, 172, 206, Beech Bonanza
B	91 to 120 knots	King Air, Piper Navajo, Gulfstream I
C	121 to 140 knots	C-130 Hercules, Learjet, Challenger
D	141 to 165 knots	Boeing 747, Gulfstream V
Airplane Design Group	**Wingspan**	**Typical Aircraft**
I	Less than 49 feet	Cessna 150, 172, 206, Learjet
II	49 to 78 feet	King Air, Cessna Citation, Fairchild Metroliner
III	79 to 117 feet	Bae 146, P2V, DC-6, MD-87
IV	118 to 171 feet	C-130 Hercules, DC-10
Airplane Design Group	**Tail Height**	*(Airplane Design Group may be determined by tail height, if more demanding than wingspan)*
I	Less than 20 feet	
II	20 to 29 feet	
III	30 to 44 feet	

Source: FAA AC 150/5300-13A, Airport Design*. Note, Aircraft Approach Category E (166 knots or more) and Airplane Design Group V and VI (171 feet or more) are not shown.*

Forecasting, as stated previously, is not a precise science. As a result, changes to RDCs and ARCs are reactionary – meaning a runway or airport's designation will not change until the threshold for "regular use" is exceeded. Therefore, it is important to consider the big picture instead of focusing on specific timelines. For example, a forecast may show an ARC change at a specific time interval, but in reality the actual ARC change could be justified much sooner or later than expected depending on actual operations. What is crucial to envision is whether or not a change, in either RDC or ARC, is likely. If it is likely, a Master Plan is the appropriate means to plan and prepare for such a change, in an effort to increase an airport's safety, utility, and efficiency.

Runway 16-34 Critical Aircraft and Runway Design Code

The current RDC for Runway 16-34 is B-II, which is represented by the critical aircraft similar to the Cessna Citation turbojet. Current estimates based on logs of aircraft operations over the past four years indicate turbojet operations consist of over 1,300 annual operations, as shown in **Table 3M**. Estimates based on

Instrument Flight Rule (IFR) records filed for the Airport were not used, as initial inquiries revealed most IFR flight plans are cancelled prior to landing or after departure and, therefore, are not captured in the database. Due to this reason, estimates of the aircraft operating at the Airport have been substantiated by discussions with Airport Management and airport users, along with the FBO's log that captures itinerant aircraft activity that occurs during business hours. Through these discussions and research, it was apparent that operations in turbojets with design codes of C-I and larger do occur regularly.

Examples of operations in C category aircraft can be verified with companies such as Pacific Seafood. Pacific Seafood operates a fleet of Learjets and frequently operates at the Airport, as reflected in the FBO logs. In 2015, Pacific Seafood alone accounted for at least 60 operations at Newport. Pacific Seafood sources much of their product from the Oregon Coast and the Newport Municipal Airport is one of a few coastal airports that can accommodate their aircraft. Other companies, such as Georgia Pacific and Trident Seafoods operate their Gulfstream and Falcon jets, respectively, to check in at their production facilities along the coastline. These operations validate that the Airport is growing despite some of the local demographic indicators. Another operator frequently listed on the FBO logs is NetJets, a fractional ownership company that operates a wide-ranging fleet of jet aircraft. NetJets is typically used for business or luxury travel.

Table 3M breaks out the forecasted annual operations of aircraft by design code. The rows in blue show the existing and projected activity by aircraft that are presently accommodated by the Runway 16-34 RDC. Rows in yellow show the activity projected to occur by aircraft that exceeds existing RDC.

Table 3M. Newport Municipal Airport Annual Aircraft Operations by Design Code

ARC	Engine Type	Representative Airplane	2015	2020	2025	2035
Helicopter	Piston / Turbine	--	2,940	3,606	4,076	5,016
A-I/B-I	Piston	Cessna 172	12,348	13,748	15,030	17,243
A-II/B-II	Piston / Turboprop	Beechcraft King Air	2,940	3,606	4,331	5,957
B-II	Turbojet	Cessna Citation	1,029	1,183	1,529	2,350
C-I	Turbojet	Gates Learjet 35	302	348	448	690
C-II/D-II	Turbojet	Gulfstream IV	27	31	41	63
C-III & Larger	Turbojet	Gulfstream 550	14	16	20	31
Total			**19,600**	**22,538**	**25,475**	**31,350**
		Subtotal Turbojets	1,372	1,578	2,038	3,135
		C-I/C-II and Larger	343	395	***509***	***784***

Source: WHPacific, Inc., 2016.

Based on existing data, it is assumed that a large majority of turbojet operations occur in category B aircraft; however, a growing percentage of operations are expected to be occurring in C-I or larger aircraft by 2025. As the data above shows, the Airport is nearing the threshold for upgrading the RDC to category C-I around the year 2025. Therefore, **it is recommended the existing Runway 16-34 RDC remain as B-II, represented by the Cessna Citation, with the expectation that the RDC will change to C-I in the future, represented by the Gates Learjet 35, which when combined will result in an overall Airport Reference Code (ARC) of C-II. The ever changing mix of aircraft should be monitored closely going forward so that Master Plan implementation can be executed or deferred based on actual sustained activity observed.**

Chapter 4, *Facility Requirements*, will provide an in-depth review of the upgrades needed to meet FAA design standards for a RDC C-I. It should be noted that any requirement to meet the upgrade standards would not occur until after the 500 annual itinerant operations threshold is exceeded, which is forecasted to be reached by 2025. Additional study of the issue will be presented graphically in the *Alternatives Analysis*, within Chapter 5. During the alternatives study, relevant factors will be analyzed and openly discussed so that an informed master plan can be supported and implemented when warranted.

Runway 2-20 Critical Aircraft and Runway Design Code

The current RDC for Runway 2-20 is B-II, represented by the Beechcraft BE99 critical aircraft. The BE99 is representative of a variety of aircraft that use Runway 2-20 for normal operations. Therefore, **it is recommended that the Beechcraft BE99 remain as the critical aircraft for a Runway 2-20 RDC of B-II.**

Airport Reference Code

The most demanding (largest) RDC is recommended to be C-I, which would also be representative of the Airport Reference Code to be used for various design standards that apply to other facilities besides the runway where the critical aircraft will be accommodated.

Emergency Preparedness

From the outset of this master plan, a primary objective that the City established for ONP is to "Attain recognition by the Oregon Department of Aviation (ODA) as the coastal lifeline in emergency/disaster situations." Such recognition does not have a straightforward set of criteria to meet. However, it does seem prudent as a matter of state interest to maintain and plan for ONP to be capable of serving in this role. Practically speaking, this means having an understanding of what may be needed in an emergency or disaster situation such as a major subduction earthquake.

Forecasting for this eventuality, as much as we would hope we could, is impossible. The best we can do is to maintain as much capability for a large influx of large aircraft, stockpiles of materiel, and perhaps refugees as possible. Making the airport system as resilient as possible is also a factor so that it can survive an earthquake or be restored for fixed wing operations without extraordinary effort. To that end, the master plan recommends consideration of maintaining existing pavements, large aircraft taxi routes, and potentially useful staging areas that would be needed for effective large scale emergency response.

Air Cargo Forecast

The following analysis includes an overview of the air cargo industry, a summary of air cargo trends, market area identification, and potential air cargo facility development needs.

Air Cargo Industry Overview

Although generally a smaller focus than the commercial passenger sector, air cargo is a vital component of the global aviation industry. Air cargo growth is both a contributor to and bellwether of a region's economic health. Air cargo is typically among the first services cut during difficult economic conditions, and is often one of the last to resume after conditions rebound. Air cargo is essential to global trade, as it transports approximately 33 percent of total trade by value. Much like with passenger airlines, emerging markets are the key to growth as advanced economies have a more mature air cargo market.

At the national level, the air cargo industry has experienced significant volatility in a relatively mature industry. High fuel costs and a recessed economic climate caused a domestic cargo industry shift to greater reliance on trucking where unit cost savings became higher priority than shipment time. As customer bases and market shares contracted, air cargo carriers adapted by consolidating, shifting business models, or in some cases ceasing operations:

- Kitty Hawk Air Cargo ceased operating in 2008;
- DB Schenker acquired BAX Global in 2005 and ceased domestic air cargo activities in 2011;
- UPS acquired Menlo Worldwide (formerly Emery Worldwide) in 2004 and closed the Dayton hub in 2006;
- DHL acquired Airborne Express in 2003 and closed the Wilmington (Ohio) hub in 2009 after DHL withdrew from domestic delivery.
- Originating as a trucking company, UPS prefers to keep as lean an operation as possible, sorting much of its freight off-airport.

As a result of these changes, the current landscape of the domestic air cargo industry has effectively become a duopoly with FedEx and UPS as the last major air cargo providers left standing. Outside of smaller regional contract or charter operators, no new entrants to the air cargo market are impending or expected.

The most significant area of growth for the air freight industry is on international segments between major markets. The more mature US domestic market has been relatively flat over the past decade, with the rapid growth of the 1980s and 1990s a distant memory. However, as the economy continues to strengthen and trade grows, so too will the demand for air cargo. The Boeing World Air Cargo Forecast 2014-2015 projects Revenue Ton Miles (RTM) growth of 2.1 percent from 2013 to 2033 for intra-North American air cargo.[7] Regional trade forecasts between North America-Asia, North America-Europe, and North America-Latin America are all projected to be over five percent over the same time period.[8]

Historic Air Cargo Trends at Newport Municipal

According to US DOT Bureau of Transportation Statistics (BTS), T-100 data indicates that air cargo tonnage at Newport Municipal Airport has grown from 448 tons in 2008 to 468 tons in 2015, representing a compounded annual growth rate (CAGR) of 0.6 percent. More recently, the second half of that trend is more impressive. Between 2012 and 2015 the total freight tonnage moved through Newport Municipal grew by an average annual rate of 7.2 percent from a low of 380 tons in 2012 to its recent peak of 468 tons in 2015. The growth of inbound tonnage has only exacerbated over time as Newport's air cargo split changed from 74 percent inbound and 26 percent outbound in 2008 to 84 percent inbound and 16 percent outbound in 2015. As shown in **Table 3N**, the majority of air cargo tonnage is inbound, or deplaned, making the local market of Newport and Lincoln County primarily a consumer economy. This increase in inbound air cargo traffic may be attributed to e-commerce and online purchases.

[7] Revenue Ton Mile: A single ton of goods transported for one mile, determining total freight shipped. Airlines determine revenue ton miles by multiplying weight of paid tonnage by total number of miles it is transported.
[8] Boeing World Cargo Forecast Team, *World Air Cargo Forecast: 2014-2105*, September 2014

Table 3N. Historic Tonnage 2008 – 2015

Year	Outbound Tons	Percent of Total	Inbound Tons	Percent of Total	Total Tons
2008	116	26%	332	74%	448
2009	102	24%	322	76%	424
2010	91	21%	338	79%	429
2011	76	20%	307	80%	383
2012	64	17%	316	83%	380
2013	61	15%	351	85%	412
2014	65	15%	380	85%	445
2015*	75	16%	394	84%	468
CAGR 2008-2015	-6.2%		2.5%		0.6%

**Data estimated for August through December based on 2013 & 2014 monthly averages*
Source: CDM Smith, DOT BTS T-100 Data

As shown in **Table 3O** the historic air cargo data collected for the Airport can be broken down by month to uncover monthly trends/fluctuations in air cargo, as well as the historic monthly average. This data is presented in pounds in order to more easily identify subtleties in trends and to display whole numbers when calculating daily cargo averages.

Table 3O. Historic Newport Municipal Airport Air Cargo by Month (pounds)

Month	2008	2009	2010	2011	2012	2013	2014	2015*	Average
Jan.	66,638	70,650	58,342	47,557	53,350	62,432	67,638	75,768	62,797
Feb.	71,952	62,504	61,043	55,416	56,890	60,813	68,676	81,162	64,807
Mar.	75,968	69,362	70,614	64,388	53,830	65,058	71,759	73,742	68,090
Apr.	75,842	75,058	68,662	78,668	54,488	69,245	73,346	91,666	73,372
May	83,182	69,490	74,480	59,232	68,068	67,278	82,104	75,541	72,422
Jun.	80,028	69,698	88,756	69,531	70,330	61,045	84,174	90,367	76,741
Jul.	76,758	66,158	66,618	62,418	63,956	74,180	82,064	86,226	72,297
Aug.	68,471	68,480	78,428	68,874	71,512	67,200	49,054	58,127	66,268
Sept.	64,470	74,430	68,202	61,021	58,734	63,109	76,982	70,046	67,124
Oct.	75,130	61,976	63,796	51,450	68,604	73,832	86,535	80,184	70,188
Nov.	64,356	63,892	63,618	61,767	70,558	65,934	80,872	73,403	68,050
Dec.	93,050	97,284	95,245	86,013	69,490	93,219	67,672	80,446	85,302
Total	895,845	848,982	857,804	766,335	759,810	823,345	890,876	936,677	847,459

**Data estimated for August through December based on 2013 & 2014 monthly averages*
Source: CDM Smith, DOT T-100 Data

Monthly data clearly shows that December is historically the peak month for air cargo handled at Newport Municipal, with an average of over 85,000 total pounds from 2008 to 2015. This is attributed to the annual holiday gift rush that occurs each December. The data shows that January is historically the lowest month for air cargo and follows trends for domestic cargo in the US.

Air Cargo Market Area Identification

The air cargo market area for Newport Municipal Airport can be roughly defined as Lincoln County, which had an estimated population of 46,490 in 2015. Neighboring counties to the east include Benton, Marion, and Polk, which fall within the service markets of Salem Municipal and Corvallis Municipal. Newport Municipal's market area likely serves coastal communities in portions of Tillamook County to the north and Lane County to the south. This is verified by Newport Municipal Airport Operations and Administration Manager, Lance Vanderbeck, who stated that during good weather, Ameriflight will fly down to Florence Municipal Airport in Lane County from Newport to serve that market more efficiently. The Ameriflight aircraft will then return to Newport in the afternoon before continuing on its normal schedule to Salem (SLE) (or Corvallis (CVO) in December) and Portland.

Competing Airports

Newport Municipal Airport competes for both passengers and air cargo with several nearby airports. These include the following:

- Eugene Airport
- Corvallis Municipal Airport
- Salem Municipal Airport
- Florence Municipal Airport
- Southwest Oregon Regional Airport (North Bend)

Current Air Cargo Activity

Newport Municipal is currently served by two air cargo carriers, Ameriflight and Empire Airlines, both of which provide contract feeder service for integrated express carriers. Ameriflight contracts with UPS while Empire contracts with FedEx Express. Both feeder airlines serve the air cargo needs of the more remote and/or isolated coastal communities in Oregon via Portland International Airport, where small feeder aircraft feed into larger aircraft that subsequently feed into the larger global express freight networks via each carrier's respective hubs. As shown in **Table 3P**, Empire Airlines and Ameriflight both serve the air cargo needs of the Newport market from their respective bases at Portland International (PDX).

Table 3P. Newport Municipal Airport Air Cargo Schedule

Airline	Feeder For	Days of Ops	Months of Operation	Aircraft	Morning Route		Early Afternoon Route		Late Afternoon Route	
Empire Airlines	FedEx	Mon-Sat	Year-Round	C208	PDX	ONP	ONP	CVO	CVO	PDX
Ameri-flight	UPS	Mon-Fri	Jan - Nov	PA-31	PDX	ONP	ONP	SLE	SLE	PDX
			December	BE99	PDX	ONP	ONP	CVO	CVO	PDX

Source: CDM Smith, FlightAware, FlightWise

Empire Airlines serves Newport on a once-daily route from Portland International Monday through Saturday utilizing a Cessna Caravan (C208 Super Cargomaster) year-round. This flight arrives in Newport at approximately 9 a.m. and typically departs between 3 and 4 p.m., stopping at Corvallis Municipal Airport (CVO) before returning to Portland by 5:30 p.m. Ameriflight operates on a similar schedule, arriving into Newport from Portland around 9 a.m. once-daily Monday through Friday. Eleven months out of the year, this flight is operated using a Piper Chieftain (PA31-350), stopping at Salem Municipal Airport before returning to Portland around 6 p.m. In order to meet holiday shipping demand, Ameriflight "up-gauges" the aircraft serving Newport to a Beech Airliner (BE99) in December and routes the return to Portland through Corvallis instead of Salem. By "up-gauging" from a Piper Chieftain to a BE99, Ameriflight roughly doubles its payload capacity for the markets served from 1,750 pounds to 3,500 pounds. The Cessna Caravan utilized by Empire Airways has a payload of 3,590 pounds; occasionally during peak season Empire operates two planes to meet demand. **Figure 3I** below provides images of these cargo aircraft currently in use at Newport Municipal.

Figure 3I. Current Air Cargo Aircraft Operating at Newport Municipal

Cessna 208 (ARC A-II)

Piper Chieftan (ARC – B-II)

Beechcraft BE99 (ARC B-II)

Source: CDM Smith, Carrier Websites, www.coastbusiness.info

The capacity of inbound cargo aircraft is fully dedicated to the Newport market. However, outbound capacity is not strictly dedicated to the Newport market as both carriers stop in other Oregon markets before returning to Portland. For this reason, it is assumed that Newport is allotted roughly half of outbound aircraft capacity. This is not a limiting factor for outbound cargo since Newport is an air cargo consumer market, but plays a significant role in the data gathered and cargo forecasting, as discussed below.

The route structures described above are illustrated in **Figure 3J** below, while aircraft specifications for each carrier's fleet are presented in **Table 3Q.**

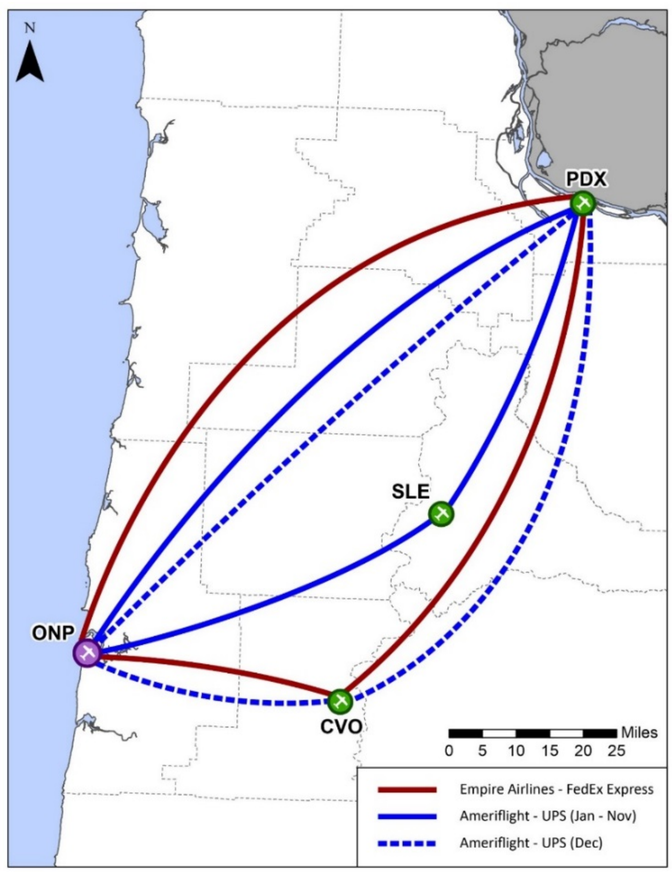
Table 3Q. Air Cargo Fleet Details

Carrier	Aircraft	Payload (lbs)	Capacity (ft^3)	Engine	Door Size	Status
Ameriflight	BE99	3,500	450	Twin-Turboprop	54"x48"	In Service (Dec only)
Empire	Cessna 208	3,590	340	Single-Turboprop	49"x50"	In Service
Ameriflight	Piper PA31-350	1,750	345	Twin-Piston	46"x45"	In Service (Jan-Nov)
Empire	ATR-42	11,684	1,978	Twin-Turboprop	116"x71"	In Fleet
Empire	ATR-72	17,842	2,666	Twin-Turboprop	116"x71"	In Fleet
Ameriflight	Fairchild SA227 Metro III	4,900	628	Twin-Turboprop	51"x53"	In Fleet
Ameriflight	Beechcraft 1900C	5,800	819	Twin-Turboprop	49"x52"	In Fleet
Ameriflight	Embraer EMB-120	8,000	1,162	Twin-Turboprop	50"x54"	In Fleet

Source: CDM Smith, Carrier Websites

Figure 3J. Air Cargo Route Map

Source: CDM Smith



With specific information on each air cargo carrier's aircraft servicing Newport Municipal, particularly its payload, it is possible to calculate the daily capacity and, in turn, daily utilization by carrier. Utilization is calculated by applying the percentage of total daily capacity by carrier aircraft to the total daily cargo average for the airport (percent daily capacity x average total daily cargo = utilization). The daily cargo average is calculated by dividing the recent monthly average by the days of operation each month (monthly average / days of operation = average daily cargo). However, the aircraft payload capacity must be adjusted to match what is actually available for and dedicated to the Newport market as explained below.

Full payload is the aircraft's specified useful weight payload. This full payload figure is then adjusted to account for what is called "bulking out" since air cargo aircraft typically max-out, volume-wise, at 80 percent of their full weight payload. Since both Ameriflight and Empire arrive into Newport in the morning and don't depart until late afternoon, it can be assumed that the full 80 percent of each aircraft's payload is available for inbound cargo. Outbound aircraft, on the other hand, are operating shared market routes returning to Portland. Therefore, it is assumed that the adjusted aircraft payload is split evenly between Newport and the other downstream market(s). These adjusted payloads are shown in Table 3R, along with the daily, weekly, monthly, and annual operations by each carrier aircraft in 2015, and percent of daily capacity.

Table 3R. Cargo Capacity by Carrier

Carrier	**Aircraft**	**Monthly Ops**	**Annual Ops**	**Full Payload (lbs)**	**Inbound Adjusted Payload (lbs)***	**Outbound Adjusted Payload (lbs)****	**Percent of Daily Capacity**	
							Jan-Nov	Dec
Ameriflight (Dec)	BE99	21.7	22	3,500	2,800	1,400	N/A	49%
Ameriflight (Jan-Nov)	PA31	21.7	238	1,750	1,400	700	33%	N/A
Empire Airlines	C208	26.0	312	3,590	2,872	1,436	67%	51%

**Payload adjusted for typical air cargo aircraft volume "bulking out," or reaching full capacity at 80 percent of payload weight*
***Payload adjusted to reflect space reserved for other airport stops*
Source: Carrier Websites, FlightAware, FlightWise

As shown in **Table 3R**, Ameriflight's Piper Chieftain provides approximately 33 percent of Newport's total daily capacity from January through November, and 49 percent in December when the larger Beech 99 is in use. Empire's Cessna Caravan therefore provides 67 percent and 51 percent capacity, respectively.

Despite monthly fluctuations, Ameriflight and Empire utilized an average of 55 percent of the 4,272 pounds of daily inbound air cargo capacity between 2013 and 2015. Given that the outbound capacity allotted to Newport is half that of the inbound capacity, the aircraft serving the Newport market area are currently appropriately sized given the local demand. **Table 3S** lists the recent average daily inbound cargo by carrier versus average daily inbound capacity.

Recent average daily cargo is determined for both Ameriflight and Empire Airlines by month and is reconciled against total capacity to determine total daily utilization. This is calculated for both inbound and outbound cargo.

Table 3S. 2013-2015 Average Daily Inbound Cargo vs Average Daily Inbound Capacity (pounds)

Month	Ameriflight Inbound Cargo	Empire Inbound Cargo	Total Inbound Cargo	Total Inbound Capacity	Inbound Utilization
January	706	1,448	2,153	4,272	50%
February	800	1,640	2,440	4,272	57%
March	762	1,562	2,324	4,272	54%
April	915	1,877	2,792	4,272	65%
May	807	1,655	2,462	4,272	58%
June	863	1,770	2,633	4,272	62%
July	828	1,699	2,527	4,272	59%
August	614	1,260	1,874	4,272	44%
September	750	1,539	2,289	4,272	54%
October	846	1,735	2,581	4,272	60%
November	863	1,770	2,633	4,272	62%
December	1,167	1,197	2,364	5,672	42%
Total	9,920	19,153	29,073	52,664	55%

Source: CDM Smith, DOT BTS T-100 Data

Since Newport is an air cargo consumer market that does not generate significant levels of outbound, or exported, air cargo, it is not surprising that outbound utilization is low. As shown in **Table 3T**, Newport averaged 20 percent utilization on its average daily outbound aircraft capacity between 2013 and 2015.

Table 3T. 2013-2015 Average Daily Outbound Cargo vs Average Daily Outbound Capacity

Month	Ameriflight Outbound Cargo	Empire Outbound Cargo	Total Outbound Cargo	Total Outbound Capacity	Outbound Utilization
January	127	261	388	2,136	18%
February	159	327	486	2,136	23%
March	123	252	375	2,136	18%
April	151	311	462	2,136	22%
May	138	283	421	2,136	20%
June	127	260	387	2,136	18%
July	153	313	466	2,136	22%
August	119	243	362	2,136	17%
September	133	272	405	2,136	19%
October	127	261	388	2,136	18%
November	140	286	426	2,136	20%
December	304	311	615	2,836	22%
Total	1,800	3,382	5,182	26,332	20%

Source: CDM Smith, DOT BTS T-100 Data

When combining average daily inbound and outbound cargo, the average daily aircraft utilization from 2013 to 2015 was 43 percent, as shown in **Table 3U**.

Table 3U. 2013-2015 Average Daily Total Cargo vs Average Daily Total Capacity (pounds)

Month	Ameriflight Total Cargo	Empire Total Cargo	Total Cargo	Total Daily Capacity	Net Utilization
January	833	1,708	2,541	6,408	40%
February	959	1,967	2,926	6,408	46%
March	885	1,815	2,699	6,408	42%
April	1,066	2,187	3,254	6,408	51%
May	945	1,939	2,884	6,408	45%
June	990	2,031	3,020	6,408	47%
July	981	2,012	2,993	6,408	47%
August	733	1,503	2,236	6,408	35%
September	883	1,811	2,694	6,408	42%
October	973	1,997	2,970	6,408	46%
November	1,002	2,056	3,058	6,408	48%
December	1,471	1,509	2,979	8,508	35%
Total	11,720	22,535	34,255	78,996	43%

Source: CDM Smith, DOT BTS T-100 Data

Peak utilization is the driver of capacity analyses and is what spurs any changes in an air cargo carrier's operation. For example, even if outbound utilization dropped to zero percent, a carrier would "up-gauge" aircraft size if inbound air cargo demand grew significantly. The early morning inbound flights carry parcels bound for local delivery to the Newport market area each business day. The late afternoon departure carries outbound express parcels to Portland with stops in Corvallis and/or Salem. Since inbound utilization is the primary driver of local air cargo demand, it is ultimately the most important variable in an analysis of air cargo on-airport facility requirements. A summary of the peak utilization is presented in **Table 3V** below.

Newport Municipal's average peak inbound air cargo utilization was 55 percent from 2013 to 2015. This indicates that there is capacity for Newport to increase inbound cargo carried on the aircraft types currently serving Newport. Peak utilization occurs on inbound flights due to the nature of the market and its unbalanced inbound/outbound split where inbound cargo heavily outweighs outbound.

Any growth in inbound cargo that nears 100 percent utilization would likely trigger one of two possible actions by each carrier to meet changing market demand:

A) "up-gauging" aircraft size (Newport is currently served by the smaller aircraft in each carrier's fleet), or
B) Increasing aircraft capacity by adding a second daily operation into Newport

The Facility Requirements Section of the master plan will address likely air cargo aircraft types to operate at Newport Municipal Airport over the 20-year planning period based on the preferred forecast.

Table 3V. Recent Year (2013-2015) Peak Utilization

Daily Average Inbound (lbs)	Daily Inbound Capacity	Inbound Utilization
2,153	4,272	50%
2,440	4,272	57%
2,324	4,272	54%
2,792	4,272	65%
2,462	4,272	58%
2,633	4,272	62%
2,527	4,272	59%
1,874	4,272	44%
2,289	4,272	54%
2,581	4,272	60%
2,633	4,272	62%
2,364	5,672	42%
29,073	52,664	55%

Source: CDM Smith, DOT BTS T-100 Data

Air Cargo Forecast

Projecting future aviation demand is a critical element in the overall master planning process. In order to determine whether facilities at the Airport are adequate for future air cargo service, future air cargo demand must first be projected. Recent air cargo history has shown signs of growth; therefore it is reasonable to assume some level of growth will continue to occur. However, it must be recognized that there are always short-term fluctuations in an airport's activity due to a variety of factors that cannot be anticipated. The forecasts developed for air cargo provide a meaningful framework to guide the analysis of future airport development needs and alternatives.

Forecast Scenarios

This forecast analysis includes methodologies that consider historical aviation trends at the Airport as well as forecasts of demographic and industry trends. After considering all relevant variables, it was determined that the following three methodologies would be used to forecast future air cargo tonnage:

- Population Growth
- Historic Inbound Cargo Growth (2008-2015)
- Recent Inbound Cargo Growth (2012-2015)

The results of the population, historic inbound tonnage, and recent inbound tonnage methodologies represent low, medium, and high-growth forecasts of total air cargo tonnage at the Airport. **Table 3W** summarizes the results of the air cargo tonnage projection scenarios utilized in this analysis.

Table 3W. Summary of Air Cargo Forecast Methodologies

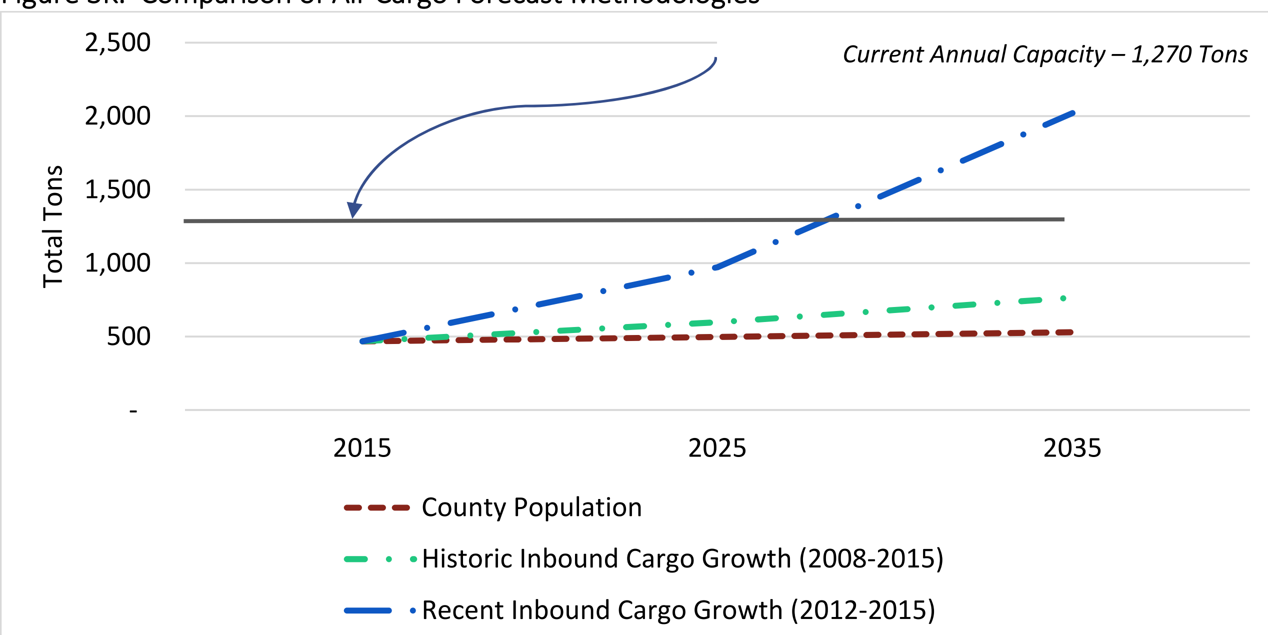
Year		Low	Medium	High
		Based on County Population	Historic Inbound Cargo Growth (2008-2015)	Recent Inbound Cargo Growth (2012-2015)
Base Year	2015	468	468	468
Forecast	2020	483	530	675
Forecast	2025	498	599	973
Forecast	2035	530	766	2,021
CAGR		0.6%	2.5%	7.6%

Source: CDM Smith, DOT BTS T-100 Data

Figure 3K below illustrates each of the three air cargo forecast methodologies.

As shown, the three forecast methodologies resulted in air cargo tonnage forecasts ranging from 530 tons in the population growth scenario to 2,021 tons in the recent inbound cargo growth scenario for the out-year of the planning period, 2035. The average annual growth rates ranged from 0.6 percent to 7.6 percent. Several other scenarios predicting the future number of air cargo tonnage could have been presented in this exercise. However, the range of these growth rates shown in these scenarios represent the most realistic growth patterns considering the airport's history and other growth variables taken into consideration.

Figure 3K. Comparison of Air Cargo Forecast Methodologies



Source: CDM Smith, DOT BTS T-100 Data

Preferred Air Cargo Forecast

The preferred air cargo tonnage projection for Newport Municipal is based on the historic inbound cargo growth methodology. This is the most practical since it takes long term historic air cargo tonnage trends into consideration. For the reasons stated above, the medium-range scenario of 2.5 percent CAGR is the preferred air cargo tonnage projection for the Airport and is presented in **Table 3X**.

Table 3X. Preferred Air Cargo Forecast

Year		Historic Inbound Cargo Growth (2008-2015)	Total Tons
Base Year	2015	394	468
Forecast	2020	445	530
Forecast	2025	503	599
Forecast	2035	644	766
CAGR		2.5%	2.5%

Source: CDM Smith, DOT BTS T-100 Data

Air Service Forecast

Over the past 20 years two passenger air carriers entered the Newport market providing air service for brief periods, specifically less than three years each. In the late 1990s, Harbor Air offered a route to Portland with a stop in Corvallis. In June 2000, Harbor Air announced they were losing money on the route. By November of the same year, despite attempts by the communities of Newport and Corvallis, as well as the Oregon Department of Aviation, to make the routes sustainable, Harbor Air suspended service.[9] In 2009, SeaPort Airlines initiated service to Portland using a Pilatus PC-12 aircraft. This route was subsidized with state funding for two years.

These two air carriers' attempts to provide service in Newport are examples of market driven (Harbor Air) and subsidized (SeaPort Airlines) air routes. This section of the Master Plan explores both types and the potential of both for future air service success in Newport.

Subsidized Air Service Strategies for Small Markets

The federal government and some state governments subsidize passenger airline service to small markets. Newport Municipal has been the recipient of such subsidies in the past, although that funding source is no longer available (as detailed below). The following section identifies three programs that have supported Oregon air service.

US DOT Essential Air Service (EAS) Program

Under the Essential Air Service (EAS) program, the US Department of Transportation (US DOT) is authorized to declare a community eligible for essential air service funding. US DOT also specifies the frequency of service (number of flights) and the airport hub(s) to which service will be provided. Usually the geographically closest medium or large hub airport is selected, with a community guaranteed at least 10 weekly round-trips. If revenues from the service do not cover costs, the carriers providing service can submit for subsidy reimbursement.

[9] http://www.oregon.gov/aviation/docs/resources/2000AnnualReport.pdf

The program began as a response to the Airline Deregulation Act of 1978 to support small airport markets that would likely lose air service due to the airlines focusing service at the larger US markets. The program has in the past been severely restricted by funding cutbacks and federal legislation that limited eligibility for subsidy. The US DOT and Related Agencies Appropriation Act of 1994 prohibited "the use of funds for airports in the contiguous 48 states within 70 highway miles of a hub airport or for airports that receive passenger subsidies greater than $200 per passenger and that are less than 210 miles from the nearest hub."[10] Congress continues to fund the EAS program, which is slated to continue through 2016 and could extend longer

Under EAS program regulations, every two years, the US DOT requests proposals from carriers interested in providing service at EAS-eligible communities. When selecting a carrier to serve a community, the US DOT considers each carrier's subsidy requirements as well as four other factors:

- Service reliability,
- Contractual and marketing agreements with a larger carrier at the hub,
- Interline arrangements with a larger carrier at the hub, and
- Community view and recommendation.

The current EAS program continues to provide subsidies to air carriers serving small communities that meet certain criteria (such as being at least 70 miles from a large or medium-sized hub airport, except in Alaska and Hawaii).

In 2015, Pendleton was the only airport in Oregon with EAS service. The total federal subsidy for the Pendleton to Portland route was $1,834,708, which equates to $229 per passenger. The increased subsidy fare is a result of its distance from a hub airport

Small Community Air Service Development Program

Unlike the EAS program, communities, not the airlines, receive Small Community Air Service Development Program (SCASDP) funds to develop a program that best serves their air service needs. The program uses an application process to select up to 40 communities or consortia of communities to participate. No more than four communities or consortia of communities may be in the same state. The types of assistance can include subsidizing service or marketing and promotion of air service in the community. SCASDP legislation says that "direct financial assistance" will be provided, but the assistance for an air carrier is limited to three years.

The criteria for participation in the application process include:

- Airport must be smaller than a small hub airport (defined by enplanement levels),
- Airport must have insufficient air carrier service,
- Airport must have unreasonably high air fares, and
- Airport should demonstrate need for participation in the program based on characteristics, such as geographic diversity or unique circumstances.

[10] (US General Accounting Office 1994)

Priorities for participation in the program are given to communities or consortia that:

- Have air fares that are higher than the average air fares for all communities,
- Provide a monetary match for the assistance program other than from airport revenues,
- Establish a public-private partnership to promote air carrier service, and
- Provide benefits from the assistance to a broad segment of the traveling public whose access to the national air transportation system is currently limited.

One factor heavily considered when SCASDP grants are awarded is demonstrated local commitment. This commitment is partially gauged by how much non-federal funding is pledged, in addition to the federal grant that a community or consortia is requesting. If, for example, a community requested a $750,000 federal grant, a minimum pledge of $75,000 to $100,000 in local funds would likely be needed to support their proposal. Some states provide funding assistance to communities seeking to secure a SCASDP grant. In most instances, state financial assistance has been offered in the form of matching funds. If state funds were available to match the local financial pledge, this could give the community an added advantage in grant selection.

The only airport in Oregon to receive a grant in 2015 was Redmond, which was awarded $500,000.[11] The funding will be used for a revenue guarantee and marketing support to attract new American Airlines service between Redmond and Phoenix Sky Harbor International Airport. The community seeks to provide better access to the southwestern United States, now reachable only by less convenient, circuitous connecting service. The community states that the service will benefit a broad segment of the traveling public, supporting its local businesses (including the tourism industry) and educational institutions.

ConnectOregon Program

State governments often develop their own air service subsidy to provide stimulus for air passenger service in small markets and to attract carriers with a suitable aircraft fleet. *Connect*Oregon II was a subsidy provided by the Oregon Legislature in 2005 and was part of the Multimodal Transportation Fund, which invests in air, marine, rail, and public transit infrastructure improvements. In 2008, the Oregon Transportation Commission approved a Coastal Oregon Air Service grant as part of *Connect*Oregon II. The Oregon Air Service grant funded $3,600,000 in state funds and $900,000 in leveraged funds for a total of $4,500,000. The City of Newport and Port of Astoria formed a consortium to jointly share the grant in 2008 to establish scheduled air service between each coastal city and Portland.

Portland-based SeaPort Airlines was awarded the contract and began providing the subsidized air service in March 2009.

SeaPort's subsidy from *Connect*Oregon II ended in March 2011, and service stopped abruptly in Newport in July 2011. The carrier's management stated that even with the less expensive C208 and the addition of a stop in Salem, the passenger load factors were too low to make its operations in Newport profitable.

While the City of Newport benefited from this funding source, the model was proven unsuccessful and air service subsidies are no longer eligible for *Connect*Oregon funding.

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[11] https://www.transportation.gov/sites/dot.gov/files/docs/FY15%20SCASDP%20Selection%20Order%202015-9-8.pdf

Market Driven Air Service Strategies for Small Markets

There are markets in rural America where small, nine-seat aircraft have successful airline operations. **Table 3Y** below identifies these airport markets and the carriers that serve them without federal EAS subsidies. It should be noted the routes listed are in areas with large population bases, population demographics with disposable incomes, and/or limited options for ground transportation. Unfortunately, there are no non-EAS route models to study that are more closely related to Newport Municipal.

Table 3Y. Small Airlines Serving Non-EAS Routes

Similar Route to/from Non-EAS Community		Distance (Miles)	Aircraft Type	OW Airfare Cost (+14 days)
Cape Air				
HPN (White Plains, NY)	MVY (Martha's Vineyard, MA)	163 mi	C402	$399.00
HPN (White Plains, NY)	ACK (Nantucket, MA)	191 mi	C402	$383.00
ALB (Albany, NY)	BOS (Boston, MA)	145 mi	C402	$209.00
Southern Airways Express				
DSI (Destin, FL)	MEM (Memphis, TN)	379 mi	C208	$298.00
DSI (Destin, FL)	KMBO (Jackson, MS)	256 mi	C208	$298.00
PDK (Atlanta, GA)	DSI (Destin, FL)	334 mi	C208	$198.00

Source: CDM Smith, carrier websites

The carriers in **Table 3Y** operate either C402 or C208 aircraft. Round trip air fares range from $113 to $399, with destinations ranging from vacation areas to cities on the East Coast. Since Newport Municipal has past experience with nine-seat passenger aircraft airline service, it is likely that if air service is to return to the market, it would begin where it left off; that is, an air carrier operating either a nine-seat single or twin engine aircraft.

Example Nine-Seat Carrier (Part 135) Services

Nine-seat Part 135 carriers offer regional airline capabilities connecting small and rural communities within the national air transportation system via large hub airports. To accomplish this, these carriers offer regional connections that are convenient, while operating smaller capacity aircraft that enable them to offer a higher level of service at an affordable airfare. Many of the carriers currently operate from small to medium-sized hubs or GA FBO facilities. This service offers passenger convenience and increased time savings with automobile parking and security screening at the airport. This section identifies several nine-seat carriers operating successfully in various markets around the US.

Cape Air

Headquartered in Barnstable, Massachusetts, is a scheduled passenger service airline founded by Hyannis Air Service, Inc. With a fleet of seventy-five Cessna 402s, two ATR-42s and three Britten-Norman Islanders, Cape Air flies more than 735,000 passengers annually with up to 550 flights per day, servicing 44 destinations in domestic and international markets. Established in 1989, Cape Air is one of the largest independent regional airlines in the United States, primarily flying nine-seat passenger aircraft. The airline serves a variety of travel destinations on the East Coast and in the Midwest, with additional flights available in Puerto Rico, the US Virgin Islands, and the West Indies. Cape Air operates both EAS and non-EAS routes with nine-seat aircraft.

Southern Airways Express

A Memphis, Tennessee-based airline which currently serves ten cities in the southern United States, with hubs in Memphis and Destin, Florida. Southern Airways currently operates a fleet of C208s and C208B Grand Caravans. Each of these aircraft are outfitted with nine luxury, leather passenger seats, a Bose or Sony headset for each passenger, and space in the cabin for one personal item, such as a briefcase or purse. Unlike major carriers, Southern Airways Express operates out of FBO terminals, allowing the airline to offer more personalized service to its passengers.

SeaPort Airlines

A scheduled commuter airline headquartered in Portland, Oregon. Founded in 1982 in Juneau, Alaska, the airline served much of the Southwest Alaska region until its recent expansion. In 2008, operations were launched in the Pacific Northwest with a business strategy of operating shuttle service between Seattle, Washington and Portland, Oregon that offered private terminals and avoidance of TSA screening lines. After rising operating costs hindered business, SeaPort refocused on a strategy of building a regional airline that connects small and rural communities with the national air transportation system via large hub airports. To offer those connections, SeaPort operates a modern fleet of nine-seat C208s, providing comfortable, economical, and reliable transportation. Current routes include flights in North Bend and Pendleton, Oregon.

Competitive Comparison

The Newport Airport (KONP) Business Plan, 2010 identifies the Newport Airport catchment area as including all communities within a 60-mile radius of the airport. This 6,500 square-mile area includes several municipal regions – North to Tillamook, East to Corvallis and South to Florence. The catchment area is estimated to include approximately 160,000 people. The population of Newport in 2014 was 10,100, while the population of Lincoln County was 46,400. There are six airports in the catchment area. Corvallis has had scheduled passenger service in the past but currently has none.

Distance from Newport Municipal Airport:

- Gleneden Beach Siletz Bay State – 13 miles North
- Toledo Airport – 6 miles Northeast
- Wakonda Beach Airport – 16 miles South
- Corvallis Municipal – 57 miles East
- Pacific City – 45 miles North
- Florence Municipal – 45 miles South

Competing Facilities

There are three commercial service airports competing with Newport Municipal for passenger service. These include Eugene Airport, Southwest Oregon Regional Airport, and Portland International Airport. All three offer jet service and are located within 1.5 to 3 hours driving time of each other. **Table 3Z** identifies these airports.

Table 3Z. Competing Commercial Service Airports

Airport	Associated City	Distance to Newport	Jet Service
Eugene Airport	Eugene	83 mi	Yes
Southwest Oregon Regional Airport	North Bend	98 mi	Yes
Portland International Airport	Portland	147 mi	Yes

Source: CDM Smith

Historic Enplanements

From 1998 to 2000, Harbor Air offered passenger air service to Portland. In 2009, SeaPort Airlines initiated service to Portland using a Pilatus PC-12 aircraft. This service was discontinued in July 2011. **Table 3AA** below identifies FAA enplanement data at ONP from 1994 to 2014. Scheduled service falls under the commuter category while air taxi reflects passenger traffic related to reported charter activity.

Table 3AA. Historic Enplanements at Newport Municipal Airport, 1994 - 2014

Year	Air Carrier	Air Taxi	Commuter	Total Enplanements
1994	0	0	0	0
1995	0	0	0	0
1996	0	0	0	0
1997	0	0	0	0
1998	0	0	788	788
1999	0	0	2,618	2,618
2000	0	0	1,388	1,388
2001	0	0	238	238
2002	0	5	0	5
2003	0	5	0	5
2004	0	5	0	5
2005	0	5	0	5
2006	0	5	0	5
2007	0	28	0	28
2008	0	20	4	24
2009	0	4	1,379	1,383
2010	0	7	2,952	2,959
2011	0	20	1,817	1,837
2012	0	7	0	7
2013	0	4	0	4
2014	0	4	0	4

Source: FAA Terminal Area Forecasts

Passenger Enplanement Forecasts

Airports providing commercial passenger service must comply with the regulations contained in Title 14, Code of Federal Regulations (CFR) Part 139. CFR Part 139 does not apply to airports served by scheduled air carrier aircraft with nine seats or less and/or unscheduled air carrier aircraft with 30 seats or less. The

FAA categorizes Newport Municipal Airport as a Class IV Part 139 airport with a Class A ARFF rating. However, the Airport is not required to have a Part 139 Certificate, as will be further discussed below.

Planning for commuter or air carrier service where service does not currently exist can be challenging because of the numerous variables that can come into play. A forecast that is overly aggressive can lead to excessive expenditures on facilities; a forecast that is too conservative can lead to inadequate facilities. **Table 3AB** presents a summary of the planning milestones for commuter enplanements. A preferred growth rate will be used to determine various airport facility needs. The base year enplanements are assumed to approximate peak traffic levels experienced in 2010 with nearly 3,000 annual enplanements. Forecasts were developed based on four growth rates:

FAA Aerospace Forecasts: 1.6% growth rates for each period based on forecasts of domestic enplanements in the FAA Aerospace Forecasts Fiscal Years 2015-2035.

FAA TAF Operations Forecasts: 1.5% growth rates derived from forecasts of aircraft operations at ONP according to the TAF.

County Population Forecasts: 0.6% growth rates based on forecasts of Lincoln County population conducted by the Oregon Office of Economic Analysis. The forecasts included low, medium, and high series forecasts; this uses medium series.

State Population Forecasts: 1.1% growth rates based on forecasts of Oregon statewide population conducted by the Oregon Office of Economic Analysis. The forecasts included low, medium, and high series forecasts; this uses medium series.

Since air service has not commenced at the Airport and may not in the near term, the forecast years are not assigned to a specific year.

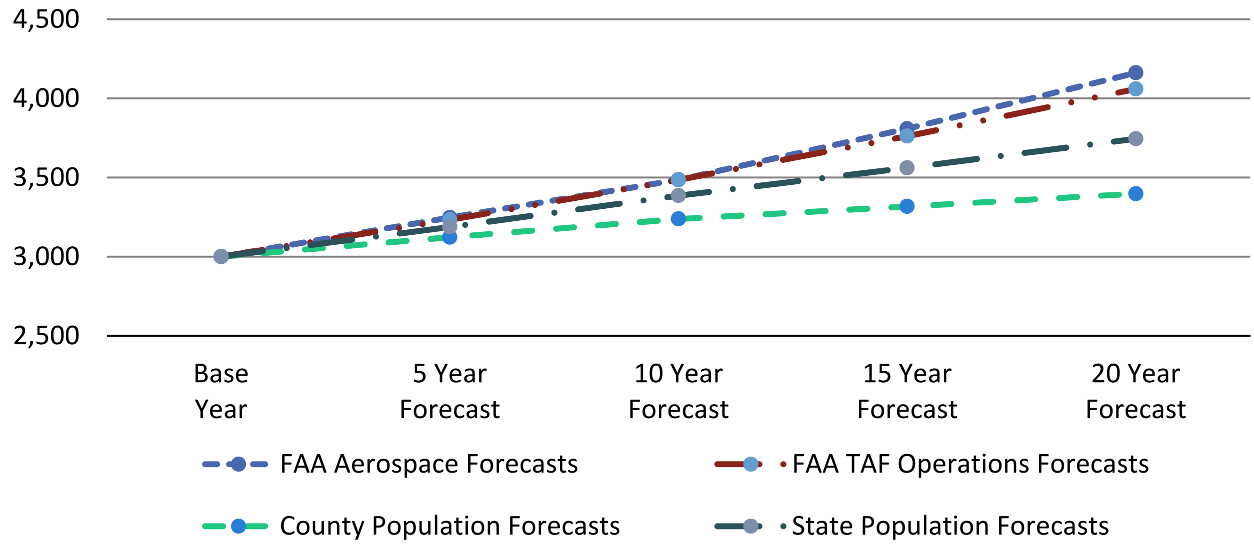
Table 3AB. 20 Year Enplanement Forecast – Newport Municipal Airport

Growth Rate Source	Base Year	5 Year Forecast	10 Year Forecast	15 Year Forecast	20 Year Forecast	Average Annual Growth Rate
From Aviation Forecasts						
FAA Aerospace Forecasts – US Enplanements	3,000	3,247	3,486	3,809	4,161	1.6%
FAA TAF Operations	3,000	3,233	3,485	3,761	4,059	1.5%
From Population Forecasts						
Lincoln County	3,000	3,123	3,238	3,317	3,397	0.6%
Oregon	3,000	3,188	3,386	3,561	3,745	1.1%

Source: CDM Smith

Figure 3K depicts the forecast growth for commuter enplanements over the 20-year planning period.

Figure 3K. 20 Year Enplanement Forecast – Newport Municipal Airport



Source: CDM Smith

Table 3AC presents a summary of the planning milestones for commuter operations. These forecasts are based on the enplanements projections presented in **Table 3AA** and assumes nine-seat aircraft will operate in the market at an 80 percent load factor.

Table 3AC. 20 Year Commuter Aircraft Operations Forecast Newport Municipal Airport

Growth Rate Source	Base Year	5 Year Forecast	10 Year Forecast	15 Year Forecast	20 Year Forecast	AAGR
From Aviation Forecasts						
FAA Aerospace Forecasts	833	902	968	1,058	1,156	1.6%
FAA TAF Operations	833	898	968	1,045	1,128	1.5%
From Population Forecasts						
Lincoln County	833	867	900	921	944	0.6%
Oregon	833	885	940	989	1,040	1.1%

Source: CDM Smith

Potential Aircraft Type

Aircraft that would likely provide airline service, should service start in the Newport market during the planning period, would include the Piper Chieftain, Cessna 208 Caravan, Cessna 402, Beech King Air BE99, and the Beechcraft Beech 1900, all of which have nine-seat configurations, although the Beech 1900 is a 19-seat aircraft with some carriers operating it with nine seats.

FAR Part 139 Airport Certification

A Part 139 Certificate is intended to establish standards to improve airport safety and security. The certification is required when there is either scheduled passenger-carrying operations in an aircraft with more than nine passenger seats or unscheduled passenger-carrying operations in aircraft designed for at least 31 passenger seats. The City of Newport has maintained a Class IV Part 139 Certificate for many years. This is the least demanding Part 139 Certificate. The Class IV Certificate guarantees the Airport is qualified to serve unscheduled large passenger aircraft with 31 or more passenger seats. Given that passenger service has been suspended at Newport Municipal Airport, a Part 139 Certificate is not required – nor was it previously as neither the Harbor Air nor SeaPort aircraft had more than nine passenger seats.

Therefore, as part of the Class IV Part 139 requirements, large unscheduled passenger aircraft would require prior permission to land or depart. In addition the Aircraft Rescue and Fire Fighting crew, manned by the Newport Fire Department, must standby 15 minutes before and after the operation. Other Part 139 Certificate requirements include:

- Signs*
- Fencing*
- Daily airfield inspections*
- Airport condition reporting*
- Fuel system inspections and training*
- Record keeping*
- Driver training
- Airport Certification Manual
- Emergency plans
- Annual FAA inspection
- Aircraft Rescue and Fire Fighting (ARFF)

The items marked with an asterisk indicate efforts required of all airports receiving Federal Airport Improvement Project funding, regardless of Certification, to maintain FAA grant assurance compliance; however, the standards for a Part 139 airport are much more rigorous. Of the items listed above specific to the Part 139 Certificate, the most costly requirement would be the ARFF equipment and training. The FAA also has additional costs at certified airports, as they are required to complete an annual on-site inspection of the airport.

The City, with assistance from the FAA, purchased an ARFF truck that is stored on airport property. The City of Newport Fire Department has trained personnel on-staff that can respond to aircraft fires. There is additional cost involved with annual training and added compensation to those firefighters. However, the City benefits from having the ARFF truck in inventory. The specialized equipment can be utilized by the fire department to respond to a variety of emergencies, such as large oil fires, off the airport.

Because air service is not currently affordable at the Airport and there are additional training expenses to maintain the Part 139 Certificate, the Master Plan is assessing the impact on future facility needs and the question of whether or not the City should continue to maintain the more rigorous safety requirements. According to the defined air service forecast, and industry trends, it is highly unlikely that any future service would be in aircraft larger than nine passenger seats. This leaves the City with the following options in regards to their Part 139 Certificate.

Option 1 – Keep It

The City could choose to keep their Part 139 Certificate. There would be no reduction in cost to the City and the FAA would continue its annual inspection. However, given the air service forecast, it is unlikely the certificate would be required in the future.

Option 2 – Ask the FAA to Become "Inactive"

The City would still maintain the Airport to Part 139 standards, and while the FAA would not be required to do an annual inspection, they could elect to anyway. If the FAA were to do an inspection, the City would be required to make any necessary corrective action.

Option 3 – Relinquish It

Relinquishing the Part 139 Certificate would reduce the City's costs, particularly for ARFF training. If the City decided to reinstate their Part 139 Certificate in the future, there is a process in place with FAA to do so.

During the second Planning Advisory Committee (PAC) meeting on March 9, 2016 these options – along with a thorough review of Part 139 requirements and air service forecasting – were presented. No recommendations were made. Future discussions on this issue will be incorporated into the Master Plan, as appropriate.

Summary of Forecasts

The long-term growth of the Airport will be influenced by national and regional trends outlined within this chapter. Elements of the aeronautical activity forecast for the Airport are summarized in **Table 3AD**.

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. It is important to note that the aviation industry tends do cycle through highs and lows. Actual growth may be more aggressive or passive at times over the forecast period. It is essential to identify opportunities within the forecast period and beyond so the City can proactively accommodate potential growth.

Table 3AD. Summary of Newport Municipal Airport Preferred Aeronautical Activity Forecasts

Forecast Element	2015	2020	2025	2035
Based Aircraft				
Single Engine Piston	23	24	25	25
Single Engine Turbine	1	2	3	5
Multi-Engine Piston	4	4	4	4
Turboprop & Turbojet	0	1	2	5
Helicopter	0	1	1	3
Total	*28*	*32*	*35*	*42*
Aircraft Operations				
Air Taxi – Itinerant	1,400	1,500	1,600	1,800
GA – Itinerant	10,950	13,268	15,375	19,850
Military – Itinerant	3,600	3,700	3,800	4,000
GA – Local	3,650	4,070	4,700	5,700
Total	*19,600*	*22,538*	*25,475*	*31,350*
Operations Fleet Mix				
Single Engine Piston	12,348	13,748	15,030	17,243
Multi-Engine Piston	980	1,127	1,274	1,568
Turboprop	1,960	2,479	3,057	4,389
Turbojet	1,372	1,578	2,038	3,135
Helicopter	2,940	3,606	4,076	5,016
Total	*19,600*	*22,538*	*25,475*	*31,350*
Peak Demand (Operations)				
Peak Month – July (15%)	2,940	3,380	3,821	4,702
Design Day	94	109	123	152
Design Hour (15% Peak Day)	14	16	18	23
Airport Reference Code – B-II (existing) and C-I (ultimate)				
Runway 16-34 RDC	Cessna Citation, B-II (existing) and Gates Learjet, C-I (ultimate)			
Runway 2-20 RDC	Beechcraft BE99, B-II			
Air Cargo				
Tons (2.5% AAGR)	468	530	599	766
Air Service				
(Reference Tables 3AB and 3AC)				

Source: WHPacific, Inc. (2016).