

## 1. Purpose and Goals

This chapter contains forecasts of aviation activity at the Pasco Tri-Cities Airport (PSC). These forecasts will form the basis of several key Master Plan (Plan) elements, including demand-driven airport facilities, environmental evaluation, capital improvement plan development, business and financial planning, land use compatibility planning, and local policy decisions.



PSC features commercial passenger and cargo activity, complimented by general aviation and military operations. These uses require facilities for safe and efficient operations. The design and development of these facilities is correlated with aviation activity forecasts. These forecasts will anticipate growth at PSC, help plan improvements, and enable the Airport to obtain funding, prepare a budget, and manage staff.

This chapter forecasts the following activities: passenger enplanements, aircraft operations, based aircraft, and air cargo volume. Multiple methods of forecasting are applied to each category, and the results are compared with the Federal Aviation Administration (FAA) forecasts to select preferred forecasts to guide the Airport.

The forecasts provide a historical baseline from 2006 to 2008. Other time periods were considered, but this time period experienced national and local changes to the aviation industry, such as a rise in the cost of fuel, airline route restructuring, and changes to airline fleet mix that provide a reasonable history on which to build forecasts.

Historical data comes from sources including the FAA Terminal Area Forecast (TAF), the United States Department of Transportation (USDOT), the Benton-Franklin Council of Governments (BFCOG), and the economic forecasting firm Woods & Poole. 2008 data pertaining to airport activity comes from official counts by PSC's air traffic control tower because data from the December 2008 TAF are estimates. The forecast reporting years are five, ten, and twenty years out. Plan projections include analysis of statistical data, professional judgment and interpretation, and industry rules of thumb to support the recommendations. Forecasts included in the Plan are generally expected to represent unconstrained demand that the Airport could realistically expect to serve if the demanded facilities were in place.

The summary that follows describes how different organizations will use and contribute to this forecast.

### **1.1 Federal Aviation Administration**

Aviation forecasts are formally approved by the FAA as part of this Plan. The FAA uses the forecasts primarily to program funding for demand-driven improvements at the Airport.

### **1.2 Airport Sponsor**

The Port of Pasco owns and operates PSC. Airport management focuses on increasing the Airport's level of service to enhance aviation business opportunities for the community. The initial emphasis is to develop a plan that will enable the Airport to expedite aviation-related development, such as corporate hangars, and airport service businesses, and to ensure a wide range of potential commercial air service scenarios are addressed. Continued emphasis is placed on land use compatibility, both on and off airport.

### **1.3 Beyond Master Plan Approval and Adoption**

Since the Airport considers diverse possibilities, planning beyond FAA forecasts and approvals are required. The forecasts will play a key role in the Purpose and Need statement for projects requiring documentation in accordance with the National Environmental Policy Act (NEPA). The Plan is expected to be incorporated by reference into documents such as the Benton and Franklin County General Plans, municipal plans, transportation plans, Airport land use compatibility plans, and special purpose plans.

### **1.4 FAA Approval Process**

Guidance for preparing aviation activity projections is contained in FAA Advisory Circular 150/5070-6B, *Airport Master Plans*. These steps are: identify aviation activity measures, review previous airport forecasts, gather data, select forecast methods, apply forecast methods and evaluate results, compare forecast results to the FAA's Terminal Area Forecasts, and approval of forecasts. These steps are documented in this chapter.

The FAA compares the Plan forecasts with the TAF, and the FAA and the Airport coordinate and adjust to align the forecasts.

## **1.5 Review of Previous Airport Forecasts**

A review of previous forecasts provides information about the underlying methodologies used in their development, and an initial screen of pertinent trends and changed conditions. A summary of previously published forecasts follows.

### **1.5.1 December 2008 Terminal Area Forecast (TAF)**

The FAA has established the TAF as the official federal forecast for airports included in the National Plan of Integrated Airport Systems (NPIAS). As part of NPIAS, PSC is eligible to receive funding through airport improvement program (AIP) grants. The TAF is the policy benchmark for federal review and approval of airport master plan forecasts, and FAA approval of master plan projections is subject to TAF policy guidance. Generally, master plan forecasts are approved readily if they are within 10 percent of TAF projections. Outside of this range, coordination may be necessary to adjust to bring them within 10 percent of one another. TAF projections are updated each federal fiscal year. Primary methodologies used in developing forecasts are time-trend and macro-based. This Plan uses the TAF published in December 2008, which corresponds to these forecast's base year.

### **1.5.2 FAA Aerospace Forecast 2009-2025 and Long Range Forecast**

The FAA Aerospace Forecast provides a 17-year outlook of national aviation demand. These forecasts are a primary source for identifying major national trends in macro-activity and fleet mix.

### **1.5.3 2009 Washington Long-Term Air Transportation Study (LATS)**

The 2009 LATS is a system-wide approach to managing Washington's aviation resources. The LATS forecasts enplanements, commercial operations, and air cargo volume for PSC, while general aviation (GA) operations and based aircraft are forecast for the Tri-Cities area.

PSC's enplanement forecasts have a compound annual growth rate (CAGR) of 2.12 percent, 0.25 percent below the TAF forecast for the same period. PSC's commercial operations forecasts have a CAGR of 0.56 percent, 1.28 percent higher than the TAF's. PSC's cargo volume forecasts have a CAGR of 6.25 percent.

LATS local level forecasts include other airports in the Tri-Cities area, such as Vista Field and Richland. GA growth indicators show a CAGR of 1.35 percent for based aircraft. GA operations have a CAGR of 1.26 percent. The 2008 TAF for PSC has a CAGR of 1.47 percent for based aircraft, and 1.72 percent for GA operations.

#### 1.5.4 2000 Airport Master Plan

The previous PSC Master Plan has a base year of 1995, and forecasts activity levels from 2000 to 2020. Passenger enplanements had a CAGR of 3.24 percent, and assumed that growth would be a combined factor of the area's population growth, and growth in the incidence of flying within the population. This forecast has produced enplanement numbers above the 2008 TAF. When this growth rate is extrapolated to 2028, it produces an enplanement forecast nearly 20 percent above the TAF. The operations forecast for commercial, GA, and military had a CAGR of 1.24 percent, and yield higher numbers than the TAF. A possible explanation of this is that GA operations were higher ten years ago; therefore the historical baseline was above what is being considered today. The 2000 Master Plan had 47,500 GA operations in its base year of 1995, whereas actual 2008 GA operations totaled 33,969, a difference of 28.49 percent.

#### 1.6 Catchment Area Analysis

Activity at PSC is influenced by local and regional factors described in the socioeconomic section of **Chapter 1**. An airport's catchment area is the geographic region from which it is expected to draw users. For the purposes of this Plan, Benton and Franklin Counties represent PSC's catchment area, and population and socioeconomic data in this chapter use the combined data from these counties. Airport users also come from outside this area, but PSC is most directly impacted by socioeconomic changes in these counties.

#### 1.7 Methodologies

Three general methodologies generate PSC specific forecasts: CAGR, market share, and socioeconomic. The CAGR methodology takes the average annual rate of growth from historic data, and projects this average annual rate of growth for the forecast years. Market share methodology identifies the percentage of a national total of a given activity indicator that PSC accounts for. This percentage is projected, meaning that activity levels at PSC will correlate consistently with national activity levels. Socioeconomic methodology correlates activity levels to economic indicators within the catchment area, such as changes in population, per capita income, and gross regional product. As the value of these indicators fluctuates, the level of activity will perform similarly.

These methodologies share the assumption that past relationships between socioeconomic growth and enplanements will remain unchanged into the future, uninfluenced by new variables. Economic recession, volatile fuel prices, and increased security are aspects of aviation create new challenges which may alter past trends. To address these new variables, forecasts are analyzed against industry trends and developments. The combined statistical and judgmental analysis is used to select the preferred forecast for each activity indicator.

## 2. Passenger Enplanements

An *enplanement* represents the act of a passenger boarding an aircraft. Enplanement figures are collected for passengers on scheduled commercial service flights and non-scheduled charter flights. Air carriers with at least one point of service in the United States report this information to the USDOT.

### 2.1 Enplanement History and Industry Trends

The 2008 TAF provides enplanement data from 1976 to 2008, during which time enplanements at PSC had a 3.88 percent CARG. Growth has not been linear; PSC has seen enplanements increase and decline during this period. Enplanements at PSC had a 2.16 CAGR between 2006 and 2008. Enplanement history for the past three years is shown in **Table 3-1**.

Year	Enplanements
2006	226,913
2007	238,466
2008	241,907
CAGR	2.16%

Source: TAF

Several obstacles have challenged the airline industry since 2006, including variable fuel prices, economic recession, and virus outbreaks. The FAA reports that ten airlines ceased operations in 2008. In order to save costs, airlines have reduced frequencies, cut routes, and grounded aircraft. PSC lost routes to Portland, Pendleton, and Minneapolis-St. Paul, but gained service to San Francisco, and Phoenix-Mesa. Allegiant Air has indicated that they are looking to add new service to Los Angeles International Airport.

The *FAA Aerospace Forecast 2009-2025* indicates that national enplanements fell by one percent from 2007 to 2008. Across the country, airline load factors dropped to 79.3 percent, down by 0.5 percentage points from 2007. U.S. carriers reported losses of 18.5 billion dollars in 2008. The *FAA Aerospace Forecast 2009-2025* predicts a return to growth in 2010, with a national increase in enplanements by an average of 1.64 percent annually. Between 2007 and 2008 PSC saw a 1.4 percent increase in enplanements, and an average load factor of 73 percent. The 73 percent average load factor is used for the forecasts generated in this Plan.

### 2.2 Enplanement Forecast—Terminal Area Forecast

The TAF serves as a baseline to compare generated forecasts. As the TAF only extends to 2025, a CAGR of 2.60 percent extrapolates the TAF from its end year of 2025 to 2028. The TAF forecast is presented in **Table 3-2**.

<b>Table 3-2: Enplanement Forecast—TAF</b>	
<b>Year</b>	<b>Enplanements</b>
2008	241,907
2013	256,639
2018	299,723
2028	404,401
CAGR	2.60%

Source: TAF

This forecast has not been selected as the preferred enplanement forecast. The reasoning is presented in **Section 2.7**.

### 2.3 Enplanement Forecast—Growth Rate

A growth rate forecast applies the Airport’s historical average annual growth rate, unchanged through the planning period. The growth rate forecast is 4.89 percent above the TAF forecast in 2013 and 0.06 percent below the TAF in 2018. The growth rate forecast is presented in **Table 3-3**.

<b>Table 3-3: Enplanement Forecast—Growth Rate</b>	
<b>Year</b>	<b>Enplanements</b>
2008	241,907
2013	269,186
2018	299,542
2028	370,908
CAGR	2.16%

This forecast has not been selected as the preferred enplanement forecast. The reasoning is presented in **Section 2.7**.

### 2.4 Enplanement Forecast—Market Share Methodology

PSC’s market share represents the percentage of national enplanements that occur at the Airport. National enplanement data comes from the *FAA Aerospace Forecast 2009-2025*. Analysis shows that PSC accounted for an average of 0.045 percent of annual national enplanements between 2006 and 2008. This percentage is multiplied by the FAA national enplanements forecasts for the reporting years. The market share forecast is 2.57 percent below the TAF in 2013, and 7.69 percent below the TAF in 2018. The market share forecast is presented in **Table 3-4**.

<b>Table 3-4: Enplanement Forecast—Market Share</b>		
<b>Year</b>	<b>National Enplanements</b>	<b>Enplanements</b>
2008	522,300,000	241,907
2013	555,900,000	250,042
2018	615,100,000	276,670
2028	723,800,000	325,548
CAGR	1.64%	1.50%

Source: FAA

This forecast has not been selected as the preferred enplanement forecast. The reasoning is presented in **Section 2.7**.

**2.5 Enplanement Forecast—Master Plan**

Due to recent changes in the make up of PSC’s air service, a Master Plan forecast has been generated. This forecast presents a scenario where air service to discontinued markets is restored, and new service is added over the 20 year planning horizon. This forecast is based on the following.

Delta Airlines will proceed with their plan to reinstate service to Minneapolis-St. Paul using a CRJ-700 aircraft. Delta will also discontinue use of the Bombardier CRJ-700 to Salt Lake City, which averaged less than a departure per week to in 2008, and replace it with additional service by a CRJ-900 aircraft. Allegiant Air will follow through with their plans to add service to Los Angeles using Boeing MD-80 aircraft, having an 80 percent load factor in line with their other flights, and offering two departures per week. United will begin to use 66 seat Bombardier CRJ-700’s more frequently on their Denver route and introduce them on their San Francisco route. United’s CRJ-200’s will begin to be phased out. These projections lead to 2013 enplanements that are 10.99 percent above the TAF.

By 2018, Horizon Air will resume service to Portland on Bombardier Q400’s with ten departures per week, experiencing a 64 percent load factor. United will use more CRJ-700’s to San Francisco and use this aircraft exclusively on flights to Denver. These projections lead to 2018 enplanements that are 12.60 percent above the TAF.

By 2028, Delta Airlines will introduce a Boeing 737-700 on higher demand flights to Salt Lake City with a 70 percent load factor and 10 departures per week. United will operate 66 seat aircraft on routes to Denver and San Francisco, and Frontier Airlines will introduce 12 departures per week to Denver on 100 seat aircraft with a 70 percent load factor. Horizon will have doubled their frequency to Portland with 20 departures per week, and Allegiant will add another destination using 150 seat aircraft. These projections lead to 2028 enplanements that are 10.92 percent above the TAF. The Master Plan forecast is presented in **Table 3-5**.

<b>Table 3-5: Enplanement Forecast—Master Plan</b>	
<b>Year</b>	<b>Enplanements</b>
2008	241,907
2013	284,846
2018	337,489
2028	448,543
CAGR	3.14%

This forecast has not been selected as the preferred enplanement forecast. The reasoning is presented in **Section 2.7**.

**2.6 Enplanement Forecast—Socioeconomic**

Socioeconomic methodology applies local conditions to enplanements. This methodology correlates historic enplanements with population and per capita income.

**2.6.1 Enplanement Forecast—Per Capita Income**

Per capita income data is forecast by economic forecasting firm Woods & Poole, and is the average of the individual forecasts for Benton and Franklin Counties. The number of enplanements per dollar of per capita income averaged 9.445 between 2006 and 2008. The per capita income forecast enplanements 4.43 percent below the TAF in 2013, and 13.65 percent below the TAF in 2018. The per capita income enplanement forecast is presented in **Table 3-6**.

<b>Table 3-6: Enplanement Forecast—Per Capita Income</b>		
<b>Year</b>	<b>Per Capita Income</b>	<b>Enplanement Forecast</b>
2008	\$24,928	241,907
2013	\$25,969	245,267
2018	\$27,403	258,806
2028	\$31,236	295,011
CAGR	1.13%	1.00%

Source: Woods & Poole

This forecast has not been selected as the preferred enplanement forecast. The reasoning is presented in **Section 2.7**.

### 2.6.2 Enplanement Forecast—Population

The population forecast comes from the BFCOG and assumes a 2 percent CAGR for the populations of Benton and Franklin counties. There was an average of 1.028 enplanements per person between 2006 and 2008. This enplanement forecast takes into account the national trend of increased enplanements per person as indicated by the FAA’s national enplanement forecast in the *FAA Aerospace Forecast 2009-2025*, and the U.S. Census Bureau’s national population forecast. These forecasts show national enplanements per person increasing from 2.24 in 2008 to 2.46 in 2018, and 2.75 in 2028. When the enplanement per person increase is applied to the population based forecast, the increase in enplanements per person results in a 2.98 percent CAGR between 2008 and 2028.

Records show an average of 1.028 enplanements per person between 2006 and 2008. To keep in line with national trends that show increased enplanements per person, this rate is adjusted to 1.043 enplanements per person for 2013, 1.119 for 2018, and 1.252 for 2028. This projection forecasts 4.92 percent above the TAF in 2013, and 6.40 percent above the TAF in 2018. The population enplanement forecast is presented in **Table 3-7**.

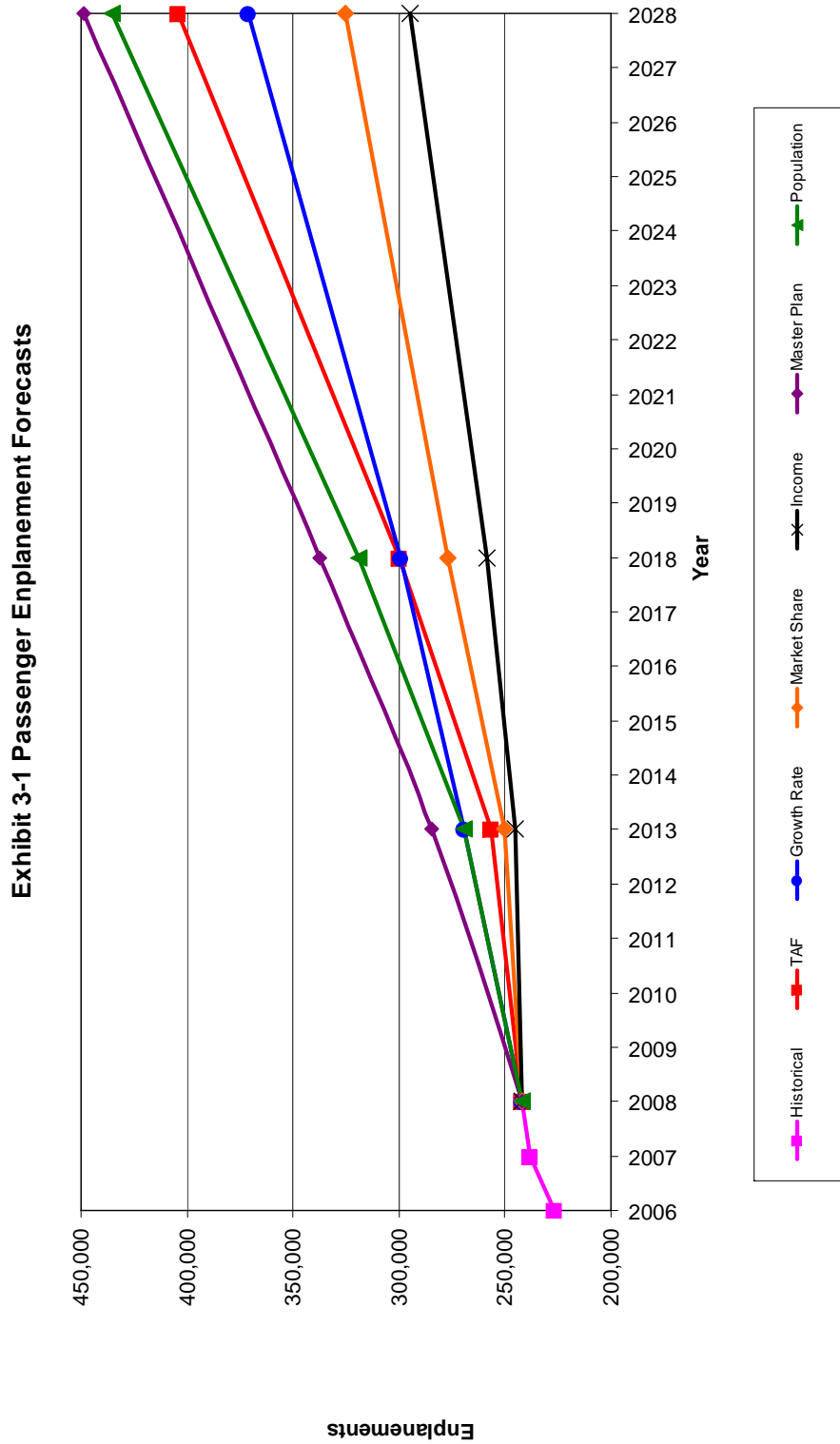
<b>Table 3-7: Enplanement Forecast—Population</b>		
<b>Year</b>	<b>Population</b>	<b>Enplanement Forecast</b>
2008	233,822	241,907
2013	258,225	269,260
2018	285,101	318,907
2028	347,536	435,064
CAGR	2.00%	2.98%

Source: BFCOG, FAA, U.S. Census Bureau,

This forecast has been selected as the preferred enplanement forecast. The reasoning is presented in **Section 2.7**.

### 2.7 Enplanement Forecast—Method Comparison and Preference

A graph of the enplanement forecasts is presented in **Exhibit 3-1**.



Enplanement forecasts by *population*, *growth rate*, and *market share* fall within ten percent of the TAF in 2013 and 2018. The *master plan* forecast is within ten percent in 2013, but 11.19 percent above in 2018. The income enplanement forecast produced enplanements that were ten percent below the TAF enplanement forecast. These forecasts were analyzed against local trends and projections to determine the preferred forecast. A summary of the different enplanement forecasts is presented in **Table 3-8**.

<b>Table 3-8: Enplanement Forecast—Method Comparison</b>						
<b>Year</b>	<b>TAF</b>	<b>Growth Rate</b>	<b>Market Share</b>	<b>Income</b>	<b>Master Plan</b>	<b>Population</b>
2008	241,907	241,907	241,907	241,907	241,907	241,907
2013	256,639	269,186	250,042	245,267	284,846	269,260
2018	299,723	299,542	276,670	258,806	337,489	318,907
2023	351,162	333,115	300,014	275,465	393,821	377,707
2028	404,401	370,908	325,548	295,011	448,543	435,064
CAGR	2.60%	2.16%	1.50%	1.00%	3.14%	2.98%

Factors that support forecasts above the TAF include growth in local industries; the lack of air service at other airports nearby; and continued population growth in the area. In addition to the demand for technical services at local U.S. Department of Energy facilities, the Tri-Cities area has seen economic development in service industries, and food industries. Long-term growth in enplanements also supports forecasts above the TAF. Enplanements at PSC had a CAGR of 3.88 percent between 1976 and 2008.

Factors that support forecasts below the TAF include economic downturn and future economic uncertainty. In 2008, the U.S. economy went into recession. PSC saw enplanements increase as the American Recovery and Reinvestment Act (ARRA) came into effect in 2009, however the long term effects of the economic recession remain unknown. After the stimulus money from the ARRA is spent, financial analysts debate whether the economy will be fiscally stable enough to support further growth or sustain recovered losses.

The price of fuel remains a concern for the airline industry. Air carriers have already grounded less fuel efficient planes, and cut service to smaller cities when oil prices exceeded 100 dollars per barrel in 2008. If prices return to such a level, smaller markets such as PSC could see a reduction in service. A reduction in service is not necessarily attributable to decreased local demand; in fact, fewer flights often lead to higher load factors as passengers have fewer options. Still, if fewer seats and flights leave the Airport, enplanements may decline.

The *population* forecast constitutes the preferred forecast for this Master Plan. Local conditions that support this forecast include new routes to Phoenix and Los Angeles, growth in local medical, service, food processing, and agriculture industries, and continued demand for technical services associated with local U.S. Department of Energy facilities. This forecast also ties into local transportation plans because it is based on the same 2.0 percent population CAGR that the BFCOG is using for their regional transportation plan. As stated in the methodology, this forecast also assumes that the incidence of flying will increase within the population itself. Air service to new markets and increased service on existing

ones may increase competition, which will lower ticket prices and encourage more people to fly from PSC.

The *income* forecast was not selected because it was outside of the TAF’s ten percent tolerances. The *Market Share* forecast was within ten percent of the TAF, but due to the increase in routes and the growth in enplanements over the past it is anticipated that PSC will increase its market share. The *growth rate* forecast tracks higher than the TAF for the first ten years, but falls short of the TAF over 20 years. It is anticipated that air service at PSC will build upon its own success. As more routes are added, ticket prices will drop and more passengers will fly which will increase the rate of growth. The *Master Plan* forecast has been identified as a *high growth* scenario, but it is too speculative to be selected as the preferred forecast.

**2.7.1 Enplanement Forecast—Preferred**

The population based enplanement forecast is the preferred enplanement forecast. The preferred enplanement forecast is categorized into enplanements by *air carrier* aircraft, which have more than 60 seats, and *air taxi* aircraft, which have 60 or fewer seats. Horizon’s Bombardier Q200 aircraft was retired in 2008, and the 50 seat Bombardier CRJ-200 is the only remaining air taxi aircraft still operating at the Airport. The load factor that the CRJ-200 attained in 2008, 73.84 percent, is applied to the preferred commercial operations forecast in **Section 3.1.2** to develop the preferred enplanement forecast by scheduled air taxi aircraft. It is expected that air carrier aircraft will represent the remaining enplanements. Expected enplanements by air carrier and air taxi aircraft are presented in **Table 3-9**.

<b>Table 3-9: Enplanement Forecast—Preferred</b>			
<b>Year</b>	<b>Air Carrier</b>	<b>Air Taxi</b>	<b>Total</b>
2008	133,049	108,858	241,907
2013	230,494	38,766	269,260
2018	291,217	27,690	318,907
2028	425,824	9,240	435,064
CAGR	5.99%	-11.60%	2.98%

The decline in passengers enplaned on air taxi aircraft is attributable to the reduction in available seats. With only one type of air taxi aircraft expected to operate at the Airport, and a forecasted reduction in utilization of this aircraft type, air taxi enplanements decline with a CAGR of negative 11.60 percent. Load factors are expected to remain at 73.84 percent, but operations will decline as described in **Section 3.1.2**. Air taxi enplanements are calculated by multiplying the number of available seats by the expected load factor for the forecast reporting years. Air carrier aircraft are expected to transport the other forecasted enplanements, which results in a CAGR of 5.99 percent.

### 3. Aircraft Operations

An aircraft operation is one takeoff or landing; therefore, one trip to and from an airport represents two operations. Air carriers report their operations to the USDOT. The air traffic control tower (ATCT) at PSC records operations, and reports them to the FAA. Operations are categorized as *commercial service*, *GA*, and *military*. Categories are refined as to whether the operation was local, and stayed in the area of the airport without landing at another airport, or itinerant, and began or ended at another airport. Data from 2006 to 2008 serves as the historical baseline, as this period of time reflects activity during the recent increase in non-stop destinations available at PSC, changes in the aircraft fleet mix, and market adjustment during the economic recession.

This section separates commercial, GA, and military operations forecasts, due to differences in forecasting methodologies.

#### 3.1 Scheduled Commercial Operations History

Air taxi aircraft conducted close to 75 percent of scheduled commercial operations at PSC between 2006 and 2008. The TAF does not distinguish between scheduled and non-scheduled air taxi service, but the USDOT does. The FAA indicates that carriers are replacing air taxi aircraft with new aircraft in the 70-100 seat range. This trend is apparent at PSC, as 50 seat Bombardier CRJ-200 is the only scheduled air taxi aircraft after Horizon Air retired the Bombardier Q200 from service in 2008. The Q200 has been replaced by the Bombardier Q400, which has 74 seats and is an air carrier aircraft. This has caused air taxi operations to decline, and air carrier operations to increase. Scheduled commercial operations from 2006 to 2008 are shown in **Table 3-10**.

Year	Air Carrier	Air Taxi	Total
2006	1,448	10,864	12,312
2007	2,916	10,260	13,176
2008	4,926	7,112	12,038

Source: USDOT

##### 3.1.1 Scheduled Commercial Operations—Terminal Area Forecast

The December 2008 TAF is shown in **Table 3-11**.

Year	Air Carrier	Air Taxi	Total
2008	4,926	7,112	12,038
2013	6,423	13,972	20,395
2018	6,423	14,922	21,345
2028	6,423	17,387	23,810

Source: FAA

The TAF's commercial operations forecast is not used as the preferred commercial operations forecast.

The TAF has a flat growth rate for air carrier operations, and air taxi operations that do not separate scheduled and non-scheduled service. A change in aircraft type by Horizon in 2008 resulted in air carrier operations growing more quickly than air taxi operations, which increased air carrier operations, and decreased air taxi operations. This change is not reflected in the December 2008 TAF. As seat demand increases, SkyWest’s 50-seat CRJ-200 may be replaced by the larger CRJ-700 and CRJ-900. This would eliminate scheduled air taxi operations at PSC, unless air taxi aircraft are reintroduced. The fleet change by Horizon Air supports generating a master plan forecast, which will incorporate the fleet change.

**3.1.2 Scheduled Commercial Operations—Master Plan Forecast**

The Master Plan commercial operations forecast projects air carrier and scheduled air taxi operations, based on trends in the USDOT and aviation industry data, the preferred passenger enplanement forecast, and local variables. Across the world, airlines are reducing flight frequencies and increasing the number of passengers per flight, which results in higher load factors and less operations.

The following local parameters shape this forecast: the smallest scheduled passenger aircraft to serve PSC will have 50 seats, and a load factor of 73.84 percent. Frequencies of 50-seat aircraft will drop by an estimated 6.51 percent annual average by 2028. Aircraft with more than 100 seats will have four new weekly departures by 2013, and aircraft with 80-100 seats will begin operating from PSC by 2018. Aircraft with 60-80 seats will see operations grow with a CAGR of 4.93 percent through 2028, and load factors will average 70 percent for air carrier aircraft. This forecast expects that PSC will not lose current air service routes.

The results of this forecast are presented in **Table 3-12**.

<b>Seat Range</b>	<b>Example Aircraft</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2028</b>
<40	Q200	1,636	0	0	0
40-59	CRJ-200	1,920	2,100	1,500	500
60-80	Q400, CRJ-700, CRJ-900	2,293	3,400	4,500	6,000
80-100	E190	0	0	312	624
100+	MD-80, 737, 757	170	340	660	1,000
Total Departures		6,019	5,840	6,972	8,124
Total Operations		12,038	11,680	13,944	16,248

Source: USDOT

### 3.1.3 Scheduled Cargo Operations

The cargo operations forecast applies the 2008 cargo capacity throughout the planning period, and forecasts the number of departures needed to transport the forecasted cargo volume from **Section 5.6**. The possibility of operations by an aircraft with greater cargo capacity was considered, but dismissed due to the presence of a FedEx sorting facility at Spokane International Airport. In 2008, the USDOT reported FedEx aircraft transporting 19,252,137 pounds of cargo out of Spokane, while 1,944,819 pounds were transported out of PSC. It is unlikely that the catchment area around PSC will generate enough cargo volume to attract larger aircraft on a regular basis. Due to the time sensitive nature of air cargo, reducing flight frequency and consolidating cargo is not common, making it unlikely that the PSC will regularly see larger cargo aircraft. It is anticipated that the Airport will see an increase in operations by ATR-72 aircraft to manage increasing cargo volumes. It is expected that there will be no fleet change over the planning period.

The underlying methodology provides that cargo load factor, the percentage of cargo capacity that each aircraft normally transports per departure, will not change. The 2008 load factor was 58.51 percent for the ATR-72, and 42.97 percent for the Cessna 208. The load factor is used to determine aircraft departures needed to transport the volume as indicated in the preferred cargo forecast. ATR-72 aircraft transported 71 percent of the 2008 cargo volume. Cessna 208 aircraft have experienced an annual decline of 33 percent in their share of the cargo volume between 2006 and 2008. Keeping with observed trends, ATR-72 aircraft will account for 96 percent of cargo volume transported in 2013, 99.5 percent in 2018, and 99.9 percent in 2028. Scheduled cargo departures are presented in **Table 3-13**.

<b>Table 3-13: Scheduled Cargo Operations</b>						
<b>Aircraft</b>	<b>Cargo Capacity</b>	<b>2008</b>	<b>2013</b>	<b>2018</b>	<b>2028</b>	<b>CAGR 2008-2028</b>
Cessna 208	3,400 lbs	124	62	9	2	-17.96%
ATR-72	16,000 lbs	183	406	480	628	6.36%
Total Departures		307	468	489	630	3.66%
Total Operations		614	936	977	1,260	

Source: USDOT

### 3.1.4 Critical Commercial Aircraft

The critical commercial aircraft is the most demanding commercial aircraft expected to operate at the airport. As demand at PSC increases and enplanement levels rise, airlines may consider operating larger aircraft. The critical commercial aircraft for PSC is the Boeing 757-200, which has an airport reference code (ARC) of C-IV. Allegiant Air intends on serving Hawaii from the West Coast of the continental U.S. with 757 series aircraft, and may operate some routes from PSC. Other operators of the 757, Delta and United Airlines, serve PSC through regional carriers, but may transition to 757's should the demand exist. Other operators of the 757 include cargo airlines, and the U.S. military. Critical aircraft are discussed further in **Chapter 4**.

### 3.2 GA Operations History

PSC shares GA operations with three other airports: Vista Field (598), Richland (RLD), and Prosser (S40). This divides the GA market and has yielded slower growth at PSC than might be expected given the Tri-Cities' economic growth. Nationwide, GA operations have been decreasing, and the FAA forecasts national GA operations to decline in 2009, then slowly recover and pass 2008 levels in 2018. PSC's GA operation counts for the past three years are presented in **Table 3-14**.

Year	Local	Itinerant	Total
2006	16,723	19,904	36,627
2007	20,063	20,518	40,581
2008	16,828	17,141	33,969
CAGR	0.21%	-4.86%	-2.48%

Source: TAF

#### 3.2.1 GA Operations Forecast—Terminal Area Forecast

The TAF serves as the baseline for operations forecasts. Local operations constitute approximately 53 percent of total operations. This split between local and itinerant operations is applied to all generated forecasts. The TAF forecasts local operations growing faster than itinerant operations, and overall operations increasing with a CAGR of 1.72 percent, as shown in **Table 3-15**.

Year	Local	Itinerant	Total
2008	16,828	17,141	33,969
2013	20,628	18,107	38,735
2018	22,194	19,547	41,741
2028	26,292	22,817	49,109
CAGR	2.26%	1.44%	1.86%

Source: TAF

This forecast has not been selected as the preferred GA operations forecast. The reasoning is presented in **Section 3.2.5**.

#### 3.2.2 GA Operations Forecast—Market Share

The market share forecast applies a fixed percentage of national GA operations to PSC. The FAA indicates that PSC accounted for an average of 0.11 percent of national GA activity from 2006 to 2008. Applying this percentage to the GA operations forecast found in the *FAA Aerospace Forecast 2009-2025* yields the results shown in **Table 3-16**.

<b>Table 3-16: GA Operations Forecast—Market Share</b>			
<b>Year</b>	<b>National Operations</b>	<b>PSC Operations</b>	<b>Variance to TAF</b>
2008	31,289,000	33,969	
2013	30,034,500	34,202	-11.70%
2018	31,606,600	35,992	-13.77%
2028	34,751,000	39,573	-17.13%
CAGR	0.53%	0.77%	

Source: FAA

This forecast has not been selected as the preferred GA operations forecast. The reasoning is presented in **Section 3.2.5**.

**3.2.3 GA Operations Forecast—Operations Per Based Aircraft**

The operations per based aircraft divides annual GA operations by the number of GA aircraft based at PSC that year. When this method is applied to based aircraft and GA operations records from 2006 to 2008, it produces an average of 324 annual GA operations per based aircraft. This metric is not intended to count the number of operations conducted by each aircraft based at the Airport, but uses the number of based aircraft as an indicator of GA traffic. A factor of 324 is applied to the preferred based aircraft forecast in **Section 4.7**, and the results are shown in **Table 3-17**.

<b>Table 3-17: GA Operations Forecast—Operations Per Based Aircraft</b>			
<b>Year</b>	<b>Based Aircraft</b>	<b>Operations</b>	<b>Variance to TAF</b>
2008	123	33,969	
2013	129	41,926	+8.24%
2018	143	46,290	+10.90%
2028	174	56,427	+14.90%
CAGR	1.76%	2.57%	

This forecast has not been selected as the preferred GA operations forecast. The reasoning is presented in **Section 3.2.5**.

**3.2.4 GA Operations Forecast—Growth Rate**

Using the growth rate that occurred at PSC over the past three years yields a 0.70 percent CAGR. Applying the 0.70 growth rate results in a GA operations forecast that falls well below the TAF. Instead of using past trends, this forecast applies a 2 percent CAGR, in line with the BFCOG projections about the region’s population growth. The results are shown in **Table 3-18**.

**Table 3-18: GA Operations Forecast—Growth Rate**

Year	Operations	Variance to TAF
2008	33,969	
2013	37,504	-3.18%
2018	41,408	-0.80%
2028	50,476	+2.78%
CAGR	2.00%	

This forecast has been selected as the preferred GA operations forecast. The reasoning is presented in **Section 3.2.5**.

**3.2.5 GA Operations Forecast—Method Comparison and Preference**

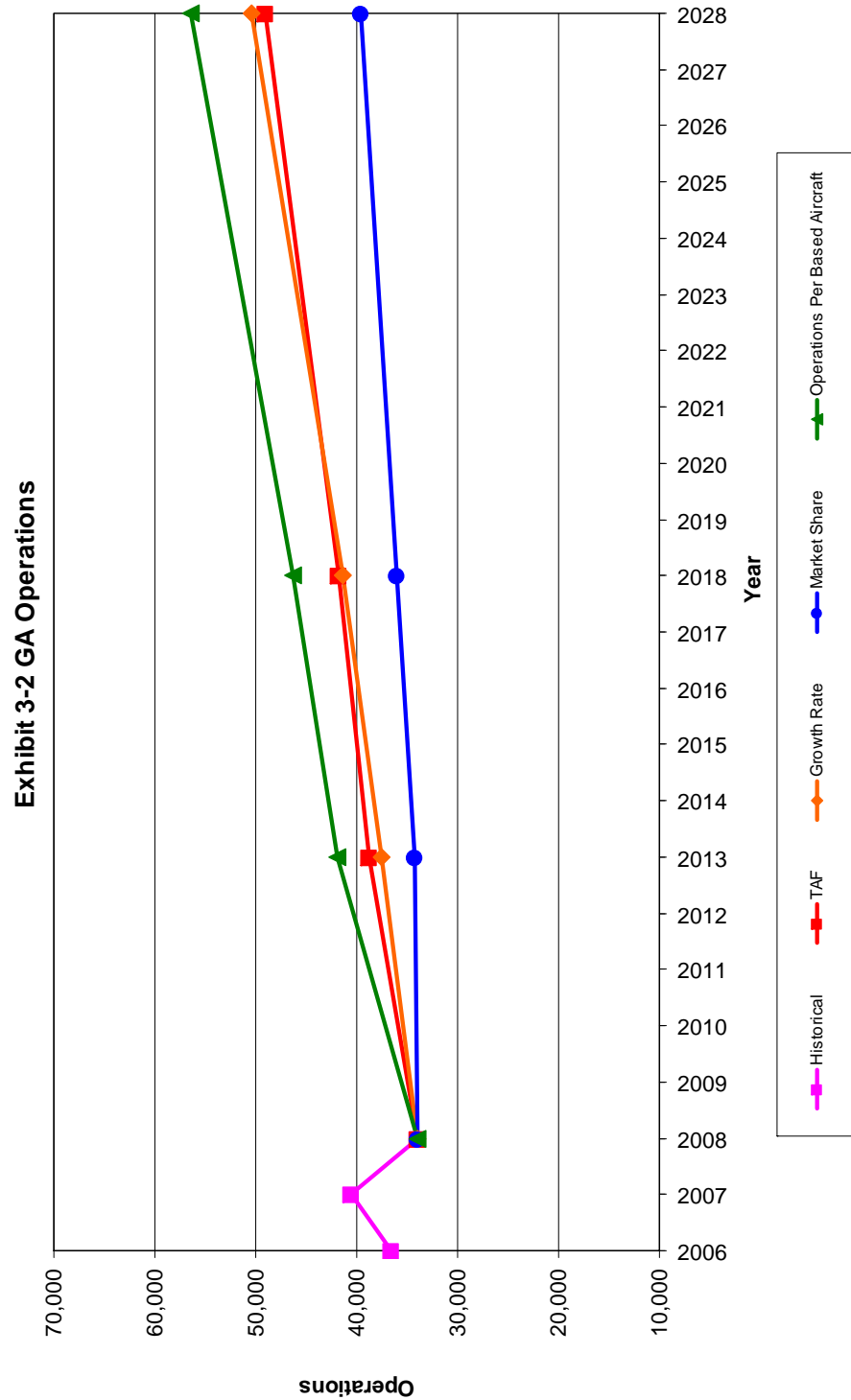
The *growth rate* forecast is the preferred GA forecast. This forecast is based on the belief that although the region has seen dramatic population growth over recent years, growth will not continue at its current rate. The BFCOG has come to an agreement that a 2 percent CAGR represents a more sustainable expectation of growth. This forecast anticipates that GA activity will grow in line with population growth. This does not assume that new residents moving to the area will be aircraft owners; rather, it treats population growth as an indicator of the economic success of Benton and Franklin Counties.

Challenges to this forecast include competition for GA facilities, fuel prices, and regional economic performance. With three other airports in close vicinity, the region could see higher than expected growth, but little of that growth could be reflected in PSC’s GA operations if pilots use other facilities. The price of fuel has grounded many recreational pilots in recent years, and should fuel prices climb, operations will likely decline or remain at their current levels. The economy plays a role in GA activity. If growth does not occur, or occurs through businesses that have no need or cannot afford to use GA, then GA traffic may remain at current levels, regardless of economic development. A summary of the GA operations forecasts are presents in **Table 3-19**.

**Table 3-19: GA Operations Forecast—Method Comparison**

Year	TAF	Growth Rate	Market Share	Operations Per Based Aircraft
2008	33,969	33,969	33,969	33,969
2013	38,735	37,504	34,202	41,926
2018	41,741	41,408	35,992	46,290
2023	49,109	50,476	39,573	56,427
CAGR	1.86%	2.00%	0.77%	2.57%

A summary of the different GA operations forecasts is presented in **Exhibit 3-2**.



### 3.2.6 Critical GA Aircraft

The critical GA aircraft is the most demanding GA aircraft expected to operate at the airport. GA aircraft at PSC range from single engine aircraft to private jets. GA aircraft are used for travel, recreation, and business and economic development in the Tri-Cities area may lead to more business aircraft using the Airport. Some of these aircraft are within the D approach category, such as the Gulfstream IV (D-II), and the Learjet 35A and 36A (D-I). These aircraft represent the critical business aircraft. Critical aircraft are discussed further in **Chapter 4**.

### 3.3 Operations Forecast—Military

Decisions made by the U.S. Department of Defense drive military operations, not socioeconomic and industry activity, which makes forecasting military activity challenging. Because there are no military units based at PSC, and use of the airport is a choice, the operational forecast assumes that military activity will remain at 2008 levels throughout the planning period. The preferred military forecast is based on the 2008 tower count of 1,997 annual operations, which is shown in **Table 3-20**.

<b>Table 3-20: Operations Forecast—Military</b>		
<b>Year</b>	<b>Forecast</b>	<b>TAF</b>
2008	1,997	2,034
2013	1,997	2,034
2018	1,997	2,034
2028	1,997	2,034
CAGR	0%	0%

### 3.4 Operations Forecast—Unscheduled Air Taxi

*Unscheduled air taxi* includes for-hire air taxis, and charter flights that occur periodically throughout the year on an as-needed basis. This forecast does not include scheduled air carrier flights categorized as air taxi. From 2006 to 2008, unscheduled air taxi operations accounted for an average of 13.07 percent of the sum of scheduled commercial, military, and GA operations at PSC. This percentage is applied to operations totals throughout the forecast years to generate the unscheduled air taxi forecast, which has a CAGR of 3.63 percent. The unscheduled air taxi forecast is shown in **Table 3-21**.

<b>Table 3-21: Operations Forecast—Unscheduled Air Taxi</b>	
<b>Year</b>	<b>Forecast</b>
2008	4,484
2013	6,811
2018	7,623
2028	9,151
CAGR	3.63%

### 3.5 Preferred Operations Forecast

Total operations at PSC have a CAGR of 2.01 percent between 2008 and 2028. Operations levels for scheduled commercial (air carrier and scheduled air taxi), scheduled cargo, military, GA (local and itinerant), and unscheduled air taxi based on their preferred forecasts. A summary of the operations forecasts is presented in **Table 3-22**, and a graph is presented in **Exhibit 3-3**.

Year	Scheduled Commercial	Scheduled Cargo	Military	Unscheduled Air Taxi	GA	Total
2008	12,038	614	1,977	4,484	33,969	53,102
2013	11,680	936	1,997	6,811	37,504	58,928
2018	13,944	977	1,997	7,623	41,408	65,949
2028	16,248	1,260	1,997	9,151	50,476	79,132
CAGR	1.66%	3.66%	0%	3.63%	2.00%	2.01%

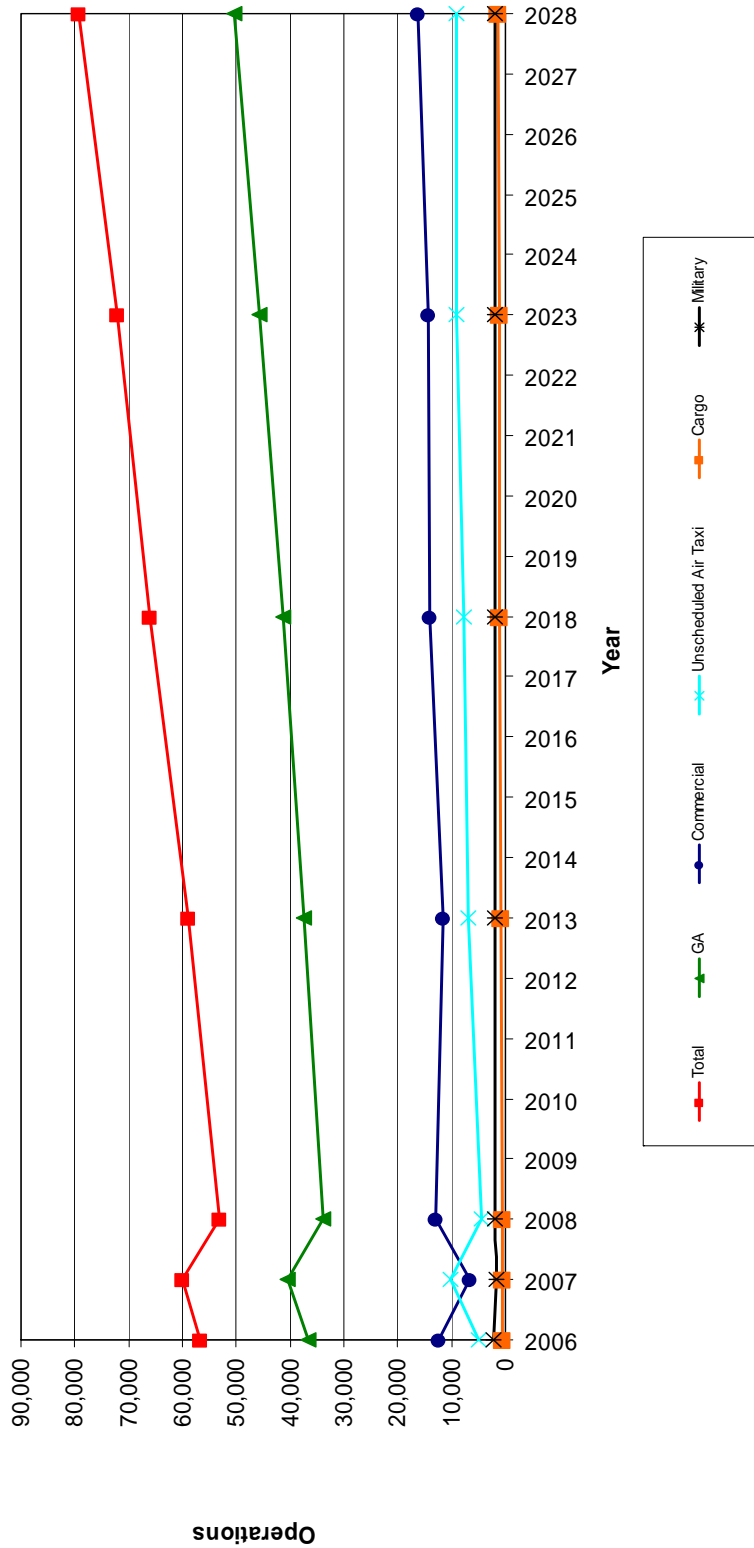
Historical operations between 1976 and 2008 had a CAGR of 3.88 percent. A lower CAGR has been chosen for the preferred forecast because consultation with the BFCOG indicates that while the Tri-Cities have seen strong economic growth in the past, this growth is unlikely to be sustainable. The preferred forecast 2.01 percent CAGR anticipates future growth will be more conservative and measured than it has been in the past.

#### 3.5.1 Instrument and Visual Operations

Operations are also categorized as operations conducted under visual flight rules (VFR), and instrument flight rules (IFR). The FAA reports that from 2006 through 2008, an average of 42.96 percent of operations were conducted under IFR. This percentage has been applied to the preferred operations forecast, and presented in **Table 3-23**.

Year	IFR	VFR	Total
2008	22,433	30,669	53,102
2013	25,314	33,615	58,928
2018	28,330	37,619	65,949
2028	33,992	45,140	79,132
CAGR	2.10%	1.95%	2.01%

Exhibit 3-3 Operations Summary



#### 4. Based Aircraft

Based aircraft represent those stored at PSC regularly. These aircraft are often registered locally, or frequently visit PSC. Based aircraft counts come from Airport records and the TAF. The TAF organizes this data based on the design of the aircraft: *single engine* and *multiengine* non-jet, *jet*, helicopter or *rotor*, and *other*. There has not been an “other” aircraft at PSC since 1981; therefore it is not included in the forecasts. 2008 data comes from PSC, all other data comes from the TAF. Apart from the TAF and the Trend by Aircraft Type forecasts, the forecasts look at the based aircraft fleet as a whole.

##### 4.1 Based Aircraft History

Airport counts indicate 123 based aircraft in 2008. This was made up of 87 *single engine*, 20 *multiengine*, 11 *jet*, and five *rotor*. Based aircraft had a CAGR of 3.48 percent from 2006 to 2008, as shown in **Table 3-24**.

Year	Based Aircraft
2006	111
2007	111
2008	123
CAGR	3.48%

Source: TAF

##### 4.2 Based Aircraft Forecast—Terminal Area Forecast

The TAF forecasts based aircraft growing by a CAGR of 1.35 percent. The TAF for based aircraft is shown in **Table 3-25**.

Year	Single	Multi	Jet	Rotor	Total
2008	87	20	11	5	123
2013	94	19	6	6	125
2018	103	21	6	7	137
2028	122	25	6	8	161
CAGR	1.76%	0.83%	-3.50%	2.80%	1.35%

Source: TAF

This forecast has not been selected as the preferred based aircraft forecast. The reasoning is presented in **Section 4.7**.

### 4.3 Based Aircraft Forecast—Trend by Aircraft Type

The trend by aircraft type forecasts growth for each aircraft category by fitting a constant growth rate, based on data from 2006 to 2008. The results of this forecast are presented in **Table 3-26**.

Year	Single	Multi	Jet	Rotor	Total	Variance to TAF
2008	87	20	11	5	123	
2013	96	27	23	5	151	17.21%
2018	106	35	35	5	181	24.31%
2028	126	50	60	5	241	33.20%
CAGR	1.88%	4.64%	8.87%	0%	3.42%	

This forecast has not been selected as the preferred based aircraft forecast. The reasoning is presented in **Section 4.7**.

### 4.4 Based Aircraft Forecast—Market Share

The market share methodology correlates a fixed percentage of the national GA fleet to what is based at PSC. Historical records between 2006 and 2008 serve as the baseline for this forecast, which show that an average of 0.05 percent of the national GA fleet has been based at PSC. This percentage is applied to the forecasted GA fleet as published in the *FAA Aerospace Forecasts 2009-2025*. The results of this forecast are shown in **Table 3-27**.

Year	National GA Fleet	Based Aircraft	Variance to TAF
2008	234,015	123	
2013	245,720	123	-1.38%
2018	257,160	129	-5.83%
2028	280,040	140	-12.68%
CAGR	0.90%	0.67%	

Source: FAA

This forecast has not been selected as the preferred based aircraft forecast. The reasoning is presented in **Section 4.7**.

#### 4.5 Based Aircraft Forecast—Growth Rate

The growth rate methodology applies the CAGR from 2006 to 2008, 5.27 percent, to PSC based aircraft. The results are shown in **Table 3-28**.

Year	Based Aircraft	Variance to TAF
2008	123	
2013	159	27.19%
2018	206	50.00%
2028	343	113.39%
CAGR	5.27%	

This forecast has not been selected as the preferred based aircraft forecast. The reasoning is presented in **Section 4.7**.

#### 4.6 Based Aircraft Forecast—Socioeconomic

The socioeconomic forecast correlates growth in based aircraft to growth in population and per capita income. Between 2006 and 2008 there were 0.0005 aircraft per person, and there were 0.00461 aircraft per dollar of per capita income at PSC. These ratios have been applied to socioeconomic forecasts. The population forecast comes from the BFCOG’s two percent CAGR, and income data comes from Woods & Poole.

##### 4.6.1 Based Aircraft Forecast—Per Capita Income

Between 2006 and 2008 there were 0.00461 aircraft at PSC per dollar of per capita income in Benton and Franklin counties. This ratio has been applied the BFCOG’s 2.00 percent CAGR population forecast. The results are presented in **Table 3-29**.

Year	Per Capita Income	Based Aircraft	Variance to TAF
2008	\$24,928	123	
2013	\$25,969	120	-4.30%
2018	\$27,403	126	-7.86%
2028	\$31,236	144	-10.57%
CAGR	1.13%	0.79%	

Source: Woods & Poole

This forecast has not been selected as the preferred based aircraft forecast. The reasoning is presented in **Section 4.7**.

### 4.6.2 Based Aircraft Forecast—Population

Between 2006 and 2008 there were 0.0005 aircraft at PSC per person in Benton and Franklin counties. This ratio has been applied the BFCOG’s two percent CAGR population forecast. The results are presented in **Table 3-30**.

Year	Population	Based Aircraft	Variance to TAF
2008	233,882	123	
2013	258,225	129	3.55%
2018	285,101	143	4.31%
2028	347,536	174	8.27%
CAGR	2.00%	1.76%	

Source: BFCOG

This forecast has been selected as the preferred based aircraft forecast. The reasoning is presented in **Section 4.7**.

### 4.7 Based Aircraft Forecast—Method Comparison and Preference

Regional variables have been incorporated into selecting the preferred based aircraft forecast. Competition by Richland, Vista Field, and Prosser airports distributes the regional GA fleet over a large area. Costs of fuel and pilot training affect aircraft sales, which impacts the national GA fleet. Factors such as the price of aircraft storage, the availability of fixed base operators (FBOs), services, and airfield design and procedure impact an aircraft owner’s decision to pick an airport at which to base aircraft.

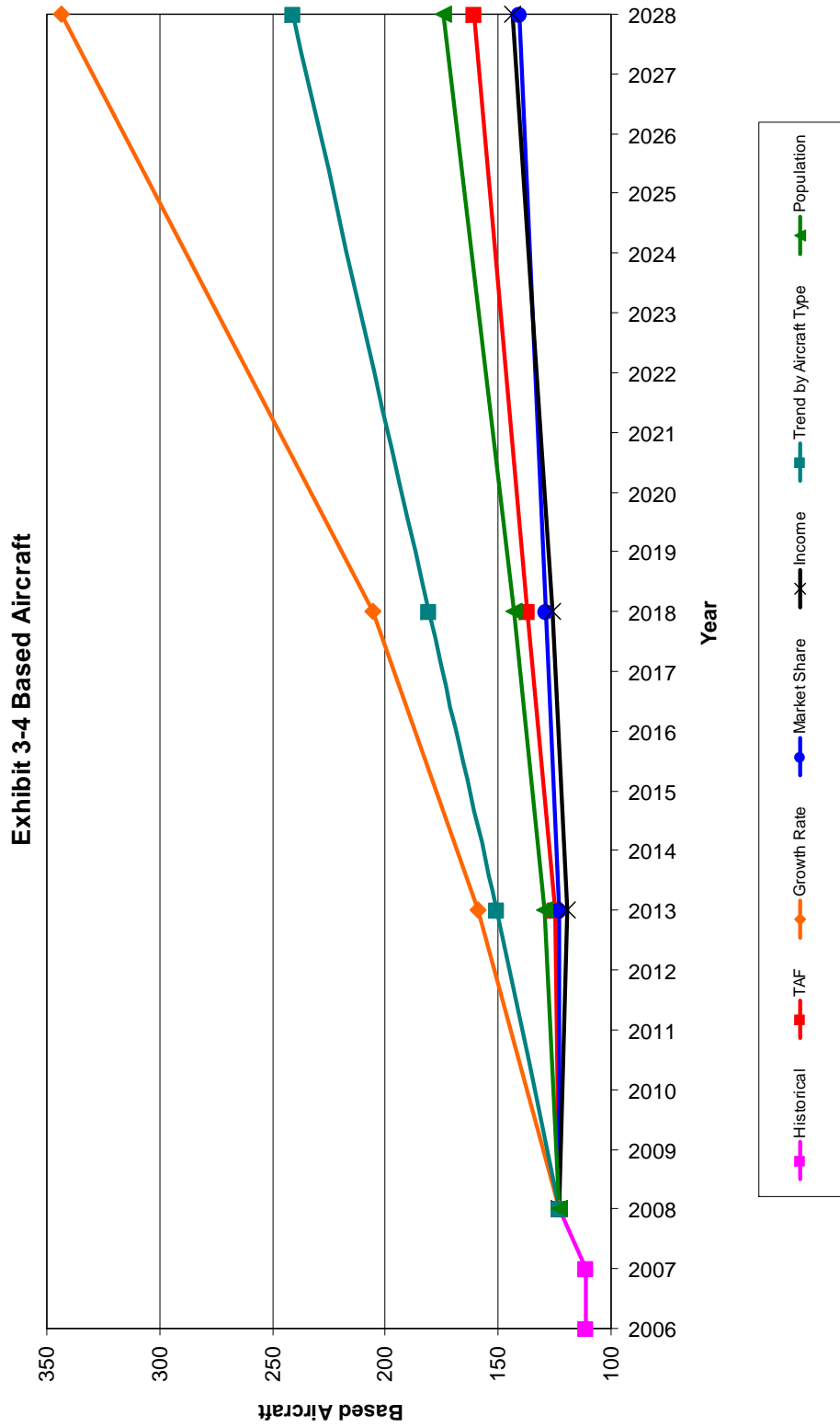
The preferred based aircraft forecast for this Plan is based on population. This forecast demonstrates steady growth within ten percent of the TAF for the 5- and 10-year reporting period. The region’s based GA fleet could grow, yet PSC could see little to no change in the number of based aircraft. It is assumed that PSC has the necessary space to build facilities that will accommodate an increase in based aircraft. The different based aircraft forecasts are presented in **Table 3-31**, and **Exhibit 3-4**.

Year	TAF	Growth Rate	Trend By Aircraft Type	Population	Income	Market Share
2008	123	123	123	123	123	123
2013	118	159	151	129	120	123
2018	129	206	181	143	126	129
2028	151	343	241	174	144	140
CAGR	1.03%	5.27%	3.42%	1.76%	0.79%	0.67%

**4.7.1 Based Aircraft Forecast—Preferred by Aircraft Type**

The preferred based aircraft forecast is categorized by aircraft type. These projections are based on the type maintaining the same percentage of aircraft in proportion to the total number of aircraft in 2008. This forecast is presented in **Table 3-32**.

<b>Table 3-32: Based Aircraft Forecast—Preferred by Aircraft Type</b>					
<b>Year</b>	<b>Single</b>	<b>Multi</b>	<b>Jet</b>	<b>Rotor</b>	<b>Total</b>
2008	87	20	11	5	123
2013	92	20	11	6	129
2018	102	22	13	6	143
2028	124	27	16	8	174
CAGR	1.77%	1.55%	1.78%	2.10%	1.76%



## 5. Cargo

Air cargo transports goods and mail to the Tri-Cities. FedEx is PSC’s scheduled cargo carrier with a dedicated cargo facility at the Airport. This facility processes freight and mail. Charter cargo carriers Airpac and Ameriflight fly as needed, and use the GA apron to transfer cargo. Charter cargo carriers are not required to report cargo volumes to the USDOT. The FAA classifies air cargo as either mail or freight, and tracks cargo by volume in pounds. Mail is transported in an arrangement between FedEx and the U.S. Postal Service. Passenger airlines transport some cargo, but volumes have dropped due to increased security screening.

2008 USDOT records show Horizon Air carried 28,598 pounds of outbound cargo; other airlines combined reported 386 pounds. This section forecasts combined inbound and outbound air cargo volumes for scheduled cargo carriers, and does not include cargo and mail carried by charter cargo and passenger airlines.

### 5.1 Cargo History

Cargo volume from 2006-2008 is presented in **Table 3-33**.

<b>Table 3-33: Cargo History</b>	
<b>Year</b>	<b>Pounds</b>
2006	3,202,768
2007	3,253,408
2008	3,684,733
CAGR	4.78%

Source: USDOT

### 5.2 Cargo Forecast—Growth Rate

The growth rate methodology takes the 4.78 percent CAGR recorded between 2006 and 2008 and uses it to forecast cargo volume. These volumes are shown in **Table 3-34**.

<b>Table 3-34: Cargo Forecast—Growth Rate</b>	
<b>Year</b>	<b>Pounds</b>
2008	3,684,733
2013	4,654,506
2018	5,879,510
2028	9,381,587
CAGR	4.78%

This forecast has not been selected as the preferred cargo forecast. The reasoning is presented in **Section 5.6**.

### 5.3 Cargo Forecast—Market Share

Market share methodology correlates PSC’s total cargo volume to the national cargo volume in the *FAA Aerospace Forecast 2009-2025*, expressed in revenue ton miles (RTMs). An RTM equals a ton of cargo flown for one mile, and is an indicator of the national cargo volume. PSC generated 0.12 percent of the national cargo volume between 2006 and 2008. 0.12 percent is applied to the FAA cargo forecasts to generate the market share forecast. This forecasting method assumes that PSC will maintain this market share throughout the forecasting period, and cargo volumes will fluctuate with national trends. The FAA indicates that RTMs are tied to the national gross domestic product. Cargo volume forecast using the market share methodology is presented in **Table 3-35**.

Table 3-35: Cargo Forecast—Market Share		
Year	US All Cargo Carriers (Millions of RTMs)	Pounds at PSC
2008	27,755.8	3,684,733
2013	31,673.9	3,797,444
2018	40,786.4	4,889,959
2028	59,011.4	7,074,989
CAGR	3.84%	3.32%

Source: FAA

This forecast has not been selected as the preferred cargo forecast. The reasoning is presented in **Section 5.6**.

### 5.4 Cargo Forecast—Boeing Company

The Boeing Company’s *World Air Cargo Forecast 2008-2009* publication is a source of air cargo evaluation and projection. Boeing shows that the U.S. domestic air cargo market has kept a consistent volume since 2004, which indicates a mature market. The forecast predicts that the U.S. domestic market will grow at a rate of 2.6 percent through to 2028. This growth rate remains constant throughout the planning period. This 2.6 percent CAGR is applied to PSC’s cargo volume in **Table 3-36**.

Table 3-36: Cargo Forecast—Boeing Company	
Year	Pounds
2008	3,684,733
2013	4,189,313
2018	4,762,990
2028	6,156,774
CAGR	2.60%

Source: Boeing

This forecast has not been selected as the preferred cargo forecast. The reasoning is presented in **Section 5.6**.

### 5.5 Cargo Forecast—Socioeconomic

The economic development forecast correlates air cargo volume to three economic indicators for the catchment area: gross regional product (GRP), population, and per capita income. This methodology correlates air cargo volume to the socioeconomic activity of the region. Economic forecasts from Woods and Poole provide per capita income and GRP data, and the BFCOG two percent CAGR forecast is used for the population.

#### 5.5.1 Cargo Forecast—Population

An average of 14.23 pounds of cargo per person in Benton and Franklin counties passed through PSC between 2006 and 2008. This ratio has been used to calculate the forecast years. The results are presented in **Table 3-37**.

Table 3-37: Cargo Forecast—Population		
Year	Population	Pounds
2008	233,882	3,684,733
2013	258,225	3,803,694
2018	285,101	4,199,586
2028	347,536	5,119,272
CAGR	2.00%	1.66%

Source: Woods & Poole

This forecast has not been selected as the preferred cargo forecast. The reasoning is presented in **Section 5.6**.

#### 5.5.2 Cargo Forecast—Per Capita Income

An average of 135.41 pounds of cargo per dollar of per capita income in Benton and Franklin counties passed through PSC between 2006 and 2008. This ratio has been used to calculate the forecast years. The results are presented in **Table 3-38**.

Table 3-38: Cargo Forecast—Per Capita Income		
Year	Per Capita Income (2004 Dollars)	Pounds
2008	\$24,928	3,684,733
2013	\$25,969	3,516,525
2018	\$27,403	3,710,652
2028	\$31,236	4,229,742
CAGR	1.13%	0.69%

Source: Woods & Poole

This forecast has not been selected as the preferred cargo forecast. The reasoning is presented in **Section 5.6**.

### 5.5.3 Cargo Forecast—Gross Regional Product

An average of 864.98 pounds of cargo per dollar of GRP in Benton and Franklin counties passed through PSC between 2006 and 2008. This ratio has been used to calculate the forecast years. The results are presented in **Table 3-39**.

Table 3-39: Cargo Forecast—Gross Regional Product		
Year	GRP (Millions of 2004 Dollars)	Pounds at PSC
2008	\$4,003.33	3,684,733
2013	\$4,570.65	3,953,554
2018	\$5,215.95	4,511,725
2028	\$6,794.45	5,877,112
CAGR	2.68%	2.36%

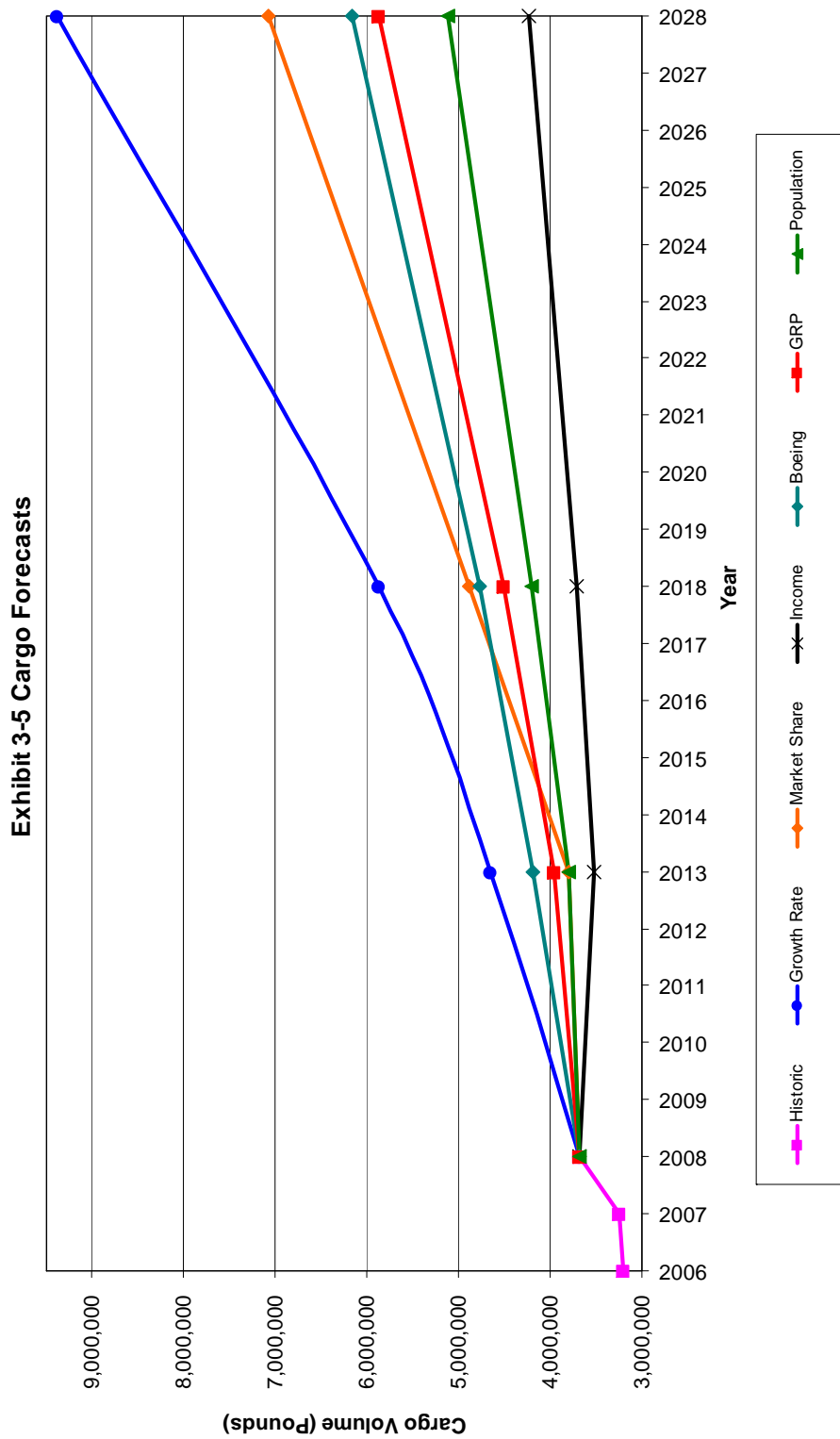
Source: Woods & Poole

This forecast has been selected as the preferred cargo forecast. The reasoning is presented in **Section 5.6**.

### 5.6 Cargo Forecast—Method Comparison and Preference

The GRP forecast is the preferred cargo forecast for this Master Plan. This forecast uses the FAA methodology of tying cargo volume to GRP. Unlike the market share forecast, which is based on the national gross domestic product, this methodology uses a local GRP forecast, making it more sensitive to regional fluctuations. Cargo forecasts are presented in **Table 3-40** and **Exhibit 3-5**.

Table 3-40: Cargo Forecast—Method Comparison						
Year	Growth Rate	Market Share	Population	GRP	Income	Boeing
2008	3,684,733	3,684,733	3,684,733	3,684,733	3,684,733	3,684,733
2013	4,654,506	3,797,444	3,803,694	3,953,554	3,516,525	4,189,313
2018	5,879,510	4,889,959	4,199,586	4,511,725	3,710,652	4,762,990
2028	9,381,587	7,074,989	5,119,272	5,877,112	4,229,742	6,156,774
CAGR	4.78%	3.32%	1.66%	2.36%	0.69%	2.60%



## 6. Peak Aviation Demand

The preferred forecasts for enplanements and operations can be used to generate forecasts of peak demand. Peak demand represents the maximum usage that an airport facility can expect during a given period of time, be it the busiest hour, day, or month. The following methodologies are used to develop the peak demand forecasts for operations, and enplanements.

### 6.1 Peak Operations

A *commercial operation* includes scheduled and unscheduled air carrier, air taxi, and cargo operations. GA represents both local and itinerant operations. Historical analysis shows GA activity divided evenly between local and itinerant operations; therefore the peak GA demand will be similarly split for the average peak *hour, day, and month*. From 2006 through 2008, military operations occurred during off-peak times, and are not anticipated to impact peak operations levels.

Analysis of PSC, FAA, and USDOT data identifies the 2008 peak month for operations. Commercial operations peaked in July with 9.49 percent of the annual total, and GA operations peaked in August with 11.45 percent of the annual total. These percentages are used to calculate the peak month for the forecast years.

Data from the FAA Enhanced Traffic Management System (ETMS) database provides the peak day of the peak month. In 2008, July peak day commercial operations were 4.88 percent of monthly totals, while August peak day GA operations were 5.70 percent of monthly totals. These percentages are used to calculate the peak day for the forecast years.

Peak hour operations are calculated by multiplying the peak day value by the percentage of operations that occur during the peak hour. PSC flight records indicate an average of 9 peak hour commercial operations, which is 11.27 percent of the peak day commercial operations. There were 45 peak hour GA operations, which is 20.49 percent of the peak day. These percentages are used to calculate the peak hour for the forecast years.

### 6.2 Peak Enplanements

Enplanements peaked in June with 9.34 percent of the annual total. Peak day enplanements were calculated by dividing the peak month total by the number of days in the month, 30. 2008 airline records show that the peak hour for enplanements had 264 available seats, which is 35.09 percent of the peak day. The total available seats are forecast to increase as smaller aircraft are replaced, with a total of 39.05 percent of enplanements projected to occur during the peak hour of the forecast years. The forecast values assume 100 percent load factors, which are rare, but have been experienced at PSC.

Peak aviation demand characteristics are presented in **Table 3-41**.

<b>Table 3-41: Peak Aviation Demand Characteristics</b>						
<b>Peak Factor</b>		<b>Passenger Enplanements</b>	<b>Aircraft Operations</b>			
			<b>Commercial</b>	<b>GA</b>	<b>Military</b>	<b>Total</b>
2008	Annual	241,907	17,136	33,969	1,997	53,102
	Peak Month*	22,594	1,626	3,889	312	5,827
	Peak Day	753	79	222	10	311
	Peak Hour	264	9	45	1	55
2013	Annual	269,260	19,427	37,504	1,997	58,928
	Peak Month*	25,149	1,844	4,294	312	6,449
	Peak Day	838	90	245	10	345
	Peak Hour	327	10	50	1	61
2018	Annual	318,907	22,544	41,408	1,997	65,949
	Peak Month*	29,786	2,139	4,741	312	7,192
	Peak Day	993	104	270	10	385
	Peak Hour	388	12	55	1	68
2028	Annual	435,064	26,659	50,476	1,997	79,132
	Peak Month*	40,635	2,530	5,779	312	8,621
	Peak Day	1,354	123	329	10	463
	Peak Hour	529	14	67	1	82

\*: Peak Month has historically been June for enplanements, and July for Operations.

## 7. Preferred Forecast—Summary

These levels are used during facility planning to identify improvement scale and timeline. Passenger enplanements, aircraft operations, and based aircraft forecasts are compared to forecasts from the December 2008 TAF. A negative variance means that the Plan forecast is below the TAF. **Table 3-42** presents a summary of aviation demand projections for PSC.

Year	Passenger Enplanements	Variance to TAF	Aircraft Operations	Variance to TAF	Based Aircraft	Variance to TAF	Cargo (pounds)
2008	241,907		53,102		123		3,684,733
2013	269,260	4.92%	58,928	-3.66%	129	4.38%	3,953,554
2018	318,907	6.40%	65,949	1.27%	143	4.00%	4,511,725
2028	435,064	7.58%	79,132	4.00%	174	8.14%	5,877,112
CAGR	2.98%		2.01%		1.76%		2.36%

*Note: TAF values have been extrapolated to 2028 using CAGR from 2008-2025.*

Selection of preferred forecasts assumes that PSC has the necessary facilities in terms of terminals, fixed base operators, aircraft parking and storage, airspace capacity, and runway length, to attract airlines, aircraft owners, users, and operators, and to accommodate increased activity. Specifics of facilities needed to accommodate this activity are discussed in **Chapter 4, Facility Requirements**.

FAA-format forecasting spreadsheets are included in **Appendix C**.

### 7.1 Preferred Forecast—50-Year Outlook

Using the same growth rates as the preferred forecast summary, activity levels have been projected to 2058. These values are used for ultimate scenario planning, and are presented in **Table 3-43**.

Year	Passenger Enplanements	Aircraft Operations	Based Aircraft	Air Cargo (lbs)
2008	241,907	53,269	123	3,684,733
2058	1,050,250	144,083	294	11,828,233
CAGR	2.98%	2.01%	1.76%	2.36%