# CHAPTER 2
# AVIATION FORECASTS

This chapter presents the passenger, based aircraft, and aircraft operations forecast for the Newport News/Williamsburg International Airport (Airport). The objective of the forecast is to identify the long-term trends for the types and levels of aviation activity that could trigger the need for airport facility expansion or improvement.

This chapter presents a long-term projection of airport activity to the year 2032. The FAA Terminal Area Forecast (TAF) is seen as the best source of future scheduled commercial passenger volumes, aircraft operations, and based aircraft. Therefore, the TAF will be used as the base forecast. Several alternative forecasts of higher and lower enplaned passenger traffic will provide variations for planning purposes.

These alternative scenarios are also valuable to recognize the extreme volatility present in the airline industry, as well as the competitiveness of the airport's local market. Critical concerns of any aviation forecast include possible airline consolidation, higher fuel prices, new environmental regulations, and shifts in airline service patterns.

This forecast is necessary to update the airport's traffic projections based on the most recent changes in regional air service and airline operational policy, as well as other aviation industry issues. Some of the major recent trends in scheduled commercial passenger service include: 1) the merger of certain carriers such as United-Continental and Southwest-AirTran, 2) the shift away from regional jets to larger jet aircraft, 3) the continued growth of "low-fare" carriers, 4) the unbundling of passenger fees, and 5) the increased transparency of ticket prices via the internet. Other aviation-related issues include continued capacity restraints in major metropolitan areas such as in New York and Chicago, the increasing emphasis on the environment, the growth of corporate aviation particularly with fractional ownership, and the steady decline in private aircraft flying. These issues will be considered in this analysis.

This chapter is organized into sections, as follows:

- Identifying the regional base for aviation
- Presenting historical passenger activity
- Generating the passenger forecasts
- Calculating the design day and design hour
- Identifying the design aircraft
- Developing the aircraft operations forecast
- Providing summaries of forecasts issues, activity alternatives, and conclusions

Note that this forecast is intended to be used for long-term planning purposes. It is presented in five-year increments, as well as peak period activity. Individual forecast years are less important in this type of forecast than trends, with sharp year-to-year variations possible as airlines, routes, equipment, and competition vary.

## 2.1 THE REGIONAL BASE FOR AVIATION ACTIVITY

This section identifies the geographic area served by the Airport and the region's characteristics that influence aviation demand. It is recognized that air passengers can come into the region from outside and local residents can utilize other airports; however, this regional analysis provides a basis for identifying and understanding the greater Newport News and Williamsburg area and its ability to support aviation activity.

### 2.1.1 Identification of the Air Trade Area and Population

The prime geographic region served by an airport is referred to as an Air Trade Area. For the purposes of this report, that portion of the Virginia Beach-Norfolk-Newport News Metropolitan Statistical Area (MSA) surrounding the Airport is defined as the Air Trade Area. This MSA is identified by the federal government as the prime business market of southeastern Virginia and it is the major source of existing passengers. Note that the MSA definition utilized in this report is the November 20, 2008 revision from the U.S. Office of Management and Budget.

The MSA contains two commercial service airports – Norfolk International and Newport News/Williamsburg International. For purposes of this analysis, the MSA has been split geographically between the two airports to indicate the population immediately surrounding each. As previously noted, these political unit definitions are not necessarily the only "market" for each airport; rather, they provide a demonstration of the size and economic potential of the Airport's immediate region, as well as adjacent areas.

The Virginia Beach-Norfolk-Newport News Metropolitan Statistical Area consists of nine independent cities and seven counties. The estimated 2009 MSA population by Woods and Poole Economics was 1,677,344. The names of the MSA cities and counties are shown in Table 2-1. Further, this table identifies the split of the MSA into two parts identifying the eastern section associated with the Norfolk International Airport (ORF) and the western part associated with the Newport News/Williamsburg International Airport (PHF).

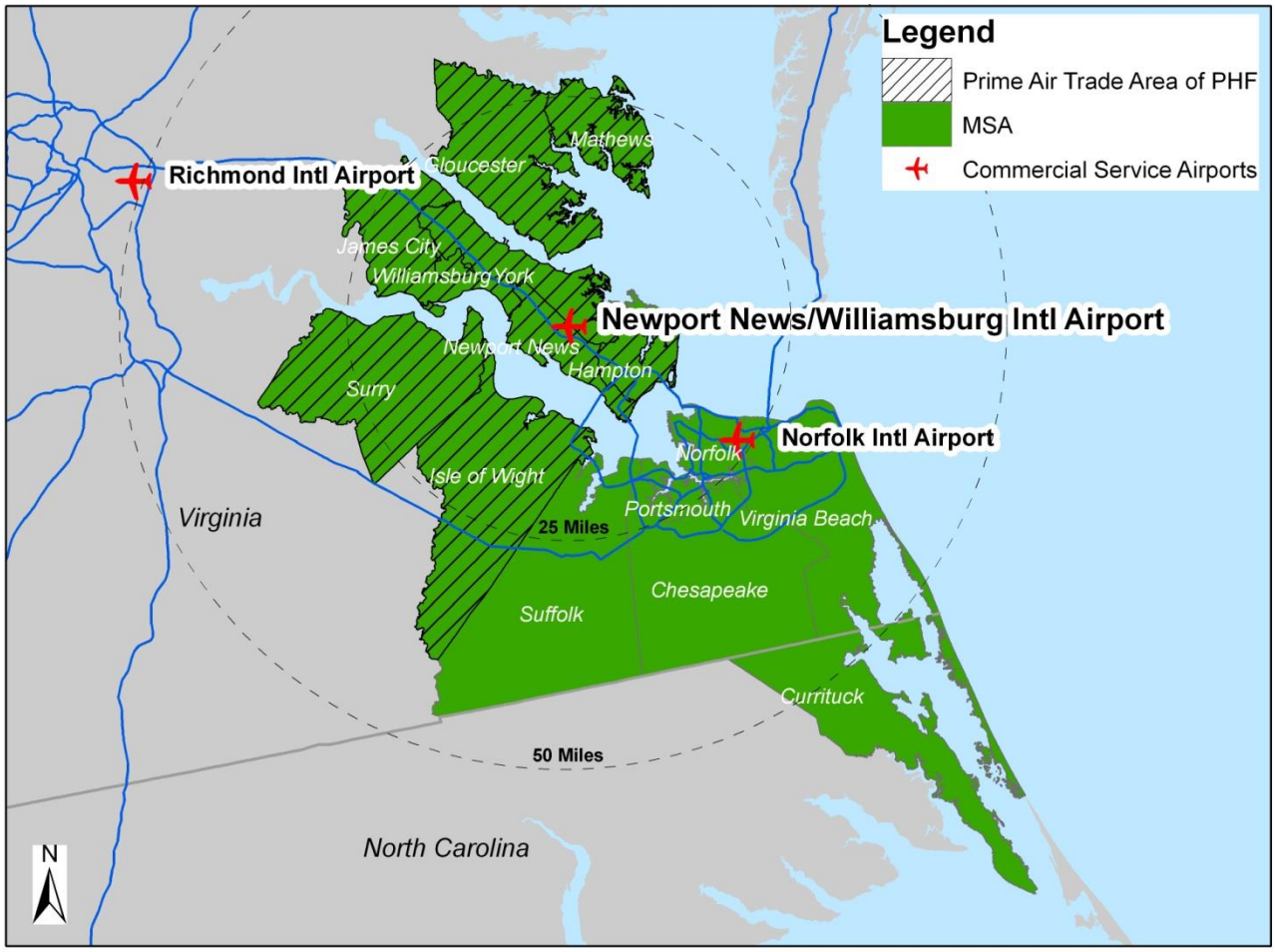
As previously noted, the western part of the MSA surrounding the Airport is defined as the Air Trade Area. The estimated 2009 population of the Air Trade Area is 525,492. Within the larger MSA, roughly two thirds of the population resides closer to ORF and one third resides closer to PHF. A map of the MSA, as well as key roads and nearby airports, is shown on Figure 2-1.

*Table 2-1*
**MSA CITY/COUNTY IDENTIFICATION**

| | Assignment | |
|---|---|---|
| **Political Unit** | **PHF** | **ORF** |
| **Cities** | | |
| Chesapeake | | X |
| Hampton | X | |
| Newport News | X | |
| Norfolk | | X |
| Poquoson | X | |
| Portsmouth | | X |
| Suffolk | | X |
| Virginia Beach | | X |
| Williamsburg | X | |
| **Counties** | | |
| Currituck, NC | | X |
| Gloucester | X | |
| Isle of Wight | X | |
| James City | X | |
| Mathews | X | |
| Surry | X | |
| York | X | |

Source: Reynolds, Smith and Hills, Inc., 2010

*Figure 2-1*
**MAP OF THE MSA**




Source: Reynolds, Smith and Hills, Inc., 2010

This map also indicates the location of the Norfolk and Richmond airports in relation to the Newport News/Williamsburg International Airport. These other airports are discussed in a later section of this chapter.

### 2.1.2 Regional Demographic and Economic Information

The following section presents historical socio-economic measurements for the Air Trade Area. Socio-economic trends are typically a key indicator of future aviation activity; specifically these measures include the relative changes in: population, employment, and per capita personal income. Understanding the historical and forecast trends in socio-economic variables and how they relate to local, state, and national trends is fundamental to understanding the potential increase in demand for aviation at the Newport News/Williamsburg International Airport.

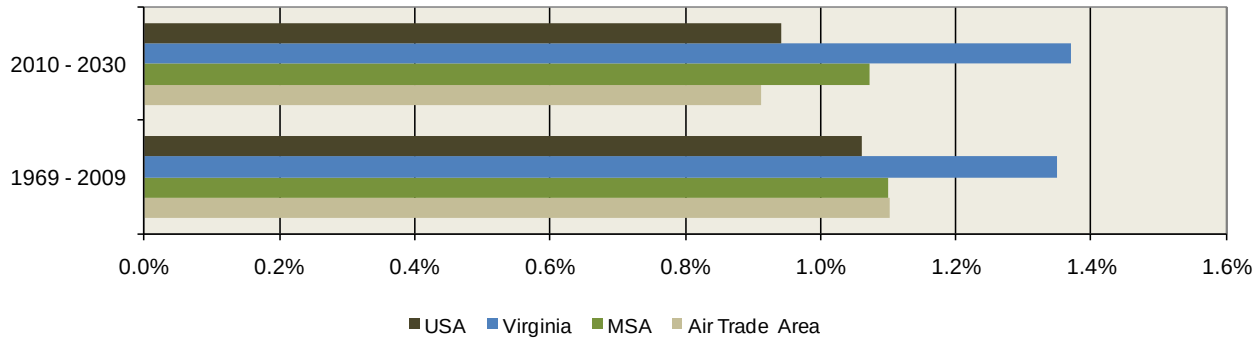
This section identifies the key socio-economic characteristics of the Air Trade Area. In addition, large regional employers and sources of employment are identified. For comparison, the Air Trade

Area's population, employment, and per capita income are presented with comparable information for the entire United States, the Commonwealth of Virginia, and the MSA.

*Population Growth*

The rate of population growth in the MSA and Air Trade Area has historically been similar to the United States at 1.1 percent annually; however, the Commonwealth has grown slightly faster at 1.4 percent annually. For the future, as projected by Woods and Poole Economics, the regional population is expected to grow in a similar fashion to the United States. The Commonwealth is expected to continue its faster-than-typical growth rate. This higher statewide average is assumed to occur from the continued strong economy of the Northern Virginia-Washington, D.C. area. The historical and projected population comparison of the United States, Commonwealth of Virginia, MSA, and Air Trade Area is shown in Figure 2-2.

*Figure 2-2*
**HISTORICAL AND PROJECTED POPULATION GROWTH RATES**



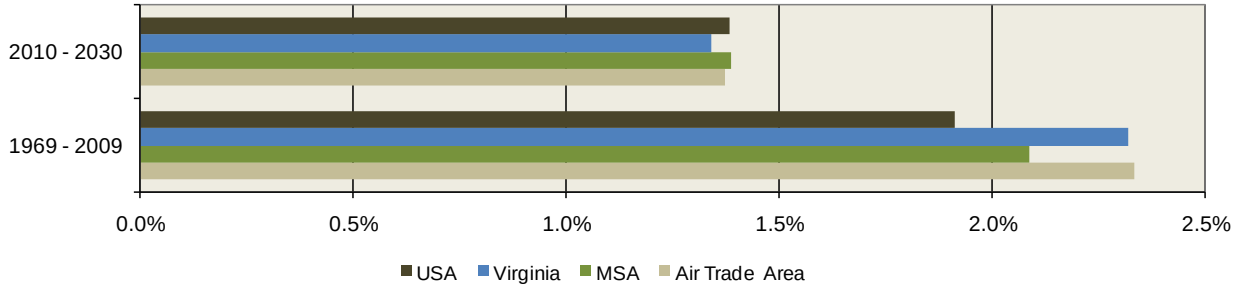

| Area | 1969-2009 | 2010-2030 |
|---|---|---|
| United States | 1.1% | 0.9% |
| Virginia | 1.4% | 1.4% |
| MSA | 1.1% | 1.1% |
| Air Trade Area | 1.1% | 0.9% |

Source: Woods and Poole Economics, 2010

*Per Capita Personal Income*

Per Capita Personal Income (PCPI) in the Commonwealth, MSA, and Air Trade Area was less than the United States average in 1969. Amounts for today and the projected 2030 numbers are similar between the U.S. average and the MSA / Air Trade Area. Based upon the current and projected amounts, the Commonwealth of Virginia is pulling ahead of national and MSA / Air Trade Area averages. Again, this is due to the relatively greater prosperity of the Northern Virginia area. Note that all these amounts are provided in constant year 2004 dollars as presented in Figure 2-3.

*Figure 2-3*
***COMPARISON OF PER CAPITA PERSONAL INCOME AVERAGES (2004 $)***



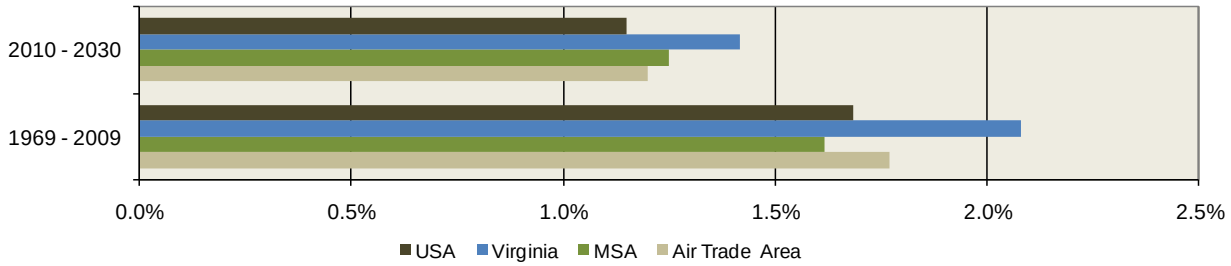

| Area | 1969 | 2009 | 2030 |
|---|---|---|---|
| United States | $ 16,465 | $ 35,142 | $ 46,851 |
| Virginia | $ 15,252 | $ 38,192 | $ 50,520 |
| MSA | $ 14,925 | $ 34,097 | $ 45,356 |
| Air Trade Area | $ 14,227 | $ 35,832 | $ 47,342 |

Source: Woods and Poole Economics, 2010

*Employment*

The rate of employment growth is compared in this section. Between 1969 and 2009, the United States, Virginia, the MSA, and the Air Trade Area all saw relatively strong employment growth with the Commonwealth showing the strongest growth. For the future, the rate of employment growth is expected to be similar among the four areas with Virginia, the MSA, and the Air Trade Area slightly higher than the United States average. The growth rate for comparative area employment is presented in Figure 2-4.

*Figure 2-4*
**COMPARISON OF TOTAL EMPLOYMENT GROWTH RATES**




| Area | 1969-2009 | 2010-2030 |
|---|---|---|
| United States | 1.7% | 1.1% |
| Virginia | 2.1% | 1.4% |
| MSA | 1.6% | 1.2% |
| Air Trade Area | 1.8% | 1.2% |

Source: Woods and Poole Economics, 2010

*Major Employers and Other Economic Indicators*

As in any community, the major employers in the MSA include a large number of governments, schools, and hospitals. Northrop Grumman Shipbuilding is the largest single regional employer with approximately 19,000 full time equivalent employees. The 15 largest employers in the Hampton Roads area are listed in Table 2-2.

*Table 2-2*
**HAMPTON ROADS LARGEST EMPLOYERS**

| Employers | Business | Employees |
|---|---|---|
| Northrop Grumman Shipbuilding | Shipbuilding and repair | 19,000 |
| Sentara Healthcare | Health care | 17,000 |
| Virginia Beach Public Schools | Government | 10,000 |
| Norfolk Naval Shipyard | Military | 8,000 |
| Riverside Health Systems | Health care | 7,000 |
| Norfolk Public Schools | Government | 7,000 |
| Chesapeake City Public Schools | Government | 6,000 |
| Virginia Beach City | Government | 6,000 |
| Newport News City | Government | 6,000 |
| Naval Medical Center Portsmouth | Health care | 5,000 |
| Smithfield Foods | Meat processing | 5,000 |
| College of William and Mary | Higher education | 5,000 |
| Newport News Public Schools | Government | 5,000 |
| Norfolk City | Government | 4,000 |
| NASA Langley Research Center | Aerospace technology | 4,000 |

Source: Hampton Roads Economic Development Authority, July 2010; All numbers rounded to thousands

It should be noted that many of the MSA's largest employers are located in the immediate vicinity of the Airport and may be expected to provide increased opportunities for passenger growth. The largest of these private employers located near the Airport include: Northrop Grumman Shipbuilding, Smithfield Foods, the College of William and Mary, and the NASA Langley Research Center.

Issues of government and the seaport related jobs focus the discussion of regional employment. These points are summarized below.

- **Military and Federal Government** – Military activities have played a critical role throughout the history of the Hampton Roads region. These events include the British surrender at Yorktown in 1781, the Monitor-Merrimac battle of the Civil War, the main base of the Atlantic Fleet in World War II, and today's NATO naval headquarters location. As such, the region has numerous military bases, support facilities, and defense-related industries. According to a 2004 Old Dominion University study, military spending accounted for 35 percent of the MSA's economy. The four largest military facilities within the Air Trade Area are: Langley Air Force Base, Fort Eustis, Yorktown Naval Weapons Station, and Camp Peary. Langley Air Force Base, located approximately 8 miles east of the Airport, is home to the F-22 Raptor and various NASA and government research facilities. Fort Eustis, located approximately 6 miles west of the Airport, serves as the headquarters of the U.S. Army Transportation Branch. The Yorktown Naval Weapons Station, located approximately 10 miles northwest of the Airport, provides ordnance, logistics, supply, and related services to the U.S. Navy. Camp Peary, located approximately 15 miles northwest of the Airport, provides support functions for various federal agencies.

- **Port of Hampton Roads** – Access to the sea directs discussion of local industry. Northrop Grumman Shipbuilding (formerly the Newport News Shipbuilding and Drydock Company) is the region's largest employer as noted above. This shipyard is one of two U.S. builders of nuclear submarines and the only builder of aircraft carriers. Construction and repair of these types of vessels for the U.S. Navy is now the firm's principal business. With approximately 19,000 employees, the firm is key to the economy of Newport News. Export of coal occurs from the Hampton Roads piers of the CSX Railroad and the Norfolk Southern Railroad. The CSX coal pier is located in Newport News and the Norfolk Southern pier in Norfolk. Other piers in the region are designed to handle bulk cargo, containerized freight, grain, and passengers. Loading and unloading the ships that transport containerized freight is a growing industry particularly because the Panama Canal is being widened so that ships from Asia can soon sail directly to east coast ports. In anticipation of the expected growth of cargo traffic, both the Norfolk Southern and CSX railroads are being modified to handle double stacked containers from Hampton Roads to the Midwest. Note that Hampton Roads is one of the few ports on the East Coast capable of handling the largest container ships. Finally, there are many smaller businesses in the Hampton Roads area dependent upon fishing, ship repair, or other ocean-related businesses.

A number of colleges, universities, and technical schools are located in the MSA. Located within the Air Trade Area are Christopher Newport University in Newport News; Hampton University and Thomas Nelson Community College in Hampton; and the College of William and Mary located in Williamsburg. Other schools in the MSA include: Old Dominion University, Norfolk State University, Regent University, and Virginia Wesleyan University.

### 2.1.3 Economic Strength of the Air Trade Area

In summary, the Air Trade Area has a large, growing population base with a strong economy. The region's businesses are diversified with strong business, military, and tourism components. These factors suggest that aviation activity will continue to increase as presented in subsequent sections of this chapter.

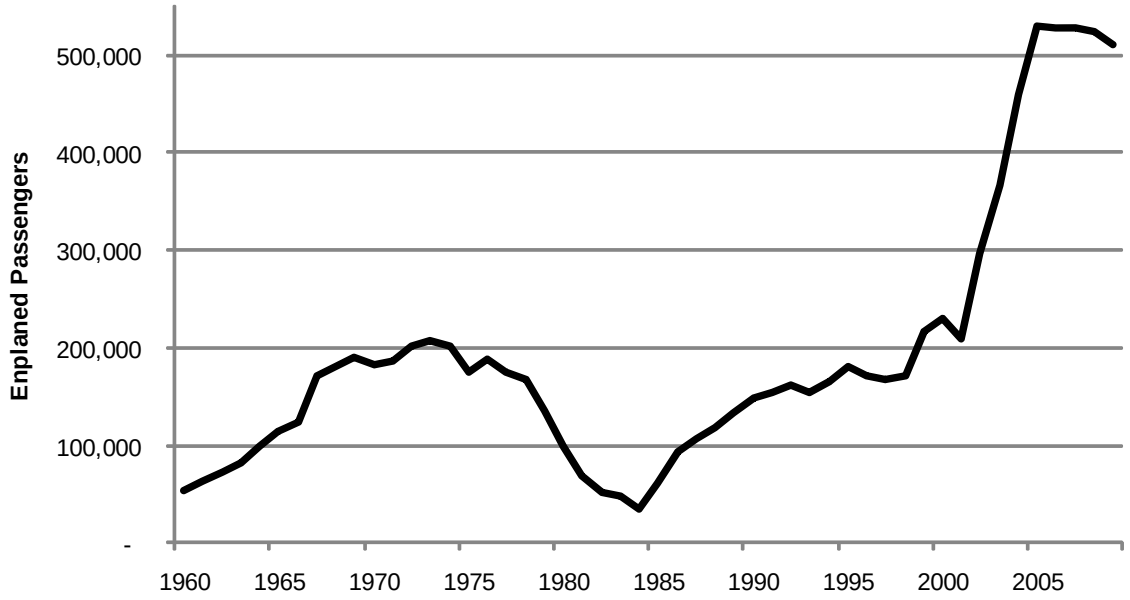
## 2.2 HISTORICAL PASSENGER ACTIVITY

This section identifies the historical air traffic activity at the Airport. The number of enplaned passengers has increased from 54,100 in 1960 to over 500,000 in 2009. The average annual passenger growth rate over this 50-year period was 4.6 percent.

### 2.2.1 Annual Enplaned Passenger Activity

Airport records start in 1960 and indicate 54,100 enplaned passengers that year. The enplaned passenger history in the 50-year period from 1960 to 2009 presents a somewhat uneven record. In the first 25 years from 1960 to approximately 1985, passenger traffic grew to over 200,000, and then it retreated to the 1960 level. In the next 15 years to about 2000, passenger grew again to the approximately 200,000 annual level. In the 2001 to 2005 period, air passenger levels increased dramatically as AirTran introduced service. The cause of these changes over 50 years has been the frequent introduction and withdrawal of airline carriers and routes at the Airport. The annual enplaned passengers in the 1960 through 2009 period are shown in Figure 2-5. In addition, the average annual growth rate at 10-year intervals is presented.

*Figure 2-5*
***HISTORICAL ENPLANEMENTS 1960-2009***




| Year | Enplanements |
|---|---|
| 1960 | 54,100 |
| 1970 | 182,500 |
| 1980 | 100,200 |
| 1990 | 149,599 |
| 2000 | 229,381 |
| 2009 | 492,548 |

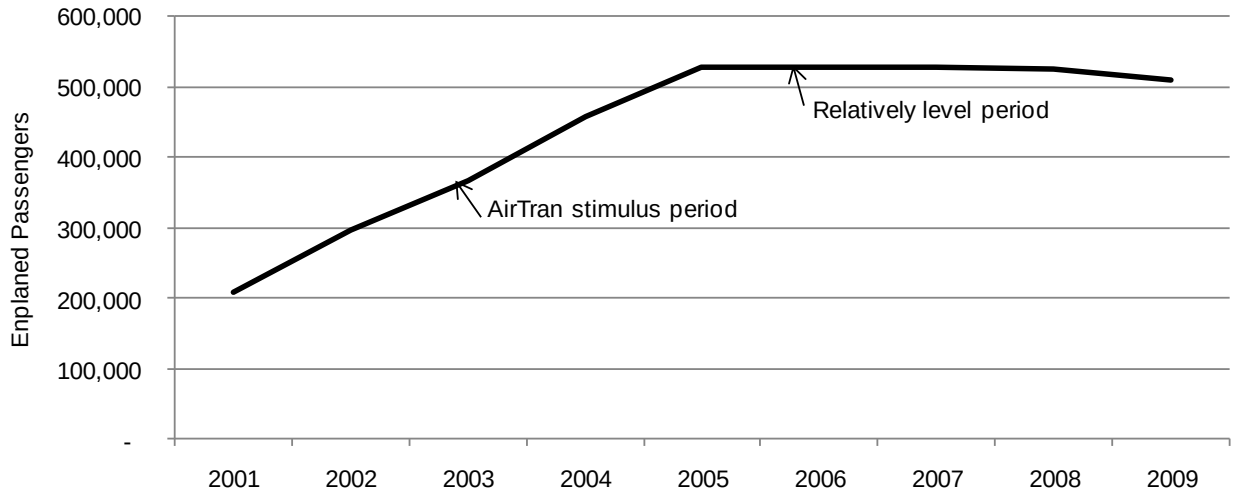
| Average Annual Growth Rate | |
|---|---|
| 1960-1970 | 12.9% |
| 1970-1980 | -5.8% |
| 1980-1990 | 4.1% |
| 1990-2000 | 4.4% |
| 2000-2009 | 8.9% |
| 1960-2009 | 4.6% |

Source: Peninsula Airport Commission, 2010; Except 2009, from FAA Terminal Area Forecast

The last nine years of passenger traffic are examined in more detail in this section. AirTran introduced service in 2001 and traffic increased in the next four years from just over 200,000 to just over 500,000 enplaned passengers in 2005. The growth rate in these four years exceeded 20 percent annually.

Passenger levels for the last five years (2005-2009) have been steady at over 500,000 enplaned passengers. It should be noted the national economic recession and airline service cut-backs in 2007, 2008, and 2009 have not significantly reduced passenger traffic at the Airport. The last nine years of passenger traffic showing the growth with the stimulus of AirTran service and strong market over the last five years are shown in Figure 2-6.

*Figure 2-6*
**HISTORICAL ENPLANEMENTS 2001-2009**




Source: Peninsula Airport Commission, 2010

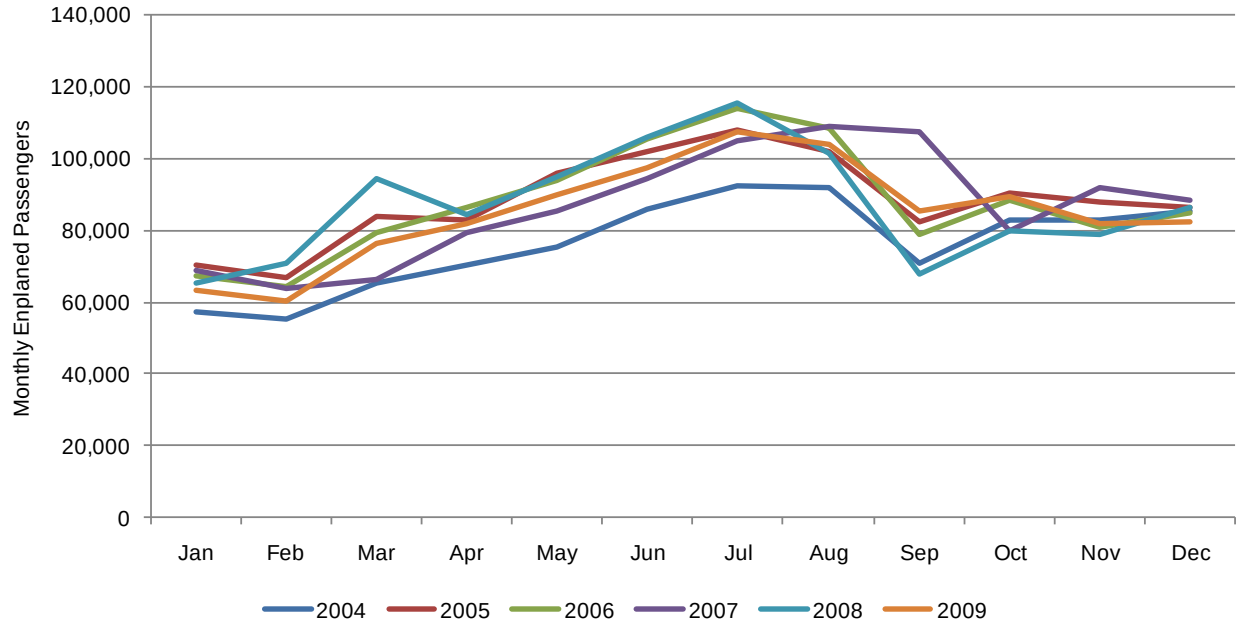
### 2.2.2 Monthly and Other Seasonal Trends

The monthly air carrier passenger traffic at the Airport shows a similar trend to national domestic travel with mid-summer being the peak travel time and relatively weaker traffic in mid-winter. The trend by month or season is identified in this section.

January and February are typically the lowest months for air carrier activity. The next few months (March, April, May, and June) generally show a gradual increase. The peak months of the year are normally July and August as vacation travel peaks. September typically shows a large decrease as students return to school and vacation travel slackens. The last three months of the year (October, November, and December) have lower traffic than the summer peak, but higher than January and February.

Based on six years of historical data, the peak month (July) averages 68 percent higher traffic than the lowest average traffic month of February. At the same time, while the airport's traffic shows a summer peak and mid-winter doldrums, the market does not have the extreme peaks as often seen at certain leisure markets. Passenger traffic is similar to national trends with a relatively slow transition between seasons. Also important for the relatively constant monthly passenger totals is that the Airport serves a variety of business, tourism, and military users, rather than just one or two types of traffic. Note that the airport's airline flight schedule does not vary significantly during the year; rather, the aircraft load factor is the largest source of change. The average monthly passenger traffic for the past six years appears in Figure 2-7.

*Figure 2-7*
**MONTHLY ENPLANED PASSENGER TRAFFIC 2004 TO 2009**




Source: Peninsula Airport Commission, 2010

### 2.2.3 Airlines Providing Service

Four airlines currently provide regularly scheduled passenger service to the Airport. These are AirTran, Frontier, Delta, and US Airways. Delta and US Airways are often called "legacy" airlines because their operations predate passage of the Airline Deregulation Act in 1978. These carriers operate extensive domestic and international route systems, but their local flights are often provided by one or more of Delta's or US Airway's regional commuter affiliates, rather than the mainline carrier itself. AirTran and Frontier are frequently classified as "low cost carriers." These airlines were founded since 1978 and base their marketing upon low ticket prices.

On September 27, 2010, Southwest Airlines announced the acquisition of AirTran Airways. It may take a year or more for the proposed acquisition to be approved and likely another year before full integration of their routes and schedules occurs. This forecast assumes that the merger will be approved by all government agencies and, in time, Southwest takes over all AirTran routes including those to the Airport. While Southwest currently serves Norfolk and AirTran serves Richmond, for purposes of this analysis, it is believed that, upon completion of the acquisition, Southwest Airlines will use Newport News/Williamsburg International Airport to expand their presence in the Tidewater.

### 2.2.4 Flight Destinations

Each of the airlines serving the Airport currently flies to one or more of their respective hubs with AirTran also serving the cities of Boston and New York. The November 2010 identification of non-stop cities served by commercial passenger airlines is shown in Table 2-3.

*Table 2-3*
**SCHEDULED PASSENGER AIRLINES SERVING THE AIRPORT**

| Airline | Markets Served Non-Stop |
|---|---|
| AirTran | Atlanta, Boston, New York, Orlando |
| Delta | Atlanta |
| Frontier | Denver |
| US Airways | Charlotte, Philadelphia |

Source: Peninsula Airport Commission, 2010

## 2.3 SIGNIFICANT FACTORS INFLUENCING PASSENGER AIR SERVICE

This section identifies the most significant factors expected to influence regional aviation demand. Competition among airports and airlines results in a situation where regional passengers have multiple choices for travel.

### 2.3.1 Location and Other Characteristics of Regional Airports

The Airport serves a unique Air Trade Area because it is located in the Virginia Beach-Norfolk-Newport News Metropolitan Statistical Area and relatively near a number of other airports. That is, a number of other commercial service airports are located within potential driving distance. This section will identify these other, nearby airports.

By far the most important competitive airports for the Newport News/Williamsburg International Airport are Norfolk International and Richmond International. Other airports such as Washington Dulles, Washington Ronald Reagan, and Raleigh-Durham may be reasonably close in distance, but none are believed to be serious competitors for passengers or air cargo due to the driving time needed to reach them and in the face of the extensive air service available in Tidewater and Richmond areas. Each of these other airports has more passenger airlines than the Newport News/Williamsburg International Airport as indicated in Table 2-4.

*Table 2-4*
**IDENTIFICATION OF DOMESTIC AIRLINES SERVING NEARBY AIRPORTS**

| Airline | Newport News | Norfolk | Richmond | Washington Reagan | Washington Dulles | Raleigh-Durham |
|---|---|---|---|---|---|---|
| AirTran | X | | X | X | X | X |
| Alaska | | | | X | | |
| American | | X | X | X | X | X |
| Continental | | X | X | X | X | X |
| Delta | X | X | X | X | X | X |
| Frontier/Midwest | X | | | X | | |
| Jet Blue | | | X | | X | X |
| Southwest | | X | | | X | X |
| Spirit | | | | X | | |
| Sun Country | | | | | X | |
| United | | X | X | X | X | X |
| US Airways | X | X | X | X | X | X |
| Virgin America | | | | | X | |

Source: Each airport, September 2010; International carriers excluded

Key information including the mileage from each airport to the Newport News/Williamsburg International Airport and driving time to the main competitive airports is provided in Table 2-5. Also

provided is the number of enplaned passengers at each airport in calendar year 2009 and their size ranking among all U.S. airports based upon FAA data.

All these airports are linked to the Air Trade Area by interstate highways that make driving relatively easy. However, driving to and from the Peninsula is in some cases restricted by bridges and tunnels. Further, highway congestion (particularly around Washington) can hinder access at peak times.

*Table 2-5*
**INFORMATION ON SURROUNDING REGIONAL AIRPORTS**

| Airport Location | Highway Miles | Driving Time | 2009 Enplanements | 2009 Size Ranking |
|---|---|---|---|---|
| Newport News/Williamsburg | 0 | 0 | 492,548 | 115 |
| Norfolk | 29 | 0:37 | 1,701,246 | 66 |
| Richmond | 62 | 1:01 | 1,649,284 | 68 |
| Washington Reagan | 165 | 2:32 | 8,490,288 | 26 |
| Washington Dulles | 181 | 2:47 | 11,131,406 | 20 |
| Raleigh-Durham | 220 | 3:24 | 4,435,624 | 38 |

Source: Microsoft Maps, 2010; FAA ACAIS except 2009 Newport News from FAA TAF

A specific issue influencing passenger access to and from local airports is that highway travel between the Peninsula and the Norfolk/Virginia Beach area is restricted by the Hampton Roads Bridge-Tunnel, the Monitor-Merrimac Bridge-Tunnel, and the James River Bridge. These facilities do not have a toll, but often become very congested at peak times. Therefore, there may be some reluctance of air passengers to cross Hampton Roads to access a relatively nearby airport from either direction at peak commuting times.

### 2.3.2 Airport Efforts to Improve Air Service

The Airport has been aggressive in efforts to increase and improve air service to the Hampton Roads area. These efforts include submitting applications to increase air service under the Small Community Air Service Development Program, preparing numerous studies of passenger demand, working to address certain policy constraints on military travel from the Airport, and seeking community financial assistance to subsidize new air service. Because the community has been aggressive in seeking and financially supporting new air service, higher than FAA projected passenger growth is recognized in two of the three alternative forecast scenarios contained in this report.

Airports are prohibited by the FAA from offering subsidies for airline service. Airports can, however, offer limited incentives for new or increased service. At the same time, local governments or community groups not associated with an airport can offer airline subsidies or other air service inducements. Specific FAA regulations regarding airport support for air service are addressed in the *Air Carrier Incentive Program Guidebook: A Reference for Airport Sponsors,* September 2010, and other Federal documents.

In the case of the Airport, a local community effort called the Regional Air Service Improvement Group provides certain incentives for local air service. Cities and counties in this group include Newport News, Hampton, Poquoson, James City County, Williamsburg, Gloucester, and York County. In the past, this group has subsidized AirTran service to New York, Fort Lauderdale, Boston, and Tampa. The current incentives are for Frontier service to Denver.

## 2.4 PASSENGER FORECAST

This section presents the enplaned passenger forecasts. The analysis is based upon the FAA Terminal Area Forecast (TAF) and three alternative airline activity scenarios of future traffic. The TAF is the "base" projection used as the principal expectation for future analysis in this Master Plan. The three alternatives include a low growth scenario, an aggressive growth scenario, and a very aggressive growth scenario.

All the forecasts are used in the Master Plan for comparative purposes representing potential alternative aviation activity possibilities. Multiple forecasts are valuable to the planning process to recognize that passenger traffic might be different from the base TAF projection. A summary of the cases is presented in Table 2-6 and further detailed in the sections below.

*Table 2-6*
***SCHEDULED COMMERCIAL PASSENGER CASE SUMMARY***

| Case Name | Basic Assumptions | Number of Airlines | Non-Stop Cities Served | Long-Term Growth Rate |
|---|---|---|---|---|
| FAA TAF - Base Case | Use of Dec. 2010 FAA TAF | Four (FL,DL,F9,US) | Eight | 2.9 % |
| Scenario One: Slower Growth | Scenario with a lower rate of growth than the TAF | Four (FL,DL,F9,US) | Six | 1.0 % |
| Scenario Two: Aggressive Growth | Scenario with a rate of growth higher than the TAF | Four (FL,DL,F9,US) | Nine | 3.2 % |
| Scenario Three: Very Aggressive Growth | Scenario with a rate of growth higher than Aggressive Growth | Five (FL,DL,F9, UA,US) | Ten | 3.5 % |

Source: Reynolds, Smith and Hills, Inc., 2010; FL=Frontier, DL=Delta, F9=AirTran, UA=United, and US=US Airways

### 2.4.1 Passenger Forecast Qualifications and General Assumptions

All the cases presented in this forecast make general assumptions regarding the U.S. economy and the aviation industry. Significant assumptions regarding the growth of passengers at the Airport include:

- The worldwide economy continues its recovery from the recent recession.
- The Air Trade Area and MSA continue their strong population and economic growth.
- Air passenger travel in the United States continues to grow based on the availability of jet fuel and its reasonable price; relatively low taxes on air travel; environmental laws that support continued air travel; and the lack of competitor modes (such as rail) for long distance travel.
- The so-called "low fare carriers," such as AirTran, Frontier, Jet Blue, Spirit, Southwest, and Virgin America continue to seek-out underserved markets and aggressively increase flights. This causes the legacy carriers such as American and Delta to remain very competitive.
- The market for air carrier aircraft continues to be very competitive and to offer more fuel and operationally efficient models at reasonable prices. The expectation is that the average size of aircraft on U.S. routes continues to increase as there are few new 100 seat or smaller aircraft on the market. Therefore, the airlines switch to 125 to 150 seat jets for much of the Airport's future service as traffic grows and congestion increases at major hub airports.

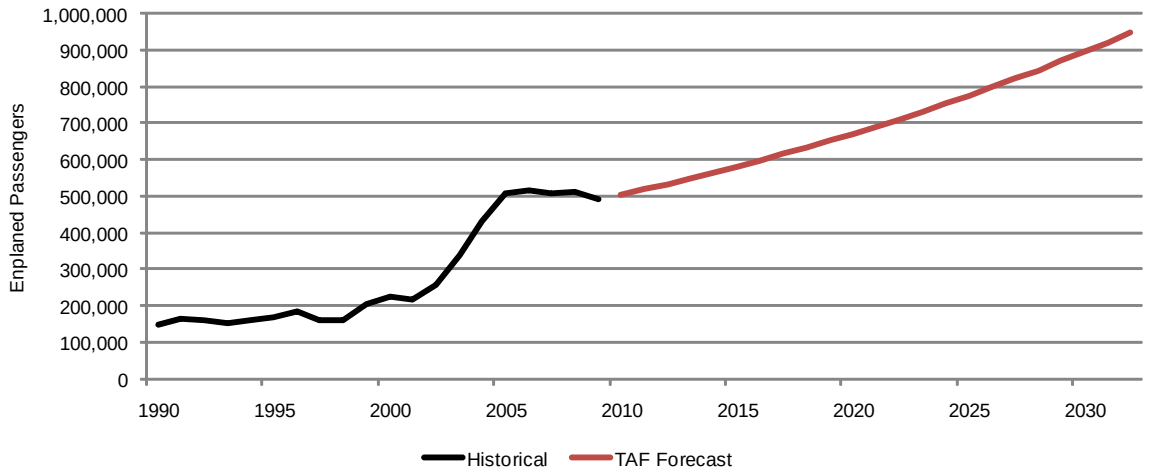
All the forecast cases include the expectation that the Airport continues as the low fare leader in the southeastern Virginia market and attracts passengers from a broad geographic area.

### 2.4.2 Presentation of FAA TAF Forecast – Base Case

This Master Plan assumes the FAA 2010 TAF is the principal basis for future facility planning. The FAA prepares an annual projection of commercial passengers and aircraft operations traffic for all U.S. airports. This TAF is calculated based upon each airport's historical activity and national averages for change in passengers, aircraft operations, and certain other activity measures. Note that the TAF projects traffic to 2030 and this analysis has extrapolated the TAF another two years to 2032 based on the indicated growth rate.

The FAA TAF projects that enplaned passenger activity continues to increase from the 500,000 annual range of the last few years at a 2.9 percent average annual rate. This rate of increase is higher than the national average domestic passenger growth rate of 2.4 percent contained in the *FAA Aerospace Forecast, Fiscal Years 2010-2030*, released in March 2010. In approximately 20 years by 2032, almost 950,000 enplanements are projected at the Airport, an increase of roughly 450,000 from today's level. The TAF forecast of enplaned passengers is presented in Figure 2-8.

*Figure 2-8*
**DECEMBER 2010 FAA TERMINAL AREA FORECAST**




| Year | Enplanements |
|---|---|
| **Actual** | |
| 2000 | 227,079 |
| 2005 | 509,721 |
| 2009 | 492,548 |
| **Forecast** | |
| 2017 | 615,519 |
| 2022 | 710,749 |
| 2027 | 820,986 |
| 2032 | 948,354 |

| Average Annual Growth Rate | |
|---|---|
| 2000-2009 | 9.0% |
| 2009-2017 | 2.8% |
| 2009-2032 | 2.9% |

Source: FAA TAF, December 2010; Year of 2032 calculated based on the average growth rate

The scheduled commercial passenger airline service outlook that parallels the TAF forecast is that AirTran, Delta, Frontier, and US Airways remain the principal carriers. No "new" carriers are necessarily anticipated; rather, the existing carriers add flights, destinations, and/or increase the size (gauge) of their aircraft over time. This base case includes the substitution of Southwest for AirTran, with the condition that the carrier's principal southeastern Virginia focus is at the Airport. While other new carriers are possible under this base case, they would likely take certain passengers from existing carriers. Therefore, the total number of passengers would remain similar regardless of replacement or name changes of carriers.

### 2.4.3 Scenario One – Slower Growth Rate

This scenario assumes a relatively "normal" growth of regional air passengers over the 20-year planning period versus a stimulus of traffic caused by introduction of new routes and carriers, as well as lower fares. The key is no reduction of traffic occurs; rather, the very rapid growth caused by the low fare stimulus of 2001-2005 is no longer present.

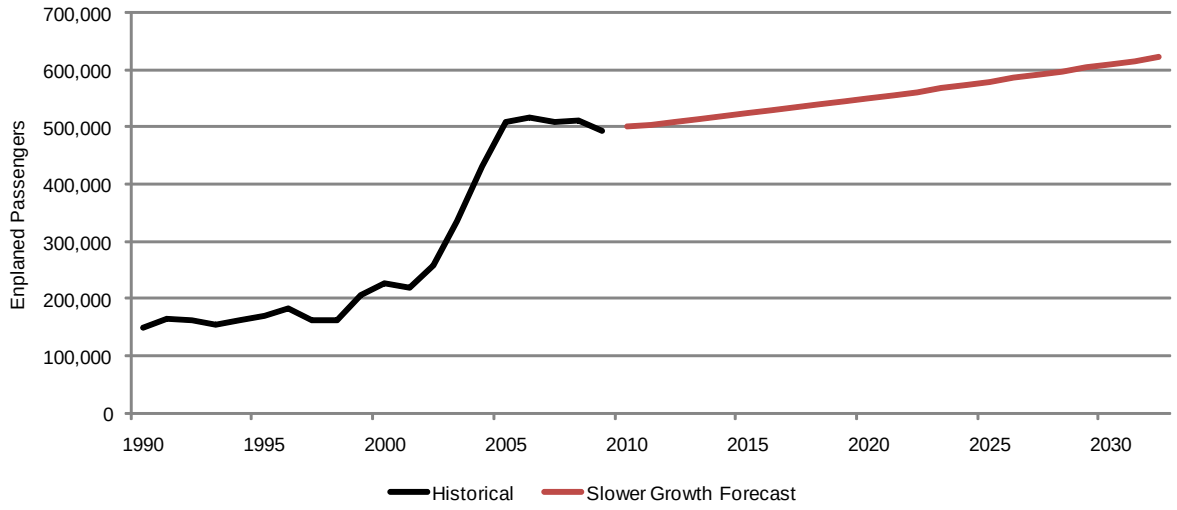
An airline activity model that would mimic this scenario is that air service continues to all or most of the existing points with larger size aircraft and/or increased frequency of service. Further, load factors could continue to increase. An important service factor is that the airline routes continue to major hub airports such as Atlanta and Charlotte, where numerous connecting opportunities are available.

Under this scenario, several recently added new routes, such as LaGuardia, Boston, or Orlando, might be eliminated or the number of flights reduced. As previously indicated, the service to major airline hubs such as Atlanta and Charlotte would increase to serve connecting passengers. The Airport currently has daily flights on four carriers to six cities. As an example of a market that might have reduced service or be eliminated, the LaGuardia flight is assumed in this scenario to be discontinued in the near term, as the slot is extremely valuable to the airline and would be moved to other city pairs in the carrier's network. The Boston flights operated by AirTran are also assumed to be eliminated in five to ten years due to slot and capacity restrictions in that city. Other carriers and flights remain and passenger traffic increases comparatively slowly. No significant new carriers or routes are introduced. Delta, Frontier, and US Airways retain existing routes and grow the size of aircraft or number of flights per day. For example, the Charlotte service on US Airways switches, in time, from regional jets to an A-319.

Under this scenario, air passenger traffic will grow at a slower rate than the TAF predicts. The key feature of this Scenario One estimate is that AirTran, Delta, Frontier, and US Airways will continue to compete aggressively for origin/destination and connecting traffic. Fares and service levels at the Airport remain very competitive with other airports, such as Richmond and Norfolk. Passenger traffic remains over 500,000 enplaned passengers annually and the Airport will not "regress" to the 200,000-passenger level of the pre-year 2000 period. This scenario might be considered "aggressive" versus the long-term 1960-2000 record of annual enplaned passengers, yet, conservative versus the TAF. This slower growth scenario matches more closely with the last five years of actual traffic, where approximately 500,000 enplanements occurred annually.

The "slower growth rate" scenario is presented in Figure 2-9. The annual growth rate between 2009 and 2032 averages 1.0 percent annually versus the 2.9 percent shown in the TAF.

*Figure 2-9*
**SCENARIO ONE – SLOWER GROWTH**




| Year | Enplanements |
|---|---|
| **Actual** | |
| 2000 | 227,079 |
| 2005 | 509,721 |
| 2009 | 492,548 |
| **Forecast** | |
| 2017 | 535,000 |
| 2022 | 562,000 |
| 2027 | 592,000 |
| 2032 | 622,000 |

| Average Annual Growth Rate | |
|---|---|
| 2000-2009 | 9.0% |
| 2009-2017 | 1.0% |
| 2009-2032 | 1.0% |

Source: Reynolds, Smith and Hills, Inc., 2010

Under Scenario One, enplaned passenger growth averages approximately 6,000 per year resulting in well over 600,000 enplanements in 2032. This is a 26 percent increase in the forecast period and represents approximately 130,000 new annual enplanements by 2032.

### 2.4.4 Scenario Two – Aggressive Growth

Scenario Two assumes a higher growth rate than the TAF. The air service assumptions that accompany this case are:

- Frontier expands to twice daily service to Denver by 2017 and to four daily flights by 2032
- Delta adds one daily flight to Detroit by 2017, one more by 2022, and another flight by 2027. These flights serve local traffic between Hampton Roads and Michigan, as well as offer westbound connecting opportunities to local passengers
- Other flights grow proportionately, largely by increasing the aircraft size on existing routes; for example, over time, US Airways switches from 50 seat regional jets to 124 seat Airbus jets for its Charlotte service

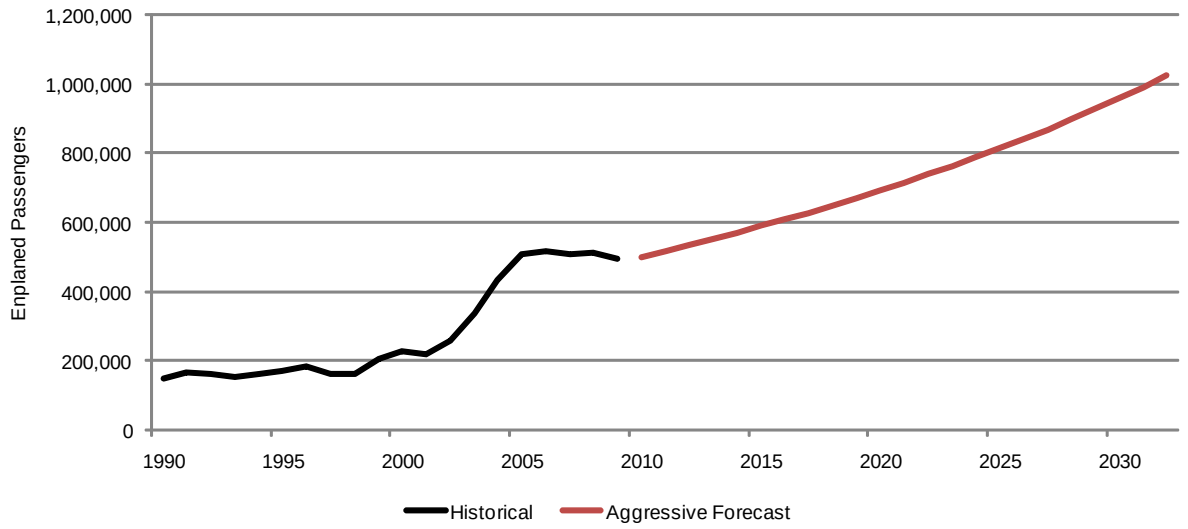
Under this scenario, existing air service is retained. Increased load factors are likely to accommodate most of the increased volume of passengers; but, over the long term, more aircraft frequency and/or larger aircraft may be deployed on the existing routes.

Scenario Two is logical for Newport News/Williamsburg International Airport air service, but it is more likely to occur over the intermediate or longer term and not immediately. Further, Richmond and Norfolk air service must continue close to current levels, so that regional air passenger growth is focused at the Airport.

The key to further passenger air service growth at the Airport is the intense competition offered between AirTran (and in the future, Southwest) and the "traditional" carriers (such as Delta and US Airways) as each seeks to be known as the regional low fare leader. The advantage of having multiple aggressive carriers serving the Airport is that air passengers benefit from the lower fares and increased air service options. The result is more passengers utilize the Airport. These increased airport passenger numbers result from less leakage to other airports and a higher propensity of local residents choosing to fly versus driving or not traveling.

The "Aggressive Growth" scenario is presented in Figure 2-10. The average annual growth rate from 2009 to 2032 is 3.2 percent, which is higher than the 2.9 percent shown in the TAF resulting in approximately 75,000 additional enplanements by 2032.

*Figure 2-10*
**SCENARIO TWO – AGGRESSIVE GROWTH**




| Year | Enplanements |
|---|---|
| **Actual** | |
| 2000 | 227,079 |
| 2005 | 509,721 |
| 2009 | 492,548 |
| **Forecast** | |
| 2017 | 628,000 |
| 2022 | 739,000 |
| 2027 | 869,000 |
| 2032 | 1,024,000 |

| Average Annual Growth Rate | |
|---|---|
| 2000-2009 | 9.0% |
| 2009-2017 | 3.1% |
| 2009-2032 | 3.2% |

Source: Reynolds, Smith and Hills, Inc., 2010

Under Scenario Two, enplaned passenger growth averages over 20,000 per year resulting in just over 1,000,000 enplanements in 2032. This is a 108 percent increase in the 20-year forecast period or a doubling of boarding passengers.

### 2.4.5 Scenario Three – Very Aggressive Growth

Under Scenario Three, the Airport sees very strong passenger growth. All the new activity of Scenario Two occurs, plus this case assumes another major traffic stimulus factor. For planning purposes, this case assumes:

- United or American introduces service to Chicago O'Hare. O'Hare is the largest hub for United Airlines and the second largest hub for American. O'Hare serves the nation's third largest metropolitan area with almost 10 million residents. Therefore, greater Chicago is both a key airline hub and a major market for Hampton Roads passengers.

- These Chicago flights are introduced with 50-seat regional jets to "test" the market. However, over time, both the Chicago routes and other flights "graduate" to larger aircraft as demand increases and slots at major markets become harder to obtain.

- Under this scenario, Southwest may add flights to Chicago Midway to compete with the other carriers.

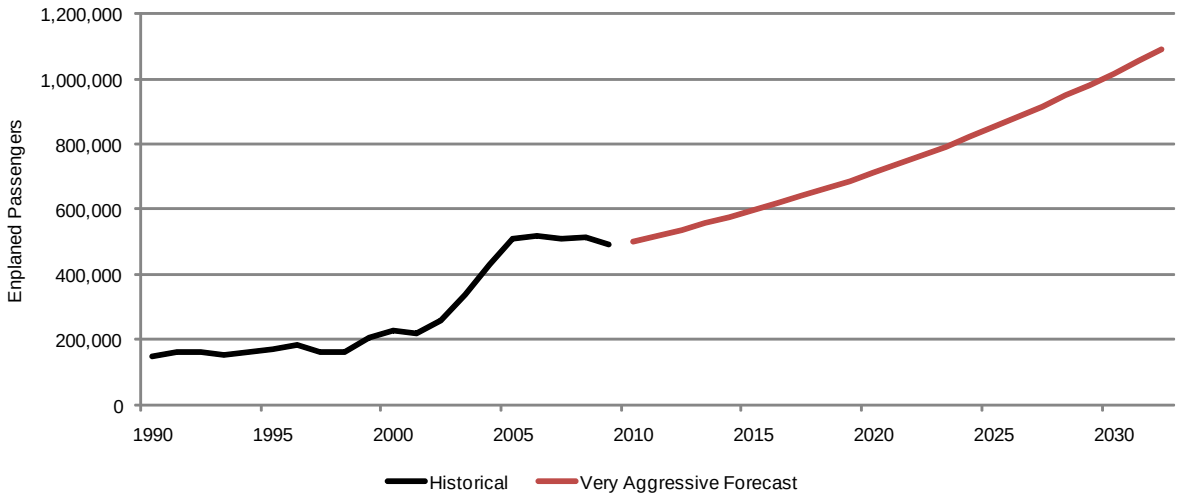
- Existing airlines such as Delta, Frontier, and US Airways continue and expand service.

- Potential new service to leisure destinations such as Cancun, the Bahamas, or additional Florida points is also possible. Such leisure destination flights would likely start seasonally and only one or two days per week.

The basis of this projection is that the Airport becomes the low cost carrier and low ticket price hub of the southeastern Virginia region. Under this scenario, by 2032, there will be roughly 1.1 million enplaned passengers at the Airport as shown on Figure 2-11.

This greatly increased air service and passenger scenario is unlikely to occur in the near term due to the national economic recession's impact on air travel and the severe cutbacks of air service being made by the carriers. Almost all U.S. airlines are grounding aircraft and cutting flights in order to increase load factors. Further, these airlines are often cutting fares in order to keep their flights as full as possible. In addition, airlines usually like to serve their "spoke-service" cities from the closest hub; therefore, new or increased service to Washington-Dulles or larger aircraft on existing routes might be expected, in the near-term, before new destinations are added. However, introduction of new air service to a different airline hub would likely result in increased passenger activity at the Airport.

*Figure 2-11*
**SCENARIO THREE – VERY AGGRESSIVE GROWTH**




| Year | Enplanements |
|---|---|
| **Actual** | |
| 2000 | 227,079 |
| 2005 | 509,721 |
| 2009 | 492,548 |
| **Forecast** | |
| 2017 | 640,000 |
| 2022 | 765,000 |
| 2027 | 915,000 |
| 2032 | 1,092,000 |

| Average Annual Growth Rate | |
|---|---|
| 2000-2009 | 9.0% |
| 2009-2017 | 3.3% |
| 2009-2032 | 3.5% |

Source: Reynolds, Smith and Hills, Inc., 2010

Under Scenario Three, air passenger traffic more than doubles in the 20-year planning period from 500,000 annual enplaned passengers in 2010 to almost 1,100,000 by 2032. The over one million enplanement level is five times the number of boarding passengers who annually used the Airport in the 1990s.

### 2.4.6 Passenger Forecast Comparison and Summary

Four forecast cases were developed in this analysis. One was based on the FAA TAF and three scenarios of both higher and lower levels of passengers were developed. The TAF indicates enplaned passenger levels will be nearly 950,000 by 2032, while both of the higher growth scenarios indicate levels over one million annual enplanements. The lower growth scenario estimated a passenger total in 2032 of 622,000. The projected passenger enplanements are presented in Table 2-7, along with the average annual growth rates between the periods shown.

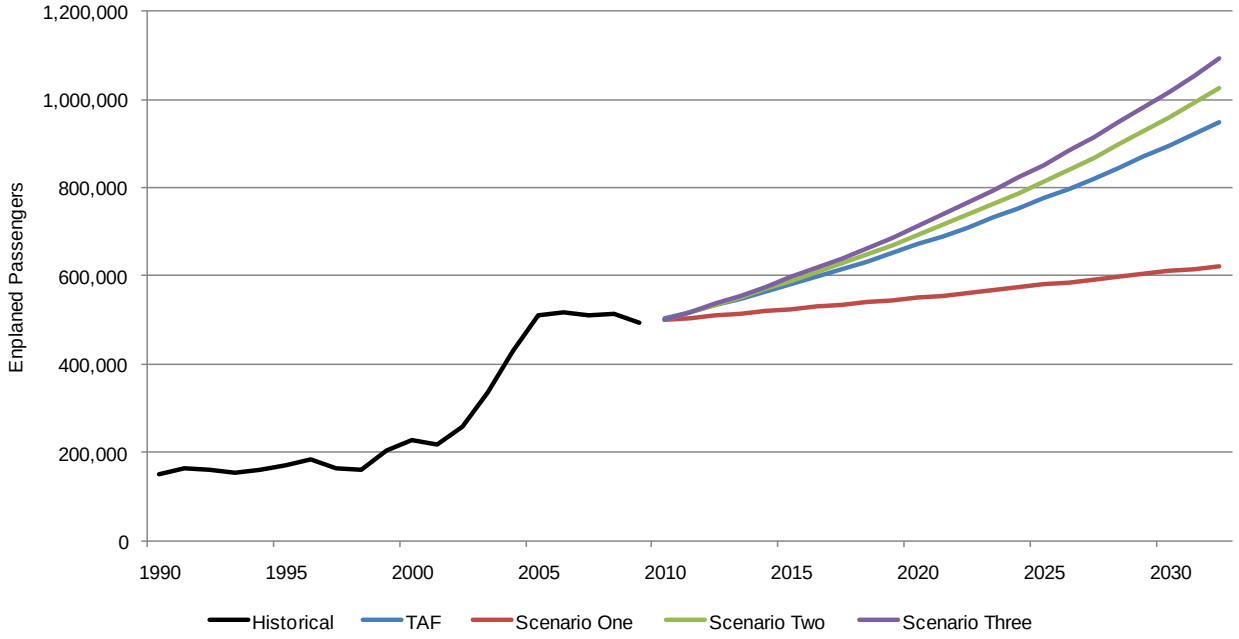
*Table 2-7*
**ENPLANED PASSENGER FORECAST SUMMARY**

| | 2010 | 2017 | 2022 | 2027 | 2032 |
|---|---|---|---|---|---|
| Enplaned Passengers | | | | | |
| Base Case - FAA TAF | 504,000 | 616,000 | 711,000 | 821,000 | 948,000 |
| Scenario One | 500,000 | 535,000 | 562,000 | 592,000 | 622,000 |
| Scenario Two | 500,000 | 628,000 | 739,000 | 869,000 | 1,024,000 |
| Scenario Three | 500,000 | 640,000 | 765,000 | 915,000 | 1,092,000 |
| Average Annual Growth Rate | | | | | |
| Base Case - FAA TAF | - | 2.9% | 2.9% | 2.9% | 2.9% |
| Scenario One | - | 1.0% | 1.0% | 1.0% | 1.0% |
| Scenario Two | - | 3.3% | 3.3% | 3.3% | 3.3% |
| Scenario Three | - | 3.6% | 3.6% | 3.6% | 3.6% |

Source: Reynolds, Smith and Hills, Inc., 2010; TAF rounded to thousands

All these cases predict that the Airport continues to increase passenger volumes over the long term. The passenger growth of the four projections is shown on Figure 2-12.

*Figure 2-12*
**PASSENGER FORECAST GRAPH BY SCENARIO**




Source: Reynolds, Smith and Hills, Inc., 2010

## 2.5 DESIGN DAY / DESIGN HOUR

Airport facilities are not typically designed based upon their annual activity; rather, they are planned to accommodate a busy or peak period. This section of the Master Plan forecast identifies and projects the peak activity period for commercial passengers and aircraft gate usage.

The peak period most commonly used in airport planning is the design day and/or design hour. These periods are not the absolute peak usage that an airport will ever see, but rather represent the much busier than normal period. Because the airport's annual traffic is relatively stable and the daily peaks occur during the morning departures and evening arrivals, a peak gate usage analysis based upon the current schedule is developed.

The peak month was identified from the average of the last six years' activity as being July with 10.5 percent of the year's activity. The Average Day of the Peak Month is represented by 1/31 of the peak month's activity.

The current airline schedule was analyzed to identify the peak hours for scheduled aircraft arrivals and departures. Based on the current airline schedule, the maximum number of scheduled aircraft on-the-ground in any single hour is seven. These are the seven aircraft that overnight at the Airport – three AirTran, two US Airways, and two Delta. The current peak number of aircraft arrivals or departures in any one hour is four.

Current airline gate assignments based on aircraft parking positions are:

- AirTran – 3
- Delta – 3
- Frontier – 1
- US Airways – 3

However, actual maximum scheduled gate usage at the same time is often less than shown. The reason that the number of gates is so variable is that some regional jets and most turbo-prop aircraft are typically ground loaded without a loading bridge; further, a loading bridge can be swung back and forth to service two aircraft with one loading bridge or an aircraft can be towed back and forth into position.

For the future, maximum major carrier gate usage is assumed for departing flights and related passenger enplanements based on the "by carrier gate" projection. That is, busy-periods are calculated based on the weekday schedule, which is busier than the weekend activity, and flights that arrive only a few days a week are assumed to be present. Typical aircraft load factors are assumed. For planning purposes, the deplaning passenger schedule is assumed to match the enplaning schedule because if an aircraft arrives, it is assumed to take-off again within an hour's time.

As previously noted, the average aircraft size at the Airport is expected to increase under all the forecast cases. That is, most smaller turbo-props and regional jets will, over time, be replaced with 75 to 150 seat jets. Load factors are also likely to increase slowly, but it is difficult to achieve more than 70 to 80 percent average load factor. Further, domestic "spoke" airports usually have lower average load factors than national averages.

The peak activity at any airport is often constrained by the number of gates. At the same time, the number of airlines, number of destinations, and on-airport employees, limit any airline's ability to schedule and handle multiple aircraft simultaneously. Therefore, this peak period gate analysis is built from the bottom-up, based upon the existing and projected airline schedule.

The passenger airline design day schedule for each of the forecast years is presented in Figure 2-13, Figure 2-14, Figure 2-15, Figure 2-16, and Figure 2-17. This airline, aircraft type, available passenger seats, time of operation, and origin/destination information is based on the current airline schedule, as well as the Terminal Area Forecast.

*Figure 2-13*
## 2010 DESIGN DAY SCHEDULE

| Airline / Aircraft Type | | Midnight | 1:00 AM | 2:00 AM | 3:00 AM | 4:00 AM | 5:00 AM | 6:00 AM | 7:00 AM | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM | 7:00 PM | 8:00 PM | 9:00 PM | 10:00 PM | 11:00 PM | Over-night |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AirTran** | | | | | | | | | | | | | | | | | | | | | | | | | |
| **717** | Arrive | | | | | | | | | | | ATL 10:19 | | | | ATL 2:42 | | | | | ATL 7:04 | | | ATL 10:44 | 1 |
| Seats = 117 | Depart | | | | | | | ATL 6:00 | | | | ATL 10:54 | | | | | ATL 3:17 | | | | ATL 7:39 | | | | |
| **717** | Arrive | | | | | | | | | | | | LGA 11:19 | | | | MCO 3:54 | | | | | | BOS 9:56 | | 1 |
| Seats = 117 | Depart | | | | | | | BOS 6:45 | | | | | MCO 11:56 | | | | | LGA 4:29 | | | | | | | |
| **717** | Arrive | | | | | | | | | | | | | | | | | | | | | | LGA 9:18 | | 1 |
| Seats = 117 | Depart | | | | | | | | LGA 7:48 | | | | | | | | | | | | | | | | |
| **Delta** | | | | | | | | | | | | | | | | | | | | | | | | | |
| **CRJ** | Arrive | | | | | | | | | ATL 8:30 | | | | | ATL 1:07 | | | | | ATL 6:11 | | | ATL 9:02 | | 1 |
| Seats = 50 | Depart | | | | | | | ATL 6:10 | | | ATL 9:00 | | | | ATL 1:36 | | | | | ATL 6:51 | | | | | |
| **MD88** | Arrive | | | | | | | | | | | ATL 10:12 | | | | | ATL 3:35 | | | | | | | ATL 11:23 | 1 |
| Seats = 142 | Depart | | | | | | | | | ATL 8:07 | | ATL 10:49 | | | | | | ATL 4:16 | | | | | | | |
| **Frontier** | | | | | | | | | | | | | | | | | | | | | | | | | |
| **A319** | Arrive | | | | | | | | | | | | | | | | | DEN 4:25 | | | | | | | |
| Seats = 136 | Depart | | | | | | | | | | | | | | | | | | DEN 5:22 | | | | | | |
| **US Airways** | | | | | | | | | | | | | | | | | | | | | | | | | |
| **CRJ** | Arrive | | | | | | | | | CLT 8:38 | | | | CLT 12:18 | | | CLT 3:38 | | CLT 5:02 | | CLT 7:55 | | | CLT 11:40 | 1 |
| Seats = 50 | Depart | | | | | | | CLT 5:29 | | | CLT 9:10 | | | CLT 12:44 | | | | CLT 4:03 | CLT 5:29 | | | CLT 8:35 | | | |
| **DH3** | Arrive | | | | | | | | | | PHL 9:02 | | | PHL 12:40 | | PHL 2:36 | PHL 3:57 | | | | PHL 7:01 | | | PHL 11:52 | 1 |
| Seats = 37 | Depart | | | | | | | PHL 5:46 | | | PHL 9:27 | | | | PHL 1:02 | PHL 2:59 | | PHL 4:20 | | | PHL 7:34 | | | | |
| **TOTAL** | Arrive | 28 | | | | | | | | 2 | 1 | 2 | 1 | 2 | 1 | 2 | **4** | 1 | 1 | 1 | 3 | 0 | 3 | 1 | 3 | |
| | Depart | 28 | | | | | 2 | 3 | 1 | 1 | 3 | 2 | 1 | 1 | 2 | 1 | 1 | **4** | 2 | 1 | 2 | 1 | | | | |

Source: Reynolds, Smith and Hills, Inc., 2010

*Figure 2-14*
***2017 DESIGN DAY SCHEDULE***

| Airline / Aircraft Type | | Midnight 1:00 AM 2:00 AM 3:00 AM 4:00 AM 5:00 AM 6:00 AM 7:00 AM 8:00 AM 9:00 AM 10:00 AM 11:00 AM 12:00 PM 1:00 PM 2:00 PM 3:00 PM 4:00 PM 5:00 PM 6:00 PM 7:00 PM 8:00 PM 9:00 PM 10:00 PM 11:00 PM | Over-night |
|---|---|---|---|
| **AirTran** | | | |
| **717** | Arrive | ATL 10:19 / ATL 2:42 / ATL 7:04 / ATL 10:44 | 1 |
| Seats = 117 | Depart | ATL 6:00 / ATL 10:54 / ATL 3:17 / ATL 7:39 | |
| **717** | Arrive | LGA 11:19 / MCO 3:54 / BOS 9:56 | 1 |
| Seats = 117 | Depart | BOS 6:45 / MCO 11:56 / LGA 4:29 | |
| **717** | Arrive | BOS 12:14 / LGA 5:19 / LGA 9:18 | 1 |
| Seats = 117 | Depart | LGA 7:48 / BOS 12:49 / MCO6:01 | |
| **Delta** | | | |
| **CRJ700** | Arrive | ATL 8:30 / ATL 1:07 / ATL 6:11 / ATL 9:02 | 1 |
| Seats = 70 | Depart | ATL 6:10 / ATL 9:00 / ATL 1:36 / ATL 6:51 | |
| **MD88** | Arrive | ATL 10:12 / ATL 3:35 / ATL 11:23 | 1 |
| Seats = 142 | Depart | ATL 8:07 / ATL 10:49 / ATL 4:16 | |
| **Frontier** | | | |
| **A319** | Arrive | DEN 3:25 / DEN 11:30 | 1 |
| Seats = 136 | Depart | DEN 6:15 / DEN 4:22 | |
| **US Airways** | | | |
| **CRJ** | Arrive | CLT 7:10 / CLT 8:38 / CLT 12:18 / CLT 3:38 / CLT 5:02 / CLT 7:55 / CLT 11:40 | 1 |
| Seats = 50 | Depart | CLT 5:29 / CLT 7:40 / CLT 9:10 / CLT 12:44 / CLT 4:03 / CLT 5:29 / CLT 8:35 | |
| **DH8** | Arrive | PHL 9:02 / PHL 12:40 / PHL 2:36 / PHL 3:57 / PHL 7:01 / PHL 11:52 | 1 |
| Seats = 50 | Depart | PHL 5:46 / PHL 9:27 / PHL 1:02 / PHL 2:59 / PHL 4:20 / PHL 7:34 | |
| **TOTAL** | Arrive | 32 1 2 1 2 1 3 1 2 **5** 0 2 1 3 0 3 1 4 | |
| | Depart | 32 2 4 2 1 3 2 1 2 2 1 1 **5** 1 2 2 1 | |

Source: Reynolds, Smith and Hills, Inc., 2010

*Figure 2-15*
## *2022 DESIGN DAY SCHEDULE*

| Airline / Aircraft Type | | Midnight – 1:00 AM | 1:00 AM – 2:00 AM | 2:00 AM – 3:00 AM | 3:00 AM – 4:00 AM | 4:00 AM – 5:00 AM | 5:00 AM – 6:00 AM | 6:00 AM – 7:00 AM | 7:00 AM – 8:00 AM | 8:00 AM – 9:00 AM | 9:00 AM – 10:00 AM | 10:00 AM – 11:00 AM | 11:00 AM – 12:00 PM | 12:00 PM – 1:00 PM | 1:00 PM – 2:00 PM | 2:00 PM – 3:00 PM | 3:00 PM – 4:00 PM | 4:00 PM – 5:00 PM | 5:00 PM – 6:00 PM | 6:00 PM – 7:00 PM | 7:00 PM – 8:00 PM | 8:00 PM – 9:00 PM | 9:00 PM – 10:00 PM | 10:00 PM – 11:00 PM | Over-night |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AirTran** | | | | | | | | | | | | | | | | | | | | | | | | | |
| **717** | Arrive | | | | | | | | | | ATL 10:19 | | | | ATL 2:42 | | | | | ATL 7:04 | | | ATL 10:44 | | 1 |
| Seats = 117 | Depart | | | | | | ATL 6:00 | | | | ATL 10:54 | | | | | ATL 3:17 | | | | ATL 7:39 | | | | | |
| **717** | Arrive | | | | | | | | | | | LGA 11:19 | | | | MCO 3:54 | | | | | | BOS 9:56 | | | 1 |
| Seats = 117 | Depart | | | | | | BOS 6:45 | | | | | MCO 11:56 | | | | LGA 4:29 | | | | | | | | | |
| **717** | Arrive | | | | | | | | | | | | BOS 12:14 | | | | | LGA 5:19 | | | | LGA 9:18 | | | 1 |
| Seats = 117 | Depart | | | | | | | LGA 7:48 | | | | | BOS 12:49 | | | | | | MCO6:01 | | | | | | |
| **Delta** | | | | | | | | | | | | | | | | | | | | | | | | | |
| **CRJ700** | Arrive | | | | | | | | ATL 8:30 | | | | ATL 12:07 | | ATL 2:02 | | | | ATL 6:11 | | | ATL 9:02 | | | 1 |
| Seats = 70 | Depart | | | | | | ATL 6:10 | | | ATL 9:00 | | | ATL 12:36 | | ATL 2:32 | | | | ATL 6:51 | | | | | | |
| **A319** | Arrive | | | | | | | | | | ATL 10:12 | | | | | ATL 3:35 | | | | | | | | ATL 11:23 | 1 |
| Seats = 124 | Depart | | | | | | | ATL 8:07 | | | ATL 10:49 | | | | | ATL 4:16 | | | | | | | | | |
| **Frontier** | | | | | | | | | | | | | | | | | | | | | | | | | |
| **A319** | Arrive | | | | | | | | | | | | | | | DEN 3:25 | | | | | | | | DEN 11:30 | 1 |
| Seats = 136 | Depart | | | | | | DEN 6:15 | | | | | | | | | DEN 4:22 | | | | | | | | | |
| **US Airways** | | | | | | | | | | | | | | | | | | | | | | | | | |
| **A 319** | Arrive | | | | | | | | CLT 8:38 | | | | CLT 12:18 | | | CLT 3:38 | | | | | | | | CLT 11:40 | 1 |
| Seats = 124 | Depart | | | | | | CLT 5:29 | | | CLT 9:10 | | | CLT 12:44 | | | CLT 4:03 | | | | | | | | | |
| **DH8** | Arrive | | | | | | | PHL 7:50 | PHL 9:02 | | | PHL 11:01 | PHL 12:40 | | PHL 2:36 | PHL 3:57 | | | | PHL 7:01 | | | | PHL 11:52 | 1 |
| Seats = 50 | Depart | | | | | | PHL 5:46 | PHL 8:15 | PHL 9:27 | | | PHL 11:33 | PHL 1:02 | | PHL 2:59 | PHL 4:20 | | | | PHL 7:34 | | | | | |
| **TOTAL** | Arrive | 32 | | | | | | 1 | 2 | 1 | 2 | 2 | 4 | 0 | 3 | **5** | 0 | 1 | 1 | 2 | 0 | 3 | 1 | 4 | |
| | Depart | 32 | | | | | 2 | 4 | 1 | 2 | 3 | 2 | 2 | 3 | 1 | 2 | 1 | **5** | 0 | 2 | 2 | | | | |

Source: Reynolds, Smith and Hills, Inc., 2010

*Figure 2-16*
***2027 DESIGN DAY SCHEDULE***

| Airline / Aircraft Type | | Midnight 1:00 AM 2:00 AM 3:00 AM 4:00 AM 5:00 AM 6:00 AM 7:00 AM 8:00 AM 9:00 AM 10:00 AM 11:00 AM 12:00 PM 1:00 PM 2:00 PM 3:00 PM 4:00 PM 5:00 PM 6:00 PM 7:00 PM 8:00 PM 9:00 PM 10:00 PM 11:00 PM | Over-night |
|---|---|---|---|
| **AirTran** | | | |
| **717** | Arrive | ATL 8:23 / ATL 10:19 / ATL 2:42 / ATL 7:04 / ATL 10:44 | 1 |
| Seats = 117 | Depart | ATL 6:00 / ATL 8:58 / ATL 10:54 / ATL 3:17 / ATL 7:39 | |
| **717** | Arrive | BOS 12:14 / BOS 9:56 | 1 |
| Seats = 117 | Depart | BOS 6:45 / BOS 12:49 | |
| **737** | Arrive | LGA 11:19 / MCO 3:54 / LGA 5:19 / LGA 9:18 | 1 |
| Seat = 137 | Depart | LGA 7:48 / MCO 11:56 / LGA 4:29 / MCO6:01 | |
| **Delta** | | | |
| **CRJ900** | Arrive | ATL 8:30 / ATL 12:01 / ATL 6:11 / ATL 9:02 | 1 |
| Seats = 76 | Depart | ATL 6:10 / ATL 9:00 / ATL 12:36 / ATL 6:51 | |
| **A319** | Arrive | ATL 10:12 / ATL 1:30 / ATL 3:35 / ATL 11:23 | 1 |
| Seats = 124 | Depart | ATL 8:07 / ATL 10:49 / ATL 2:10 / ATL 4:16 | |
| **Frontier** | | | |
| **A319** | Arrive | DEN 3:25 / DEN 11:30 | 1 |
| Seats = 136 | Depart | DEN 6:15 / DEN 4:22 | |
| **US Airways** | | | |
| **A 319** | Arrive | CLT 8:38 / CLT 12:18 / CLT 3:38 / CLT 5:44 / CLT 11:40 | 1 |
| Seats = 124 | Depart | CLT 5:29 / CLT 9:10 / CLT 12:44 / CLT 4:03 / CLT 6:18 | |
| **CRJ** | Arrive | PHL 7:50 / PHL 9:02 / PHL 11:01 / PHL 12:40 / PHL 2:36 / PHL 3:57 / PHL 7:01 / PHL 11:52 | 1 |
| Seats = 50 | Depart | PHL 5:46 / PHL 8:15 / PHL 9:27 / PHL 11:33 / PHL 1:02 / PHL 2:59 / PHL 4:20 / PHL 7:34 | |
| **TOTAL** | Arrive | 34 1 3 1 2 2 4 1 2 **5** 0 2 1 2 0 3 1 4 | |
| | Depart | 34 2 4 1 3 3 2 2 3 1 2 1 **5** 0 3 2 | |

Source: Reynolds, Smith and Hills, Inc., 2010

*Figure 2-17*
***2032 DESIGN DAY SCHEDULE***

| Airline / Aircraft Type | | Midnight 1:00 AM 2:00 AM 3:00 AM 4:00 AM 5:00 AM 6:00 AM 7:00 AM 8:00 AM 9:00 AM 10:00 AM 11:00 AM 12:00 PM 1:00 PM 2:00 PM 3:00 PM 4:00 PM 5:00 PM 6:00 PM 7:00 PM 8:00 PM 9:00 PM 10:00 PM 11:00 PM | Over-night |
|---|---|---|---|
| **AirTran** | | | |
| **717** | Arrive | ATL 8:23; ATL 10:19; ATL 2:42; ATL 7:04; ATL 10:44 | 1 |
| Seats = 117 | Depart | ATL 6:00; ATL 8:58; ATL 10:54; ATL 3:17; ATL 7:39 | |
| **717** | Arrive | BOS 12:14; BOS 9:56 | 1 |
| Seats = 117 | Depart | BOS 6:45; BOS 12:49 | |
| **737** | Arrive | LGA 11:19; LGA 1:08; MCO 3:54; LGA 5:19; LGA 9:18 | 1 |
| Seats = 137 | Depart | LGA 7:48; MCO 11:56; LGA 1:41; LGA 4:29; MCO6:01 | |
| **Delta** | | | |
| **A319** | Arrive | ATL 6:11; ATL 9:02 | 1 |
| Seats = 124 | Depart | ATL 6:10; ATL 6:51 | |
| **A319** | Arrive | ATL 9:12; ATL 11:30; ATL 1:25; ATL 3:45; ATL 11:23 | 1 |
| Seats = 124 | Depart | ATL 7:15; ATL 9:49; ATL 12:10; ATL 2:01; ATL 4:12 | |
| **Frontier** | | | |
| **A319** | Arrive | DEN 12:16; DEN 3:55; DEN 11:30 | 1 |
| Seats = 136 | Depart | DEN 6:15; DEN 12:56; DEN 4:31 | |
| **US Airways** | | | |
| **A 319** | Arrive | CLT 7:30; CLT 8:38; CLT 11:18; CLT 1:15; CLT 3:39; CLT 5:44; PHL 7:04; CLT 11:40 | 1 |
| Seats = 124 | Depart | CLT 5:29; CLT 7:59; CLT 9:19; CLT 11:44; CLT 1:48; CLT 4:11; CLT 6:18; PHL 8:01 | |
| **CRJ** | Arrive | PHL 7:50; PHL 11:01; PHL 12:40; PHL 3:57; PHL 11:52 | 1 |
| Seats = 50 | Depart | PHL 5:46; PHL 8:15; PHL 11:33; PHL 1:02; PHL 4:20 | |
| **TOTAL** | Arrive | 35 2 2 1 1 4 3 3 1 **5** 0 2 1 2 0 3 1 4 | |
| | Depart | 35 2 4 3 2 2 1 3 3 3 1 1 **5** 0 3 1 1 | |

Source: Reynolds, Smith and Hills, Inc., 2010

The peak month for each of the forecast scenarios, as well as the peak day, has been calculated. The projected maximum number of gates utilized and the peak hour enplanements/deplanements for 2010, 2017, 2022, 2027, and 2032 were also projected. These peak activity calculations are presented in Table 2-8.

*Table 2-8*
**PEAK PERIOD AND GATE REQUIREMENTS PROJECTION**

| | Passengers | | | | | Peak |
|---|---|---|---|---|---|---|
| | Peak | Average | Peak Hour | | Daily | Hour |
| Year | Month | Day | Enplanements | Deplanements | Flights | Flights |
| **TAF Forecast** | | | | | | |
| 2010 | 53,000 | 1,700 | 390 | 390 | 28 | 4 |
| 2017 | 65,000 | 2,100 | 510 | 510 | 32 | 5 |
| 2022 | 75,000 | 2,400 | 540 | 540 | 32 | 5 |
| 2027 | 86,000 | 2,800 | 570 | 570 | 34 | 5 |
| 2032 | 100,000 | 3,200 | 590 | 590 | 35 | 5 |
| **Scenario One** | | | | | | |
| 2010 | 53,000 | 1,700 | 390 | 390 | 28 | 4 |
| 2017 | 56,000 | 1,800 | 400 | 400 | 28 | 4 |
| 2022 | 59,000 | 1,900 | 400 | 400 | 28 | 4 |
| 2027 | 62,000 | 2,000 | 430 | 430 | 28 | 4 |
| 2032 | 65,000 | 2,100 | 450 | 450 | 30 | 4 |
| **Scenario Two** | | | | | | |
| 2010 | 53,000 | 1,700 | 390 | 390 | 28 | 4 |
| 2017 | 66,000 | 2,100 | 480 | 480 | 32 | 5 |
| 2022 | 78,000 | 2,500 | 520 | 520 | 34 | 5 |
| 2027 | 91,000 | 2,900 | 560 | 560 | 35 | 5 |
| 2032 | 108,000 | 3,500 | 680 | 680 | 39 | 6 |
| **Scenario Three** | | | | | | |
| 2010 | 53,000 | 1,700 | 390 | 390 | 28 | 4 |
| 2017 | 67,000 | 2,200 | 460 | 460 | 32 | 5 |
| 2022 | 80,000 | 2,600 | 510 | 510 | 36 | 5 |
| 2027 | 96,000 | 3,100 | 550 | 550 | 37 | 5 |
| 2032 | 115,000 | 3,700 | 690 | 690 | 41 | 6 |

Source: Reynolds, Smith and Hills, Inc., 2010

Development of the peak period and gate requirements schedule was computed on a carrier-by-carrier and market-by-market basis. The aircraft types were projected based upon growth of the existing schedule and projected carrier fleets. The key issue driving the future fleet mix is that the smaller Dash 8 turbo-props and Bombardier regional jets are likely to be replaced by larger Boeing and Airbus jets in the analysis period. For example, the current 50-passenger US Airways regional jets to/from Charlotte are projected by 2032 to be replaced by 124-passenger A-319 aircraft. This example provides over twice as many available seats, but with fewer flights.

## 2.6 BASED AIRCRAFT FORECAST

Based aircraft represent the total number of active, civil aircraft permanently located or projected to be located at an airport. Based aircraft categories include single-engine piston, multi-engine piston, turbo-prop, jet, rotorcraft, and other. This section projects the number and type of based aircraft at the Airport.

The national general aviation industry has experienced declines in nearly all measures of activity since the early 1980s including new aircraft shipments, active fixed base operators (FBOs), hours flown, and number of pilots. The number of aircraft based at individual airports has dropped at many facilities. In contrast, the Newport News/Williamsburg International Airport shows a more stable record according to the FAA Terminal Area Forecast. FAA records indicate there were 116 based aircraft in 1990. The 2010 FAA TAF indicates there are 105 based aircraft.

Using the TAF to obtain the total forecast and the Airport's record of types of aircraft, a projection of future based aircraft was made. Generally, a straight mathematical growth factor was assumed; however, the growth rate of piston-powered aircraft was slowed as these aircraft lose favor with users and a higher growth rate of turbo-prop and jets by corporate users was recognized.

Based upon the stated assumptions, the number of based single engine aircraft is expected to grow from 73 to 95. Other categories grow similarly with 33 jets projected in 2032. No rotorcraft and "other" aircraft are assumed at the Airport. Table 2-9 shows estimates of future types of based aircraft at the Airport.

*Table 2-9*
**BASED AIRCRAFT PROJECTIONS**

| | Piston | | Turbo- | | Rotor- | | |
|---|---|---|---|---|---|---|---|
| Year | Single | Multiple | prop | Jet | Craft | Other | Total |
| 2010 | 73 | 8 | 5 | 19 | 0 | 0 | 105 |
| 2017 | 80 | 9 | 6 | 23 | 0 | 0 | 118 |
| 2022 | 85 | 10 | 7 | 26 | 0 | 0 | 128 |
| 2027 | 90 | 10 | 9 | 28 | 0 | 0 | 138 |
| 2032 | 95 | 10 | 10 | 33 | 0 | 0 | 148 |

Source: Reynolds, Smith and Hills, Inc., 2010

The Airport is unusual in that a number of private firms operate at the field providing services to the military. These firms operate retired jet fighter, trainer, and corporate aircraft in "aggressor" roles for training and electronic warfare purposes. Types of aircraft currently used include Israeli Kfir, Hawker Siddeley Hunter, A-4 Skyhawk, and Bombardier Lear jets. This forecast assumes these operations continue.

## 2.7 DESIGN AIRCRAFT

This section identifies the types of aircraft currently being used (or expected) at the Airport. Over the forecast period, the fleet mix at Newport News/Williamsburg International Airport is anticipated to remain generally similar to today. The critical aircraft at Newport News/Williamsburg International Airport is the MD-88 and the B-737. This aircraft is frequently used at the Airport today in a commercial capacity; however, Delta's narrow body jet MD-88 will likely be replaced in the time period by a similarly sized Airbus or Boeing aircraft or potentially a larger gauge aircraft such as the B-757 as gate constraints at the Atlanta hub continue to force a consolidation of operations in spoke cities. In addition the potential for use in commercial operations, the B-757 frequently operates at the airport as the C-32 military version; future activity with the B-757 is expected from a combination of military, scheduled passenger, air cargo, and aircraft maintenance.

For scheduled commercial passenger flights, the Airport is currently served by a mix of turboprop, regional jet, and narrow body jets. In the 20-year planning period, a similar mix of scheduled commercial passenger aircraft is expected. The B-737 is likely to be the single most common future passenger aircraft type. It is of note that other narrow-body passenger aircraft such as the A-319, A-320, A-321, and MD-80 are also likely to be used at the Airport through the 20-year planning period. However, they are similar in size (dimensions and passenger capacity) as the B-737. Also in time, longer stage lengths, international flights, and increased passenger loads will result in better service by B-757 aircraft.

The "civilian-type" aircraft used by the military at the Airport include the entire range of those in the active military from the B-747 based VC-25 Presidential and E-4B National Emergency Command Post to the smaller B-737 based C-40 Clipper. The most common military Airport visitor is the C-32, a VIP aircraft based upon the B-757. Other military aircraft also use the Airport – particularly helicopters.

Military-related based aircraft operations and training activity are expected to continue at the Airport. As previously noted, there are several private firms that operate from the Airport using a variety of current and retired military fighter or trainer aircraft. These tenants provide simulated attack and electronic training support to the U.S. Navy. Based on historic usage, at least 500 annual operations of private "fighter jet" aircraft are anticipated.

The fleet mix of corporate and general aviation aircraft is expected to remain similar to today in that most flights are of single engine piston aircraft. Simultaneously, the number of corporate jets is expected to continually increase as many businesses purchase, lease, or enter into fractional ownership to increase business productivity. Therefore, more large corporate jets such as Bombardier, Gulfstream, and Falcon jets are expected, as well as many more smaller corporate jets such as the Cessna Citation series.

Today, the Airport has limited air cargo service. However, with the availability of airfield capacity and ample leasable land, the Airport believes that increased air cargo service is likely within the 20-year planning period. If air cargo service is attracted to the Airport, the most common aircraft for firms like UPS, FedEx, or other air cargo carriers is the B-757. There are over 1,000 active B-757 aircraft in the world fleet with close to 200 converted or scheduled to-be-converted for air cargo use. Therefore, the B-757 is seen as a likely air cargo aircraft candidate. Wide body B-767 or A-310 are also possible air cargo aircraft at Newport News Williamsburg International Airport, should air cargo demand increase.

Finally, the Airport is seeking tenants to repair, modify, or provide a base of operations for large jet aircraft. This is likely in the planning period due to the availability of extensive ramp area and undeveloped land, as well as the interest of the Airport and the community in attracting aviation tenants.

For facility planning purposes, the Airport believes that the B-757 or other large narrow body, as well as wide body aircraft, will be increasingly attracted to the facility. With the number of military bases in southeastern Virginia, in conjunction with the congestion and limited land at certain other nearby commercial airports and the relative availability of developable land at the Airport, the Newport News/Williamsburg International Airport is seen by airport management as a logical site for increased air service and future tenant development.

In conclusion, the expected fleet mix at the Newport News/Williamsburg International Airport is expected to remain similar to today over the forecast period, however, the critical aircraft for long-term airport planning is the B-757 (ARC C-IV).

## 2.8 ANNUAL AIRCRAFT OPERATIONS FORECAST

An aircraft operation is defined as either a takeoff or a landing. Therefore, the typical flight consists of a landing and a takeoff for a total of two operations.

Forecasts of annual aircraft operations were prepared for aviation activity using the 2010 TAF. The operations categories include commercial service (air carrier and commuter), general aviation, and military operations. General aviation operations represent all civil aviation aircraft takeoffs and landings not classified as commercial (air carrier or commuter) or military.

General observations of historical data are as follows:

- Commercial Service - Commercial flights include both passenger and air cargo carriers. Both scheduled and air taxi flights are represented in this category. Activity in the past four years recorded in the TAF ranged from approximately 21,000 to 28,000 operations per year with an average of 25,000 per year. In the last few years, there has been a dramatic shift away from commuter to air carrier aircraft.

- General Aviation – This category includes all activity other than commercial and military flights. The number of general aviation operations recorded in the TAF has decreased significantly in the historical period.

- Military - Military flights include all government-operated activity. Annual military flights have declined from 1990 to 2009.

- Total Operations - Total aircraft operations from 1990-2009 have declined. The latest actual year in the FAA table, 2009, shows approximately 116,000 operations.

In the future, the FAA expects the number of commercial service operations to grow. By 2032, approximately 31,000 commercial operations are projected. The FAA predicts that general aviation activity is projected to grow with roughly 85,000 operations per year by 2032. Military operations are projected to remain steady. The result is total Airport operations are expected to grow in the 20-year forecast period from approximately 116,000 in 2009 to almost 140,000 in 2032. Table 2-10 shows the total historical and forecast operations forecast from the 2010 TAF. Note that the 2032 numbers are projected from 2030 based on the average annual growth rate.

*Table 2-10*
**HISTORICAL AND FORECAST OPERATIONS**

| | Commercial Service | | | General Aviation | | | Military | | | Grand |
|---|---|---|---|---|---|---|---|---|---|---|
| Year | Air Carrier | Commuter | Subtotal | Itinerant | Local | Subtotal | Itinerant | Local | Subtotal | Total |
| **Actual** | | | | | | | | | | |
| 2006 | 10,120 | 18,635 | 28,755 | 63,884 | 80,757 | 144,641 | 18,416 | 43,057 | 61,473 | 234,869 |
| 2007 | 9,989 | 16,255 | 26,244 | 57,262 | 72,574 | 129,836 | 17,692 | 41,214 | 58,906 | 214,986 |
| 2008 | 13,597 | 9,853 | 23,450 | 28,654 | 39,107 | 67,761 | 7,984 | 19,060 | 27,044 | 118,255 |
| 2009 | 18,092 | 3,582 | 21,674 | 27,342 | 35,820 | 63,162 | 8,203 | 22,587 | 30,790 | 115,626 |
| **Forecast** | | | | | | | | | | |
| 2017 | 13,226 | 9,533 | 22,759 | 28,503 | 34,731 | 63,234 | 6,941 | 16,355 | 23,296 | 109,289 |
| 2022 | 14,890 | 10,321 | 25,211 | 31,889 | 38,012 | 69,901 | 6,941 | 16,355 | 23,296 | 118,408 |
| 2027 | 16,764 | 11,174 | 27,938 | 35,677 | 41,602 | 77,279 | 6,941 | 16,355 | 23,296 | 128,513 |
| 2032 | 18,875 | 12,098 | 30,974 | 39,678 | 45,191 | 84,869 | 6,941 | 16,355 | 23,296 | 139,139 |

Source: FAA TAF, 2010; Year 2032 interpolated based on indicated growth rate

## 2.9 IMPACT OF ACTIVITY SCENARIOS ON OPERATIONS

The forecast of enplanements at the Newport News/Williamsburg International Airport were analyzed with the three alternative passenger scenarios. The alternative scenarios have relatively minor impacts on the level of operations at the Airport because larger aircraft provide most of the additional passenger capacity and commercial service operations represent a relatively small share of aircraft operations. Therefore, the aircraft operations forecast remains the same for all the passenger scenarios.

## 2.10 ISSUES OF MASTER PLAN ACTIVITY FORECASTS

Master Plan forecasts are intended for facility planning purposes. That is, they are intended to look forward 20 or more years to identify what improvements an airport might need to serve aviation users and reserve appropriate space for expansion.

A Master Plan reserves space for expected future aviation-related activity and identifies the requirements for meeting current FAA standards. Actual construction or other improvement is based upon annual review of demand and airport conditions that occurs in the coordinated (Airport-State-FAA) preparation of the FAA's Capital Improvement Plan. Actual construction of any improvement will only occur once the facility need, financial justification, environmental approvals, and other issues have been fully vetted among all relevant parties.

Specific issues of this Master Plan are largely based upon the future growth of air traffic in the southeastern Virginia area. This includes the disposition of traffic among regional airports and the decisions of air carriers of which airports best serve their needs. Note that consolidation between carriers or start-up of new carriers often causes dramatic shifts in aviation demand. Therefore, it is recommended that capital project plans be updated annually and Master Plans be prepared every 5 to 10 years.

A Master Plan forecast is *not* a tool for near term budget or financial planning purposes, as the projections ignore short-term economic conditions or recent changes in airline service. Rather, the projections attempt a 'big picture' view of expected long-term conditions given the assumptions presented.

As such, the FAA's Terminal Area Forecasts (TAF) for the Newport News/Williamsburg International Airport serves as the basis for this Master Plan forecast. The alternative scenarios represent other concepts of potential activity for consideration. Future facility development should correspond to the activity levels at that point in time and the specific requirements of tenants and users.

## 2.11 SUMMARY OF FORECASTS

A summary of the aviation demand forecasts for the Airport is presented in Table 2-11. These activity projections are used in the next chapters of the Master Plan to assess the capacity of existing facilities and determine facility expansions or improvements needed to satisfy future activity levels

*Table 2-11*
**FORECAST SUMMARY**

| Activity Measure | 2010 | 2017 | 2022 | 2027 | 2032 |
|---|---|---|---|---|---|
| **Annual Commercial Enplanements** | | | | | |
| Dec. 2010 TAF - Base Case | 504,000 | 616,000 | 711,000 | 821,000 | 948,000 |
| Scenario One - Slow Growth | 500,000 | 535,000 | 562,000 | 592,000 | 622,000 |
| Scenario Two - Aggressive Growth | 500,000 | 628,000 | 739,000 | 869,000 | 1,027,000 |
| Scenario Three - Very Aggressive Growth | 500,000 | 640,000 | 765,000 | 915,000 | 1,092,000 |
| **Peak Hour Enplanements** | | | | | |
| Dec. 2010 TAF - Base Case | 390 | 510 | 540 | 570 | 590 |
| Scenario One - Slow Growth | 390 | 400 | 400 | 430 | 450 |
| Scenario Two - Aggressive Growth | 390 | 480 | 520 | 560 | 680 |
| Scenario Three - Very Aggressive Growth | 390 | 460 | 510 | 550 | 690 |
| **Annual Aircraft Operations** | | | | | |
| Commercial | 19,732 | 22,759 | 25,211 | 27,938 | 30,974 |
| General Aviation | 58,859 | 63,234 | 69,901 | 77,279 | 84,869 |
| Military | 23,296 | 23,296 | 23,296 | 23,296 | 23,296 |
| Total | 101,887 | 109,289 | 118,408 | 128,513 | 139,139 |
| **Based Aircraft** | | | | | |
| Total | 105 | 118 | 128 | 138 | 148 |

Source: Reynolds, Smith and Hills, Inc., 2010; TAF enplaned passengers rounded to thousands

## 2.12 FORECAST CONCLUSION

This chapter provided a projection of enplaned passengers and other aviation activity for the Master Plan forecast. Information from this summary is used in the remainder of the Master Plan to assess the capacity of the existing airport facilities and provide planning guidance for proposed facility expansion or renewal. In summary, this forecast assumes continuation of the current types of aviation activity with growth in line with historical and economic trends. In addition, more aggressive passenger growth activity forecasts are provided to identify the potential facility needs.