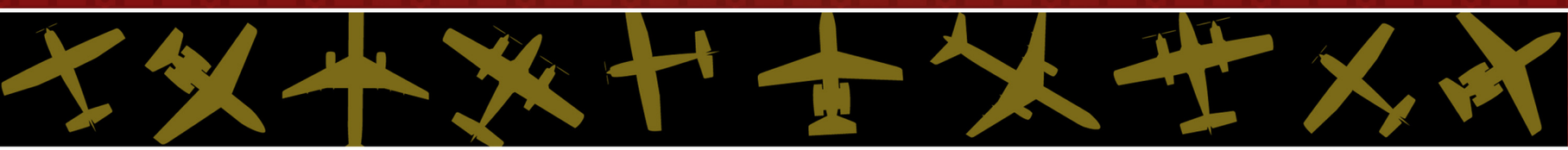
MARYLAND

AVIATION SYSTEM PLAN



TECHNICAL REPORT

PREPARED FOR THE MARYLAND AVIATION ADMINISTRATION

2008

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OVERVIEW

The last comprehensive review of Maryland's airport system was completed in 1998. Since that time, aviation, both nationally and in Maryland, has experienced changes. The Maryland Aviation System Plan (MASP) update provides an analysis of each public-use airport and an overview of Maryland's overall air transportation needs for the next 20 years. It is a planning document designed to help the Maryland Aviation Administration (MAA) determine the type, extent, location, timing and cost of airport development needed in Maryland to preserve and expand a safe and efficient system of airports.

Several key facts related to aviation and airports in Maryland were important considerations in the planning process. The following data provides a framework for examining the MASP update:

- The Maryland aviation system of airports serves a broad user base. Baltimore Washington Thurgood Marshall International Airport (BWI) provides commercial air carrier service through scheduled passenger and cargo service to the densely populated Baltimore/Washington metropolitan area. Commuter passenger service is provided through Hagerstown Regional and Salisbury-Ocean City: Wicomico Regional Airports. The remaining general aviation airports, ranging from small grass strips to thriving business centers, serve private, recreational, business/corporate and military aviation activity throughout the State.

- Current aeronautic statistics for the State of Maryland indicate:
  - Approximately 3,000 civil aircraft are based at system airports
  - the State has over 8,000 active pilots and flight instructors
  - there are 141 airports in the State,
  - there are 36 public-use facilities, including one public-use seaplane base and one public-use heliport in the State

- Approximately 50 percent of Maryland's public-use airports are privately owned. This is an important fact when considering that privately-owned public-use airports are routinely under pressure to convert to non-aviation land-use by encroaching residential and commercial development. Inconsistent land-use results in landside and airside capacity constraints and the inability to expand aviation facilities.

The System Plan examines all aviation facilities in the State that are currently licensed, operating, and open for public use. The airports range in size from single, turf-runway facilities to large, multi-runway scheduled service hub facilities. The system also includes a seaplane base and a heilport. The majority of Maryland's airports strictly support the operation of general aviation aircraft. General aviation aircraft include all aircraft not flown by commercial airlines, air cargo carriers, or the military. Both publicly and privately owned airports are included in the system. However, to be included in the Maryland system, an airport must be open for public use.

The overall system planning process includes detailed tasks that indentify and evaluate the existing functional roles that airport facilities play in the system. In addition, adequacies and deficiencies of existing system coverage are examined. Based on this analysis, a recommended development plan for the system of airports which identifies the specific projects required to ensure that Maryland's system meets Federal Aviation Administration (FAA) or MAA standards. In addition, the development plan ensures that Maryland's airport system is not only preserved, but will adequately serve the current and anticipated future needs of the State's aviation users.

Important components of the system planning process include the establishment of the following:

- **System Vision and Goals** – The System Plan took a state-wide strategic approach in identifying and evaluating the system's needs over the next 20 years. The primary goal of the plan is to capture data that supports informed decisions related to planning and developing the State Airport System. The system vision goals identified for the System Plan is developed by a cooperative effort through the study's Advisory Committee, a group of MAA, FAA and system airport representatives.

- **Inventory** - The inventory forms the backbone for the analyses that were conducted throughout the System Plan. It was essential that a thorough understanding of activities, facilities, and existing conditions be derived through the inventory effort. The MAA maintains an extensive database of airport operational data and information. This database was used extensively in the research and development of the system plan inventory. A survey administered to each airport was an important instrument developed and implemented to update, expand, and supplement existing inventory data. On-site visits and interviews with key airport staff were conducted to better understand unique airport issues and complete the inventory task.

- **Forecasts** – To develop an airport system that is responsive to user demand, it was important to have a general understanding of where future growth in demand for the system could most likely be anticipated. Estimates of future demand were quantified so that impacts on future facilities could adequately be determined in the short, mid and long-term ranges. Existing forecasts were utilized where appropriate. For airports without FAA approved forecast, based aircraft and operational projections were developed for the years 2011, 2016, and 2026.

- **Existing Airport Roles** – An important initial step in analyzing the future requirements of Maryland's airport system was examining the existing system and identifying those airports that currently make up the system. In this analysis, Maryland's current airport system was identified by examining each airport's functional role within the system and its current contribution to the overall system. Because Maryland's airports serve many different roles or needs, the types of facilities and services necessary to serve the State vary accordingly. The System Plan developed general facility objectives for each airport classification and measured the degree to which airports met their objectives.

- **Current System Performance –** Beyond detailing facility and service objectives, this study also analyzed specific system attributes unique to Maryland aviation to measure performance. Drive time analysis and general coverage provided by the existing system were important contributors to measuring system performance. This chapter also evaluated the implementation of viable new technology to improve approaches to runways at system airports.

- **Future System Performance –** Measures for meeting facility objectives and improving coverage to enhance the accessibility of airports to users served as the basis for specific airport recommendations.

- **Implementation –** Estimated project costs and realistic phasing principals were used organize projects into short, medium and long-term periods. Priorities for development were determined by the MAA based upon the needs to meet safety/security, role and coverage requirements.

It was through the completion of these tasks that the System Plan was able to identify and quantify system deficiencies, examine options to address deficiencies, and identify recommended system improvements.

MARYLAND SYSTEM PLAN RESULTS

The Maryland system of airports is made up of collection of public and privately-owned, public-use facilities. Airports in the FAA's National Plan of Integrated Airport Systems (NPIAS) receive partial funding for capital improvements in exchange for grant related assurances. Non-NPIAS airports, however, must rely on other forms of funding. For the definition of airport roles, facility objective and coverage performance measures identified in the System Plan provided recommendations for improving system performance. Improving system performance relative to these measures is contingent upon the MAA's ability to implement the recommendations, over time, and to continuously monitor the system's progress relative to goals that were established in the system planning process.

A brief description of each classification identified for the Maryland airport system is as follows:

Air Carrier Airports: Air Carrier Airports are intended to support commercial airline activities. Where capacity constraints do not impose limits, this airport classification can also support all types of general aviation activities. There are three Maryland airports in this classification.

Reliever Airports: Reliever Airports support corporate/executive and private use general aviation activities. In some cases, these airports function as relievers to larger, more congested, Air Carrier Airports. These airports should be able to accommodate corporate jet aircraft. This facility classification can also support recreational general aviation activities and flight training. There are six Reliever Airports in Maryland.

General Airports: This classification of airport serves light multi-engine and single engine aircraft flying for business, pleasure, and training. There are 16 facilities in the General Airports classification.

Local Airports: Local Airports include facilities that support small general aviation aircraft. Single-engine aircraft represent the primary aircraft type; however, some light twin-engine aircraft are also accommodated. This airport classification supports private pilots that may be flying for business or pleasure and require minimal support facilities. Airports in this category are not in the NPIAS, and have fewer than 20,000 operations and/or less than 40 based aircraft. There are nine Local Airports in Maryland.

Special Facility: Special Facilities serve unique aviation roles in the system. Havre de Grace Seaplane Base and Pier 7 Heliport are included in this category.

Each system airport, by role, and its location in Maryland are depicted in Exhibit 1.

EXHIBIT 1: MARYLAND AIRPORT SYSTEM – AIRPORT ROLES

Source: Wilbur Smith Team

Facility Objectives

As discussed, Maryland's airports serve many different roles. Therefore, the types of facilities and services necessary to serve the State vary accordingly. The System Plan developed general facilities recommendations for each airport classification. It should be noted that no facility objectives were identified for Special Facilities because of their unique operating circumstances.

It is important to understand that the facility recommendations are not requirements. An airport's master plan, as well as unique circumstances, will dictate what type of facilities will be in place at an individual airport. From a system perspective; however, the objectives presented below provide a broad-brush evaluation of what may be needed at system airports.

TABLE 1: FACILITY OBJECTIVES				
Objective	**Local**	**General**	**Reliever**	**Air Carrier**
Primary Runway Length	2,000 ft.	3,500 ft.	5,000 ft.	5,500 ft.
Airport Reference Code (ARC)	A-I Small	B-I	C-II	C-III
Taxiway System	Turnarounds	Partial Parallel	Full Parallel	Full Parallel
Approach Capability	Visual	Non-precision	Precision	Precision
Air Traffic Control Tower (ATCT)	--	--	Yes[1]	Yes
Air Traffic Control (ATC) Communications	--	--	Yes	Yes
Runway Lighting	LIRL and Beacon[2]	MIRL and Beacon	HIRL and Beacon	HIRL and Beacon
Wind Cone (lighted)	Yes	Yes	Yes	Yes
Runway End Identifier Lights (REILs)	Yes	Yes	Yes	Yes
Vertical Glide Slope Indicator (VGSI)	Yes	Yes	Yes	Yes
Weather Reporting	--	Yes	Yes	Yes
GA Terminal/Admin. Building	--	Yes	Yes	Yes
Fuel	100LL	100LL	Jet-A, 100LL	Jet-A, 100LL
Paved Aircraft Parking	--	Yes	Yes	Yes
Hangars	Yes	Yes	Yes	Yes
Covered Overnight Secure Storage	--	--	Yes	Yes
Property Enclosed by Fence	Yes	Yes	Yes	Yes
Snow Removal	--	Yes	Yes	Yes

[1] Only for airports with 120,000 annual operations or more. [2] If paved.
Source: Wilbur Smith Associates, Inc.

After facility recommendations were developed, each airport was benchmarked to determine where improvements may be needed. While the current system of airports was found to be well developed with outstanding infrastructure and services, there were areas of improvement

identified. Each of the three Air Carrier Airports met 100 percent of their system facility recommendations. These recommendations are solely intended to identify system level needs and do not include the numerous local projects identified for these vital airports. Reliever Airports currently meet 73 percent of their facility recommendations, while General Airports meet 75 percent of their objectives. Local Airports also meet 75 percent of their local objectives.

Coverage

While meeting the needs of facility objectives is an important element of overall system development, another essential aspect of airport system success is related to coverage or accessibility of airports and key facilities throughout Maryland. It is reasonable to assume that airports should be located in proximity to existing and potential users. Airport coverage was assessed for each of the roles (Air Carrier, Reliever, General and Local Service) as well as for key operational features.

Each evaluation criterion was evaluated for the percentage of the state's population that was covered by a reasonable drive time. In addition, geographic coverage was also evaluated. In addition to Maryland airports, there are airports located outside the state that also provide air access to Maryland residents. A summary of Maryland population and geographic coverage related to system airports as well as out-of-state airports is presented in **Table 2** below.

TABLE 2
MARYLAND GEOGRAPHIC AND POPULATION COVERAGE

	Land area coverage (Total 10,014 sq. mi.)		Population coverage (Total 2000 - 5,296,486)	
	In state	In / out of state	In state	In / out of state
60 minute air carrier	66.4%	76.3%	91.4%	94.6%
30 minute air carrier/reliever	49.6%	63.2%	86.2%	92.6%
30 minute reliever/general	80.0%	84.5%	94.6%	97.0%
30 minute reliever/general/local	86.6%	90.2%	96.7%	97.8%
> 5,000 ft. Runway	55.6%	63.6%	67.9%	87.8%
Precision Approach	42.2%	49.6%	63.5%	83.2%
Precision and Non-Precision Approach	87.1%	88.4%	98.1%	98.3%

Source: Wilbur Smith Team

Maryland's airports are in excellent locations to provide service to the State's residents and businesses. Nearly 95 percent of the State's population is within 60 minutes of an Air Carrier Airport and nearly 98 percent of the population is within 30 minutes of a system airport. Even with the State's diverse geography, more than 90 percent of the State's land area is within a 30-minute drive of a system airport.

RECOMMENDED DEVELOPMENT PLAN

The recommended developed plan is the result of the system planning process that compared existing facilities at system airports to the facility objectives identified for each airport based on its recommended functional level/role in the system as well as coverage of airports throughout the state. Facility objectives represent goals based on recommended roles, and the types of users anticipated for each functional level of airport in the system. Coverage represents the degree of accessibility of airports to anticipated users. Through the comparison of existing facilities, recommended functional level, facility objectives, and methods of enhancing coverage of Airports throughout the state, specific development needs were identified for each system airport. This development needs include all infrastructure development projects and project costs associated with bringing each system airport into compliance with the facility objectives for its recommended role and enhancing coverage. Airport operating costs and routine maintenance costs are not included in this analysis.

Table 3 presents a summary of the project costs and phasing broken down by airport categories or roles presented throughout the study. Total estimated costs for all recommended system projects amount to more than $167 million. The split of overall development between the short, mid- and long-term periods is 27 percent, 41 percent, and 32 percent, respectively.

TABLE 3
RECOMMENDED PROJECTS: COSTS AND PHASING SUMMARY

Airport Category	Short Term (1-5 years)	Medium Term (6-10 years)	Long Term (11-20 years)
Commercial Airports	$ 0	$ 0	$ 0
Reliever Airports	31,354,000	39,491,000	1,250,000
General Airports	11,091,000	25,950,000	53,004,000
Local Airports	3,082,000	2,545,000	0
GRAND TOTAL	**$ 45,527,000**	**$ 67,986,000**	**$ 54,254,000**

Source: Wilbur Smith Associates, Inc.

The recommended development plan provides a framework through which the MAA can improve the performance of the existing airport system and develop a system that adequately supports system demands in the future. The estimated costs of the recommended development plan summarized in Table 3 are consistent with estimates of ongoing infrastructure program costs currently identified in individual airport capital improvement plans. These costs represent estimates of the infrastructure development costs necessary to allow system airports to adequately serve their role in the State's future airport system. Other costs associated with the preservation of the airport system and the routine maintenance of existing facilities may also be incurred.

CHAPTER ONE
INVENTORY

This chapter presents an inventory of existing conditions for the 18 publicly-owned and 18 privately-owned, public-use facilities that are currently part of the Maryland Aviation System of Airports. The overall system planning process examines the adequacies and deficiencies of the existing airport system. Based on these analyses, a recommended development plan for the system of airports will be prepared. This recommended development plan will identify projects required to ensure that Maryland airports meet current and projected demand, FAA design standards and promote the safe and efficient use of airports and airspace.

In addition, the process used to collect inventory data and present summary inventory data in succinct form will be explained in this chapter. The purpose of the inventory and data collection process is to develop an accurate database representative of a "snap-shot in time" view of the existing system that can be used throughout the study. The information in this chapter was collected in August 2007.

I. SUMMARY OF EXISTING AIRPORT SYSTEM

The existing system in Maryland consists of 36 facilities; 35 airports and one heliport (Pier 7 Heliport in Baltimore). For purposes of analyzing system airports to meet all aviation needs throughout the state, this study will focus on system airports only. **Exhibit 1-1** illustrates the location of the airports currently included in the Maryland aviation system. In Exhibit 1-1, airports are identified in the following categories based on types of activity they accommodate:

- **Commercial:** Airports that support scheduled airline activity are categorized in Exhibit 1-1 as commercial airports. There are three commercial services airports in Maryland that provide scheduled passenger service by one or more Federal Aviation Administration (FAA) certified air carriers.

- **General Aviation:** Maryland's public use airports that are part of the FAA's National Plan of Integrated Airport Systems (NPIAS) but do not support scheduled commercial service airline operations and are not identified as reliever airports are categorized as general aviation airports in Exhibit 1-1.

- **Reliever:** Reliever airports are described by the FAA as typically located in major metropolitan areas that divert general aviation activity from larger commercial service airports. By providing general aviation with an attractive alternative destination, reliever airports minimize delay and congestion at the larger scheduled commercial service airports, and provide safe and efficient general aviation access to larger metropolitan areas. Maryland's eight FAA-designated reliever airports are presented in Exhibit 1-1.

- **Non-NPIAS:** Airports that are not part of the NPIAS and accommodate the needs of general aviation, but do not qualify for FAA funding.

The NPIAS is a FAA plan that identifies airport facilities considered important to the national airport system. Airports included in the NPIAS are eligible for FAA funding for improvement and development of public use facilities. The airports included in the NPIAS are classified in the bulleted categories below, based on the types of activity occurring at the facility, the levels of activity occurring, and the airports role in national and regional aviation systems. NPIAS airports are classified into two major categories:

- Commercial
- General aviation

Within each major category, airports are further classified based on the types and levels of activity occurring at each facility. The NPIAS major categories and subcategories are described below:

- **Commercial NPIAS Airport:** NPIAS airports that receive scheduled passenger service and enplane more than 2,500 passengers annually. An enplaned passenger is one who boards an aircraft for departure.
  - **Primary:** Primary commercial service airports are NPIAS airports that receive scheduled commercial passenger service and enplane more than 10,000 passengers annually.
  - **Other Commercial Service:** Other commercial service airports are NPIAS airports that receive scheduled commercial passenger service and enplane between 2,500 and 10,000 passengers annually.
- **General Aviation NPIAS Airport:** NPIAS airports that do not receive scheduled passenger service are categorized as general aviation airports. Within the general aviation category, subcategories include reliever airports and general aviation airports.
  - **Reliever:** Reliever airports are either publicly or privately-owned, high capacity general aviation airports that relieve airport congestion in a metropolitan area. Reliever airports provide the general aviation user with an attractive alternative airport to divert their operations from a larger, more congested, scheduled service airport. Reliever airports must meet the following criteria to fulfill their designation[1]:
    - Current and forecast activity level of at least 100 based aircraft, or 25,000 annual itinerant operations (non-training flights that arrive/depart).

    In addition, the relieved airport must:
    - Be a commercial service airport that serves an area with a population of at least 250,000 persons or at least 250,000 annual enplaned passengers.

[1] FAA Order 5090.3C

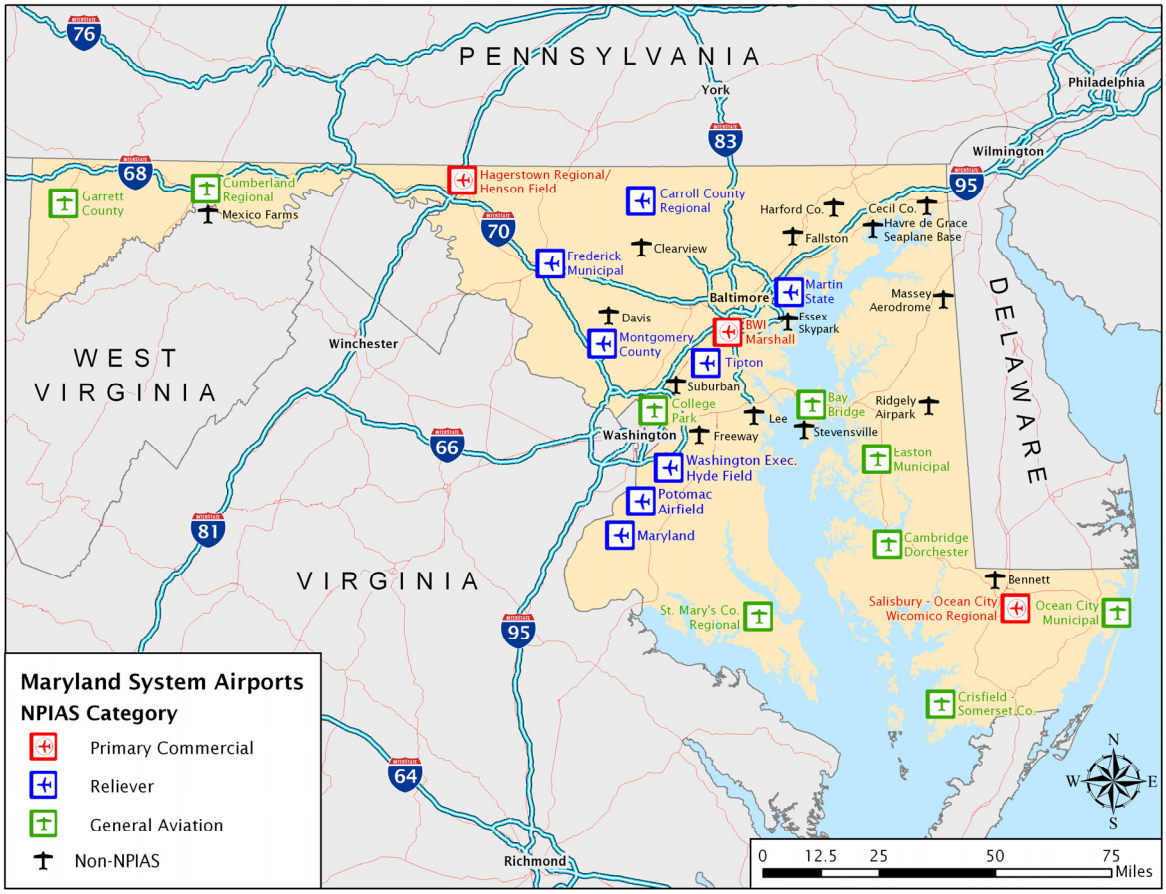
- Either operate at 60 percent of its capacity, at such a level before being relieved by one or more reliever airports or is subject to restrictions that limit activity that would otherwise reach 60 percent of capacity.

- **General Aviation:** NPIAS airports that do not receive scheduled passenger traffic and do not meet the reliever criteria presented above are classified as general aviation NPIAS airports.

Maryland has 20 airports in the NPIAS. Three of those airports are commercial service airports, eight are reliever airports and nine are general aviation airports. It should be noted that the FAA changed the NPIAS designations of two airports that fall within the Flight Restriction Zone (FRZ) encircling the Washington, D.C. metropolitan area. Discussed in more detail later in this chapter, these airports were listed in the NPIAS to assist them in receiving federal funds for meeting governmental security requirements implemented since Sept. 11, 2001.

The remaining 15 system airports are not included in the NPIAS, do not receive federal funding assistance and are general aviation airports. These are identified in Exhibit 1-1 and Table 1-1.

EXHIBIT 1-1: MARYLAND SYSTEM AIRPORTS



Source: Wilbur Smith Team

Private/Public Facilities Not In System

In addition to the 35 system airports, there are numerous privately-owned airports that support aviation in Maryland. In terms of sheer numbers, Maryland's aviation facilities are dominated by privately-owned, private-use facilities. There are more than 100 privately-owned airports that are limited or restricted from public use in Maryland. A small subset of private-use airports are designated as commercial-private use in support of business related activities. Because of their restricted access and limited facilities, most private-use facilities do not significantly contribute to the state's overall aviation system.

Also, there are more than 50 heliports throughout Maryland, most privately-owned with limited or restricted public access. Support for rotorcraft operations at public-use airports is typically provided through a helipad and rotorcraft support facilities located somewhere on the airfield. Located in downtown Baltimore, the Pier 7 heliport is a public-use heliport facility and has recently become part of the System of Maryland facilities. Due to the unique nature of its operating characteristics, however, it will not be evaluated like other airport facilities in this system plan.

II. INVENTORY PROCESS

The Office of Regional Aviation Assistance (ORAA) of the Maryland Aviation Administration (MAA) maintains a database of all aviation facilities in Maryland. The data is based on information provided by airport managers and through on-site ORAA inspections and research through MAA and FAA records and reports. The ORAA uses information stored in its database to update FAA 5010 Airport Master Records on behalf of system airports. This database was used as the initial resource for the collection of airport inventory data in this analysis and confirmed or corrected through interviews with airport managers and ORAA staff, as well as on-site airport visits.

Other reliable sources, such as FAA databases and previous Maryland ORAA studies, provided additional information regarding Maryland's airports. The following specific sources of information were used, where necessary, to supplement data in the Maryland ORAA database:

- Maryland ORAA airport records
- FAA Northeast (Volume 3 of 4) U.S. Terminal Procedures
- FAA Northeast U.S. Airport/Facility Directory
- FAA Terminal Area Forecasts
- FAA Washington Sectional Aeronautical Chart
- FAA 5010 Airport Master Records
- Maryland Airport Directory 2007-2008
- Numerous Airport Master Plans, Airport Layout Plans and Environmental Assessments

The main method of obtaining and verifying data on each system airport was through an Airport Inventory and Data Survey that each airport was asked to complete. Airport site visits were

conducted at all non-NPIAS, as well as a variety of NPIAS airports to verify survey information, answer questions and provide an opportunity for the airport operator to give additional input.

Information from the ORAA database and other related materials were stored to create a State Airport System Plan (SASP) database as part of the inventory process. Within the database, tables have been developed to present general categories of data on an airport-by-airport basis. These tables provide the necessary framework for storing, maintaining and analyzing inventory data. In addition, these tables will be used throughout this chapter to summarize airport facility and activity data for system airports.

III. AIRPORT INVENTORY DATA

Airport inventory data for this analysis has been collected, organized and presented for the following major categories:

- General Airport Information
- Airside Facilities
- Landside Facilities and Services
- Airport Activity Statistics

A. General Airport Information

Basic airport ownership information from the survey is presented in **Table 1-1**, which can be found at the end of this chapter. Summary data for each airport is presented in the table for the following categories:

- **Airport Name:** The official name of each facility is presented.
- **Associated City:** The primary city that each airport serves is identified.
- **Airport Identifier:** The three-character code that is assigned to each airport by the FAA for identification purposes is presented.
- **Ownership:** The type of ownership of the airport, whether public or private, is provided.
- **Status within the National Plan of Integrated Airport Systems (NPIAS):** The classifications of those airports in the NPIAS are presented.

It is important to note, that while not physically in Maryland but in West Virginia, the Greater Cumberland Regional Airport contributes to the local Maryland economy and is run through a bi-state compact between Maryland and West Virginia, which share responsibility of the airport's operation.

B. Airside Facilities

Airside facilities at an airport consist of runways, taxiways, their associated lighting facilities, navaids, and the navigation, communication and weather reporting infrastructure needed to facilitate aircraft operations at airports. The primary component of an airport and the most important airside facility is an airport's runway. Runways support the transition of aircraft from ground to air, and are often considered the lifeline of an airport's operation. Taxiways serve as a path for aircraft to move from one part of the airport to another. If a taxiway does not exist, the runway must fulfill the taxiway's purpose. **Table 1-2** contains summary information regarding the runway and taxiway facilities at Maryland's system airports. The following data is provided in Table 1-2:

- **Runway Length:** The length of the airport's primary runway is presented.
- **Runway Width:** The width of the airport's primary runway is presented
- **Runway Lighting:** According to intensity, the type of lighting that exists on each system runway is presented. The types of runway lighting identified in the table include Low Intensity Runway Lighting (LIRL), Medium Intensity Runway Lighting (MIRL) and High Intensity Runway Lighting (HIRL).
- **Taxiway System:** The presence or absence of a taxiway for each system runway is noted. A full-length taxiway spans the entire length of the primary runway. A partial-length taxiway spans only part the length of its associated primary runway. Runways without a taxiway system may have areas at one or both ends of the runway called "turnarounds," where aircraft may reverse direction and perform other operations off the runway.
- **Approach Capability:** During periods of low visibility, pilots use navigation aids and their instruments to fly the aircraft to where they can visually acquire the runway and execute a normal landing. The procedure is called an instrument approach and not all airports have them. Those without an instrument approach are said to have visual approaches. Those with approaches either have a precision (provides lateral and vertical guidance) or non-precision (provides lateral guidance) approach.

Table 1-2 shows that primary runways at Maryland system airports range from 1,845 feet (Clearview) to 10,502 feet (Baltimore Washington Thurgood Marshall International). The longest paved runway at a non-commercial airport is 6,996 feet (Martin State). The narrowest runway at a Maryland system airport is 25 feet (Davis), while 18 runways are 75 feet wide or more.

All but five Maryland airports have runway lighting. More than half of them have medium or high intensity lighting and only three have non-standard lighting. More than 77 percent of the system airports have full or partial taxiways.

More than 57 percent of the system airports have non-precision approaches. Approximately 17 percent of the airports have precision approaches. The remaining 26 percent have no instrument approach (nine airports).

Table 1-3 lists the availability of the following weather reporting, communication, and navigation equipment:

- **Weather Reporting:** There are several methods for gathering and recording weather for aviation purposes. Maryland airports use two different automated systems for generating airport weather reports. The Automated Surface Observing System (ASOS) is a weather observation and recording system maintained by the National Weather Service. ASOS reports wind, visibility, cloud height, temperature, dew point, pressure and precipitation. To supplement ASOS stations, some airports maintain an Automated Weather Observation System (AWOS). An AWOS-3 reports wind, visibility, cloud height, temperature, dew point and pressure.

- **ATCT:** Indicates whether the airport has an Air Traffic Control Tower (ATCT).

- **ATC Comms:** Indicates if it is possible to contact air traffic control (ATC) via radio while on the ground at the airport. This capability may be through a ground communications outlet, a remote communications outlet, or because the airport is close enough to another airport to permit direct ATC radio communications. Such a capability allows pilots to obtain clearances directly from ATC, instead of having to obtain a clearance void time, which is much less efficient. This capability is becoming less important as cell phone coverage expands.

- **Rotating Beacon:** Indicates whether a rotating beacon marks the airport. A rotating beacon helps pilots pinpoint the airport at night and/or during low visibility.

- **Segmented Circle:** Indicates whether the airport has a segmented circle. A segmented circle provides pilots with information on the traffic pattern at airports without an ATCT.

- **Wind Indicator:** Indicates whether the airport has a wind indicator that provides wind direction information to pilots. Those airports with lighted wind indicators are indicated by (L).

Roughly half of the system airports have some type of automated weather reporting system. All three commercial service airports have an ATCT. In addition to these three ATCTs, there are two other ATCTs at general aviation airports in Maryland (Martin State and Easton). Including the five airports with ATCTs, there are 11 airports able to communicate to ATC by radio on the ground. Thirteen airports use segmented circles and approximately 80 percent of Maryland system airports have a rotating beacon.

C. Landside Facilities and Services

Landside facilities and services include terminal buildings, other airport buildings, fuel farms, hangars and T-hangars, aprons, and parking facilities and services such as flight training, aircraft rental, snow removal from the runway and courtesy cars. Data regarding the landside facilities and services at each Maryland system airport was collected and is summarized in **Tables 1-4, 1-5, and 1-6**. Landside facility data provides information related to the types and levels of services provided to aviation users at each of the airports. Table 1-4 summarizes the fuel services available at each system airport:

- **Fuel Type:** The types of aviation fuel available at each system airport are presented. Types of aviation fuel available include jet fuel (Jet A), 100 octane low-lead fuel (Avgas) and motor vehicle fuel (MoGas) used for aviation purposes.

- **24-Hour Fuel:** Indicates whether fuel is available at any hour of the day, either through self-service fueling or prior arrangements made with the FBO.

Avgas is the most common type of fuel available, provided by 28 out of the 35 system airports. Jet A fuel was the next most common, with 19 airports providing it. No airports provide MoGas. Less than half of the system airports made fuel available on a 24-hour basis, either through self-service or prior arrangements.

Table 1-5 highlights the aircraft storage facilities available at each system airport.

- **T-Hangars:** T-hangar units are covered, individual aircraft storage areas, suitable for storing most single engine and smaller twin-engine aircraft. The number of T-hangar units at each Maryland system airport is presented in Table 1-5.

- **Conventional Hangars:** The total number of conventional hangars at each system airport is presented. Conventional hangars are free-standing, covered buildings used to store one or more aircraft.

- **Tie-Downs (spaces):** Aircraft tie-down spaces are individual, outdoor locations where aircraft are tied down and stored. Both paved and grass tie-down spaces are presented.

Table 1-6 lists the availability of the following services at each system airport, as reported by each airport.

- **Air Taxi/Charter:** Indicates whether the airport has an on-demand commercial air service operator (Part 135) based on the field.

- **U.S. Customs:** Indicates whether the U.S. Customs services are available so that flights originating from outside the U.S. can clear Customs upon arrival.

- **Crop Dusting:** Indicates whether the airport supports crop dusting operations. A positive indication does not mean that the crop dusting operator is based at the airport, only that crop dusting operations are conducted at the airport.
- **Aircraft Repair:** Indicates whether airframe and/or powerplant repair services are available at the airport.
- **Avionics Repair:** Indicates whether radio, navigation instrument, and other electronic gear repairs are available at the airport.
- **Avionics Sales:** Indicates whether radios, navigation instruments, and other electronic gear are available for purchase at the airport.
- **Aircraft Sales:** Indicates whether a business engaged in aircraft sales is based on the field. It does not include aircraft sold privately.
- **Covered Overnight Secure Aircraft Storage:** Indicates whether sheltered space is available to store transient aircraft.
- **Oxygen:** Indicates whether oxygen, either in bulk or for individual use, is available for purchase at the airport.
- **Deicing:** Indicates whether aircraft deicing services are available. The availability of a heated hangar was considered a valid deicing service.
- **Snow Removal:** Indicates whether the airport's primary runway is plowed following a snowstorm.
- **Aircraft Rental:** Indicates whether a business engaged in renting aircraft to pilots is based on the field.
- **Flight Instruction:** Indicates whether a flight instruction business is based on the field. It does not include flight training given to pilots in their own aircraft.
- **Car Rental:** Indicates whether airport patrons have access to a rental car. In some cases, the rental car company may not be based on the airport, but has made arrangements to bring a car to the airport or pick up the renter at the airport.
- **Courtesy Car/Loaner Car:** Indicates whether a car is made available without charge, to transient pilots while they are at the airport.

Every service listed above can be found at one Maryland airport or another. The most common service available is flight training, which is available at 22 airports, followed by aircraft repair and rental (20 airports), and car rental (17 airports). U.S. Customs service is the least common, found only at Baltimore Washington International Thurgood Marshall Airport (BWI). BWI also offers the most services (all except crop dusting) of any airport in the system. Hagerstown, Salisbury and Martin State airports follow closely by offering all services except U.S. Customs and crop dusting.

D. Airport Activity Statistics

Airport activity can be critical in determining an airport's role within the statewide system. Aviation activity can also highlight which airports may need expanded facilities to meet existing or increasing future demand. Also important is the type of aircraft that uses the airport. This helps to classify the airport's role in comparison to other airports in the state.

Operations at general aviation airports are extremely difficult to account for accurately. At most general aviation airports, there is no means of tabulating operations. Even at airports with air traffic control towers, operations counts are only maintained during the hours that the tower is operating. Outside of those hours, operations are estimated. Therefore, the best available operations data is often estimates provided by airport management or the airport FBOs.

Table 1-7 provides information regarding the most recent general aviation activity level estimated at each airport, and the type of operations (one landing and one takeoff equals two operations). These operation estimates came from a variety of sources, including recent FAA-approved forecasts from Airport Layout Plan narratives and Environmental Assessments, FAA 5010 data, Terminal Area Forecast data and airport managers and the MAA. Based on guidance from the FAA and MAA, 2006 base year data from the FAA was deemed most reliable and used when available. When FAA data was unavailable, MAA data was used. General aviation operations at Maryland system airports ranged from a low of 240 annual operations (Havre de Grace Seaplane Base) to a high of 147,300 (Montgomery County Airport).

Based aircraft are another measure used to determine an airport's role and significance within the system. Table 1-7 also displays the most recent count available for each system airport's total number of based aircraft. A fleet mix breakdown of this aircraft count is provided in the next chapter. There are 2,850 aircraft based at the 35 Maryland system airports. Maryland system airports have anywhere from two to 303 based aircraft.

E. Security

Due to sensitive security issues regarding the nation's capital, the Transportation Security Administration (TSA) has implemented a variety of security zones to monitor and protect the airspace surrounding the Washington, D.C. metropolitan area. Part of Maryland is encompassed by these security zones and the airports within them are impacted. A description of the security zones and their requirements for aircraft operations within each are provided below. **Table 1-8** lists airports that are included within each security zone.

- **Flight Restriction Zone (FRZ):** This area prohibits all civilian flights, except those granted a waiver by the FAA. This area is in place approximately 13 to 15 nautical miles around the Very High Frequency Omni-Directional Range navigation equipment located at Ronald Reagan Washington National Airport (DCA VOR). It covers three public-use general aviation airports in Maryland: College Park Airport, Potomac Airfield and Washington Executive/Hyde Park, commonly referred to as the "DC-3," and indicated on

Table 1-8. Those who use these airports must obtain security clearances from TSA as well as follow rigorous operational procedures.

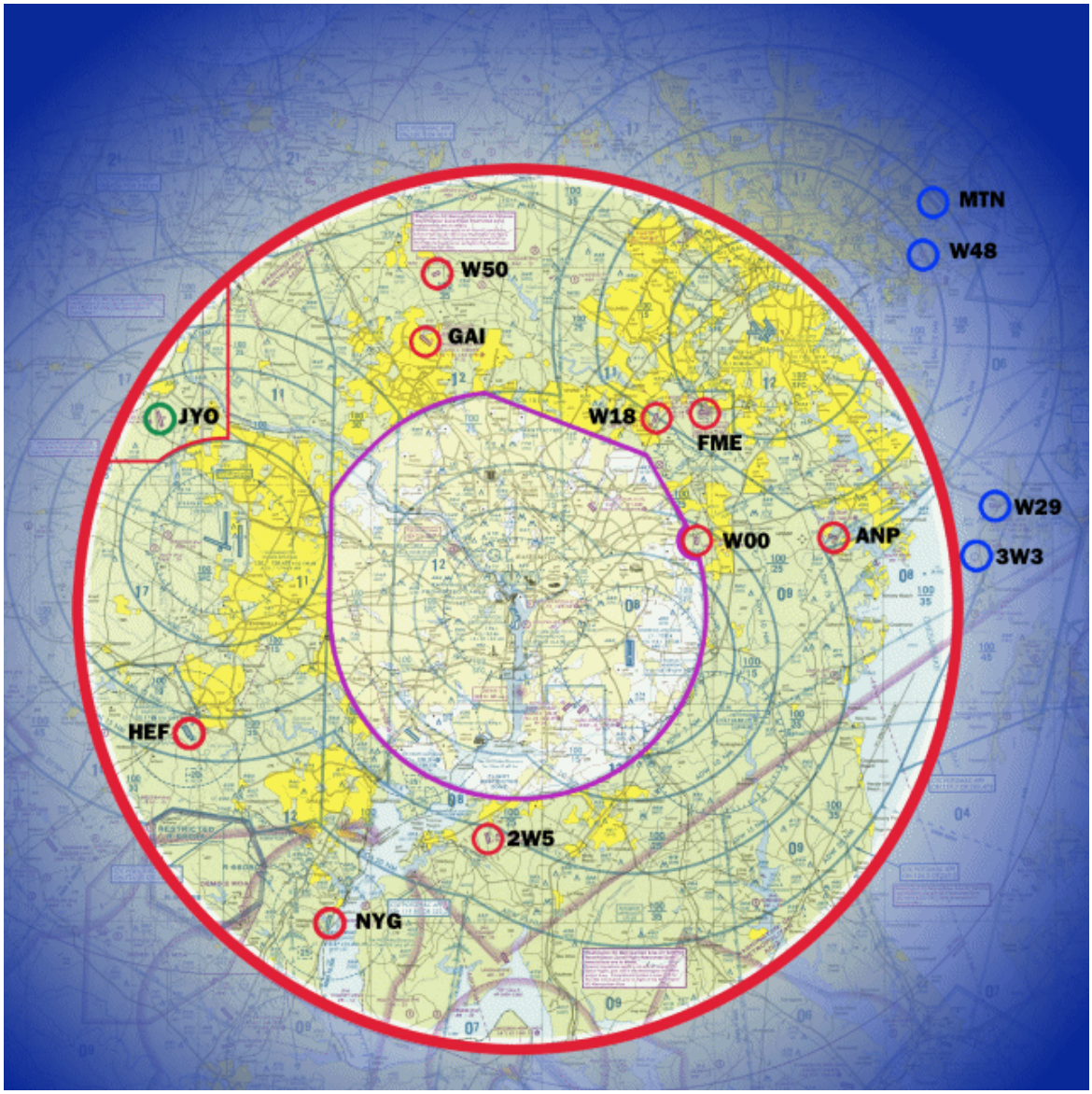
- **Air Defense Identification Zone (ADIZ):** Multiple Notices to Airmen (NOTAMs) have been issued since 9/11 regarding activity in the Baltimore-Washington region regulating the Washington, D.C. Metropolitan Area Air Defense Identification Zone (DC ADIZ). Table 1-8 indicates whether the airport lies within the DC ADIZ. In March 2006, the FAA issued a summary NOTAM combining the various requirements that were still in effect at that time. General requirements include:

  - File and activate an IFR or VFR DC ADIZ flight plan prior to entering the ADIZ or departing from an airport within the ADIZ.
  - Each aircraft must continuously broadcast the appropriate transponder code to the respective air traffic control facility while operating in the DC ADIZ. Upon arrival at the appropriate airport, the transmission may cease.
  - Pilots must establish and maintain two-way radio communication with the respective air traffic control facility before entering and while operating in the DC ADIZ.
  - Clearance in the DC ADIZ does not grant clearance into the designated Class B airspace surrounding the area's three commercial airports.

  The NOTAM also covers visual flight operations when the aircraft will remain in the airport's traffic pattern if the airport has an air traffic control tower. This typically includes training activities, such as touch-and-go's. No flight plan is required if the pilot will remain within the local airport's traffic pattern; however, the pilot needs to activate a transponder and remain in radio communication with the appropriate air traffic control tower. This is a lifting of previous restrictions that required all flights no matter from which airport to operate under a flight plan. The impacts of these and other past security regulations on general aviation activity in the Baltimore-Washington, D.C. region has been significant. Some users have relocated their aircraft to airports outside of the DC ADIZ, choosing to not operate in the restricted area.

  On Aug. 30, 2007, the DC ADIZ was modified to make it safer, more secure and easier for pilots to navigate. The circular, 30-nautical-mile-radius restricted area eliminates the "mouse ears" shape of the previous ADIZ and allows pilots to use a single navigational aid instead of the four required under past procedures. That change frees 33 airports and helipads in the Washington D.C. metropolitan area from restrictions in approximately 1,800 square miles of airspace, significantly reducing the economic impact on the general aviation community. **Exhibit 1-2** shows the FRZ (purple inner ring) and ADIZ (red outer ring) which encircles parts of the District of Columbia metropolitan area and includes some Maryland system airports.

EXHIBIT 1-2: FLIGHT RESTRICTION AND AIR DEFENSE IDENTIFICATION ZONES



Source: FAA

There are many steps general aviation airports can take to enhance security. Determining which actions are needed and affordable is best done on an airport-by-airport basis. However, even at airports with limited security budgets (in terms of time, money, and other resources), efforts can be made to increase security awareness. Some of these possible actions which can and have been at some system airports include the following:

- **Security Plan:** A written document that details the procedures used to maintain and address security issues and events. This document serves as a Standard Operating Procedure (SOP) for security related issues.

- **Airport Watch:** A community watch program that encourages airport patrons to participate in airport security awareness procedures, such as TSA-sponsored airport watch.

- **Security Committee:** An organized group of airport stakeholders that meet to discuss and address airport security issues.

IV. SUMMARY

This chapter presented the results of the inventory and data gathering efforts of the project. This information provided a snapshot of the status of the Maryland aviation system. Using this snapshot, current airport roles were defined and assigned to each airport in the Maryland aviation system. This information was also used to determine what future roles these airports could fulfill.

Finally, several facts regarding the current state system are provided below:

System airports	35
Airports in NPIAS:	20
System airports designated as relievers:	8
System airports with runways ≥ 5,000 feet	9
System airports with only turf or water landing areas:	4
Airports with an Instrument Approach:	26
Airports with Air Traffic Control Towers:	5

TABLE 1-1
SYSTEM AIRPORTS: GENERAL INFORMATION

Airport Name	Associated City	Airport ID	Ownership	NPIAS Category
System Airports with Commercial Service				
Baltimore/Washington Int'l Thurgood Marshall	Baltimore	BWI	Public	Primary Commercial
Hagerstown Regional Richard A. Henson Field	Hagerstown	HGR	Public	Primary Commercial
Salisbury – Ocean City Wicomico Regional	Salisbury	SBY	Public	Primary Commercial
NPIAS General Aviation Airports				
Bay Bridge	Stevensville	W29	Public	General Aviation
Cambridge-Dorchester	Cambridge	CGE	Public	General Aviation
Carroll County Regional Jack B. Poage Field	Westminster	DMW	Public	Reliever
Cecil County (Proposed)	To Be Determined	+07N	Public	General Aviation
College Park	College Park	CGS	Public	General Aviation
Crisfield-Somerset County	Crisfield	W41	Public	General Aviation
Easton/Newnam Field	Easton	ESN	Public	General Aviation
Frederick Municipal	Frederick	FDK	Public	Reliever
Garrett County	Oakland	2G4	Public	General Aviation
Greater Cumberland Regional[2]	Cumberland	CBE	Public	General Aviation
Martin State	Baltimore	MTN	Public	Reliever
Maryland	Indian Head	2W5	Private	Reliever
Montgomery County	Gaithersburg	GAI	Public	Reliever
Ocean City Municipal	Ocean City	OXB	Public	General Aviation
Potomac Airfield - Friendly	Friendly	VKX	Private	Reliever
Ridgely Airpark[1]	Ridgely	RJD	Private	General Aviation
St. Mary's County Regional	Leonardtown	2W6	Public	General Aviation
Tipton	Odenton	FME	Public	Reliever
Washington Executive/Hyde Field	Clinton	W32	Private	Reliever
Non-NPIAS General Aviation Airport				
Bennett	Salisbury	1N5	Private	Non-NPIAS
Cecil County	Elkton	58M	Private	Non-NPIAS
Clearview	Westminster	2W2	Private	Non-NPIAS
Davis	Laytonsville	W50	Private	Non-NPIAS
Essex Skypark	Baltimore	W48	Public	Non-NPIAS
Fallston	Fallston	W42	Private	Non-NPIAS
Freeway	Mitchellville	W00	Private	Non-NPIAS
Harford County	Churchville	0W3	Private	Non-NPIAS
Havre de Grace Seaplane Base	Havre de Grace	M06	Private	Non-NPIAS
Kentmorr	Stevensville	3W3	Private	Non-NPIAS
Lee	Annapolis	ANP	Private	Non-NPIAS
Massey Aerodrome	Massey	MD1	Private	Non-NPIAS
Mexico Farms	Cumberland	1W3	Private	Non-NPIAS
Suburban Airpark	Laurel	W18	Private	Non-NPIAS

[1]Ridgely Airpark has been identified for future inclusion in the NPIAS. [2]CBE is in West Virginia (see page 1-5)
Source: Wilbur Smith Associates, Inc. and NPIAS, Oct. 2006

TABLE 1-2
RUNWAYS AT SYSTEM AIRPORTS

Airport Name	Associated City	Runway Length	Runway Width	Runway Lighting	Taxiway System	Approach Capability
Airports with Commercial Service						
Baltimore/Washington Int'l Thurgood Marshall	Baltimore	10,502*	200	HIRL	Full	Precision
Hagerstown Regional Richard A. Henson Field	Hagerstown	7,000*	150	HIRL	Full	Precision
Salisbury – Ocean City Wicomico Regional	Salisbury	5,500*	100	HIRL	Full	Precision
NPIAS General Aviation Airports						
Bay Bridge	Stevensville	2,903	60	MIRL	Full	Non-precision
Cambridge-Dorchester	Cambridge	4,476	75	MIRL	Full	Non-precision
Carroll County Regional Jack B. Poage Field	Westminster	5,100	100	MIRL	Full	Non-precision
Cecil County (Proposed)	Elkton	6,400	100	HIRL	Full	Precision
College Park	College Park	2,607	60	MIRL	Full	Non-precision
Crisfield-Somerset County	Crisfield	2,490*	75	MIRL	Turnaround	Non-precision
Easton/Newnam Field	Easton	5,500*	100	MIRL	Full	Precision
Frederick Municipal	Frederick	5,220*	100	HIRL	Full	Precision
Garrett County	Oakland	5,000	75	MIRL	Full	Non-precision
Greater Cumberland Regional	Cumberland	5,048*	150	MIRL	Full	Non-precision
Martin State	Baltimore	6,996	180	HIRL	Full	Precision
Maryland	Indian Head	3,000*	50	LIRL	Turnaround	Non-precision
Montgomery County	Gaithersburg	4,201	75	MIRL	Full	Non-precision
Ocean City Municipal	Ocean City	4,072*	75	MIRL	Full	Non-precision
Potomac Airfield - Friendly	Friendly	2,665	40	LIRL	Full	Non-precision
Ridgely Airpark[1]	Ridgely	3,214*	50	LIRL	Full	Non-precision
St. Mary's County Regional	Leonardtown	4,150	75	MIRL	Partial	Non-precision
Tipton	Odenton	3,000	75	MIRL	Full	Non-precision
Washington Executive/Hyde Field	Clinton	3,000	60	LIRL	Full	Non-precision
Non-NPIAS General Aviation Airports						
Bennett	Salisbury	3,150*	95	LIRL	Turnaround	Visual
Cecil County	Elkton	3,000	70	MIRL	Partial	Non-precision
Clearview	Westminster	1,845	30	Non-std	Partial	Non-precision
Davis	Laytonsville	2,005	25	None	Partial	Visual
Essex Skypark	Baltimore	2,084	28	LIRL	Turnaround	Visual
Fallston	Fallston	2,200	50	Non-std	Turnaround	Visual
Freeway	Mitchellville	2,433	40	MIRL	Full	Non-precision
Harford County	Churchville	2,000*	40	Non-std	Turnaround	Non-precision
Havre de Grace Seaplane Base	Havre de Grace	8,000	200	None	Full	Visual
Kentmorr	Stevensville	2,400	90	None	Full	Visual
Lee	Annapolis	2,505	48	LIRL	Full	Non-precision
Massey Aerodrome	Massey	3,000*	100	None	Turnaround	Visual
Mexico Farms	Cumberland	2,120	190	None	Turnaround	Visual
Suburban Airpark	Laurel	2,324	40	LIRL	Partial	Visual

[1]Ridgely Airpark has been identified for future inclusion in the NPIAS.
[2]Asterisk (*) indicates airport has secondary runway. Measurement shown is length of primary runway in feet.
Runway Lighting: Non-std - Non-standard, HIRL - High Intensity, MIRL - Medium Intensity, LIRL - Low Intensity
Source: Wilbur Smith Associates, Inc.

TABLE 1-3
AIRSIDE FACILITIES AT SYSTEM AIRPORTS

Airport Name	Associated City	Weather Reporting	ATCT	ATC Comms	Rotating Beacon	Segmented Circle	Wind Indicator
Airports with Commercial Service							
Baltimore/Washington Int'l Thurgood Marshall	Baltimore	ASOS	Yes	Yes	Yes	No	Yes (L)
Hagerstown Regional Richard A. Henson Field	Hagerstown	ASOS	Yes	Yes	Yes	No	Yes (L)
Salisbury – Ocean City Wicomico Regional	Salisbury	ASOS	Yes	Yes	Yes	No	Yes (L)
NPIAS General Aviation Airports							
Bay Bridge	Stevensville	AWOS-III	No	No	Yes	No	Yes (L)
Cambridge-Dorchester	Cambridge	AWOS-III	No	No	Yes	Yes	Yes (L)
Carroll County Regional	Westminster	AWOS-III	No	Yes	Yes	Yes	Yes (L)
Cecil County (Proposed)			To Be Determined				
College Park	College Park	AWOS-III	No	No	Yes	Yes	Yes (L)
Crisfield-Somerset County	Crisfield	None	No	No	Yes	No	Yes (L)
Easton/Newnam Field	Easton	AWOS-III	Yes	Yes	Yes	Yes	Yes (L)
Frederick Municipal	Frederick	AWOS-III	No	Yes	Yes	Yes	Yes (L)
Garrett County	Oakland	AWOS-III	No	No	Yes	Yes	Yes (L)
Greater Cumberland Regional	Cumberland	AWOS-III	No	No	Yes	Yes	Yes (L)
Martin State	Baltimore	AWOS-III	Yes	Yes	Yes	No	Yes (L)
Maryland	Indian Head	None	No	No	No	No	Yes
Montgomery County	Gaithersburg	AWOS-III	No	Yes	Yes	Yes	Yes (L)
Ocean City Municipal	Ocean City	ASOS	No	Yes	Yes	Yes	Yes (L)
Potomac Airfield - Friendly	Friendly	None	No	No	Yes	Yes	Yes (L)
Ridgely Airpark[1]	Ridgely	AWOS-III	No	No	Yes	No	Yes (L)
St. Mary's County Regional	Leonardtown	AWOS-III	No	Yes	Yes	Yes	Yes (L)
Tipton	Odenton	AWOS-III	No	Yes	Yes	Yes	Yes (L)
Washington Executive/Hyde Field	Clinton	None	No	No	Yes	No	Yes (L)
Non-NPIAS General Aviation Airports							
Bennett	Salisbury	None	No	No	Yes	No	Yes (L)
Cecil County	Elkton	None	No	No	Yes	No	Yes (L)
Clearview	Westminster	None	No	No	Yes	No	Yes (L)
Davis	Laytonsville	None	No	No	No	No	Yes
Essex Skypark	Baltimore	None	No	No	Yes	No	Yes (L)
Fallston	Fallston	None	No	No	No	No	Yes
Freeway	Mitchellville	None	No	No	Yes	Yes	Yes (L)
Harford County	Churchville	None	No	No	Yes	No	Yes (L)
Havre de Grace Seaplane Base	Havre de Grace	None	No	No	No	No	Yes
Kentmorr	Stevensville	None	No	No	No	No	Yes
Lee	Annapolis	None	No	No	Yes	No	Yes (L)
Massey Aerodrome	Massey	None	No	No	No	No	Yes
Mexico Farms	Cumberland	None	No	No	No	No	Yes (L)
Suburban Airpark	Laurel	None	No	No	Yes	No	Yes (L)

[1]Ridgely Airpark has been identified for future inclusion in the NPIAS.
ATC - Air Traffic Control, ATCT - Air Traffic Control Tower, (L) - Lighted Wind Indicator
Source: Wilbur Smith Associates, Inc.

TABLE 1-4
FUEL AVAILABLE AT SYSTEM AIRPORTS

Airport Name	Associated City	Avgas	Jet A	MoGas	24-Hour Fuel
Airports with Commercial Service					
Baltimore/Washington Int'l Thurgood Marshall	Baltimore	Yes	Yes	No	Yes
Hagerstown Regional Richard A. Henson Field	Hagerstown	Yes	Yes	No	Yes
Salisbury – Ocean City Wicomico Regional	Salisbury	Yes	Yes	No	No
NPIAS General Aviation Airports					
Bay Bridge	Stevensville	Yes	Yes	No	Yes
Cambridge-Dorchester	Cambridge	Yes	Yes	No	No
Carroll County Regional Jack B. Poage Field	Westminster	Yes	Yes	No	Yes
Cecil County (Proposed)		To Be Determined			
College Park	College Park	Yes	No	No	No
Crisfield-Somerset County	Crisfield	Yes	No	No	Yes
Easton/Newnam Field	Easton	Yes	Yes	No	No
Frederick Municipal	Frederick	Yes	Yes	No	Yes
Garrett County	Oakland	Yes	Yes	No	No
Greater Cumberland Regional	Cumberland	Yes	Yes	No	No
Martin State	Baltimore	Yes	Yes	No	Yes
Maryland	Indian Head	Yes	Yes	No	No
Montgomery County	Gaithersburg	Yes	Yes	No	No
Ocean City Municipal	Ocean City	Yes	Yes	No	Yes
Potomac Airfield - Friendly	Friendly	Yes	No	No	Yes
Ridgely Airpark[1]	Ridgely	Yes	Yes	No	Yes
St. Mary's County Regional	Leonardtown	Yes	Yes	No	Yes
Tipton	Odenton	Yes	Yes	No	Yes
Washington Executive/Hyde Field	Clinton	Yes	Yes	No	Yes
Non-NPIAS General Aviation Airports					
Bennett	Salisbury	No	No	No	No
Cecil County	Elkton	Yes	Yes	No	Yes
Clearview	Westminster	Yes	No	No	No
Davis	Laytonsville	No	No	No	No
Essex Skypark	Baltimore	No	No	No	No
Fallston	Fallston	Yes	No	No	No
Freeway	Mitchellville	Yes	No	No	Yes
Harford County	Churchville	Yes	No	No	No
Havre de Grace Seaplane Base	Havre de Grace	No	No	No	No
Kentmorr	Stevensville	No	No	No	No
Lee	Annapolis	Yes	No	No	No
Massey Aerodrome	Massey	No	No	No	No
Mexico Farms	Cumberland	No	No	No	No
Suburban Airpark	Laurel	Yes	No	No	Yes

[1]Ridgely Airpark has been identified for future inclusion in the NPIAS.
Source: Wilbur Smith Associates, Inc.

TABLE 1-5
HANGARS AND TIE-DOWNS AT SYSTEM AIRPORTS

Airport Name	Associated City	T-hangars	Conventional Hangars	Paved Tie-downs	Grass Tie-downs
Airports with Commercial Service					
Baltimore/Washington Int'l Thurgood Marshall	Baltimore	30	3	60	0
Hagerstown Regional Richard A. Henson Field	Hagerstown	144	12	0	0
Salisbury – Ocean City Wicomico Regional	Salisbury	58	11	12	0
NPIAS General Aviation Airports					
Bay Bridge	Stevensville	33	0	38	13
Cambridge-Dorchester	Cambridge	32	3	10	0
Carroll County Regional Jack B. Poage Field[2]	Westminster				
Cecil County (Proposed)			To Be Determined		
College Park	College Park	0	1	30	60
Crisfield-Somerset County	Crisfield	3	2	13	0
Easton/Newnam Field	Easton	90	12	74	0
Frederick Municipal	Frederick	125	3	70	20
Garrett County	Oakland	4	6	15	0
Greater Cumberland Regional	Cumberland	60	5	18	0
Martin State	Baltimore	190	14	20	0
Maryland	Indian Head	24	5	3	107
Montgomery County	Gaithersburg	80	5	200	50
Ocean City Municipal	Ocean City	63	0	50	0
Potomac Airfield - Friendly	Friendly	31	2	6	120
Ridgely Airpark[1]	Ridgely	10	2	0	24
St. Mary's County Regional	Leonardtown	92	5	70	4
Tipton	Odenton	0	4	120	0
Washington Executive/Hyde Field	Clinton	30	1	30	25
Non-NPIAS General Aviation Airports					
Bennett	Salisbury	6	0	0	6
Cecil County	Elkton	23	3	20	0
Clearview	Westminster	9	2	7	31
Davis[2]	Laytonsville				
Essex Skypark	Baltimore	38	0	0	32
Fallston	Fallston	30	0	0	5
Freeway	Mitchellville	0	5	30	30
Harford County	Churchville	23	5	8	28
Havre de Grace Seaplane Base	Havre de Grace	0	0	0	0
Kentmorr	Stevensville	0	0	0	10
Lee	Annapolis	44	0	0	94
Massey Aerodrome	Massey	0	2	0	6
Mexico Farms	Cumberland	1	8	0	1
Suburban Airpark[2]	Laurel				

[1]Ridgely Airpark has been identified for future inclusion in the NPIAS. [2]Airport did not respond to survey.
Source: Airport survey.

TABLE 1-6
SERVICES AT SYSTEM AIRPORTS

Airport Name	Associated City	Air Taxi/ Charter	U.S. Customs	Crop Dusting	Aircraft Repair	Avionics Repair	Avionics Sales	Aircraft Sales	Covered Overnight Aircraft Storage	Oxygen	Deicing	Snow Removal	Aircraft Rental	Flight Instruction	Car Rental	Courtesy Car/ Loaner Car
Airports with Commercial Service																
Baltimore/Washington Int'l Thurgood Marshall	Baltimore	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hagerstown Regional Richard A. Henson Field	Hagerstown	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Salisbury – Ocean City Wicomico Regional	Salisbury	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NPIAS General Aviation Airports																
Bay Bridge	Stevensville				✓			✓				✓	✓	✓	✓	
Cambridge-Dorchester	Cambridge			✓	✓			✓					✓	✓		
Carroll County Regional[2]	Westminster															
Cecil County (Proposed)						To Be Determined										
College Park	College Park										✓	✓			✓	
Crisfield-Somerset County	Crisfield			✓										✓		✓
Easton/Newnam Field	Easton	✓			✓	✓	✓	✓	✓			✓	✓	✓	✓	✓
Frederick Municipal	Frederick	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	
Garrett County	Oakland											✓	✓	✓	✓	
Greater Cumberland Regional	Cumberland				✓				✓	✓	✓	✓		✓	✓	✓
Martin State	Baltimore	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Maryland	Indian Head				✓							✓	✓	✓	✓	
Montgomery County	Gaithersburg	✓			✓			✓	✓	✓		✓	✓	✓	✓	
Ocean City Municipal	Ocean City	✓			✓	✓		✓	✓				✓	✓	✓	
Potomac Airfield - Friendly	Friendly				✓				✓				✓	✓		
Ridgely Airpark[1]	Ridgely			✓	✓				✓							
St. Mary's County Regional	Leonardtown	✓			✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Tipton	Odenton	✓			✓								✓	✓	✓	
Washington Executive/Hyde Field	Clinton				✓				✓				✓	✓	✓	
Non-NPIAS General Aviation Airports																
Bennett	Salisbury			✓	✓				✓							
Cecil County	Elkton	✓			✓			✓			✓	✓	✓	✓		✓
Clearview	Westminster											✓				
Davis[2]	Laytonsville															
Essex Skypark	Baltimore															
Fallston	Fallston												✓	✓		
Freeway	Mitchellville				✓	✓	✓	✓				✓	✓	✓	✓	✓
Harford County	Churchville				✓								✓	✓		
Havre de Grace Seaplane Base	Havre de Grace															
Kentmorr	Stevensville															
Lee	Annapolis	✓			✓				✓			✓	✓	✓	✓	
Massey Aerodrome	Massey															✓
Mexico Farms	Cumberland															
Suburban Airpark[2]	Laurel															

[1]Ridgely Airpark - future inclusion in NPIAS. [2]Airport did not respond to survey. Source: Airport Survey

TABLE 1-7
2006 GENERAL AVIATION ACTIVITY AT SYSTEM AIRPORTS

Airport Name	Associated City	Total Based Aircraft	Total GA Operations
Airports with Commercial Service			
Baltimore/Washington Int'l Thurgood Marshall	Baltimore	97	38,900
Hagerstown Regional Richard A. Henson Field	Hagerstown	193	39,766
Salisbury – Ocean City Wicomico Regional	Salisbury	156	37,600
NPIAS General Aviation Airports			
Bay Bridge	Stevensville	74	52,100
Cambridge-Dorchester	Cambridge	55	23,600
Carroll County Regional	Westminster	133	116,300
Cecil County (Proposed)	To Be Determined		
College Park	College Park	29	15,300
Crisfield-Somerset County	Crisfield	6	4,700
Easton/Newnam Field	Easton	151	91,100
Frederick Municipal	Frederick	295	131,000
Garrett County	Oakland	23	21,400
Greater Cumberland Regional	Cumberland	58	23,100
Martin State	Baltimore	303	91,239
Maryland	Indian Head	75	22,600
Montgomery County	Gaithersburg	260	147,300
Ocean City Municipal	Ocean City	40	27,600
Potomac Airfield - Friendly	Friendly	90	0[1]
Ridgely Airpark[2]	Ridgely	26	15,500
St. Mary's County Regional	Leonardtown	97	53,400
Tipton	Odenton	116	47,000
Washington Executive/Hyde Field	Clinton	52	4,215
Non-NPIAS General Aviation Airports			
Bennett	Salisbury	10	2,000
Cecil County	Elkton	65	25,100
Clearview	Westminster	32	15,300
Davis	Laytonsville	29	5,100
Essex Skypark	Baltimore	36	8,584
Fallston	Fallston	33	9,189
Freeway	Mitchellville	93	61,456
Harford County	Churchville	67	37,500
Havre de Grace Seaplane Base	Havre de Grace	2	240
Kentmorr	Stevensville	16	500
Lee	Annapolis	102	31,638
Massey Aerodrome	Massey	25	6,000
Mexico Farms	Cumberland	16	1,261
Suburban Airpark	Laurel	35	1,750

[1]Operations data not provided
[2]Ridgely Airpark has been identified for future inclusion in the NPIAS.
Source: FAA approved forecasts, MAA - ORAA

TABLE 1-8
SECURITY AT SYSTEM AIRPORTS

Airport Name	Associated City	Inside FRZ	Inside ADIZ
Airports with Commercial Service			
Baltimore/Washington Int'l Thurgood Marshall	Baltimore		✓
Hagerstown Regional Richard A. Henson Field	Hagerstown		
Salisbury – Ocean City Wicomico Regional	Salisbury		
System General Aviation Airports			
Bay Bridge	Stevensville		
Cambridge-Dorchester	Cambridge		
Carroll County Regional Jack B. Poage Field	Westminster		
Cecil County (Proposed)	To Be Determined		
College Park	College Park	✓	
Crisfield-Somerset County	Crisfield		
Easton/Newnam Field	Easton		
Frederick Municipal	Frederick		
Garrett County	Oakland		
Greater Cumberland Regional	Cumberland		
Martin State	Baltimore		
Maryland	Indian Head		✓
Montgomery County	Gaithersburg		✓
Ocean City Municipal	Ocean City		
Potomac Airfield - Friendly	Friendly	✓	
Ridgely Airpark[1]	Ridgely		
St. Mary's County Regional	Leonardtown		
Tipton	Odenton		✓
Washington Executive/Hyde Field	Clinton	✓	
Non-NPIAS General Aviation Airports			
Bennett	Salisbury		
Cecil County	Elkton		
Clearview	Westminster		
Davis	Laytonsville		✓
Essex Skypark	Baltimore		
Fallston	Fallston		
Freeway	Mitchellville		✓
Harford County	Churchville		
Havre de Grace Seaplane Base	Havre de Grace		
Kentmorr	Stevensville		
Lee	Annapolis		✓
Massey Aerodrome	Massey		
Mexico Farms	Cumberland		
Suburban Airpark	Laurel		✓

[1]Ridgely Airpark has been identified for future inclusion in the NPIAS.
Source: Wilbur Smith Associates, Inc.

CHAPTER TWO
PROJECTIONS OF AVIATION DEMAND

The development of general aviation activity projections for Maryland's airport system is a necessary step in assessing the need for and phasing of future development requirements. These activity projections assist in determining the future role of airports within the State system, evaluating the ability of the existing system to accommodate projected aviation demand, and planning future airside and landside facilities for the system.

For the purpose of the Maryland Aviation System Plan (MASP), projections of based aircraft and general aviation operations were prepared for each of the system airports, incorporating Federal Aviation Administration (FAA)-approved forecasts where available.

The assumptions and methodologies used to prepare aviation demand projections for the airports included in the MASP are discussed in the following sections:

- Trends in General Aviation
  - Business Use of General Aviation
  - Anticipated General Aviation Trends
- Aviation Projections
  - Based Aircraft
  - General Aviation Fleet Mix
  - Commercial Service Operations
  - General Aviation Operations
  - Local and Itinerant Operations
- Summary

Existing projections of based aircraft, operations and demographics used in the analysis contain a variety of planning horizons. All projections from other sources are presented as reported. Projections of aviation demand prepared for the MASP use a 20-year planning period. The base year for MASP projections is 2006.

I. TRENDS IN GENERAL AVIATION

A pronounced decline in the general aviation industry began in 1978 and lasted throughout most of the 1980s and into the mid-1990s. This decline resulted in the loss of more than 100,000 manufacturing jobs and a drop in aircraft production from about 18,000 aircraft annually to only 928 in 1994. Contributing to the decline in general aviation during this period was the increasing number of liability claims against aircraft manufacturers, the loss of veterans' benefits that covered many costs associated with student pilot training and the recessionary economy. Lawsuits arising from aircraft accidents resulted in dramatic increases in aircraft manufacturing costs. The chairman of Cessna aircraft estimated that liability costs accounted for more than 50 percent of an aircraft's selling price.

Enactment of the General Aviation Revitalization Act (GARA) of 1994 provided significant relief to the aviation industry. This Act established an 18-year Statute of Repose on liability related to the manufacture of all general aviation aircraft and their components where no time limit was previously established. GARA spurred manufacturers, including Cessna and Piper Aircraft, to resume production of single-engine piston aircraft. Some positive impacts the Act has had on the general aviation industry are reflected in recent national statistics. Since 1994, statistics indicate an increase in general aviation activity, the active general aviation aircraft fleet shipments of fixed-wing general aviation aircraft.

Production of general aviation aircraft were at historical high levels in the late 1970s. This trend was supported by the federal tax code, which allowed individuals and corporations to take a tax credit for their investment in a new aircraft, thereby lowering the income subject to taxation. In addition, new aircraft could be quickly depreciated, further lowering the owner's tax liability. However, during the Reagan administration of the 1980s, significant changes to the tax code were made repealing both the investment tax credit and the accelerated depreciation schedule. These tax changes made it more expensive for individuals' and slowed the sale of new aircraft.

Following the terrorist attacks of Sept. 11, 2001, significant restrictions were placed on general aviation operations. Airports in the Washington, D.C. region were particularly negatively impacted, with three Maryland airports – College Park (CGS), Washington Executive (W32), and Potomac Airfield (VKX) – still operating with the restrictions, which has curtailed local and transient operations at these fields.

Business and corporate general aviation have experienced some positive gains resulting from additional use of general aviation aircraft for business and corporate travel, tied in part to new security measures implemented at commercial service airports and the increased personal travel times that have resulted.

Shipments and billings for general aviation aircraft have continued to climb since reaching a low point following the 2001 terrorist attacks. In 2006, shipments increased 13 percent from 2005, with 4,042 aircraft shipped. Billings for 2006 jumped 24 percent from 2005 to $18.8 billion. Both shipments and billings are at an all-time high for general aviation.

One factor driving this growth, according to the General Aviation Manufacturing Association, is the advanced technologies that are available to general aviation aircraft. GPS navigation systems are easily available to private pilots. Glass cockpits, previously found only in jet and high-end turboprop airplanes, were part of 89 percent of the piston-engine aircraft delivered in 2006. The use of carbon composites in the manufacture of general aviation aircraft has grown to the point where 50 percent of piston-engine airframes are made out of composites.

Another major factor driving growth is the increase in business use of aircraft. According to AvData, Inc., the number of corporate aircraft operators worldwide increased 5.6 percent in 2006 over 2005, up to 16,458. These companies operated a fleet of 25,383 aircraft, of which 16,965 were U.S. aircraft controlled by 11,611 companies.

A. Business Use of General Aviation

Business aviation is one of the fastest growing facets of general aviation. Companies and individuals use aircraft as a tool to improve their businesses efficiency and productivity. The business/corporate component of general aviation use is one that has experienced significant recent growth. Increased personnel productivity is one of the most important benefits of using business aircraft. Companies flying general aviation aircraft for business have control of their travel. Itineraries can be changed as needed, and the aircraft can fly into destinations not served by scheduled airlines.

The National Business Aircraft Association's (NBAA) Business Aviation Fact Book 2004 indicates that approximately 75 percent of all Fortune 500 businesses operate general aviation aircraft and 92 of the Fortune 100 companies operate general aviation aircraft. Business use of general aviation aircraft ranges from small, single-engine aircraft rentals to multiple aircraft corporate fleets supported by dedicated flight crews and mechanics. General aviation aircraft use allows employers to transport personnel and air cargo efficiently. Businesses often use general aviation aircraft to link multiple office locations and reach existing and potential customers. Business aircraft use by smaller companies has escalated as various chartering, leasing, time-sharing, interchange agreements, partnerships and management contracts have emerged. Businesses and corporations have increasingly employed business aircraft in their operations.

Fractional ownership arrangements have also experienced rapid growth. NBAA estimated that 2,591 companies used fractional ownership arrangements in 1999; by 2004, that number had grown to 6,217 companies, more than doubling during the five year period. More recently, growth has continued, but at a more sustainable 4 percent annually, according to Mike Riegel, editor of *Fractional Insider* newsletter.

The principal players in the fractional jet ownership market include CitationShares, NetJets, Bombardier Flexjet and the Flight Options/Travel Air operations. NetJets, the industry leader in fractional aircraft ownership, has purchased aircraft totaling more than $19 billion in value in the last six years alone. According to a July 2007 SourceMedia, Inc. article, there are approximately 850 aircraft in fractional ownership service.

Other new, growing, segments of the business aircraft fleet mix include business liners and a new generation of five- to six-seat jets called very light jets (VLJ). Business liners are large business jets, such as the Boeing Business Jet and Airbus ACJ, which are reconfigured versions of passenger aircraft flown by large commercial airlines. VLJs are a relatively new aircraft product line that includes the Adam A-700, Eclipse 500, and Cessna Mustang. These small jets cost substantially less than typical business jet aircraft, both in terms of acquisition and operating costs. The FAA acknowledges that VLJs will play a significant part in general aviation traffic and has considered them in their current growth forecasts. However, it is still early in the VLJ product life cycle and difficult predict the success or failure of this segment of general aviation.

B. Anticipated General Aviation Trends

Examples of measures of national general aviation activity that are monitored and forecasted by the FAA on an annual basis in the FAA Aerospace Forecasts include active aircraft fleet and active hours flown.

General aviation activity rose slightly between 2000 and 2006, primarily because of strong growth in turbine aircraft. Total active aircraft increased f 4.1 percent during the period, buoyed by 41.5 percent growth in turbine aircraft. In contrast, the numbers of both single engine and multi-engine piston aircraft declined during this time, dropping a total of 0.8 percent and 8.2 percent, respectively. The growth of jets is an important trend that illustrates a movement in the general aviation community toward higher-performing, more demanding aircraft. Growth in general aviation turbine aircraft is projected to significantly outpace growth in all other segments of the general aviation aircraft fleet through the planning period.

Hours flown is another valuable measure of aviation activity because it captures a number of activity-related data including aircraft utilization, frequency of use and duration of use. Hours flown in general aviation aircraft dropped drastically in 2001, in large part because of how long general aviation was grounded across the country after Sept. 11, 2001 and the corresponding flight restrictions that were placed. While the most onerous restrictions have been lifted, a few select areas continue to curtail general aviation operations, especially around the Washington, D.C. area. Three Maryland airports – College Park (CGS), Potomac Airfield (VKX), and Washington Executive (W32) – fall under a flight restriction zone that severely limits their operations.

From 2001 to 2006, hours flown has risen by about 2.0 percent. This increase is because of additional use of turbine aircraft, which grew 36.1 percent since 2001. Multi-engine aircraft hours flown are unchanged since 2001, while single engine aircraft hours flown have dropped a total of 16.3 percent.

As presented by the FAA, the Compound Annual Growth Rate (CAGR) of hours flown nationally during the projection period (2026) is approximately 3.4 percent. Compared to the projected average annual growth rate of the general aviation active fleet, approximately 1.4 percent, the projected increase in hours flown represents anticipated increases in aircraft utilization. Hours flown by general aviation aircraft are estimated to reach approximately 43.9 million by 2020, compared to 27.5 million in 2006, as shown in **Exhibit 2-1**. Some of this growth is attributed to the introduction of Sport aircraft and ratings, which went into effect in late 2004. A bigger impact is expected from the introduction of VLJs, the first of which were delivered in 2006. These jets will likely see service as on-demand commercial service operators and with fractional ownership companies, where high utilization is a key to success.

FAA forecasts generally provide one of the most detailed analyses of historic and forecasted aviation trends and provide the general framework for examining future levels of aviation activity for the nation, as well as in specific states and regions.

The general aviation trends identified in FAA's most recent forecasts, *FAA Aerospace Forecasts, Fiscal Years 2007-2020*, that are most likely to impact general aviation in Maryland include the following:

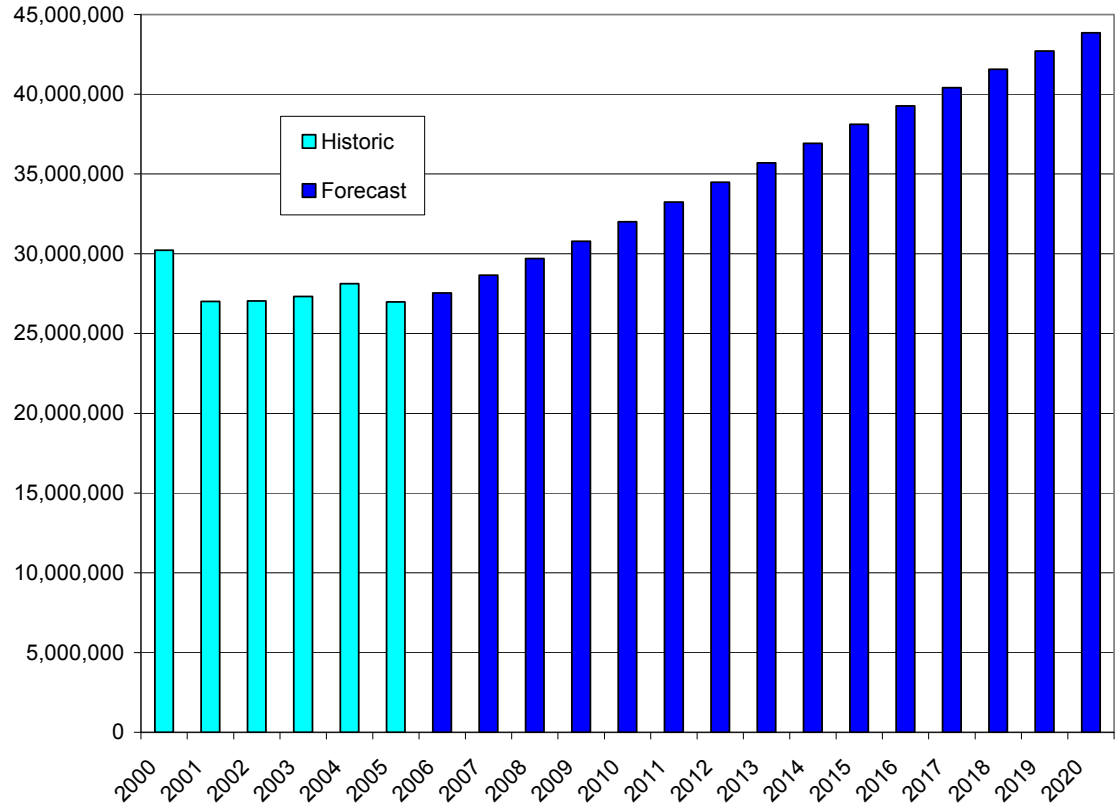
- Corporate concerns regarding personnel security and safety, along with longer security screening for commercial flights, will continue to drive passengers from airliners to fractional, corporate and on-demand commercial service flights.

- Business use of general aviation will grow more rapidly than personal and recreational general aviation.

- VLJs will make a significant contribution to the growth of business aviation. In addition to numerous manufacturers entering the VLJ market (such as Embraer and Eclipse), their use by fractional ownership and on-demand commercial air service companies will result in high utilization rates.

- The number of pilots and interest in flying as a result of the Sport Aviation rule will increase. Sport Aviation regulations cover the training and certification requirements of sport pilots, sport flight instructors, light sport aircraft and light sport aircraft repairmen. Sport pilots require less training and have fewer privileges than private pilots, including limiting flight privileges to day VFR conditions. Sport aircraft must meet specific design restrictions, including limits of two seats, a maximum gross take-off weight of 1,320 pounds and a maximum level flight speed of 120 knots. The lower requirements are expected to result in less cost to train sport pilots and to own and operate sport aircraft.

EXHIBIT 2-1
HISTORIC AND FORECAST TOTAL U.S. GENERAL AVIATION HOURS FLOWN



Source: FAA Aerospace Forecasts, Fiscal Years 2007 – 2020.

The airports most influenced by these trends are the larger general aviation airports with substantial business activity, such as Martin State, Frederick, Carroll County and Easton. The growth shown in these airports' FAA-approved master plans and airport layout plans reflects many of the trends described in this section.

II. AVIATION PROJECTIONS

The aviation activity projections presented in this section represent a blend of Wilbur Smith Associates (WSA) forecasts and forecasts from existing FAA-approved airport planning documents, such as master plans and environmental assessments. Existing forecasts approved by the FAA, or on file with the FAA, were used for airports where available. For NPIAS airports without a recent forecast, the FAA Terminal Area Forecast (issued December 2006) was used. There were two exceptions to this case; Potomac Airfield – Friendly and Washington Executive/Hyde Field. Because of the unique circumstances of these two airports as explained in Chapter 1, it was determined that a WSA-developed forecast of activity was more appropriate. WSA developed forecasts for all airports without an FAA-approved forecast including non-NPIAS airports.

The base year for the overall forecast is 2006 (although some of the forecasts from other documents occurred prior to 2006, so at the request of the FAA the data used is a forecast number and not the number reported for 2006). Aviation activity was projected for 2011, 2016 and 2026. For forecasts that did not present data for those specific years, values were interpolated on a straight-line basis, then rounded. For forecasts that did not extend to 2026, the growth rate of the last period forecast was continued on a straight-line basis out to 2026. The extrapolated values were then rounded.

Table 2-1 lists each Maryland system airport and the source of the forecast data used in this analysis.

TABLE 2-1
SOURCE OF AVIATION ACTIVITY FORECASTS, BY AIRPORT

Airport	Associated City	Source
System Airports with Commercial Service		
Baltimore/Washington Int'l/Thurgood Marshall	Baltimore	Long-Range Needs Assessment, February 2007[1]
Hagerstown Regional/Richard A. Henson Field	Hagerstown	FAA TAF, issued December 2006
Salisbury – Ocean City/Wicomico Regional	Salisbury	Salisbury-Ocean City: Wicomico Regional Airport Final Draft EA for Five-Year CIP, July 2002
NPIAS System General Aviation Airports		
Bay Bridge	Stevensville	Runway Safety Area Rehabilitation and Terminal Area Development final Environmental Assessment, July 2003[1]
Cambridge-Dorchester	Cambridge	Final Environmental Assessment Cambridge-Dorchester Airport Five-year CIP, August 2003
Carroll County Regional/Jack B. Poage Field	Westminster	Draft Master Plan Update Carroll County Regional Airport, May 2007
Cecil County (Proposed)	TBD	Draft Airport Feasibility Study, Cecil County Airport, June 2007
College Park	College Park	Airport Layout Plan Report, February 1999[1]
Crisfield-Somerset County	Crisfield	Crisfield-Somerset County Airport Draft Environmental Assessment Five-Year Capital Improvement Program, May 2007[1]
Easton/Newnam Field	Easton	Easton Airport Layout Plan Update, February 2006
Frederick Municipal	Frederick	Frederick Municipal Airport Master Plan Update 2007
Garrett County	Oakland	Final Environmental Assessment Garrett County Airport Five-Year CIP, April 2003
Greater Cumberland Regional	Cumberland	Draft Environmental Assessment Greater Cumberland Regional Airport, May 2006
Martin State	Baltimore	ALP Update, 2006
Maryland	Indian Head	Airport Master Plan Final Comprehensive Draft, March 1999
Montgomery County	Gaithersburg	ALP Update, Final Report, February 2002
Ocean City Municipal	Ocean City	Ocean City Municipal Airport Environmental Assessment (undated - data taken from July 2002 master plan)
Potomac Airfield - Friendly	Friendly	WSA
Ridgely Airpark[2]	Ridgely	Master Plan Update, March 2002
St. Mary's County Regional	Leonardtown	Environmental Assessment, June 2006
Tipton	Odenton	FAA TAF, issued December 2006
Washington Executive/Hyde Field	Clinton	WSA

TABLE 2-1 (cont.)
SOURCE OF AVIATION ACTIVITY FORECASTS, BY AIRPORT

Airport	Associated City	Source
Non-NPIAS System General Aviation Airports		
Bennett	Salisbury	WSA
Cecil County	Elkton	Cecil County Airport, August 2004 (Master Plan)
Clearview	Westminster	WSA
Davis	Laytonsville	WSA
Essex Skypark	Baltimore	WSA
Fallston	Fallston	WSA
Freeway	Mitchellville	WSA
Harford County	Churchville	ALP Update, May 2006
Havre de Grace Seaplane Base	Havre de Grace	WSA
Kentmorr	Stevensville	WSA
Lee	Annapolis	WSA
Massey Aerodrome	Massey	WSA
Mexico Farms	Cumberland	WSA
Suburban Airpark	Laurel	WSA

[1]Based aircraft data from FAA TAF, issued December 2006.
[2]Ridgely Airpark has been identified for future inclusion in the NPIAS.
Pier 7 Heliport not included in this analysis.
Source: Wilbur Smith Associates

For forecasts developed by WSA, base year operations and based aircraft were obtained from data reported to the Maryland Aviation Administration (MAA) by each respective airport manager.

The projections completed for this chapter represent totally unconstrained forecasts. They do not take individual airport constraints or potential into consideration.

A. Based Aircraft

Based aircraft are the total number of active general aviation aircraft that are either hangared or tied down at an airport. In order to estimate changes to the number of based aircraft, it is useful to look at general aviation trends at the national level. The FAA does not track based aircraft, but does maintain records on active aircraft, which are defined as any aircraft that has a current registration and flew at least one hour during the calendar year.

The *FAA Aerospace Forecasts Fiscal Years 2007-2020* provides projections for the total U.S. active general aviation fleet. For any given year, the U.S. fleet is defined as the sum of new production flowing into the fleet, the fleet size carried over from the previous year and the attrition of active aircraft during the current year.

Table 2-2 shows the growth rate of active general aviation aircraft in the U.S. during the next 10 years. Growth in the next few years is largely driven by a surge in the number of sport aircraft and jet aircraft expected to join the fleet.

TABLE 2-2
FAA FORECAST OF ACTIVE GENERAL AVIATION AIRCRAFT

	2006	2011	2016
Total General Aviation Fleet	226,422	246,687	264,741
CAGR		**1.7%**	**1.4%**

Source: FAA Aerospace Forecast, FY 2007-2020.

Since the Sport Aviation regulation went into effect in September 2004, an estimated 400 sport aircraft have been added to the general aviation fleet. These are a mix of new aircraft and existing unregistered ultralights that have until January 2008 to register under the Sport Aviation rule. The FAA expects 2,700 sport aircraft to join the fleet during this period. Once the window closes for ultralights to register, the FAA forecasts that approximately 1,000 new sport aircraft will join the fleet each year.

General aviation jet aircraft have enjoyed strong growth historically and are projected to continue the trend, driven largely by business use. The introduction of VLJs is expected to fuel additional growth of jet aircraft. Both Eclipse and Cessna delivered their first VLJs in late 2006 and other manufacturers are anticipating the introduction of additional VLJ models in the coming years.

The projection of based aircraft used the FAA-approved forecasts for those airports where forecast based aircraft data was available. For the remaining airports, the national growth rates of FAA active aircraft were applied to each airport's 2006 based aircraft number. Growth rates of approximately 1.7 percent for the 2006 to 2011 period and 1.4 percent for the 2011 to 2016 and 2016 to 2026 periods were used. The combination of existing forecasts and system plan projections yielded slightly more than 3,900 based aircraft at Maryland system airports by the end of the planning period as shown in **Table 2-3**, an increase of approximately 35 percent.

Combined compound annual growth rates over the short-term, mid-term and long-term were 2.2 percent, 1.3 percent and 1.2 percent, respectively.

B. General Aviation Fleet Mix

An airport's based aircraft fleet mix is one indication of its operational role and facility needs. **Table 2-4** shows the fleet mix for each airport in 2006. Aircraft were classified as single engine pistons, multi-engine pistons, jets, helicopters or other. For future fleet mix projections, it was assumed that each airport would maintain its respective share of each category.

Table 2-5, **Table 2-6**, and **Table 2-7** show the projected fleet mixes for 2011, 2016 and 2026, respectively.

TABLE 2-3
BASED AIRCRAFT PROJECTION FAA ACTIVE AIRCRAFT GROWTH METHOD

Airport Name	Associated City	2006	2011	2016	2026
System Airports with Commercial Service					
Baltimore/Washington Int'l/Thurgood Marshall	Baltimore	97	108	119	146
Hagerstown Regional/Richard A. Henson Field	Hagerstown	193	202	212	233
Salisbury – Ocean City/Wicomico Regional	Salisbury	156	159	164	174
Subtotal		446	469	495	553
NPIAS General Aviation Airports					
Bay Bridge	Stevensville	82	82	82	82
Cambridge-Dorchester	Cambridge	55	67	79	95
Carroll County Regional/Jack B. Poage Field	Westminster	133	145	153	173
Cecil County (Proposed)	TBD	0	90	93	100
College Park	College Park	29	24	20	14
Crisfield-Somerset County	Crisfield	6	6	6	6
Easton/Newnam Field	Easton	151	156	161	170
Frederick Municipal	Frederick	295	325	341	372
Garrett County	Oakland	23	31	39	55
Greater Cumberland Regional	Cumberland	58	59	60	63
Martin State	Baltimore	303	329	352	400
Maryland	Indian Head	75	83	92	109
Montgomery County	Gaithersburg	260	269	279	299
Ocean City Municipal	Ocean City	40	44	49	59
Potomac Airfield - Friendly[1]	Friendly	91	99	106	123
Ridgely Airpark[2]	Ridgely	26	30	33	39
St. Mary's County Regional	Leonardtown	97	104	111	124
Tipton	Odenton	116	131	147	184
Washington Executive/Hyde Field[1]	Clinton	56	61	65	75
Subtotal		1,896	2,135	2,268	2,542

TABLE 2-3 (cont.)
BASED AIRCRAFT PROJECTION FAA ACTIVE AIRCRAFT GROWTH METHOD

Airport Name	Associated City	2006	2011	2016	2026
Non-NPIAS General Aviation Airports					
Bennett[1]	Salisbury	10	11	12	13
Cecil County	Elkton	65	85	103	138
Clearview[1]	Westminster	32	35	37	43
Davis[1]	Laytonsville	29	32	34	39
Essex Skypark[1]	Baltimore	36	39	42	48
Fallston[1]	Fallston	33	36	39	44
Freeway[1]	Mitchellville	93	101	109	125
Harford County	Churchville	67	82	87	99
Havre de Grace Seaplane Base[1]	Havre de Grace	2	2	2	3
Kentmorr[1]	Stevensville	16	17	19	22
Lee[1]	Annapolis	102	111	119	137
Massey Aerodrome[1]	Massey	25	27	29	34
Mexico Farms[1]	Cumberland	16	17	19	22
Suburban Airpark[1]	Laurel	35	38	41	47
Subtotal		561	633	692	814
Total		**2,903**	**3,237**	**3,455**	**3,909**
CAGR			**2.2%**	**1.3%**	**1.2%**

[1]Forecast by WSA.
[2]Ridgely Airpark has been identified for future inclusion in the NPIAS.
Pier 7 Heliport not included in this analysis.
Source: Wilbur Smith Associates, FAA approved forecasts (deemed most reliable), FAA TAF, MAA, FAA Aerospace Forecast FY 2007-2020, and various airport planning documents.

TABLE 2-4
2006 FLEET MIX

Airport Name	Based Aircraft	Single Engine Piston	Multi-engine Piston	Jet	Helo	Other
System Airports with Commercial Service						
Baltimore/Washington Int'l/Thurgood Marshall	97	64	20	13	0	0
Hagerstown Regional/Richard A. Henson Field	193	160	23	4	3	3
Salisbury – Ocean City/Wicomico Regional	156	108	42	4	2	0
Subtotal	446	332	85	21	5	3
NPIAS General Aviation Airports						
Bay Bridge	82	70	10	0	2	0
Cambridge-Dorchester	55	51	4	0	0	0
Carroll County Regional/Jack B. Poage Field	133	111	15	5	2	0
Cecil County (Proposed)	0	0	0	0	0	0
College Park	29	26	1	0	2	0
Crisfield-Somerset County	6	4	0	0	0	2
Easton/Newnam Field	151	109	25	12	5	0
Frederick Municipal	295	206	23	13	13	40
Garrett County	23	16	5	0	2	0
Greater Cumberland Regional	58	45	4	2	2	5
Martin State	303	188	34	29	27	25
Maryland	75	71	4	0	0	0
Montgomery County	260	220	35	4	1	0
Ocean City Municipal	40	30	7	0	2	1
Potomac Airfield - Friendly[1]	91	88	3	0	0	0
Ridgely Airpark[2]	26	9	1	0	0	16
St. Mary's County Regional	97	85	8	0	1	3
Tipton	116	103	6	0	7	0
Washington Executive/Hyde Field[1]	56	55	1	0	0	0
Subtotal	1,896	1,487	186	65	66	92

TABLE 2-4 (cont.)
2006 FLEET MIX

Airport Name	Based Aircraft	Single Engine Piston	Multi-engine Piston	Jet	Helo	Other
Non-NPIAS General Aviation Airports						
Bennett[1]	10	10	0	0	0	0
Cecil County	65	59	3	0	0	3
Clearview[1]	32	32	0	0	0	0
Davis[1]	29	29	0	0	0	0
Essex Skypark[1]	36	34	0	0	0	2
Fallston[1]	33	33	0	0	0	0
Freeway[1]	93	88	4	0	0	1
Harford County	67	60	0	0	0	7
Havre de Grace Seaplane Base[1]	2	1	0	0	0	1
Kentmorr[1]	16	16	0	0	0	0
Lee[1]	102	98	3	0	0	1
Massey Aerodrome[1]	25	20	0	0	0	5
Mexico Farms[1]	16	11	0	0	0	5
Suburban Airpark	35	35	0	0	0	0
Subtotal	561	526	10	0	0	25
Total	**2,903**	**2,345**	**281**	**86**	**71**	**120**

[1]Forecast by WSA.
[2]Ridgely Airpark has been identified for future inclusion in the NPIAS.
Pier 7 Heliport not included in this analysis.
Source: Wilbur Smith Associates, FAA approved forecasts (deemed most reliable), FAA TAF, MAA, FAA Aerospace Forecast FY 2007-2020, and various airport planning documents.

TABLE 2-5
2011 FLEET MIX

Airport Name	Based Aircraft	Single Engine Piston	Multi-engine Piston	Jet	Helo	Other
System Airports with Commercial Service						
Baltimore/Washington Int'l/Thurgood Marshall	108	72	22	14	0	0
Hagerstown Regional/Richard A. Henson Field	202	168	24	4	3	3
Salisbury – Ocean City/Wicomico Regional	159	110	43	4	2	0
Subtotal	469	350	89	22	5	3
NPIAS General Aviation Airports						
Bay Bridge	82	70	10	0	2	0
Cambridge-Dorchester	67	62	5	0	0	0
Carroll County Regional/Jack B. Poage Field	145	118	16	9	2	0
Cecil County (Proposed)	90	85	2	2	1	0
College Park	24	21	1	0	2	0
Crisfield-Somerset County	6	4	0	0	0	2
Easton/Newnam Field	156	111	26	14	5	0
Frederick Municipal	325	225	25	16	15	44
Garrett County	31	21	7	0	3	0
Greater Cumberland Regional	59	46	4	2	2	5
Martin State	329	203	44	35	29	18
Maryland	83	79	4	0	0	0
Montgomery County	269	227	36	5	1	0
Ocean City Municipal	44	32	8	1	2	1
Potomac Airfield - Friendly[1]	99	96	3	0	0	0
Ridgely Airpark[2]	30	11	1	0	0	18
St. Mary's County Regional	104	90	9	1	1	3
Tipton	131	116	7	0	8	0
Washington Executive/Hyde Field[1]	61	60	1	0	0	0
Subtotal	2,135	1,677	209	85	73	91

TABLE 2-5 (cont.)
2011 FLEET MIX

Airport Name	Based Aircraft	Single Engine Piston	Multi-engine Piston	Jet	Helo	Other
Non-NPIAS General Aviation Airports						
Bennett[1]	11	11	0	0	0	0
Cecil County	85	74	4	1	2	4
Clearview[1]	35	35	0	0	0	0
Davis[1]	32	32	0	0	0	0
Essex Skypark[1]	39	37	0	0	0	2
Fallston[1]	36	36	0	0	0	0
Freeway[1]	101	96	4	0	0	1
Harford County	82	73	0	0	0	9
Havre de Grace Seaplane Base[1]	2	1	0	0	0	1
Kentmorr[1]	17	17	0	0	0	0
Lee[1]	111	107	3	0	0	1
Massey Aerodrome[1]	27	22	0	0	0	5
Mexico Farms[1]	17	12	0	0	0	5
Suburban Airpark	38	38	0	0	0	0
Subtotal	633	591	11	1	2	28
Total	**3,237**	**2,618**	**309**	**108**	**80**	**122**

[1]Forecast by WSA.
[2]Ridgely Airpark has been identified for future inclusion in the NPIAS.
Pier 7 Heliport not included in this analysis.
Source: Wilbur Smith Associates, FAA approved forecasts (deemed most reliable), FAA TAF, MAA, FAA Aerospace Forecast FY 2007

TABLE 2-6
2016 FLEET MIX

Airport Name	Based Aircraft	Single Engine Piston	Multi-engine Piston	Jet	Helo	Other
System Airports with Commercial Service						
Baltimore/Washington Int'l/Thurgood Marshall	119	78	25	16	0	0
Hagerstown Regional/Richard A. Henson Field	212	177	25	4	3	3
Salisbury – Ocean City/Wicomico Regional	164	112	44	5	3	0
Subtotal	495	367	94	25	6	3
NPIAS General Aviation Airports						
Bay Bridge	82	70	10	0	2	0
Cambridge-Dorchester	79	73	6	0	0	0
Carroll County Regional/Jack B. Poage Field	153	123	17	11	2	0
Cecil County (Proposed)	93	87	2	3	1	0
College Park	20	18	1	0	1	0
Crisfield-Somerset County	6	4	0	0	0	2
Easton/Newnam Field	161	113	27	16	5	0
Frederick Municipal	341	232	27	19	17	46
Garrett County	39	28	8	0	3	0
Greater Cumberland Regional	60	47	4	2	2	5
Martin State	352	209	47	48	30	18
Maryland	92	85	5	1	1	0
Montgomery County	279	234	38	6	1	0
Ocean City Municipal	49	36	9	1	2	1
Potomac Airfield - Friendly[1]	106	103	3	0	0	0
Ridgely Airpark[2]	33	12	1	0	0	20
St. Mary's County Regional	111	96	9	2	1	3
Tipton	147	130	8	0	9	0
Washington Executive/Hyde Field[1]	65	64	1	0	0	0
Subtotal	2,268	1,764	223	109	77	95

TABLE 2-6 (cont.)
2016 FLEET MIX

Airport Name	Based Aircraft	Single Engine Piston	Multi-engine Piston	Jet	Helo	Other
Non-NPIAS General Aviation Airports						
Bennett[1]	12	12	0	0	0	0
Cecil County	103	90	5	1	2	5
Clearview[1]	37	37	0	0	0	0
Davis[1]	34	34	0	0	0	0
Essex Skypark[1]	42	40	0	0	0	2
Fallston[1]	39	39	0	0	0	0
Freeway[1]	109	103	5	0	0	1
Harford County	87	78	0	0	0	9
Havre de Grace Seaplane Base[1]	2	1	0	0	0	1
Kentmorr[1]	19	19	0	0	0	0
Lee[1]	119	114	4	0	0	1
Massey Aerodrome[1]	29	23	0	0	0	6
Mexico Farms[1]	19	13	0	0	0	6
Suburban Airpark	41	41	0	0	0	0
Subtotal	692	644	14	1	2	31
Total	**3,455**	**2,775**	**331**	**135**	**85**	**129**

[1]Forecast by WSA.
[2]Ridgely Airpark has been identified for future inclusion in the NPIAS.
Pier 7 Heliport not included in this analysis.
Source: Wilbur Smith Associates, FAA approved forecasts (deemed most reliable), FAA TAF, MAA, FAA Aerospace Forecast FY 2007-2020, and various airport planning documents.

TABLE 2-7
2026 FLEET MIX

Airport Name	Based Aircraft	Single Engine Piston	Multi-engine Piston	Jet	Helo	Other
System Airports with Commercial Service						
Baltimore/Washington Int'l/Thurgood Marshall	146	96	30	20	0	0
Hagerstown Regional/Richard A. Henson Field	233	192	28	5	4	4
Salisbury – Ocean City/Wicomico Regional	174	115	47	7	5	0
Subtotal	553	403	105	32	9	4
NPIAS General Aviation Airports						
Bay Bridge	82	70	10	0	2	0
Cambridge-Dorchester	95	88	7	0	0	0
Carroll County Regional/Jack B. Poage Field	173	135	20	16	2	0
Cecil County (Proposed)	100	92	2	5	1	0
College Park	14	13	0	0	1	0
Crisfield-Somerset County	6	4	0	0	0	2
Easton/Newnam Field	170	115	28	22	5	0
Frederick Municipal	372	247	29	26	20	50
Garrett County	55	38	12	0	5	0
Greater Cumberland Regional	63	50	4	2	2	5
Martin State	400	218	52	78	34	18
Maryland	109	99	6	2	2	0
Montgomery County	299	250	40	8	1	0
Ocean City Municipal	59	45	10	1	2	1
Potomac Airfield - Friendly[1]	123	119	4	0	0	0
Ridgely Airpark[2]	39	13	2	0	0	24
St. Mary's County Regional	124	106	10	3	1	4
Tipton	184	163	10	0	11	0
Washington Executive/Hyde Field[1]	75	74	1	0	0	0
Subtotal	2,542	1,939	247	163	89	104

TABLE 2-7 (cont.)
2026 FLEET MIX

Airport Name	Based Aircraft	Single Engine Piston	Multi-engine Piston	Jet	Helo	Other
Non-NPIAS General Aviation Airports						
Bennett[1]	13	13	0	0	0	0
Cecil County	138	121	6	2	3	6
Clearview[1]	43	43	0	0	0	0
Davis[1]	39	39	0	0	0	0
Essex Skypark[1]	48	45	0	0	0	3
Fallston[1]	44	44	0	0	0	0
Freeway[1]	125	119	5	0	0	1
Harford County	99	89	0	0	0	10
Havre de Grace Seaplane Base[1]	3	1	0	0	0	2
Kentmorr[1]	22	22	0	0	0	0
Lee[1]	137	132	4	0	0	1
Massey Aerodrome[1]	34	27	0	0	0	7
Mexico Farms[1]	22	15	0	0	0	7
Suburban Airpark	47	47	0	0	0	0
Subtotal	814	757	15	2	3	37
Total	**3,909**	**3,099**	**367**	**197**	**101**	**145**

[1]Forecast by WSA.
[2]Ridgely Airpark has been identified for future inclusion in the NPIAS.
Pier 7 Heliport not included in this analysis.
Source: Wilbur Smith Associates, FAA approved forecasts (deemed most reliable), FAA TAF, MAA, FAA Aerospace Forecast FY 2007-2020, and various airport planning documents.

C. Commercial Service Operations

Commercial airline service is conducted at three airports in Maryland. **Table 2-8** shows the commercial operations at these three airports for 2006, 2011, 2016 and 2026, according to recent planning documents and the FAA's Terminal Area Forecast.

TABLE 2-8
COMMERCIAL SERVICE OPERATIONS

Airport Name	Associated City	2006	2011	2016	2026
System Airports with Commercial Service					
Baltimore/Washington Int'l/Thurgood Marshall	Baltimore	262,100	304,000	333,400	404,900
Hagerstown Regional/Richard A. Henson Field	Hagerstown	8,709	8,725	8,741	9,100
Salisbury – Ocean City/Wicomico Regional	Salisbury	7,900	8,000	8,200	8,700
Total		**278,709**	**320,725**	**350,341**	**422,700**

Source: Wilbur Smith Associates, BWI - Long-Range Needs Assessment, February 2007, Hagerstown - FAA TAF, issued December 2006, Salisbury - Final Draft EA for Five-Year CIP, July 2002

Commercial operations at each of these airports are forecast to increase throughout the planning period. Baltimore/Washington International is expected to remain the busiest commercial airport in Maryland and experience the greatest amount of growth, with 404,900 commercial operations by 2026.

D. General Aviation Operations

This section describes the projections of general aviation operations at the Maryland system airports, including the airports with commercial operations. These projections start with the fundamental assumption that the airports with FAA-approved forecasts are fixed and no adjustments were made to those forecasts. An additional assumption is that the estimated 2006 general aviation operations at the other airports are a reliable base from which future activity can be projected.

The operations projection took a bottom-up approach by calculating the 2006 operations per based aircraft (OPBA) for each airport without an FAA-approved forecast, rounded off to the nearest hundred. It was assumed that each airport's OPBA would remain constant throughout the planning period. Multiplying these OPBAs with each airport's projected based aircraft (from the based aircraft projection in Table 2-2) yielded the projected operations for the years 2011, 2016 and 2026. This methodology, shown in **Table 2-9**, resulted in operations increasing from 1.2 million to 1.8 million, an increase of approximately 46 percent. CAGRs over the short-term, mid-term and long-term were 3.0 percent, 1.6 percent and 1.6 percent, respectively.

A comparison of these growth rates with the FAA's general aviation hours flown reveals that the FAA projection of growth is somewhat greater than that anticipated for the MASP. **Table 2-10** shows that the FAA expects hours flown, which is a reasonable comparison with operations for purposes of growth rates, to increase over the short-term, mid-term and long-term at CAGRs of 3.8 percent, 3.4 percent, and 2.8 percent respectively.

TABLE 2-9
GENERAL AVIATION OPERATIONS PROJECTION

Airport Name	Associated City	2006	2011	2016	2026	OPBA 2026
System Airports with Commercial Service						
Baltimore/Washington Int'l/Thurgood Marshall	Baltimore	38,900	40,900	42,900	47,300	320
Hagerstown Regional/Richard A. Henson Field	Hagerstown	39,766	44,582	49,204	56,800	240
Salisbury – Ocean City/Wicomico Regional	Salisbury	24,400	24,400	24,400	24,400	140
Subtotal		103,066	109,882	116,504	128,500	230
NPIAS General Aviation Airports						
Bay Bridge	Stevensville	52,100	56,800	61,800	71,800	875
Cambridge-Dorchester	Cambridge	23,600	29,300	34,200	41,900	440
Carroll County Regional/Jack B. Poage Field	Westminster	116,300	134,900	156,700	208,800	1,210
Cecil County (Proposed)	TBD	0	67,937	70,202	75,486	750
College Park	College Park	15,300	16,800	18,300	21,300	1,520
Crisfield-Somerset County	Crisfield	4,700	8,400	15,400	43,000	7,170
Easton/Newnam Field	Easton	91,100	92,900	94,800	98,600	580
Frederick Municipal	Frederick	131,000	144,500	151,400	163,500	440
Garrett County	Oakland	21,400	28,900	36,400	51,600	940
Greater Cumberland Regional	Cumberland	22,800	23,400	23,900	24,900	400
Martin State	Baltimore	85,039	93,540	102,915	124,600	310
Maryland	Indian Head	22,600	25,000	27,600	32,700	300
Montgomery County	Gaithersburg	147,300	152,500	158,200	169,500	570
Ocean City Municipal	Ocean City	27,600	30,900	34,300	41,300	700
Potomac Airfield - Friendly[1]	Friendly	12,000	9,900	10,600	12,300	100
Ridgely Airpark[2]	Ridgely	15,500	17,800	19,600	23,200	590
St. Mary's County Regional	Leonardtown	53,400	55,700	59,200	66,200	530
Tipton	Odenton	47,000	47,000	47,000	47,000	260
Washington Executive/Hyde Field[1]	Clinton	5,692	6,100	6,500	7,500	100
Subtotal		894,431	1,042,277	1,129,017	1,325,186	521

TABLE 2-9 (cont.)
GENERAL AVIATION OPERATIONS PROJECTION

Airport Name	Associated City	2006	2011	2016	2026	OPBA 2026
Non-NPIAS General Aviation Airports						
Bennett[1]	Salisbury	2,000	2,200	2,400	2,600	200
Cecil County	Elkton	25,100	33,000	40,000	53,500	390
Clearview[1]	Westminster	15,300	17,500	18,500	21,500	500
Davis[1]	Laytonsville	5,100	6,400	6,800	7,800	200
Essex Skypark[1]	Baltimore	8,584	7,800	8,400	9,600	200
Fallston[1]	Fallston	9,189	10,800	11,700	13,200	300
Freeway[1]	Mitchellville	61,456	70,700	76,300	87,500	700
Harford County	Churchville	37,500	46,000	49,100	55,800	560
Havre de Grace Seaplane Base[1]	Havre de Grace	240	200	200	300	100
Kentmorr[1]	Stevensville	500	500	600	700	30
Lee[1]	Annapolis	31,638	33,300	35,700	41,100	300
Massey Aerodrome[1]	Massey	6,000	5,400	5,800	6,800	200
Mexico Farms[1]	Cumberland	1,261	1,700	1,900	2,200	100
Suburban Airpark	Laurel	1,750	3,800	4,100	4,700	100
Subtotal		205,618	239,300	261,500	307,300	380
Total		**1,203,115**	**1,391,459**	**1,507,021**	**1,760,986**	**450**
CAGR			**3.0%**	**1.6%**	**1.6%**	

[1]Forecast by WSA.
[2]Ridgely Airpark has been identified for future inclusion in the NPIAS.
Pier 7 Heliport not included in this analysis.
Source: Wilbur Smith Associates, FAA approved forecasts (deemed most reliable), FAA TAF, MAA, FAA Aerospace Forecast FY 2007-2020, and various airport planning documents.

TABLE 2-10
FAA FORECAST OF ACTIVE GENERAL AVIATION AND AIR TAXI HOURS FLOWN

	2006	2011	2016	2020
FAA Hours Flown (in thousands)	27,543	33,247	39,268	43,860
CAGR		**3.8%**	**3.4%**	**2.8%**

Source: FAA Aerospace Forecast FY 2007-2020.

E. Local and Itinerant Operations

The FAA classifies airport operations into two types – local and itinerant. As defined by the FAA, local operations are performed by aircraft that:

- Operate in the local traffic pattern or within sight of an airport.
- Are known to be departing for, or arriving from, flight in local practice areas located within a 20-mile radius of an airport.
- Are executing simulated instrument, non-precision, or visual approaches or low passes at an airport (touch-and-go operations).

Itinerant operations are all other operations. The proportion of flights at an airport that are local and itinerant is a useful indicator of the role that the airport plays in the system and what its facility needs are. **Table 2-11** shows how local and itinerant operations are split at each airport in the Maryland system, based upon data from its FAA-approved forecast or data from MAA.

Using these percentages, the operations at each airport were split into local and itinerant operations for 2006 and each of the forecast years – 2011, 2016 and 2026, as shown in **Table 2-12**.

TABLE 2-11
GENERAL AVIATION LOCAL and ITINERANT OPERATIONS PERCENT

Airport Name	Associated City	Local Operations Percentage	Itinerant Operations Percentage
System Airports with Commercial Service			
Baltimore/Washington Int'l/Thurgood Marshall	Baltimore	14%	86%
Hagerstown Regional/Richard A. Henson Field	Hagerstown	29%	71%
Salisbury – Ocean City/Wicomico Regional	Salisbury	38%	62%
NPIAS General Aviation Airports			
Bay Bridge	Stevensville	38%	62%
Cambridge-Dorchester	Cambridge	54%	46%
Carroll County Regional/Jack B. Poage Field	Westminster	75%	25%
Cecil County (Proposed)	TBD	53%	47%
College Park	College Park	90%	10%
Crisfield-Somerset County	Crisfield	13%	87%
Easton/Newnam Field	Easton	20%	80%
Frederick Municipal	Frederick	82%	18%
Garrett County	Oakland	53%	47%
Greater Cumberland Regional	Cumberland	50%	50%
Martin State	Baltimore	32%	68%
Maryland	Indian Head	60%	40%
Montgomery County	Gaithersburg	57%	43%
Ocean City Municipal	Ocean City	20%	80%
Potomac Airfield - Friendly	Friendly	98%	2%
Ridgely Airpark[1]	Ridgely	50%	50%
St. Mary's County Regional	Leonardtown	77%	23%
Tipton	Odenton	23%	77%
Washington Executive/Hyde Field	Clinton	99%	1%

TABLE 2-11 (cont.)
GENERAL AVIATION LOCAL and ITINERANT OPERATIONS PERCENT

Airport Name	Associated City	Local Operations Percentage	Itinerant Operations Percentage
Non-NPIAS General Aviation Airports			
Bennett	Salisbury	100%	0%
Cecil County	Elkton	78%	22%
Clearview	Westminster	90%	10%
Davis	Laytonsville	98%	2%
Essex Skypark	Baltimore	93%	7%
Fallston	Fallston	65%	35%
Freeway	Mitchellville	90%	10%
Harford County	Churchville	80%	20%
Havre de Grace Seaplane Base	Havre de Grace	67%	33%
Kentmorr	Stevensville	50%	50%
Lee	Annapolis	70%	30%
Massey Aerodrome	Massey	83%	17%
Mexico Farms	Cumberland	65%	35%
Suburban Airpark	Laurel	100%	0%
Maryland System		**56%**	**44%**

[1]Ridgely Airpark has been identified for future inclusion in the NPIAS.
Pier 7 Heliport not included in this analysis.

Source: Wilbur Smith Associates, FAA approved forecasts, MAA, and FAA 5010 Forms.

TABLE 2-12
GENERAL AVIATION LOCAL and ITINERANT OPERATIONS PROJECTION

Airport Name	2006		2011		2016		2026	
	Local	Itinerant	Local	Itinerant	Local	Itinerant	Local	Itinerant
System Airports with Commercial Service								
Baltimore/Washington Int'l/Thurgood Marshall	5,400	33,500	5,700	35,200	6,000	36,900	6,600	40,700
Hagerstown Regional/Richard A. Henson Field	11,600	28,166	13,100	31,482	14,400	34,804	16,600	40,200
Salisbury – Ocean City/Wicomico Regional	9,200	15,200	9,200	15,200	9,200	15,200	9,200	15,200
Subtotal	26,200	76,866	28,000	81,882	29,600	86,904	32,400	96,100
NPIAS General Aviation Airports								
Bay Bridge	19,600	32,500	21,400	35,400	23,200	38,600	27,000	44,800
Cambridge-Dorchester	12,700	10,900	15,800	13,500	18,500	15,700	22,600	19,300
Carroll County Regional/Jack B. Poage Field	87,500	28,800	101,500	33,400	117,900	38,800	157,100	51,700
Cecil County (Proposed)	0	0	35,800	32,137	37,000	33,202	39,800	35,686
College Park	13,800	1,500	15,100	1,700	16,500	1,800	19,200	2,100
Crisfield-Somerset County	600	4,100	1,100	7,300	2,000	13,400	5,700	37,300
Easton/Newnam Field	18,200	72,900	18,600	74,300	19,000	75,800	19,700	78,900
Frederick Municipal	107,400	23,600	118,500	26,000	124,100	27,300	134,100	29,400
Garrett County	11,400	10,000	15,400	13,500	19,400	17,000	27,500	24,100
Greater Cumberland Regional	11,400	11,400	11,700	11,700	12,000	11,900	12,500	12,400
Martin State	27,500	57,539	30,200	63,340	33,200	69,715	40,200	84,400
Maryland	13,600	9,000	15,000	10,000	16,600	11,000	19,600	13,100
Montgomery County	83,900	63,400	86,900	65,600	90,100	68,100	96,600	72,900
Ocean City Municipal	5,500	22,100	6,200	24,700	6,900	27,400	8,300	33,000
Potomac Airfield - Friendly[1]	11,800	200	9,700	200	10,400	200	12,100	200
Ridgely Airpark[2]	7,800	7,700	8,900	8,900	9,800	9,800	11,600	11,600
St. Mary's County Regional	41,000	12,400	42,800	12,900	45,500	13,700	50,800	15,400
Tipton	10,800	36,200	10,800	36,200	10,800	36,200	10,800	36,200
Washington Executive/Hyde Field[1]	5,650	42	6,050	50	6,450	50	7,450	50
Subtotal	490,150	404,281	571,450	470,827	619,350	509,667	722,650	602,536

TABLE 2-12 (cont.)
GENERAL AVIATION LOCAL and ITINERANT OPERATIONS PROJECTION

Airport Name	2006		2011		2016		2026	
	Local	Itinerant	Local	Itinerant	Local	Itinerant	Local	Itinerant
Non-NPIAS General Aviation Airports								
Bennett[1]	2,000	0	2,200	0	2,400	0	2,600	0
Cecil County	19,600	5,500	25,800	7,200	31,200	8,800	41,800	11,700
Clearview[1]	13,800	1,500	15,800	1,700	16,700	1,800	19,400	2,100
Davis[1]	5,000	100	6,300	100	6,700	100	7,600	200
Essex Skypark[1]	8,000	584	7,300	500	7,800	600	8,900	700
Fallston[1]	6,000	3,189	7,100	3,700	7,600	4,100	8,600	4,600
Freeway[1]	55,300	6,156	63,600	7,100	68,700	7,600	78,700	8,800
Harford County	29,800	7,700	36,600	9,400	39,100	10,000	44,400	11,400
Havre de Grace Seaplane Base[1]	200	40	100	100	100	100	200	100
Kentmorr[1]	300	200	300	200	300	300	400	300
Lee[1]	22,100	9,538	23,300	10,000	25,000	10,700	28,800	12,300
Massey Aerodrome[1]	5,000	1,000	4,500	900	4,800	1,000	5,700	1,100
Mexico Farms[1]	800	461	1,100	600	1,200	700	1,400	800
Suburban Airpark[1]	1,750	0	3,800	0	4,100	0	4,700	0
Subtotal	169,650	35,968	197,800	41,500	215,700	45,800	253,200	54,100
Total	**686,000**	**517,115**	**797,250**	**594,209**	**864,650**	**642,371**	**1,008,250**	**752,736**

[1]Forecast by WSA.
[2]Ridgely Airpark has been identified for future inclusion in the NPIAS.
Pier 7 Heliport not included in this analysis.
Source: Wilbur Smith Associates, FAA approved forecasts (deemed most reliable), FAA TAF, MAA, FAA Aerospace Forecast FY 2007-2020, and various airport planning documents.

III. SUMMARY

For the purpose of the MASP, unconstrained projections of aviation demand have been developed for Maryland's 35 (plus the proposed Cecil County Airport) system airports consistent with national projections for based aircraft and for operations. The projections of aviation demand provide the baseline for evaluating the system as a whole and evaluating the ability of each region to accommodate demand. **Table 2-13** and **Table 2-14** summarize the projections for based aircraft and general aviation operations for Maryland. As shown in these tables, the growth rate of operations slightly exceeds the growth rate of based aircraft, reflecting the increased utilization expected from more complex and technically advanced aircraft.

With the exception of the based aircraft growth rate from 2006 to 2011, all of the growth rates for the MASP are below comparable FAA growth rates at the national level. The addition of the proposed Cecil County Airport injects a large number of new based aircraft into the system and is the reason for the high based aircraft growth rate from 2006 to 2011.

TABLE 2-13
SUMMARY OF BASED AIRCRAFT PROJECTIONS

Based Aircraft	2006	2011	2016	2026
System Airports with Commercial Service	446	469	495	553
CAGR		1.0%	1.1%	1.1%
System General Aviation Airports in NPIAS	1,896	2,135	2,268	2,542
CAGR		2.4%	1.2%	1.1%
System General Aviation Airports not in NPIAS	561	633	692	814
CAGR		2.4%	1.8%	1.6%
Total	**2,903**	**3,237**	**3,455**	**3,909**
CAGR		**2.2%**	**1.3%**	**1.2%**

Source: Wilbur Smith Associates, FAA approved forecasts (deemed most reliable), FAA TAF, MAA, FAA Aerospace Forecast FY 2007-2020, and various airport planning documents.

TABLE 2-14
SUMMARY OF GENERAL AVIATION OPERATIONS PROJECTIONS

General Aviation Operations	2006	2011	2016	2026
System Airports with Commercial Service	103,066	109,882	116,504	128,500
CAGR		1.3%	1.2%	1.0%
System General Aviation Airports in NPIAS	894,431	1,042,277	1,129,017	1,325,186
CAGR		3.1%	1.6%	1.6%
System General Aviation Airports not in NPIAS	205,618	239,300	261,500	307,300
CAGR		3.1%	1.8%	1.6%
Total	**1,203,115**	**1,391,459**	**1,507,021**	**1,760,986**
CAGR		**3.0%**	**1.6%**	**1.6%**

Source: Wilbur Smith Associates, FAA approved forecasts (deemed most reliable), FAA TAF, MAA, FAA Aerospace Forecast FY 2007-2020, and various airport planning documents.

CHAPTER THREE
AIRPORT ROLES

An important initial step in analyzing the future requirements of an airport system is examining its existing system and identifying respective airport roles. In this chapter, each Maryland system airport is assigned a role based on how it is categorized within the FAA National Plan of Integrated Airport Systems (NPIAS) in addition to how the airport functions in the system. There are several factors that can be used to determine each airport's contribution in the system; all will be examined throughout this chapter.

It is important to note that the current role identified for each system airport is based on a "snapshot in time" analysis of present conditions and is used only as a starting point in this system planning process. Based on the analysis that will be conducted throughout this planning process, facilities recommendations at the system level will be determined. It is important to note that this is not intended to be a master plan level of detail but rather a broad-brush evaluation of the current system.

This chapter presents several factors that influence aviation throughout Maryland. Some of these forces include changing the state's demographics, the roles of airports, out-of-state airports bordering Maryland and the airport facilities themselves. The steps followed to demonstrate these influences and measure current system performance are discussed in the following sections:

- Maryland Population
- Current System Role
- Out-Of-State Airports
- Defining Facility Objectives
- Evaluating Facility Objectives
  - Primary Runway Length
  - Airport Reference Code (ARC)
  - Taxiway Type
  - Instrument Approach Capabilities
  - Air Traffic Control Tower (ATCT)
  - Runway Lighting
  - Wind Cone (Lighted)
  - Runway End Identifier Lights (REILs)
  - Weather Reporting
  - Vertical Glide Slope Indicators (VGSIs)
  - Air Traffic Control (ATC) Communications
  - GA Terminal/Administration Building
  - Fuel
  - Paved Airport Parking
  - Hangars
  - Covered Overnight Secure Storage
  - Property Enclosed by Fence
  - Snow Removal
- Summary

This chapter concludes with a summary of how well each category of airport and each specific airport meets system performance measures.

I. MARYLAND POPULATION

Since the purpose of the Maryland airport system is to serve the state's residents, it is useful to look at current and future population trends. In 1990, the U.S. Census placed Maryland's population at 4.8 million residents. By 2005, the population had grown by more than 800,000 to more than 5.6 million residents.

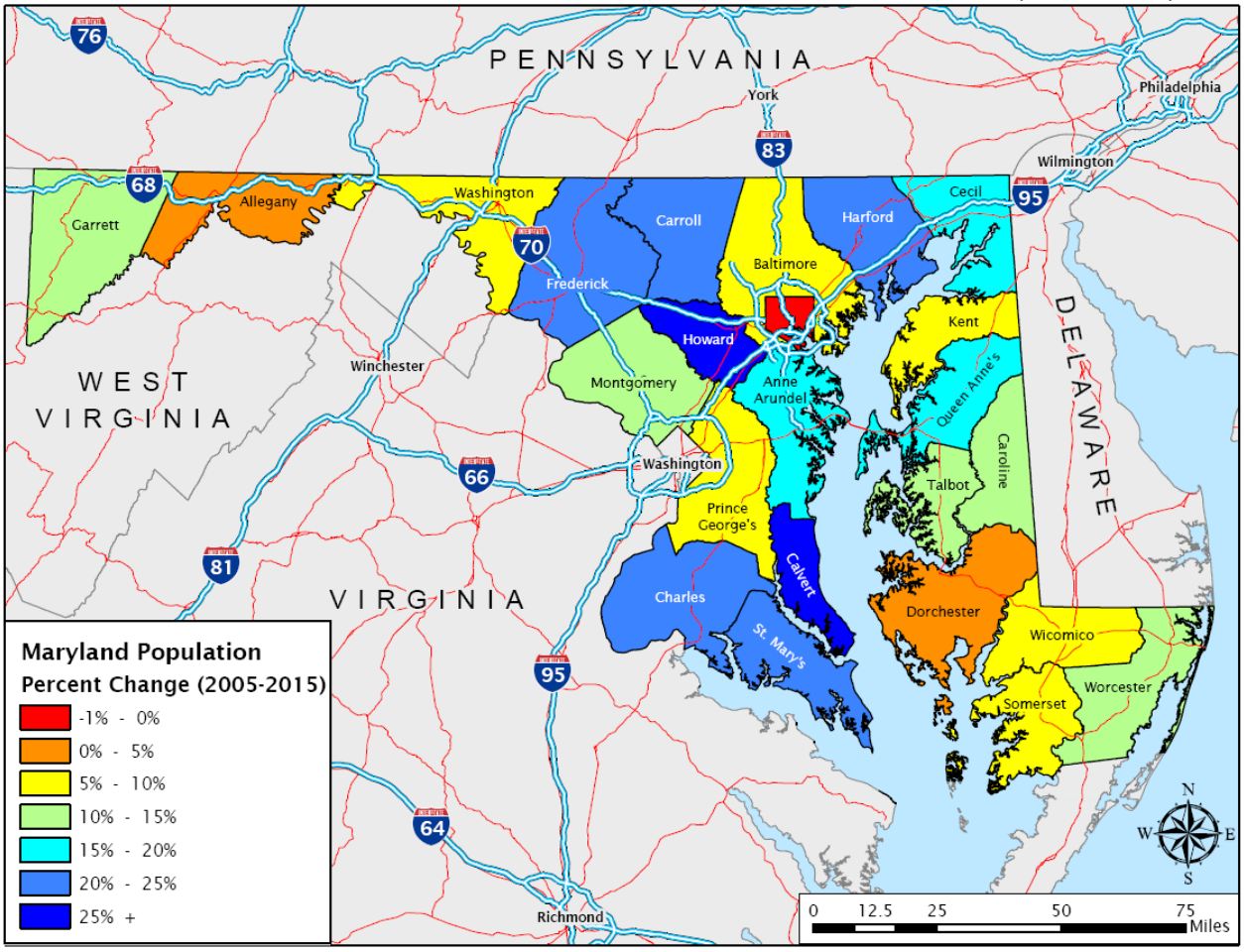
Between 1990 and 2005, of the state's 23 counties, only Allegany County experienced a net decline in population. Counties experiencing a modest or limited population growth tended to be located far from urban populations. For example, Garrett County in western Maryland experienced no population growth from 2000 to 2005. Almost all counties on Maryland's Eastern Shore experienced moderate growth, with the exception of Queen Anne's County. Conveniently located across the Chesapeake Bay from the Baltimore-Washington metropolitan area, Queen Anne's County exceeded Maryland's average population growth of six percent during the past six years, experiencing a 14 percent increase in population from 2000 to 2005.

Counties scattered throughout the central portion of the state saw the largest population growth. For instance, Anne Arundel and Baltimore counties both increased in population by nearly 100,000 residents each from 2000 to 2005. However, Baltimore City experienced a decline of 12,730 residents from 2000 to 2005.

Based on population projections for 2010 and 2015, historic statewide trends are generally expected to continue. Baltimore City's population is expected to continue to decline at a conservative pace while the recent decline in Allegany County is expected to rebound. Counties located near urban centers and those in rural areas are expected to continue to see moderate to high growth during the next 10 to 15 years.

Overall, Maryland is projected to increase its population from 5.6 million in 2005, to more than 6.3 million by 2015, a 13.3 percent increase. Growth centers will continue to be found in the suburban counties surrounding Baltimore and other cities in south central Maryland. **Exhibit 3-1** shows the projected change in population for Maryland's counties from 2005 to 2015. **Table 3-1** provides a breakdown of growth history, as well as projections for each Maryland county.

EXHIBIT 3-1: CHANGE IN MARYLAND'S POPULATION BY COUNTY (2005 – 2015)



Source: Wilbur Smith Team

TABLE 3-1
MARYLAND POPULATION TRENDS

County	1990	2005	2015	1990-2005 % Change	2005-2015 % Change
Allegany	74,950	73,640	75,090	-1.7%	2.0%
Anne Arundel	428,880	510,880	603,600	19.1%	18.1%
Baltimore	694,780	786,110	846,090	13.1%	7.6%
Calvert	51,950	87,920	114,400	69.2%	30.1%
Caroline	27,120	31,820	35,150	17.3%	10.5%
Carroll	124,090	168,540	207,930	35.8%	23.4%
Cecil	71,870	97,800	115,210	36.1%	17.8%
Charles	101,750	138,820	169,520	36.4%	22.1%
Dorchester	30,280	31,400	32,370	3.7%	3.1%
Frederick	151,350	220,700	273,150	45.8%	23.8%
Garrett	28,240	29,910	33,460	5.9%	11.9%
Harford	183,720	239,260	293,830	30.2%	22.8%
Howard	189,370	269,460	372,140	42.3%	38.1%
Kent	17,870	19,900	21,200	11.4%	6.5%
Montgomery	765,480	927,580	1,062,790	21.2%	14.6%
Prince Georges	725,900	846,120	911,800	16.6%	7.8%
Queen Anne's	34,080	45,610	54,530	33.8%	19.6%
St. Mary's	76,360	96,520	116,080	26.4%	20.3%
Somerset	23,470	25,840	28,260	10.1%	9.4%
Talbot	30,660	35,680	39,260	16.4%	10.0%
Washington	121,950	141,900	153,690	16.4%	8.3%
Wicomico	74,740	90,400	98,530	21.0%	9.0%
Worchester	35,290	48,750	55,650	38.1%	14.2%
City of Baltimore	735,630	635,820	630,460	-13.6%	-0.8%
Maryland	4,799,770	5,600,390	6,344,180	16.7%	13.3%

Source: Woods & Poole Economics, Inc. 2006

II. CURRENT SYSTEM ROLE

While air carrier, reliever and general aviation airports are clearly identified in the NPIAS, there are also system airports in Maryland that are not eligible for NPIAS inclusion. An objective to segregate Maryland airports was not only intended to categorize airports into groups, but also to classify the 15 non-NPIAS airports into the similar framework.

The current system of Maryland airports was stratified into five roles, based predominately on their current NPIAS classification. Airports not included in the NPIAS were categorized similarly based on their level of service and type of activity. A final category called "Special Facility" was used for the Pier 7 Heliport and Havre de Grace Seaplane Base to differentiate them as unique facilities in the state system, without traditional runways.

A brief description of each of the roles identified for the Maryland airport system follows.

- **Air Carrier Airports:** Air Carrier Airports support commercial airline activities. Where capacity constraints do not impose limits, this airport classification can also support all types of general aviation activities. Any airport without the prerequisite of scheduled airline service was classified into one of the remaining categories based on its level and type of activity, and NPIAS designation.

- **Reliever Airports:** Reliever Airports support corporate/executive and private use general aviation activities. In some cases, these airports function as relievers to larger, more congested Air Carrier Airports. These airports should be able to accommodate corporate jet aircraft. This facility classification can also support recreational general aviation activities and flight training.

- **General Airports:** This classification of airport serves light to medium multi-engine and single engine aircraft flying for business, pleasure and training.

- **Local Airports:** Local Airports include facilities that support small general aviation aircraft. Single-engine aircraft represent the primary aircraft type; however, some light twin-engine aircraft are also accommodated. This airport classification supports private pilots that may use flying for business or pleasure and require minimal support facilities. Airports in this category are not in the NPIAS and have fewer than 20,000 operations and/or less than 40 based aircraft.

- **Special Facility:** A Special Facility may or may not fit into one of the categories above, but based on its features would misrepresent the true role of the facility. This classification supports very few based aircraft. However, their importance and the facilities they need to support their users are in excess of what their numbers of based aircraft and operations would typically indicate. Havre de Grace Seaplane Base and Baltimore's Pier 7 Heliport are included in this category.

Based on the criteria outlined above, the Maryland airport system consists of three Air Carrier Airports, six Reliever Airports, 16 General Airports, nine Local Airports and two Special Facilities. **Exhibit 3-2** and **Table 3-2** depict all of the Maryland system airports and the role in which they fill.

EXHIBIT 3-2: MARYLAND AIRPORT SYSTEM – AIRPORT ROLES

Source: Wilbur Smith Team

TABLE 3-2
SYSTEM PLAN AIRPORTS: AIRPORT ROLES

Airport Name	Associated City	Airport ID	Airport Role
Air Carrier Airports			
Baltimore/Washington Int'l Thurgood Marshall	Baltimore	BWI	Air Carrier
Hagerstown Regional Richard A. Henson Field	Hagerstown	HGR	Air Carrier
Salisbury – Ocean City Wicomico Regional	Salisbury	SBY	Air Carrier
NPIAS Reliever and General Aviation Airports			
Bay Bridge	Stevensville	W29	General
Cambridge-Dorchester	Cambridge	CGE	General
Carroll County Regional	Westminster	DMW	Reliever
Cecil County (Proposed)	To Be Determined	+07N	General
College Park	College Park	CGS	General
Crisfield-Somerset County	Crisfield	W41	General
Easton/Newnam Field	Easton	ESN	General
Frederick Municipal	Frederick	FDK	Reliever
Garrett County	Oakland	2G4	General
Greater Cumberland Regional	Cumberland	CBE	General
Martin State	Baltimore	MTN	Reliever
Maryland	Indian Head	2W5	Reliever
Montgomery County	Gaithersburg	GAI	Reliever
Ocean City Municipal	Ocean City	OXB	General
Potomac Airfield – Friendly[2]	Friendly	VKX	General
Ridgely Airpark[1]	Ridgely	RJD	General
St. Mary's County Regional	Leonardtown	2W6	General
Tipton	Odenton	FME	Reliever
Washington Executive/Hyde Field[2]	Clinton	W32	General
Non-NPIAS General Aviation Airports			
Bennett	Salisbury	1N5	Local
Cecil County	Elkton	58M	General
Clearview	Westminster	2W2	Local
Davis	Laytonsville	W50	Local
Essex Skypark	Baltimore	W48	Local
Fallston	Fallston	W42	Local
Freeway	Mitchellville	W00	General
Harford County	Churchville	0W3	General
Havre de Grace Seaplane Base	Havre de Grace	M06	Special Facility
Kentmorr	Stevensville	3W3	Local
Lee	Annapolis	ANP	General
Massey Aerodrome	Massey	MD1	Local
Mexico Farms	Cumberland	1W3	Local
Pier 7 Heliport	Baltimore	MD54	Special Facility
Suburban Airpark	Laurel	W18	Local

[1]Ridgely Airpark has been identified for future inclusion in the NPIAS.
[2]Shown in NPIAS as a reliever, but classified as general for purposes of this study due to limited facilities.
Source: Wilbur Smith Associates, Inc. and NPIAS, Oct. 2006

III. OUT-OF-STATE AIRPORTS

In addition to the Maryland system airports, there are numerous airports outside of the state that Marylanders use because of their proximity. **Table 3-3** lists the out-of-state public-use airports that are within 10 nautical miles of the Maryland border. These airports were included in the analysis since it is recognized that they provide geographic coverage and services to Maryland residents and businesses in the same manner that Maryland airports also serve neighboring states.

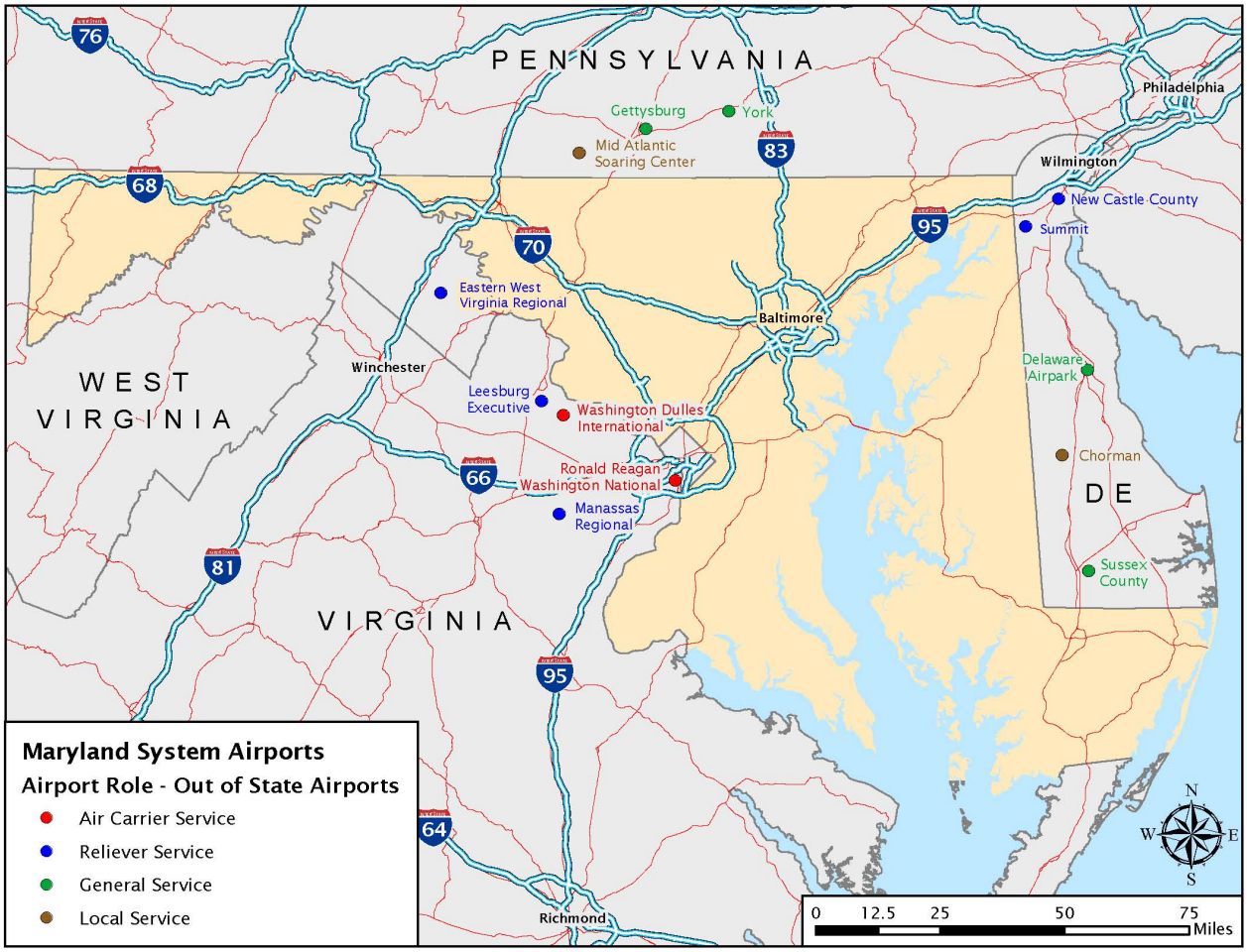
TABLE 3-3
OUT-OF-STATE AIRPORTS

State	Associated City	Airport	Airport ID	Role
DC	Washington	Ronald Reagan Washington National	DCA	Air Carrier
DC	Washington	Washington Dulles International	IAD	Air Carrier
VA	Manassas	Manassas Regional	HEF	Reliever
VA	Leesburg	Leesburg Executive	JYO	Reliever
WV	Martinsburg	Eastern West Virginia Regional	MRB	Reliever
PA	Fairfield	Mid-Atlantic Soaring Center	W73	Local
PA	Gettysburg	Gettysburg Regional	W05	General
PA	York	York	THV	General
DE	Wilmington	New Castle County	ILG	Reliever
DE	Middletown	Summit	EVY	Reliever
DE	Dover	Delaware Airpark	33N	General
DE	Georgetown	Sussex County	GED	General
DE	Farmington	Chorman	D74	Local

Source: Wilbur Smith Associates, Inc., FAA Northeast Airport Facility Directory, and NPIAS, Oct. 2006

There were 13 airports close enough to the Maryland border to warrant consideration in providing services to Marylanders. The roles of these airports were identified using the same criteria as the Maryland system airports. Two of the out-of-state airports were identified as Air Carrier Airports, five as Reliever Airports, four as General Airports and two as Local Airports. These airports are depicted in **Exhibit 3-3**.

EXHIBIT 3-3: OUT-OF-STATE AIRPORTS – AIRPORT ROLES



Source: Wilbur Smith Team

IV. DEFINING FACILITY OBJECTIVES

General facility objectives recommended to support each airport's role were identified. To adequately address statewide aviation needs facility objectives shown in **Table 3-4** are important in ensuring an airport could meet the defined role in the system. It should be noted that no facility objectives were identified for Special Facilities because of their unique operating circumstances.

TABLE 3-4
FACILITY OBJECTIVES

Objective	Local	General	Reliever	Air Carrier
Primary Runway Length	2,000 ft.	3,500 ft.	5,000 ft.	5,500 ft.
Airport Reference Code (ARC)	A-I Small	B-I	C-II	C-III
Taxiway System	Turnarounds	Partial parallel	Full Parallel	Full Parallel
Approach Capability	Visual	Non-precision	Precision	Precision
Air Traffic Control Tower (ATCT)	--	--	Yes[1]	Yes
Air Traffic Control (ATC) Communications	--	--	Yes	Yes
Runway Lighting	LIRL and Beacon[2]	MIRL and Beacon	HIRL and Beacon	HIRL and Beacon
Wind Cone (lighted)	Yes	Yes	Yes	Yes
Runway End Identifier Lights (REILs)	Yes	Yes	Yes	Yes
Vertical Glide Slope Indicator (VGSI)	Yes	Yes	Yes	Yes
Weather Reporting	--	Yes	Yes	Yes
GA Terminal/Admin. Building	--	Yes	Yes	Yes
Fuel	100LL	100LL	Jet-A, 100LL	Jet-A, 100LL
Paved Aircraft Parking	--	Yes	Yes	Yes
Hangars	Yes	Yes	Yes	Yes
Covered Overnight Secure Storage	--	--	Yes	Yes
Property Enclosed by Fence	Yes	Yes	Yes	Yes
Snow Removal	--	Yes	Yes	Yes

[1] Only for airports with 120,000 annual operations or more.
[2] If paved.
Source: Wilbur Smith Associates, Inc.

The facility objectives recommended for each airport are discussed below. It is important to understand that the facility objectives are not requirements. An airport's master plan, as well as unique circumstances, will dictate what type of facilities will be in place at an individual airport. For example, environmental conditions, topography, unique operating characteristic and other issues may dictate specific master planning objectives regarding facility objectives. However, from a system perspective, these objectives presented provide a broad-brush evaluation of what may be needed at system airports.

A general discussion of facilities included in the system evaluation is presented below:

- **Primary Runway Length:** A primary concern of airport users in Maryland as well as in other states throughout the country is the availability of airports with sufficient runway length to accommodate a variety of aircraft. Each airport role classification has a minimum recommended runway length based on the aircraft that typically serve that type of airport. An airport without sufficient runway length risks failing to meet minimum runway length requirements for its users. Additionally, without adequate runway length, an airport otherwise capable of accommodating a wider variety of aircraft fails to reach its full potential of attracting a greater number of users.

- **Airport Reference Code (ARC):** The ARC is based on the largest aircraft, referred to as the critical aircraft, which operate with more than 500 takeoffs and landings per year. The ARC is defined by two parameters of the critical aircraft – its approach speed and wingspan. The ARC establishes a basis for the FAA airport design standards which must be met, such as runway and taxiway safety areas, distances between parallel runways, parallel taxiways, hold line distances from runways and other aspects of the airport design. Airports that are more important economically generally need a higher ARC corresponding to the ability to accommodate larger aircraft.

- **Taxiway System:** The type of taxiway system at an airport largely determines runway occupancy times of arriving aircraft. At busier airports, it is desirable to minimize runway occupancy times in order to minimize the risk of aircraft collisions on the runway. For this reason, the cost of a full length parallel taxiway is justified. However, airports with less activity have a reduced risk of aircraft collisions on the runway, so partial parallel taxiways and turnarounds requiring aircraft to back taxi may be acceptable.

- **Approach Capability:** The type of instrument approach at an airport affects the overall utility of an airport and can make it possible for aircraft to land at the airport during inclement weather. Therefore, the more significant the economic contribution an airport makes to a region, the better the instrument approach capability the airport should have.

- **Air Traffic Control Tower (ATCT):** An air traffic control tower is a significant contributor to safety and efficiency at an airport, especially at busier airports. Because of the significant costs involved with building and operating an air traffic control tower, its use is reserved for those busy airports that demonstrate a need for it. This analysis looks at the need for ATCT on a system basis, and does not account for local factors that can influence the need for an ATCT.

- **Air Traffic Control (ATC) Communications:** Being able to communicate with air traffic control via radio while still on the ground can greatly expedite flight operations when flying on an Instrument Flight Rules (IFR) flight plan, especially in areas without cell phone coverage. This can be accomplished through the air traffic control facility on the field, or, lacking that, a remote or ground communication outlet (RCO or GCO). However, as cell phone coverage expands, the need for RCOs and GCOs diminishes.

- **Runway Lighting:** All system airports should have some type of runway lighting to allow night operations. Airports that cater to higher end aircraft are expected to have higher intensity lighting, suitable for both night and low visibility operations. Other systems provide low and medium intensity lighting.

- **Wind Cone (Lighted):** Wind cones provide pilots with valuable wind direction and velocity indications important for aircraft landing and takeoff. All system airports should have a lighted wind cone to assist pilots during all weather conditions.

- **Runway End Identifier Lights (REILs):** REILs provide rapid and positive identification of the end of the runway. The system consists of two synchronized flashing lights, unidirectional or omni-directional, one on each corner of the runway-landing threshold. All system airports should have REILs.

- **Vertical Glide Slope Indicators (VGSIs):** This visual, ground-based system provides glide slope guidance for approaching aircraft. VGSIs include Precision Approach Path Indicators (PAPIs) Visual Approach Slope Indicators (VASIs), or Pulse Light Approach Slope Indicator (PLASIs) which usually include a single or combination of light units installed on the left side of the runway near the touchdown zone. These units provide positive and negative visual feedback to a pilot on an approach to allow the pilot to adjust the approach angle accordingly. These systems have an effective visual range of at least three miles during the day and up to 20 miles at night. All system airports should have some form of VGSI system to provide pilots with approach slope guidance.

- **Weather Reporting:** Weather conditions determine if an aircraft is capable of getting into an airport. Knowing inclement weather conditions greatly assists pilots with flight planning. It is also useful when making a diversion decision. Weather reporting at most airports is automated through the use of an Automated Weather Observation System (AWOS), SuperAWOS, Automated Surface Observing System (ASOS) or other commercially certified product. Some airports have human weather observers.

- **Terminal/Administration Building:** A terminal/administration building is not necessary for an airport to function. However, airports that are expected to handle general aviation passenger traffic need a terminal/administration building where passengers can take shelter from the weather and environment, as well as provide a central meeting point for parties coming to the airport. A Fixed Base Operator (FBO) having a terminal area meets this objective.

- **Fuel:** For an airport to fulfill its designated role, it must be able to provide the basic services to its users. Fuel is the most fundamental of these services, with users of turbine engine aircraft needing Jet-A and the users of nearly all piston engine aircraft needing 100LL. All system airports are expected to fuel piston aircraft, and those airports with significant amounts of jet traffic are expected to have Jet-A fuel.

- **Paved Aircraft Parking:** Transient aircraft need a place to park while at an airport. For some airports, parking on grass is sufficient. But for other airports, especially those serving turbine-powered aircraft, paved aircraft parking is essential.

- **Hangars:** All system airports should have some form of aircraft storage to protect based aircraft from weather, vandalism, theft, etc.

- **Covered Overnight Secure Storage:** Airports that cater to business aircraft are expected to have facilities where those aircraft can be stored and protected from weather and damage.

- **Property Enclosed by Fence:** A growing concern among airport users and management is the placement of fencing around the airport to provide an additional level of security and separation from the general public, as well as reduce wildlife incursion with aircraft while landing, taking off or taxiing.

- **Snow Removal:** Winter use of airports in Maryland depends upon the ability to remove snow from the airfield. The more critical an airport is to the economic vitality of the region, the more important it is to have the ability to keep operating the airport regardless of heavy snowfall.

V. EVALUATING FACILITY OBJECTIVES

The degree to which the current system meets these objectives is detailed in this section. The criteria for every airport's role was identified for each objective and explained. Some airports' future roles may change as a result of the coverage analysis presented in the next chapter.

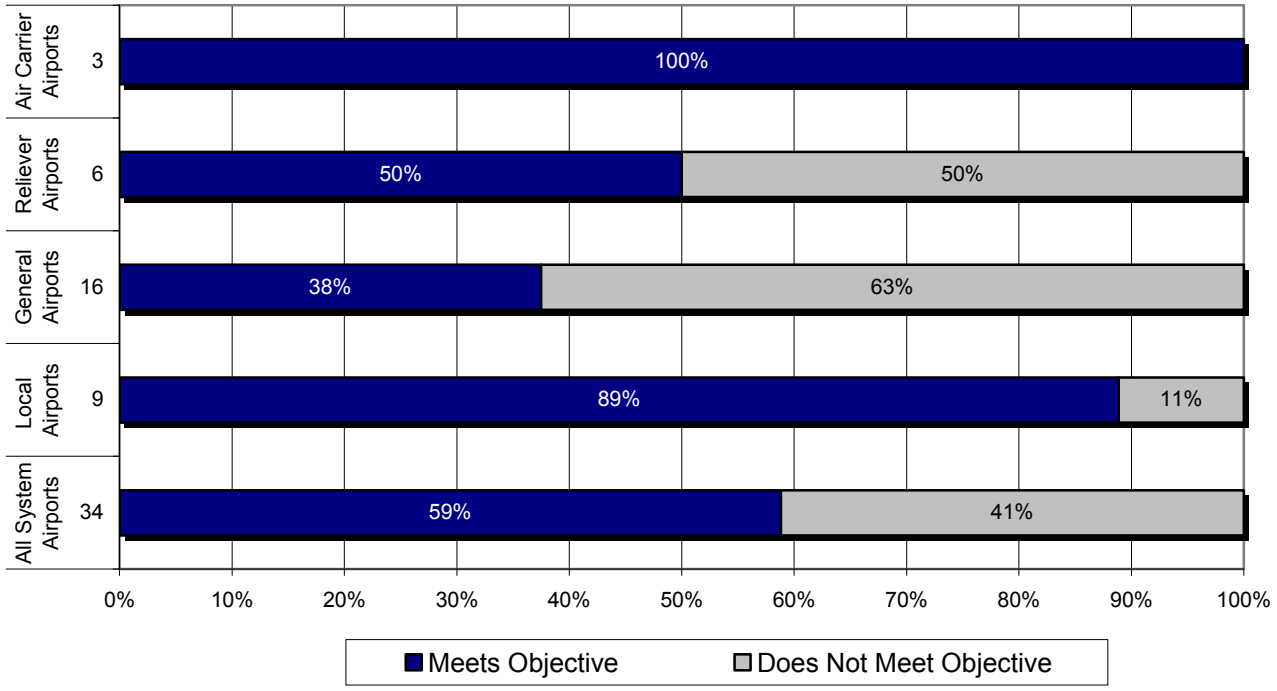
The proposed Cecil County Airport was removed from this evaluation because no facilities currently exist as this airport and it is still in the planning stages. Based on current master planning documentation for this airport, it will likely be considered eligible for NPIAS inclusion and a General Airport in the Maryland Aviation system. Special Facilities, such as seaplane bases and heliports, are not included in the facility objectives analysis due to their unique circumstances and facility needs; this evaluation of facility objectives includes a total of 34 airports.

A. Runway Length Objective

Exhibit 3-4 shows the percentage of airports meeting the runway length objective. Runway length objectives were determined as a function of the type of activity the airport normally encounters: recreational, business, commercial, etc. Based on their general aviation and recreational aircraft requirements, Local Airports would be adequately served by a 2,000 foot runway to support single engine aircraft activity. General Airports experience a mix of users including single engine and some light multi-engine aircraft. To support these operations, 3,500 feet of runway length is recommended. While Reliever Airports accommodate the same types of aircraft found at Local and General airports, they often serve a high percentage of business and corporate aircraft users. To meet the needs of these users, a runway length of 5,000 feet or more is recommended. With the development of very light jets, it is likely that smaller jets will operate out of airports with significantly shorter runways. However, to adequately serve a full range of business jets, a 5,000-foot runway is generally regarded as the minimum desirable length for an airport which commonly experiences business jet and corporate activity. Finally, Air Carrier

Airports accommodate aircraft needed to support scheduled commercial passenger activity. The types of aircraft found here include large multi-engine prop and a variety of jet engine aircraft. The minimum recommended runway length to support Air Carrier activity is 5,500 feet.

EXHIBIT 3-4
RUNWAY LENGTH OBJECTIVE



Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

Half (three) of the Reliever Airports have runways too short to meet the objective. Only 38 percent (six) of the General Airports have enough length to meet the 3,500 foot length objective. While 89 percent of the Local Airports meet their runway length objective, only 59 percent (19) of the system airports meet this objective.

B. Airport Reference Code (ARC) Objective

The development of airport facilities is impacted by both the demand for those facilities, typically represented by total based aircraft and operations at an airport, as well as the type of aircraft that will make use of those facilities. In general, airport infrastructure components are designed to accommodate the most demanding aircraft, referred to as the critical aircraft, which will utilize the infrastructure on a regular basis. The factors used to determine an airport's critical aircraft are the approach speed and wing span of the most demanding class of aircraft that is anticipated to perform at least 500 annual operations at the airport during the planning period.

The FAA groups aircraft into Aircraft Categories and Airplane Design Groups based on approach speed and wingspan. The criteria for these categories are presented in **Table 3-5**.

TABLE 3-5
AIRCRAFT CATEGORIES AND DESIGN GROUPS

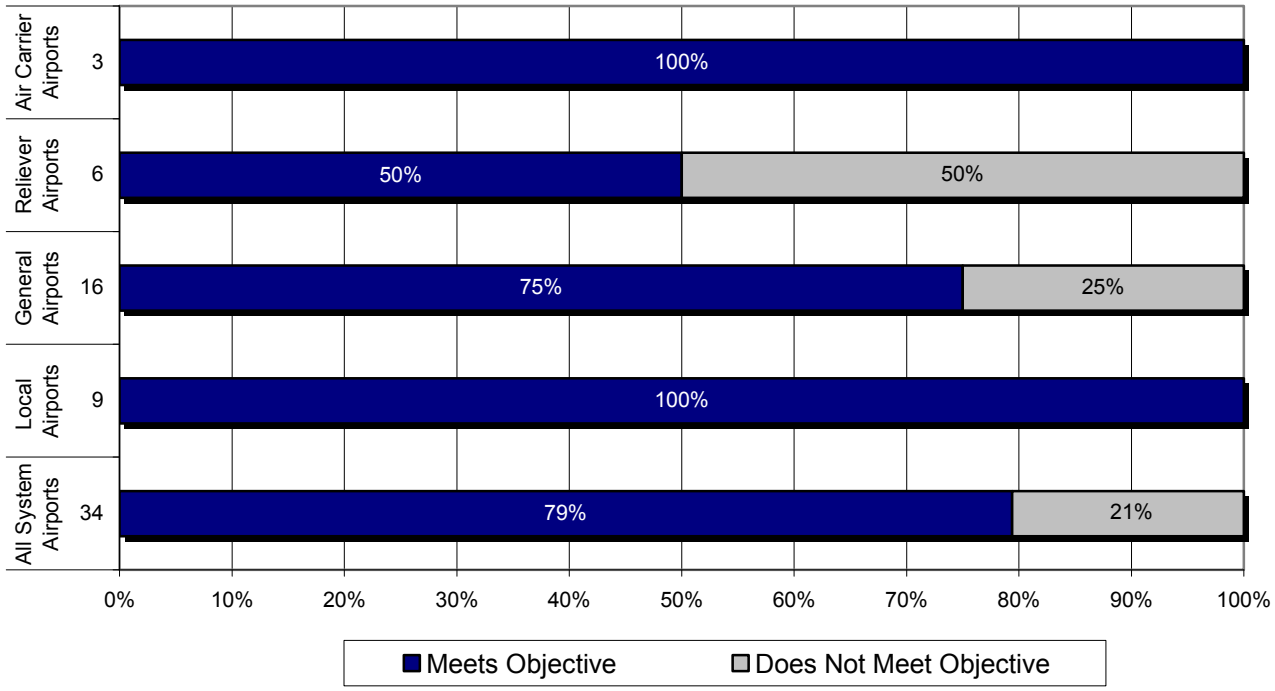
Aircraft Category	Approach Speed	Example
A	< 91 knots	Cessna 172
B	91 to < 121 knots	King Air 200
C	121 to < 141 knots	B737
D	141 to < 166 knots	B767
E	166 knots or more	SR-71
Airplane Design Group	**Wingspan**	**Example**
I	< 49 feet	Cessna 172
II	49 to < 79 feet	King Air 200
III	79 to < 118 feet	B737
IV	118 to < 171 feet	B767
V	171 to < 197 feet	B747
VI	197 to < 262 feet	A380

Source: FAA

After identifying an airport's critical aircraft it is possible to determine the facility's Airport Reference Code (ARC). The ARC is a coding system that relates airport design criteria to the operational and physical characteristics of the airplanes that are intended to operate on each runway. An ARC is a composite designation based on the Aircraft Category and Airplane Design Group of the airport's critical aircraft.

The system plan seeks to set an objective ARC for each airport role in the system based on the general type of aircraft typically utilizing each facility. For Local Airports, an ARC of A-I small is deemed appropriate for the type of activity normally occurring at the airport. General Airports see a collection of slightly faster aircraft than at Local Airports and can expect to see aircraft in the B-I class. Aircraft utilizing Reliever Airports have a wide range of aircraft speeds and wingspans which fall within the C-II designation. The minimum ARC designation for an Air Carrier Airport is C-III to coincide with the common type of commercial aircraft operating today and expected in the future. It should be noted, however, that an array of commercial aircraft, above and below the C-III ARC, flies into and out of Maryland airports. **Exhibit 3-5** shows the percentage of system airports meeting the ARC objective. As with all objectives, airport master plans will ultimately determine the appropriate design criteria for a particular airport.

EXHIBIT 3-5
AIRPORT REFERENCE CODE (ARC) OBJECTIVE



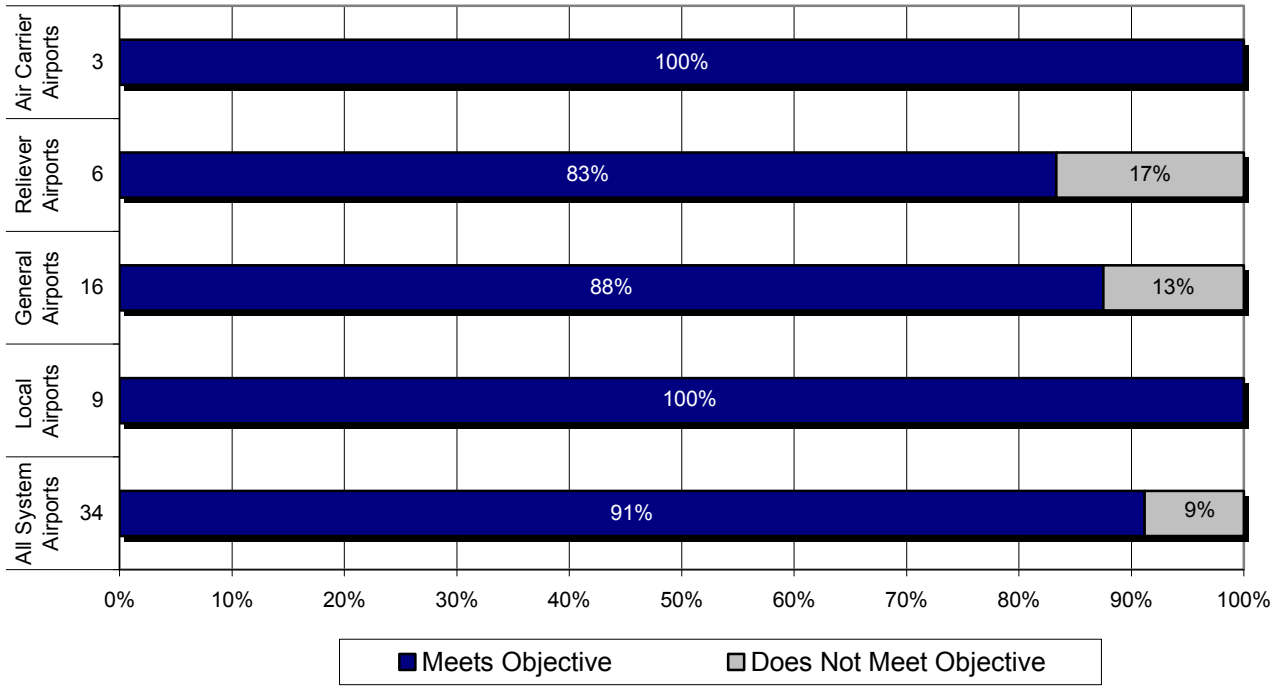
Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

Three of six Reliever Airports fall within the B-II ARC, resulting in only 50 percent of these airports meeting the C-II objective. Similarly, four of 16 General Airports have an A-I ARC while the objective is set at B-I. In the General and Reliever Airport groups, the Aircraft Category (or approach speed) element of the ARC is below the objective resulting in 79 percent of the airports meeting their ARC objectives, overall. All of the airports in the Local and Air Carrier groups meet or exceed this objective.

C. Taxiway Objective

Exhibit 3-6 shows the percentage of airports meeting the taxiway objective. Because of the need to avoid back taxiing at busier airports, it was determined that Reliever and Air Carrier Airports should have full parallel taxiways. Partial parallel taxiways were deemed adequate for General Airports and turnarounds were set for Local Airports.

EXHIBIT 3-6
TAXIWAY OBJECTIVE



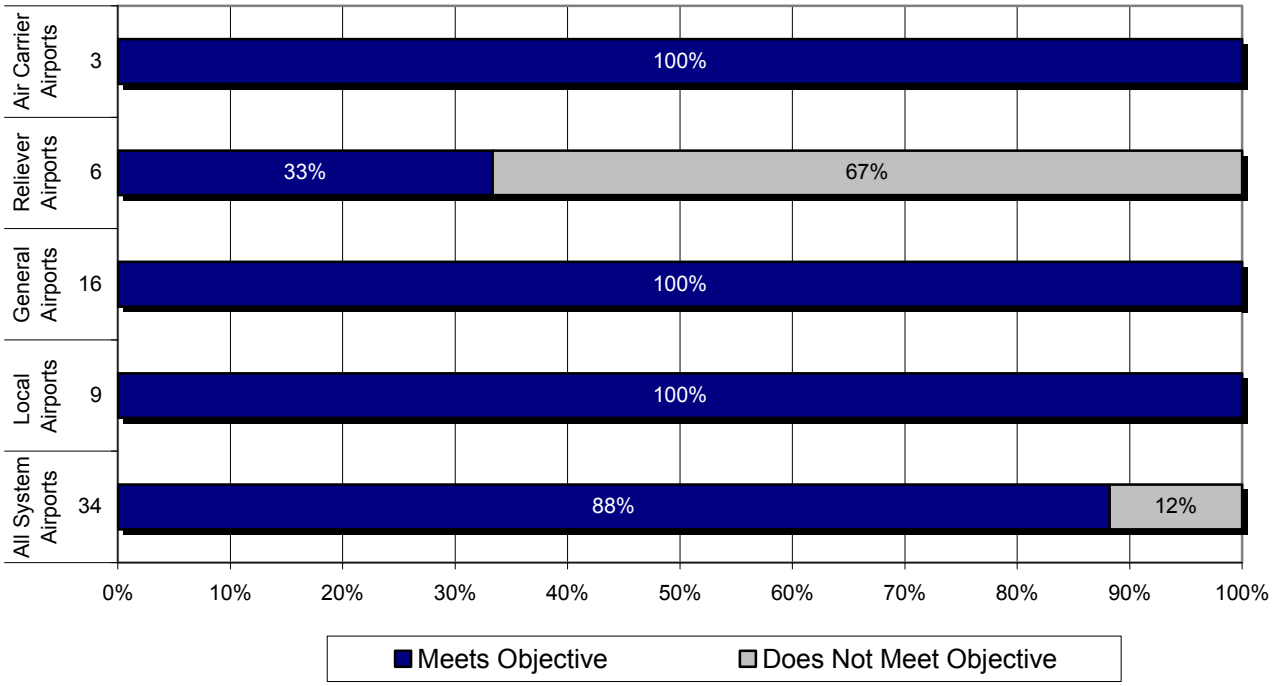
Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

All Air Carrier Airports met this objective. The Reliever Airport category of airports had the lowest percentage of compliance, with 83 percent meeting the objective. However, with only six airports in this category, one Reliever Airport (Maryland Airport) would need to upgrade its taxiway to a full parallel taxiway in order for this category to fully meet this objective. Two General Airports did not meet the objective, producing an 88 percent compliance rate. In total, 91 percent of all system airports meet the taxiway objective.

D. Approach Objective

Exhibit 3-7 shows the percentage of airports meeting the approach objective. It is recommended that Reliever and Air Carrier airports provide precision approaches to satisfy the approach objective. General Airports should provide non-precision approaches to meet the approach objective. Local Airports have no approach objective criteria, therefore visual approaches are the standard.

EXHIBIT 3-7
APPROACH OBJECTIVE



Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

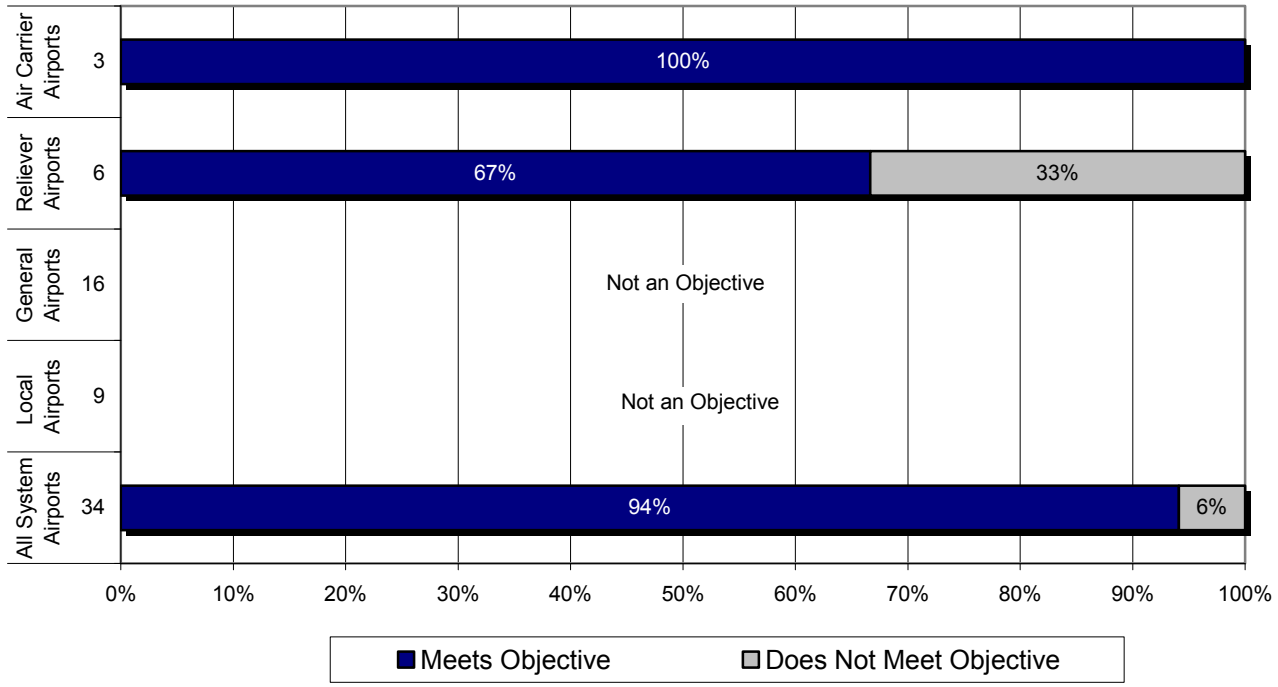
All of the Air Carrier, General and Local Airports meet the approach objective. Only two, or 33 percent, of the Reliever Airports have precision approaches to meet the objective. This is illustrative of the difficulty airports within this category have of acquiring expensive ground-based Instrument Landing Systems (ILS). However, as satellite based Global Positioning System (GPS) technology develops and augmentation systems improve, many airports will be able to obtain precision and/or non-precision GPS approaches, which do not require the expensive, ground based equipment of an ILS.

With a growing trend for satellite based navigation, a portion of this study will evaluate and analyze the effectiveness of a Wide Area Augmentation System (WAAS) approach procedure at specific airports within the system. In addition, the system plan will analyze the geographic coverage of existing and potential low minimum approaches available to the public. Therefore, Maryland's system airports (excluding BWI) will be evaluated in upcoming chapters to determine the viability of GPS-WAAS type Instrument Approach Procedures (IAP) with Localizer Performance with Vertical guidance (LPV) minimums as they relate to their current and proposed development plans.

E. Air Traffic Control Tower Objective

Exhibit 3-8 shows the percentage of system airports meeting the air traffic control tower (ATCT) objective. It was determined that having an ATCT should be an objective for all Air Carrier Airports and for those Reliever Airports with more than 120,000 annual operations. No ATCT objective was established for General and Local airports.

EXHIBIT 3-8
AIR TRAFFIC CONTROL TOWER OBJECTIVE



Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

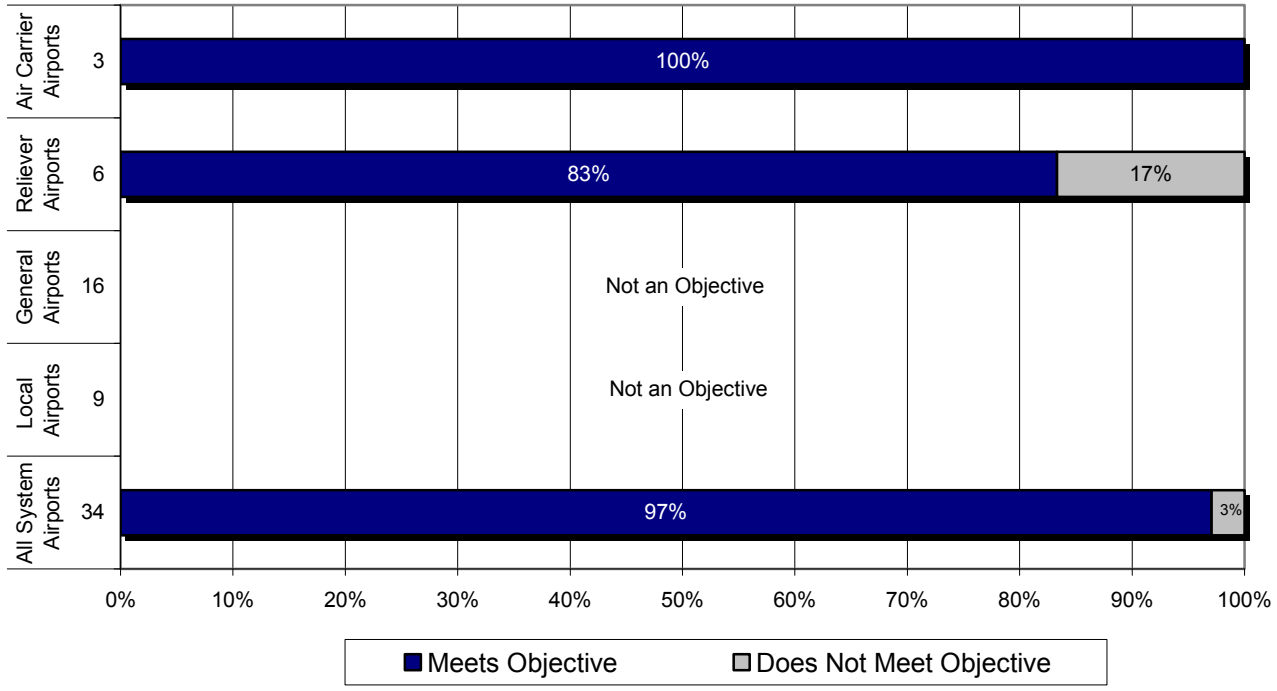
Every Air Carrier Airport has an ATCT. Of the Reliever Airports, only Frederick Municipal and Montgomery County Airports crossed the threshold with more than 120,000 annual operations recommended to justify an ATCT. Martin State Airport is the only airport that has an ATCT in the Reliever Airport category. Therefore, based on threshold operational levels, Frederick Municipal and Montgomery County Airports may justify an ATCT to meet this service objective. It should be noted that the Carroll County Airport, also identified as a Reliever Airport, is nearing the 120,000 annual operations threshold and may benefit from an ATCT within the near-term and meet this objective. Considering many of these airports are located in congested airspace and have significant operational levels, their ATCT may be warranted through a Benefit Cost Analysis as required for justification by the FAA

The criteria used in this analysis should not be interpreted that airports that do not meet these criteria should not have an ATCT. Many factors are evaluated, not the least of which is safety, when determining the need for an ATCT. This analysis was performed from a system perspective, which does not account for many local factors which can be as, or more, critical in determining the need for an ATCT.

F. Air Traffic Control Communications Objective

Exhibit 3-9 shows the percentage of airports meeting the criteria for the Air Traffic Control Communications objective. For Air Carrier and Reliever Airports, some type of radio communication with ATC was deemed necessary to meet this objective, either through an on-airport ATC facility, or a GCO or RCO.

EXHIBIT 3-9
AIR TRAFFIC CONTROL COMMUNICATIONS OBJECTIVE



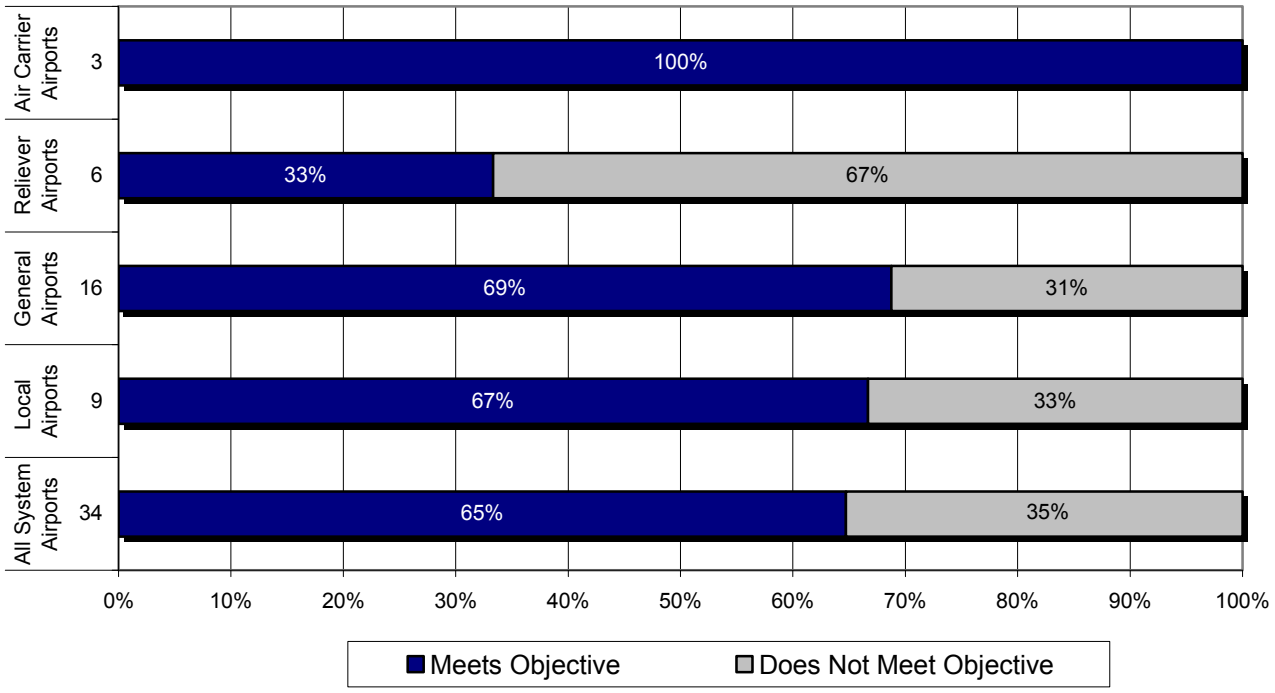
Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

Not surprisingly, all of the Air Carrier Airports meet this objective since all of these facilities have an ATCT. All but one Airport in the Reliever category (Maryland Airport) meets the objective. Considering the growth and prevalence of cellular phone technology, communication with ATC is possible through cellular phones given adequate reception. Therefore, ATC communications may become common at all system airports without the need for airport facility enhancements, and meeting this objective is not a priority. However, at airports where cellular phone reception is tenuous and the need for ATC communications is important, consideration should be given to the installation of a GCO or RCO, if feasible.

G. Runway Lighting Objective

Exhibit 3-10 shows the percentage of airports that meet the runway lighting objective. Local Airports need low intensity runway lights (if the runway is paved) to meet the objective. General Airports need medium intensity runway lights to meet the objective. Reliever and Air Carrier Airports need high intensity runway lights to meet the objective. In addition, all airports must have a beacon to meet this objective.

EXHIBIT 3-10
RUNWAY LIGHTING OBJECTIVE



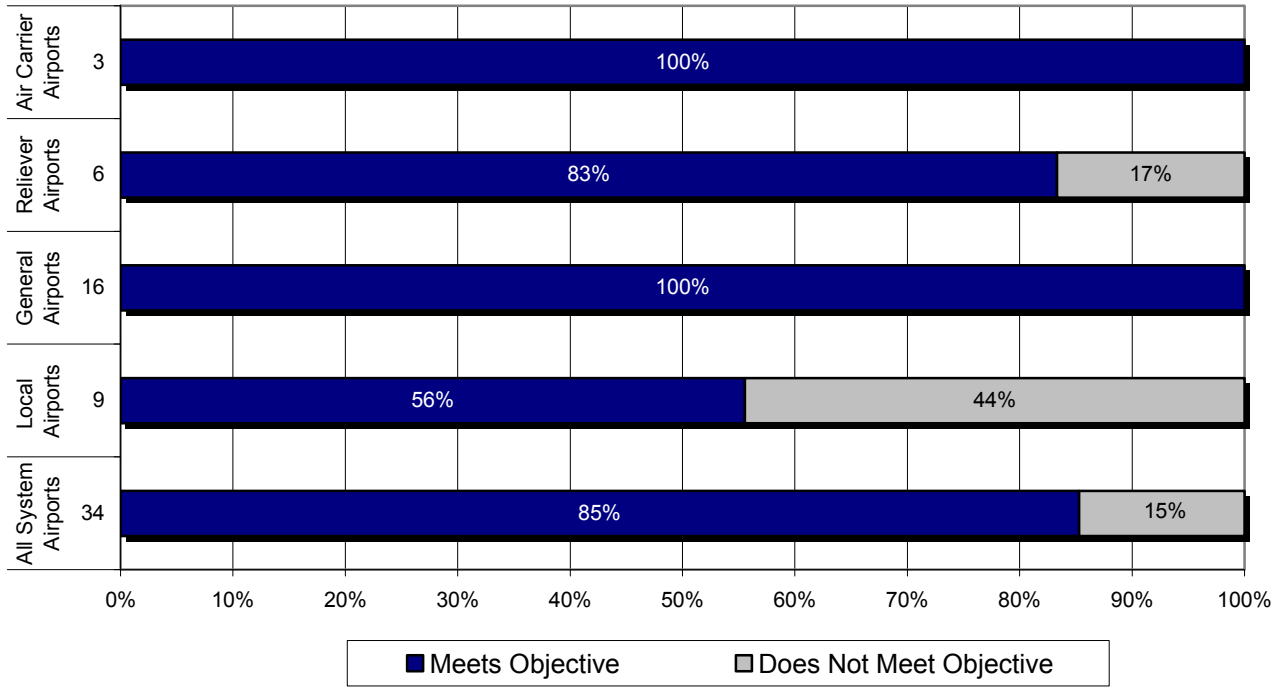
Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

All Air Carrier Airports meet the runway lighting objective. Less than half (two) of the Reliever Airports meet the runway lighting objective due to the use of medium intensity runway lights versus high intensity lights. Eleven (69 percent) of the General Airports meet the objective. Six (67 percent) of the Local Airports either meet the objective through providing the adequate lighting system or by the determination of runway lighting not being required on unpaved runways. It should be noted that while several Reliever, General and Local airports did not meet the objective, only four did not have runway lighting. All other airports have some form of runway lighting.

H. Wind Cone (Lighted) Objective

Exhibit 3-11 shows the percentage of airports that meet the wind cone objective. It is suggested that all system airports have a lighted wind cone to provide crucial wind direction and speed indicators to pilots.

EXHIBIT 3-11
WIND CONE (LIGHTED) OBJECTIVE



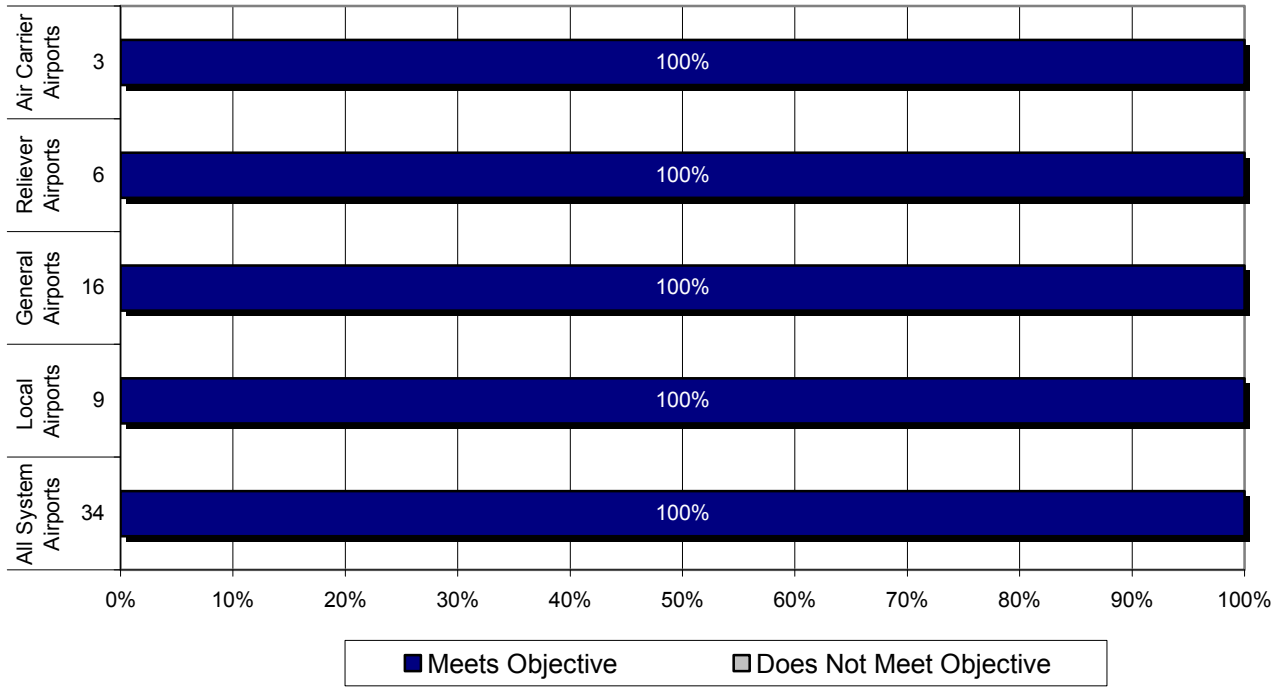
Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

All of the system airports have a wind cone, although some are not lit. Out of all of the Air Carrier, Reliever and General airports, only one did not have a lighted wind cone: Maryland Airports. Four Local Airports (Kentmorr, Davis, Fallston and Massey) do not have their wind cones lit. Airports that do not meet this objective may not have night time operations or service during inclement weather, which may explain why their wind cones are not lit.

I. Runway End Identifier Lights Objective

Exhibit 3-12 shows the percentage of airports that meet the objective for having Runway End Identifier Lights (REILs). All airports within the system should have REILs to assist in the identification of the end of the runway.

EXHIBIT 3-12
REILS OBJECTIVE



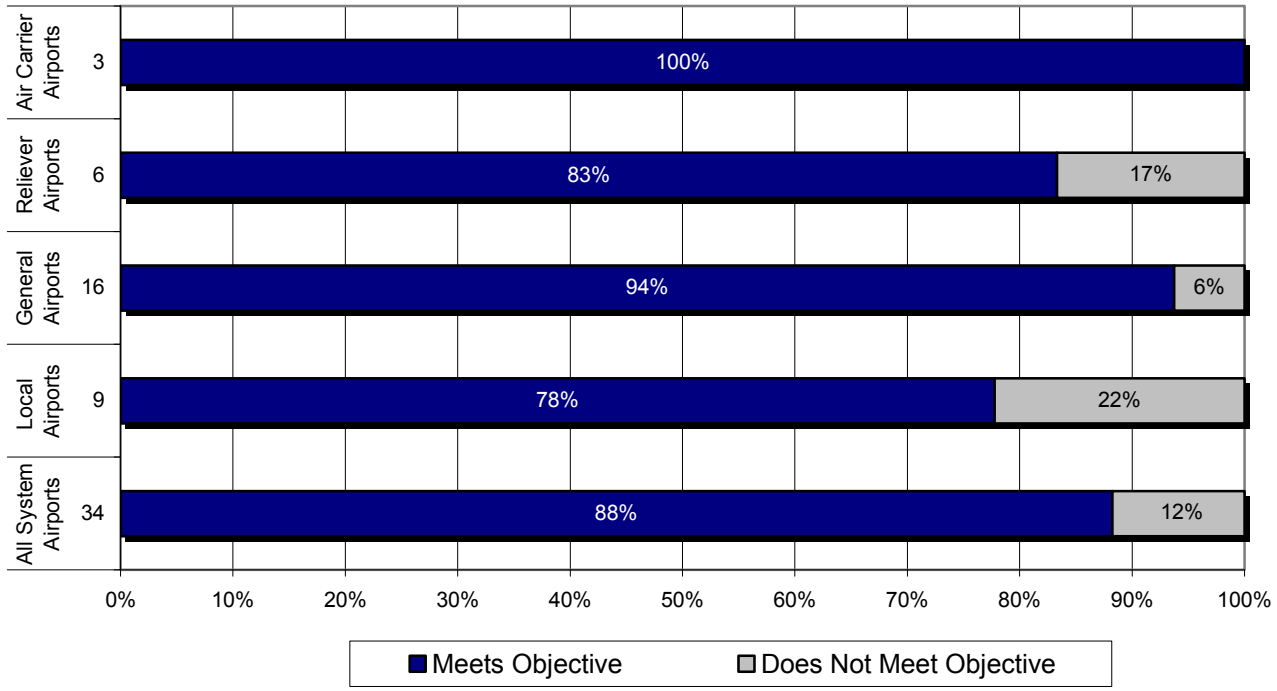
Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

All airports within the system meet this objective. REILs at each airport should be maintained on a regular basis to provide uninterrupted service.

J. Vertical Glide Slope Indicator (VGSI) Objective

Exhibit 3-13 shows the percentage of airports that meet the Vertical Glide Slope Indicator (VGSI) objective. Whether the system is basic or complex, each airport in the system should have some form of VGSI to provide approaching pilots with important glide slope information.

EXHIBIT 3-13
VGSI OBJECTIVE



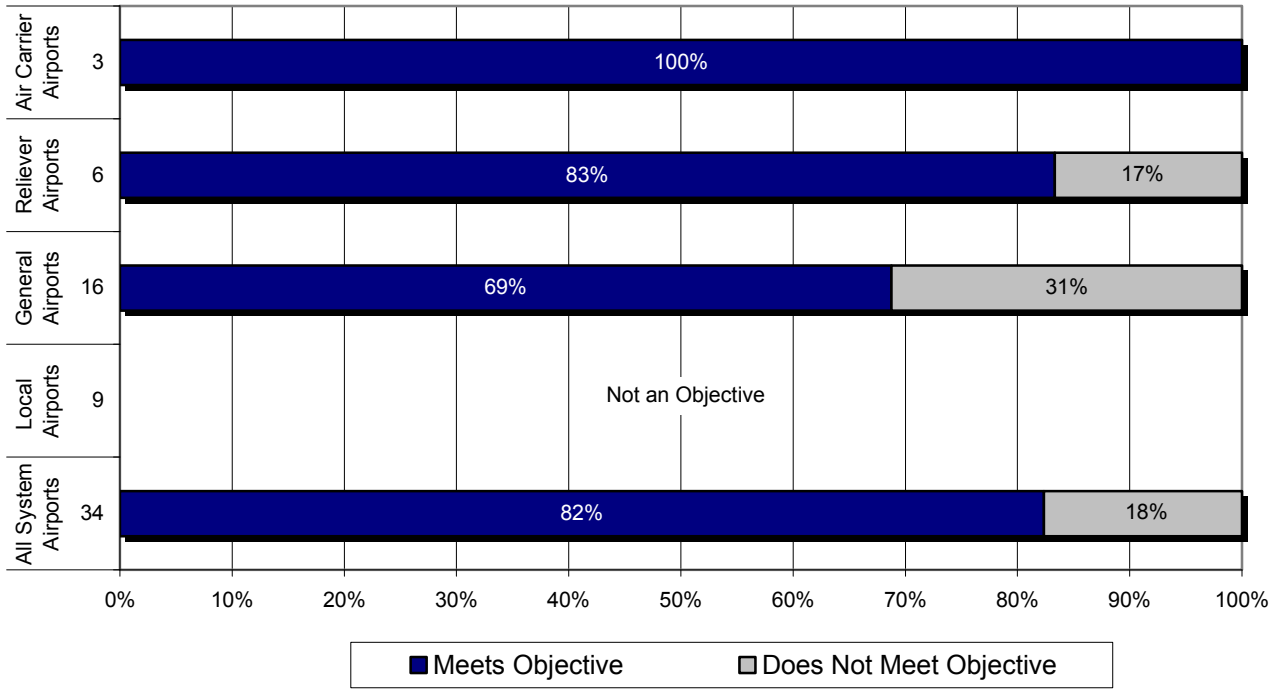
Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

Out of all of the Air Carrier, Reliever and General airports, two did not have a VGSI system in place: Maryland and Ridgely airports. Two Local Airports (Kentmorr and Massey) do not have a VGSI system. Airports that do not meet this objective should consider installing a VGSI to aid approaching pilots in acquiring the proper glide slope angle while landing at the airport. This would provide pilots with a frame of reference and help avoid approaches that are either too high or too low.

K. Weather Reporting Objective

Exhibit 3-14 shows the percentage of airports that meet the weather reporting objective. It was decided that all airports except Local Airports should have some type of weather reporting. An airport with any type of weather reporting (automated or human observer) meets the objective.

EXHIBIT 3-14
WEATHER REPORTING OBJECTIVE



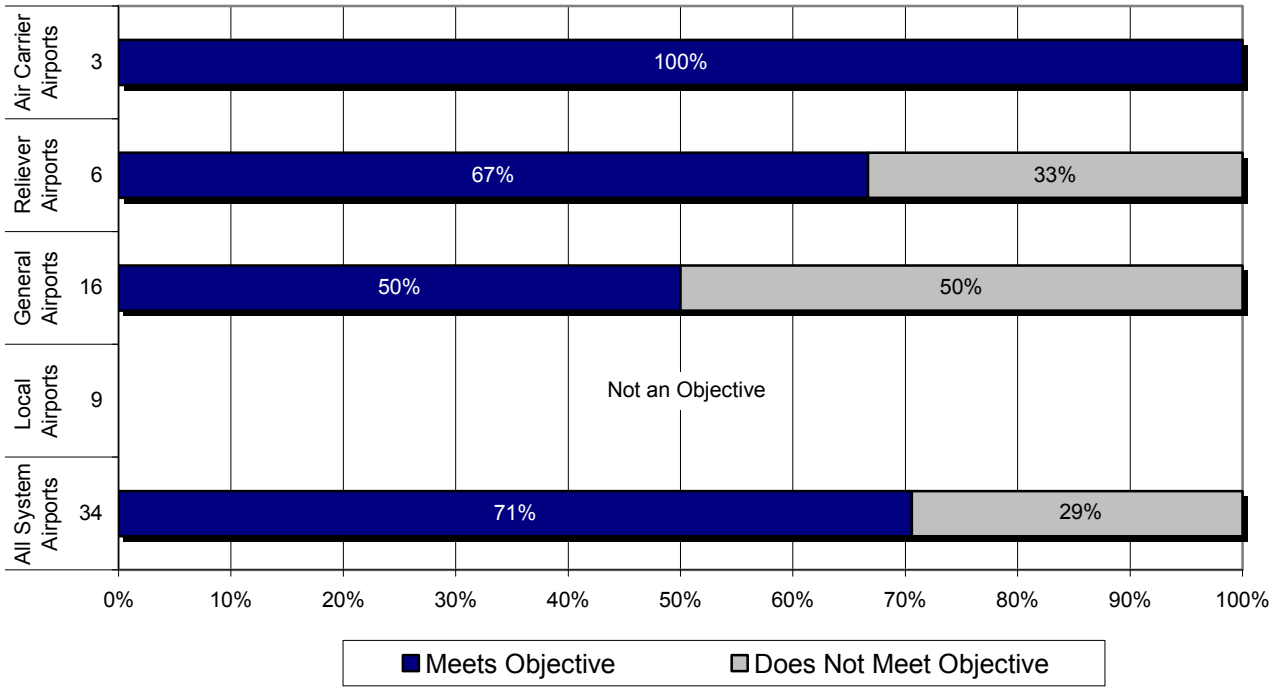
Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

All of the Air Carrier airports utilize ASOS weather reporting equipment. All Reliever airports, with the exception of Maryland Airport, use the AWOS-III. Eleven of the General airports have some sort of weather reporting. In all, 82 percent of the system airports meet this objective.

L. Terminal/Administration Building Objective

Exhibit 3-15 shows the percentage of airports meeting the terminal/administration building objective. All airports except Local airports are regarded as needing some type of terminal building to meet this objective.

EXHIBIT 3-15
TERMINAL/ADMINISTRATION BUILDING OBJECTIVE



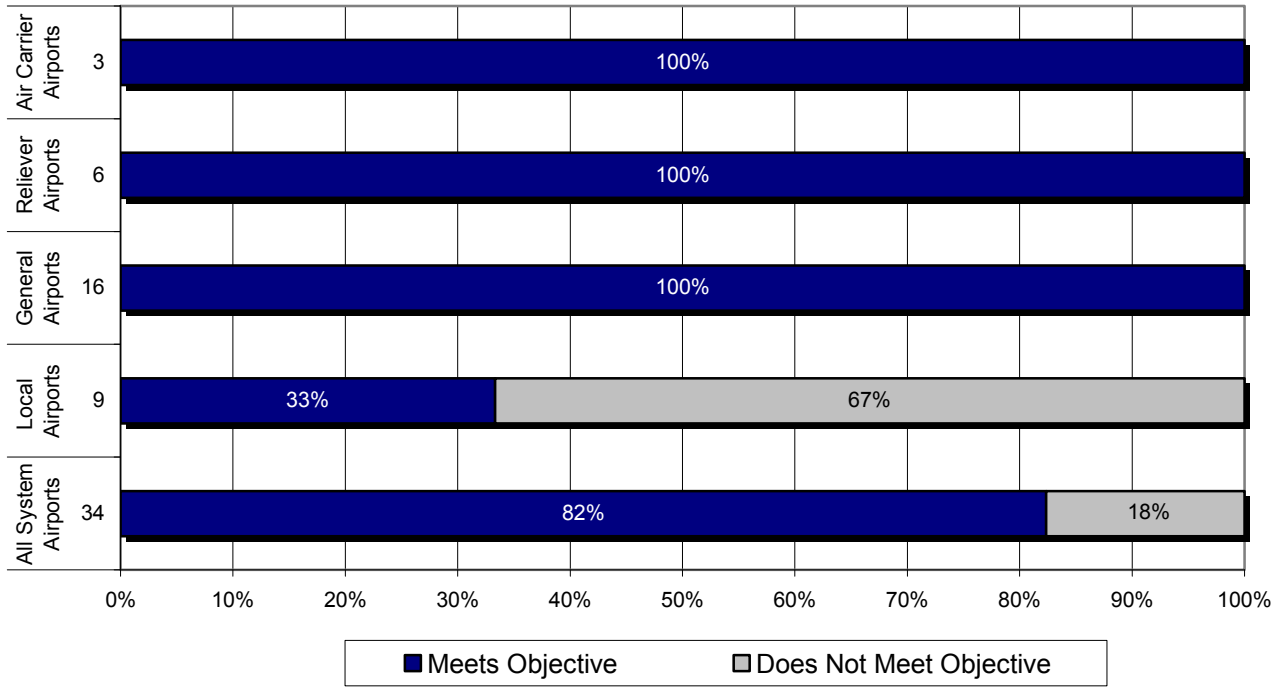
Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

Within the Reliever category, Frederick and Maryland airports are noted as not having a terminal/administration building. However, both airports have an FBO building that often fulfills the same function as an airport terminal/administration building. Half (8) of the General airports have a terminal/administration building.

M. Fuel Objective

Exhibit 3-16 shows the percentage of airports that meet the fuel objective. Because fuel is critical to aircraft operations, it was deemed an objective at every airport. Local and General airports should have 100LL fuel available for aircraft that typically operate there. Reliever and Air Carrier airports should have both 100LL and Jet-A fuel available.

EXHIBIT 3-16
FUEL OBJECTIVE



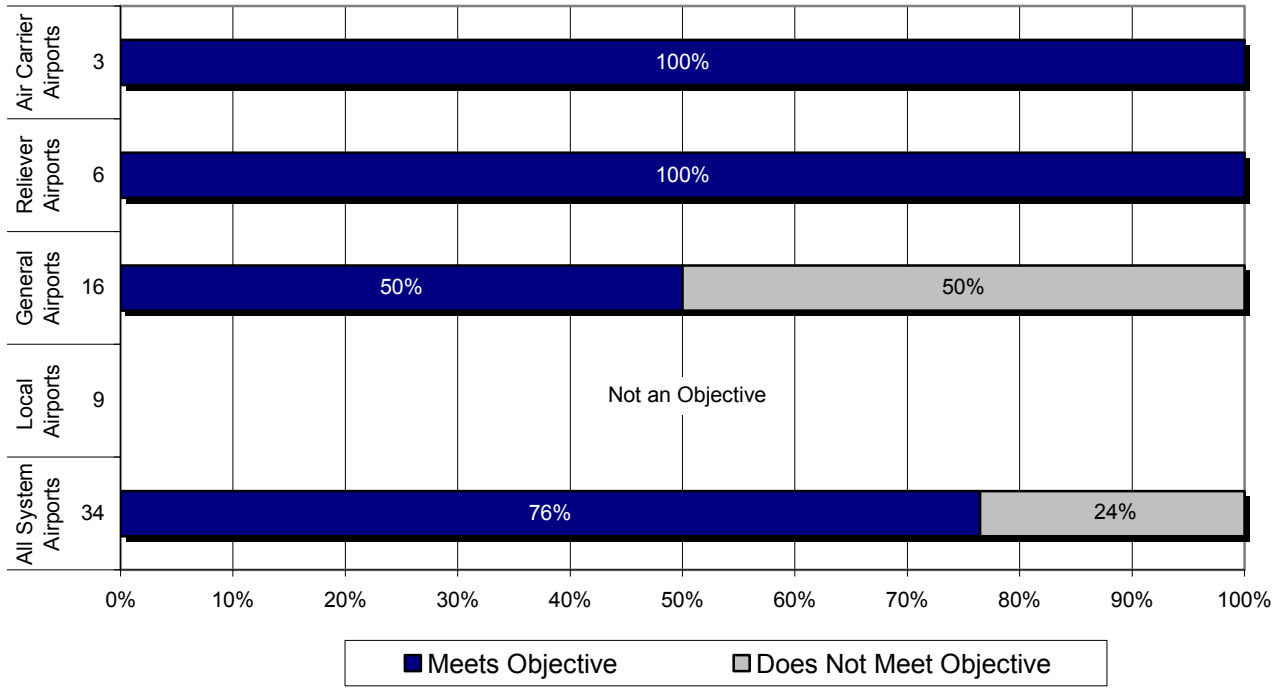
Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

The Air Carrier, Reliever and General airports all meet their objective. Among the Local Airports, only 33 percent, or three out of the eight airports, (Clearview, Fallston and Suburban) sell 100LL fuel. Of the six Local Airports that do not offer 100LL fuel, Essex Airport is the only publicly-owned airport. The others are small, general aviation airports with low levels of activity and cater to a specific user group.

N. Paved Aircraft Parking Objective

Exhibit 3-17 shows the percentage of airports that meet the paved aircraft parking objective. Paved aircraft parking was deemed a necessary facility for Air Carrier, Reliever and General airport where transient traffic may be routine. Any amount of paved aircraft parking was deemed acceptable to meet the objective.

EXHIBIT 3-17
PAVED AIRCRAFT PARKING OBJECTIVE



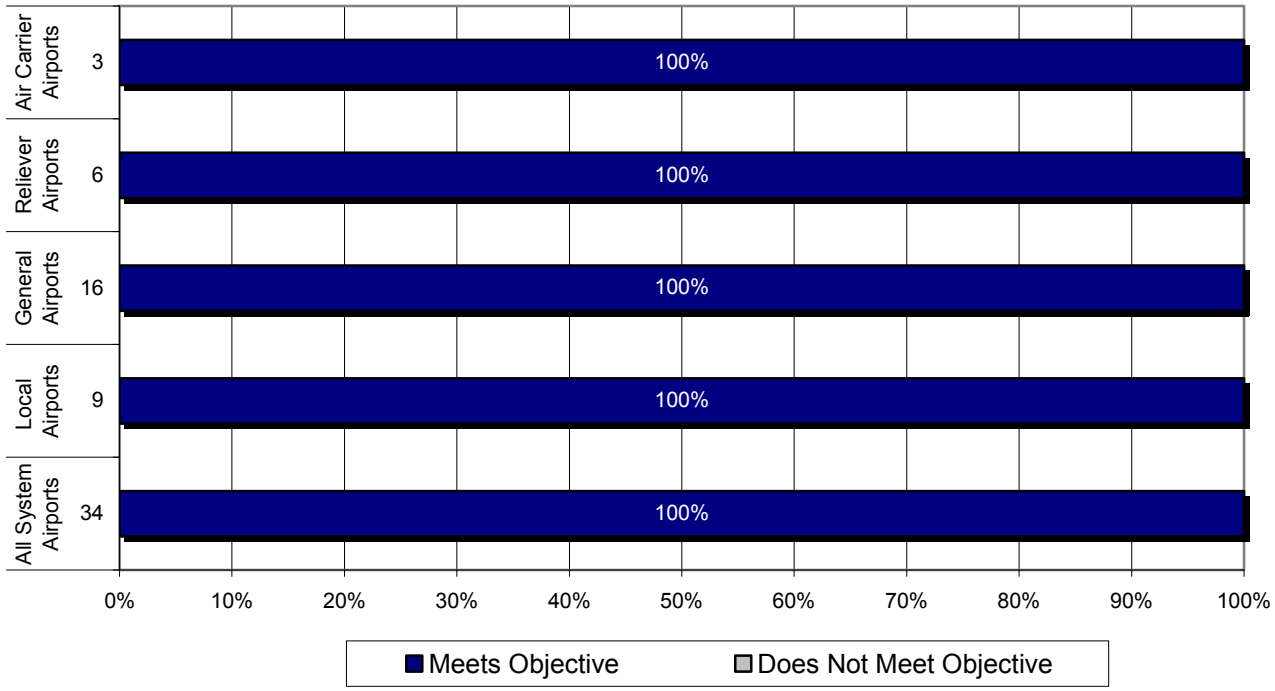
Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

All of the Air Carrier and Reliever airports meet this objective, which highlights how critical this is to the operation of an airport. Half (8) of the General Airports have paved aircraft parking. Airports that did not meet this objective often have turf aircraft movement areas and/or lack adequate land envelope for providing a paved parking apron.

O. Hangar Objective

Exhibit 3-18 shows the percentage of airports that meet the hangar objective. Because of the value of aircraft and the importance of keeping them safe and protected, the presence of hangar storage for based aircraft was deemed an objective at every airport. Local and General airports attract general aviation activity and should have facilities such as T-hangars to secure based aircraft. In addition to relatively small personal and recreational based aircraft, Reliever and Air Carrier airports attract business and corporate tenants. Therefore, these airports should have both T-hangars and conventional hangars designed to accommodate larger aircraft.

EXHIBIT 3-18
HANGAR OBJECTIVE



Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

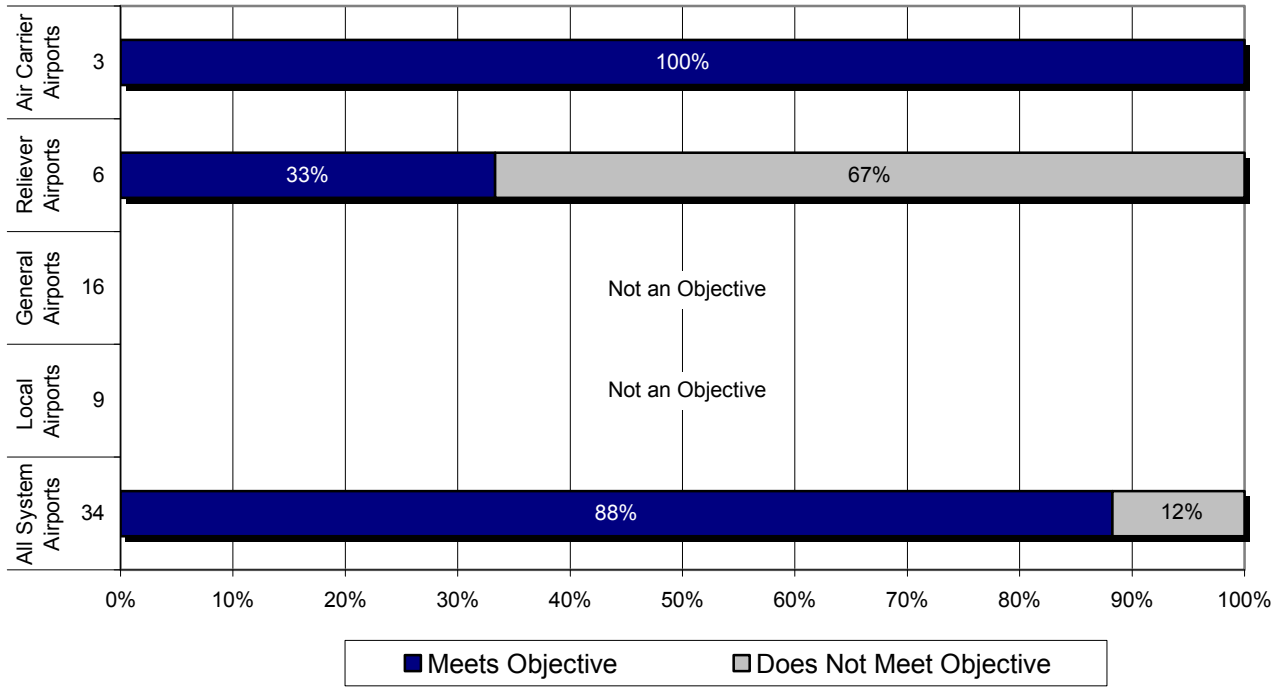
All of the system airports meet this objective, whether it is a Local Airport requiring T-hangars for a few recreational aircraft or an Air Carrier airport requiring a combination of T-hangars and conventional hangars needed to accommodate a variety of tenants with small and large aircraft.

However, it is important to note, that all the available hangars at all system airports are currently occupied and most airports maintain a waitlist for hangar space when it becomes available. The deficiency of available hangar space throughout the system will be addressed in the recommendations section of this report

P. Covered Overnight Secure Storage Objective

Exhibit 3-19 shows the percentage of airports that meet the covered overnight secure storage objective. It was deemed necessary from a system prospective for Air Carrier and Reliever airports to have covered overnight secure storage for aircraft to meet this objective. This objective is important for larger airports that attract lucrative transient traffic of valuable business/corporate aircraft requiring overnight shelter.

EXHIBIT 3-19
COVERED OVERNIGHT SECURE STORAGE OBJECTIVE



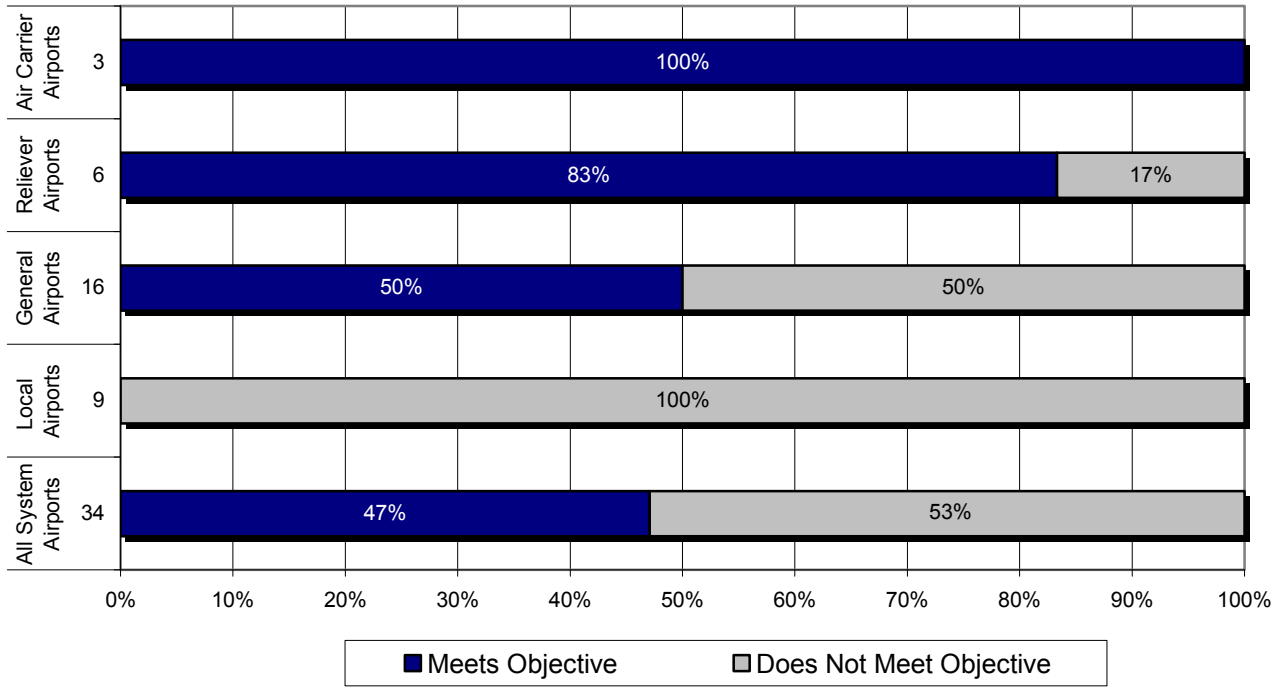
Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

All of the Air Carrier airports meet this objective. However, only a third (2) of the Reliever airports have covered overnight secure aircraft storage capable of accommodating transient business/corporate aircraft.

Q. Property Fence Objective

Exhibit 3-20 shows the percentage of airports that meet the objective of a fence enclosure around the airport property. Due to security and wildlife management concerns, a property fence was deemed a necessary feature at all system airports.

EXHIBIT 3-20
PROPERTY FENCE OBJECTIVE



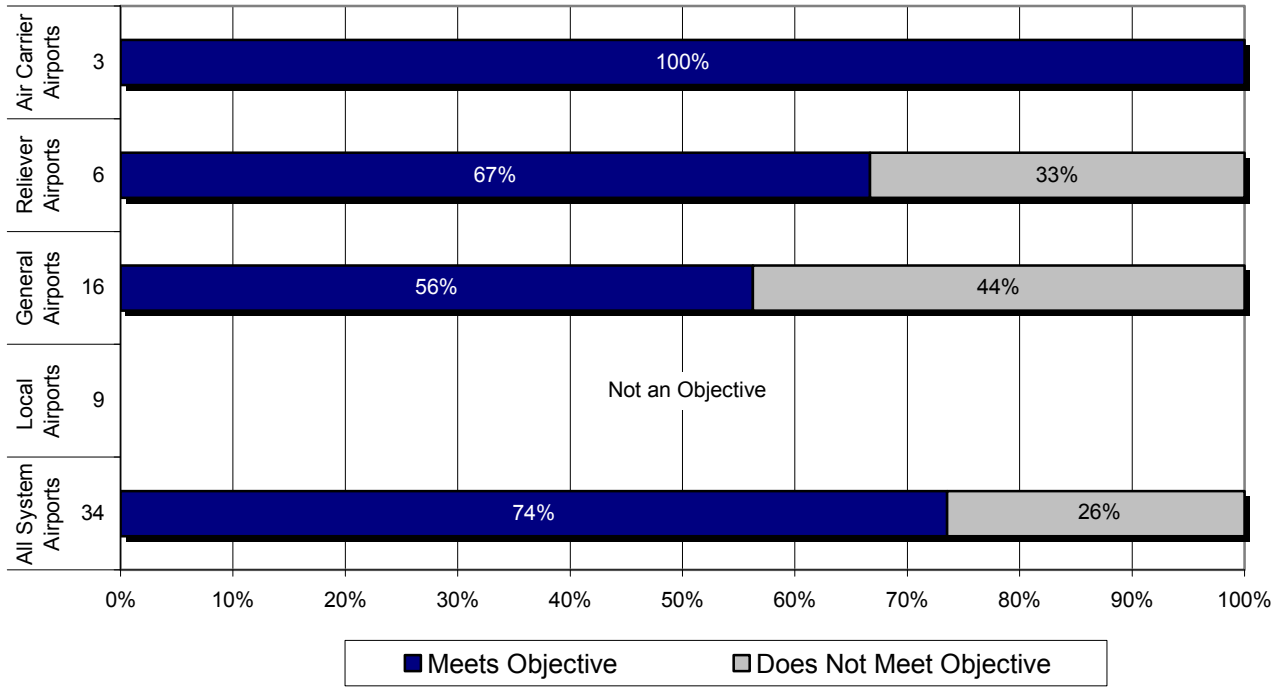
Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

Meeting the requirements for scheduled passenger service, all Air Carrier airports meet this objective. One Reliever Airport (Maryland Airport) does not meet this objective. Half (8) of the General Airports have a fence enclosing the airport property. Perhaps an indication of the high cost related to installing a fence around an entire airport, all Local Airports do not meet this requirement. Overall, less than half of the Maryland system airports meet the objective of providing a property fence.

R. Snow Removal Objective

Exhibit 3-21 shows the percent of airports that meet the snow removal objective. Removing snow from runways and taxiways is necessary to maintain operations during winter months in Maryland. It was determined that the need for this service was critical at all but the Local Airports.

EXHIBIT 3-21
SNOW REMOVAL OBJECTIVE



Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

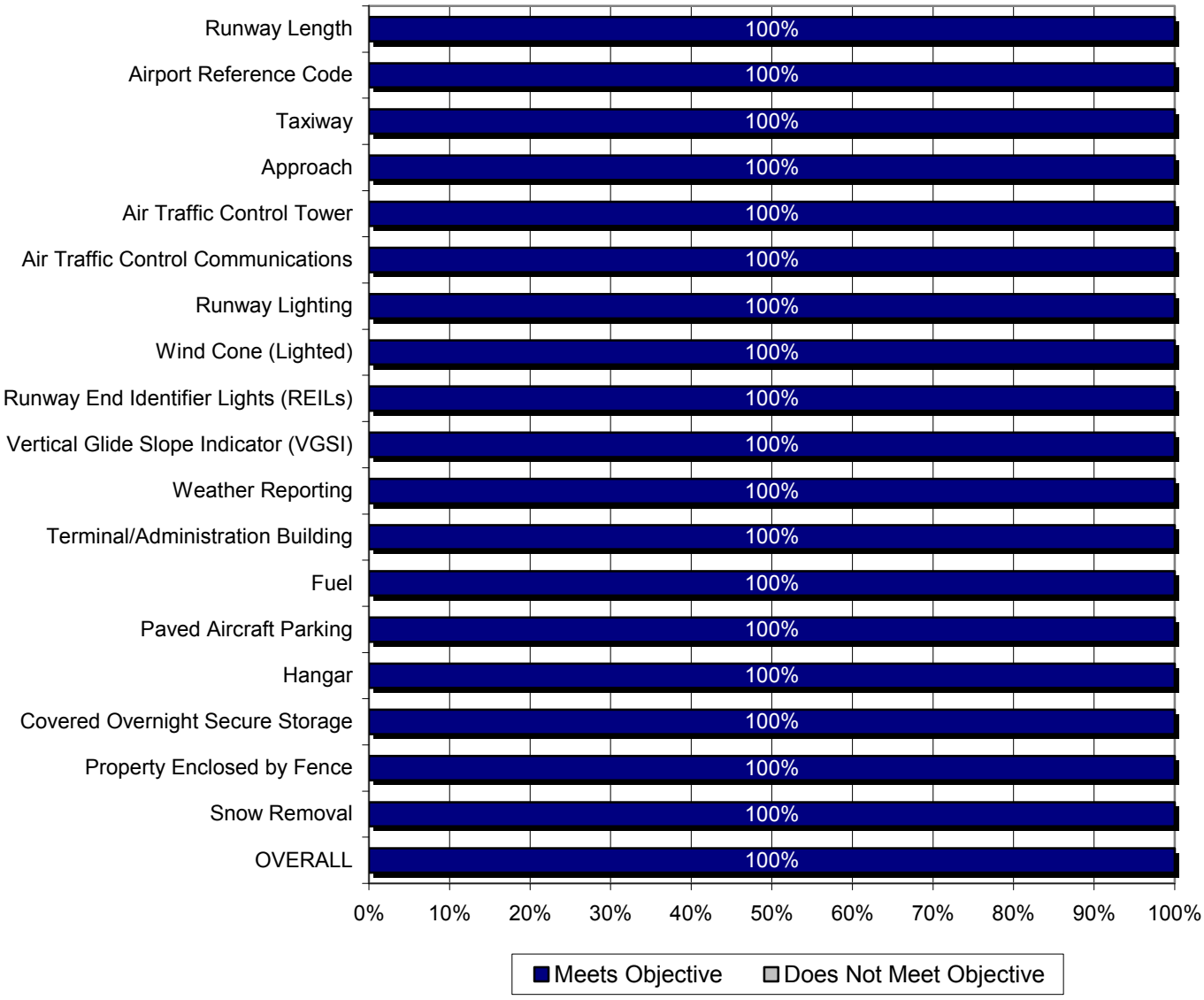
Not surprisingly, every Air Carrier Airport meets the snow removal objective. Sixty-seven percent (4) of the Reliever Airports meet the objective, and the percentage declined for General Airports with nine airports meeting the objective. Overall, 74 percent of all airports meet the objective for snow removal. The task of clearing runways of snow can be quite expensive – so expensive that some commercial U.S. airports rely on insurance policies to help mitigate the cost. However, it is often a necessary expense if an airport is to maximize its utility in order to fulfill its proper role in the system.

VI. SUMMARY

The previous exhibits highlight those facilities that the Maryland airport system adequately provides and those that may be lacking. That information is summarized by each airport's role in the following exhibits. **Tables 3-6 through 3-9** summarize the current performance at each airport in the Maryland Aviation System.

Exhibit 3-22 shows that all three Air Carrier Airports meet their objectives, indicating that, from a system perspective, these airports have the facilities needed to fulfill their assigned system role. Other needs, as determined by planning efforts at the local level through master planning, may determine other facility and service needs at these airports.

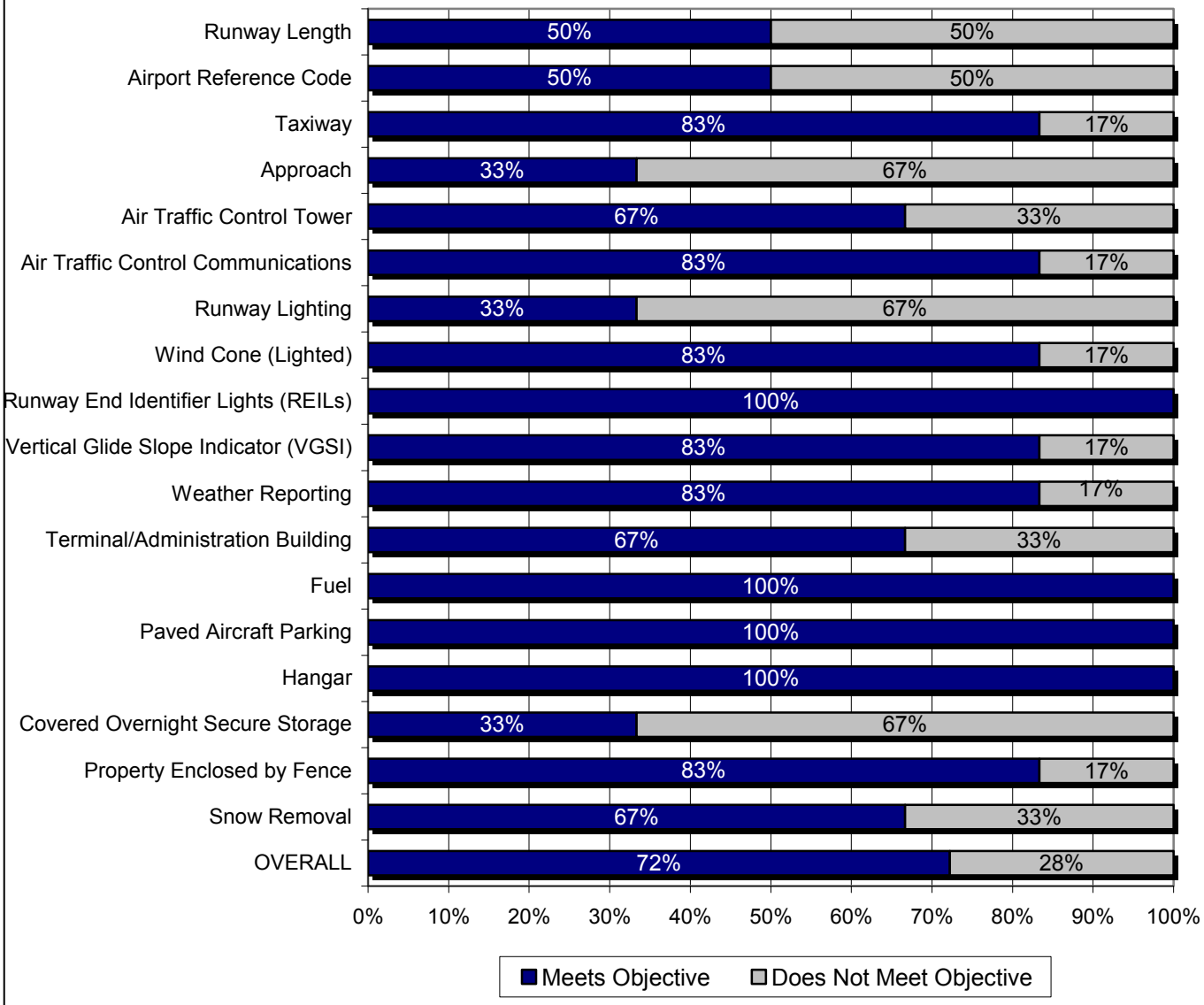
EXHIBIT 3-22
AIR CARRIER AIRPORT OBJECTIVES



Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

Exhibit 3-23 summarizes the percentage of the six Reliever Airports meeting the system facility objectives. Approach, runway lighting and covered overnight secure storage objectives were among the lowest recommended for Reliever Airports. Overall, Reliever Airports met their objectives 72 percent of the time.

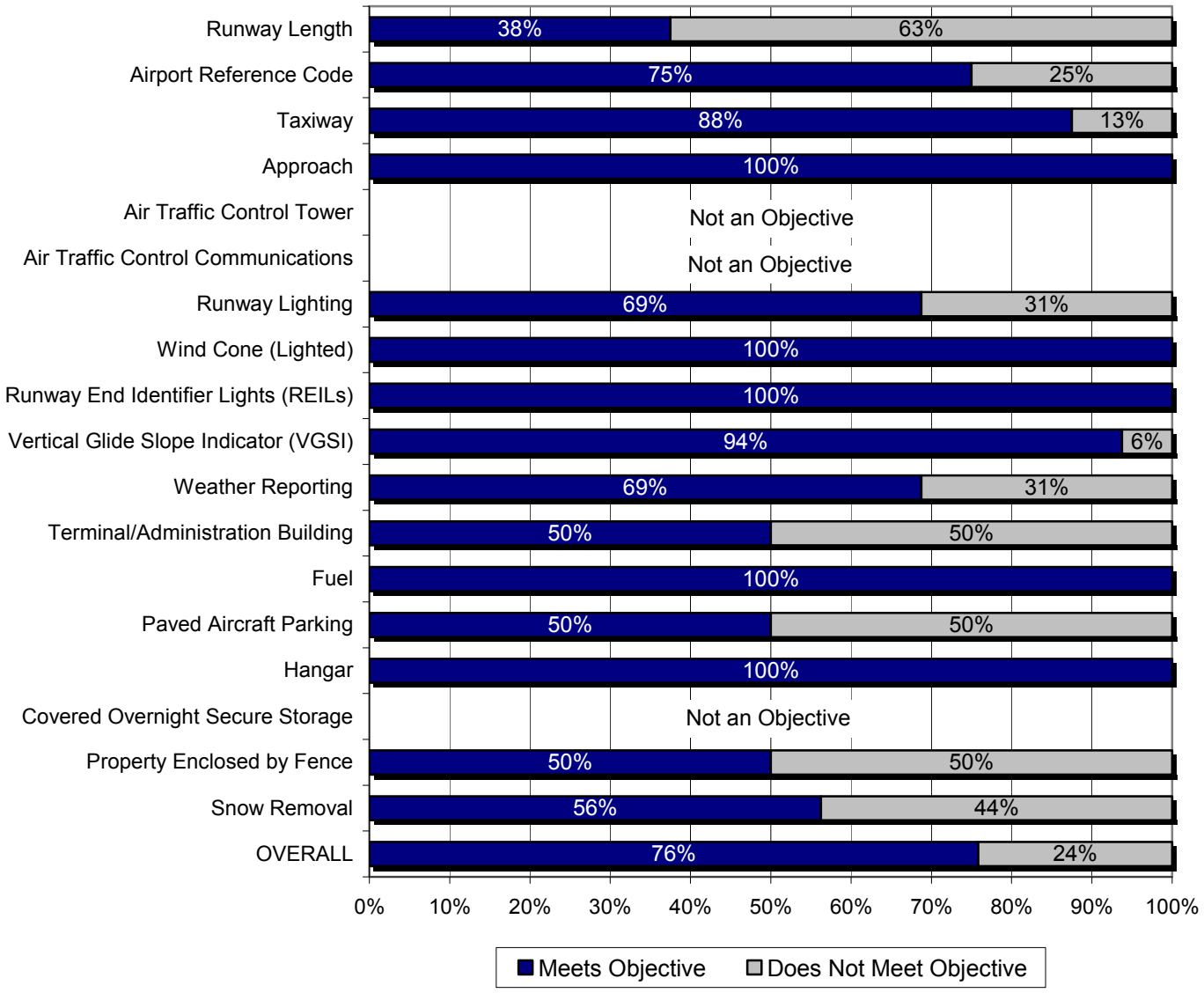
EXHIBIT 3-23
RELIEVER AIRPORT OBJECTIVES



Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

Exhibit 3-24 summarizes the objectives of the 16 General Airports evaluated. While several of the objectives were met near the 50 percent range in this airport group, runway length stands out as the least compliant at 38 percent. General Airports met their objectives 76 percent of the time.

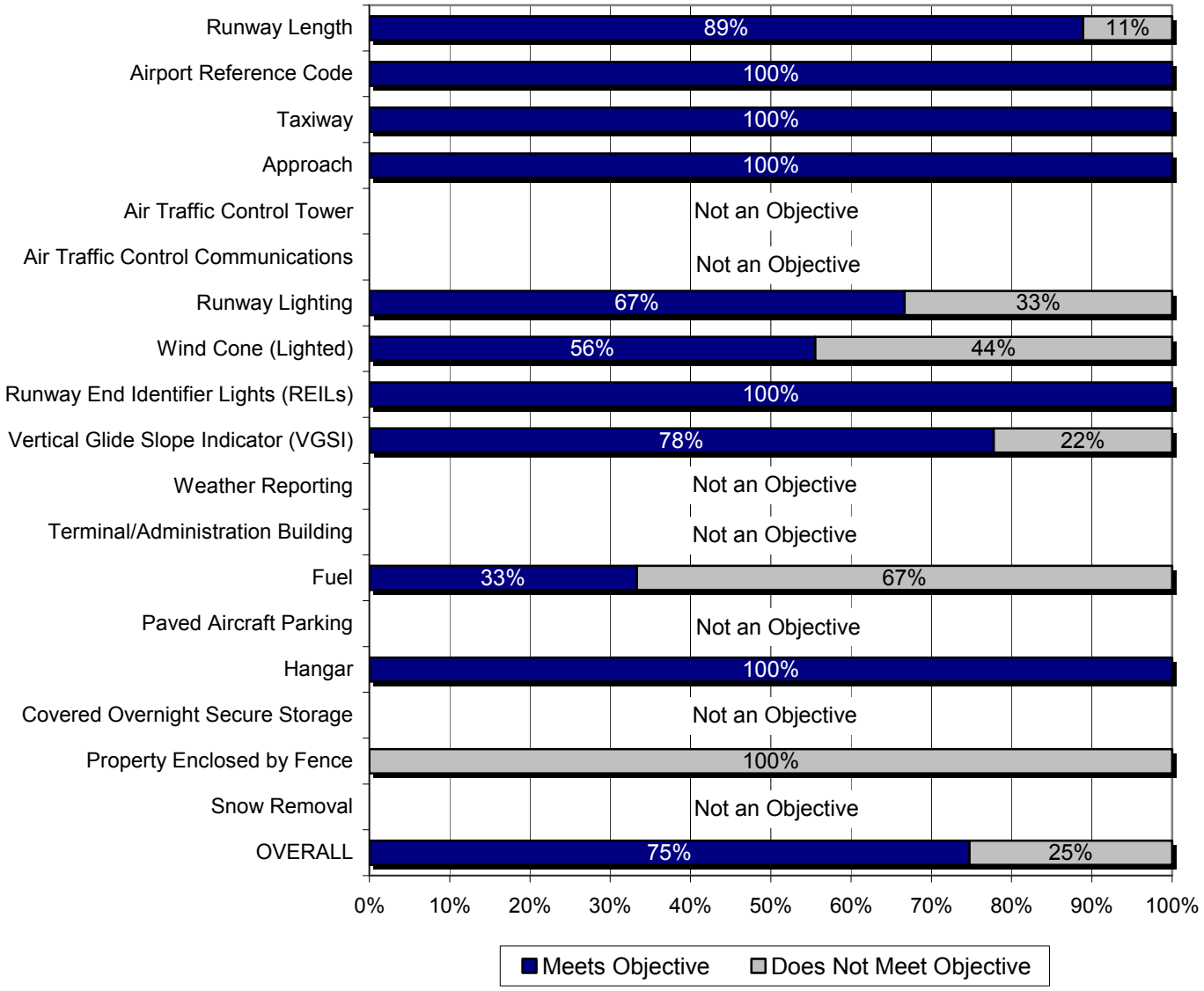
EXHIBIT 3-24
GENERAL AIRPORT OBJECTIVES



Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

Approximately half of the objectives measured at the nine Local Airports were fully met as shown in **Exhibit 3-25**. The other objectives were met at varying degrees ranging from 0 percent (Property Enclosed by Fence) to 89 percent (Runway Length). Overall, 75 percent of the objectives were met at Local Airports.

EXHIBIT 3-25
LOCAL AIRPORT OBJECTIVES



Source: Wilbur Smith Associates, developed with data compiled from MAA, FAA and Airport Management

The next chapter will analyze the adequacy of coverage for Maryland and its population for specific aviation facilities. Based on this coverage analysis and the preceding facility objectives analysis, recommendations for improvements to the Maryland airport system will be made.

TABLE 3-6
CURRENT SYSTEM PERFORMANCE SUMMARY – AIR CARRIER AIRPORTS

Air Carrier Airports	Primary Runway Length (5,500')	ARC (C-III or greater)	Taxiway Type (Full Parallel)	Approach Type (Precision)	ATCT (Yes)	ATC Communications (Yes)	Runway Lighting (HIRL and Beacon)	Wind Cone – Lighted (Yes)	Runway end Identifier Lights (Yes)	Vertical Glide Slope Indicator (Yes)	Weather Reporting (Yes)	GA Terminal/Admin. Building (Yes)	Fuel (Jet-A, 100LL)	Paved Aircraft Parking (Yes)	Hangar (Yes)	Covered Overnight Secure Storage (Yes)	Property Enclosed by Fence (Yes)	Snow Removal (Yes)
Baltimore/Washington Int'l Thurgood Marshall	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hagerstown Regional Richard A. Henson Field	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Salisbury – Ocean City Wicomico Regional	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Note: ✓ represents compliance with facility objective
Source: Wilbur Smith Associates, MAA

TABLE 3-7
CURRENT SYSTEM PERFORMANCE SUMMARY – RELIEVER AIRPORTS

Reliever Airports	Primary Runway Length (5,000')	ARC (C-II)	Taxiway Type (Full Parallel)	Approach Type (Precision)	ATCT (Yes[1])	ATC Communications (Yes)	Runway Lighting (HIRL and Beacon)	Wind Cone – Lighted (Yes)	Runway End Identifier Lights (Yes)	Vertical Glide Slope Indicator (Yes)	Weather Reporting (Yes)	GA Terminal/Admin. Building (Yes)	Fuel (Jet-A, 100LL)	Paved Aircraft Parking (Yes)	Hangar (Yes)	Covered Overnight Secure Storage (Yes)	Property Enclosed by Fence (Yes)	Snow Removal (Yes)
Carroll County Regional Jack B. Poage Field	✓	✓	✓		N/A	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	
Frederick Municipal	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓
Martin State	✓	✓	✓	✓	N/A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Maryland					N/A				✓				✓	✓	✓			✓
Montgomery County			✓			✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tipton			✓		N/A	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	

Note: ✓ represents compliance with facility objective. N/A represents Not Applicable for this Airport Category
[1] Only for airports with 120,000 annual operations or more.
Source: Wilbur Smith Associates, MAA

TABLE 3-8
CURRENT SYSTEM PERFORMANCE SUMMARY – GENERAL AIRPORTS

General Airports	Primary Runway Length (3,500')	ARC (B-I)	Taxiway Type (Partial Parallel)	Approach Type (Non-Precision)	ATCT (N/A)	ATC Communications (N/A)	Runway Lighting (MIRL and Beacon)	Wind Cone – Lighted (Yes)	Runway End Identifier Lights (Yes)	Vertical Glide Slope Indicator (Yes)	Weather Reporting (Yes)	GA Terminal/Admin. Building (Yes)	Fuel (100LL)	Paved Aircraft Parking (Yes)	Hangar (Yes)	Covered Overnight Secure Storage (N/A)	Property Enclosed by Fence (Yes)	Snow Removal (Yes)
Bay Bridge		✓	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	✓	✓	✓	✓	N/A	✓	✓
Cambridge-Dorchester	✓	✓	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	✓	✓	✓	✓	N/A	✓	✓
Cecil County		✓	✓	✓	N/A	N/A	✓	✓	✓	✓		✓	✓	✓	✓	N/A		✓
College Park		✓	✓	✓	N/A	N/A	✓	✓	✓	✓	✓		✓	✓	✓	N/A	✓	✓
Crisfield-Somerset County		✓		✓	N/A	N/A	✓	✓	✓	✓			✓	✓	✓	N/A		
Easton	✓	✓	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	✓	✓	✓	✓	N/A	✓	✓
Freeway			✓	✓	N/A	N/A	✓	✓	✓	✓			✓	✓	✓	N/A		✓
Garrett County	✓	✓	✓	✓	N/A	N/A	✓	✓	✓	✓	✓		✓	✓	✓	N/A	✓	✓
Greater Cumberland	✓	✓	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	✓	✓	✓	✓	N/A		
Harford County				✓	N/A	N/A		✓	✓	✓			✓		✓	N/A		
Lee			✓	✓	N/A	N/A		✓	✓	✓	✓		✓		✓	N/A	✓	✓
Ocean City Municipal	✓	✓	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	✓	✓	✓	✓	N/A		
Potomac Airfield – Friendly			✓	✓	N/A	N/A		✓	✓	✓	✓	✓	✓		✓	N/A		
Ridgely Airpark		✓	✓	✓	N/A	N/A		✓	✓		✓		✓	✓	✓	N/A		
St. Mary's County Regional	✓	✓	✓	✓	N/A	N/A	✓	✓	✓	✓	✓	✓	✓	✓	✓	N/A	✓	✓
Washington Executive		✓	✓	✓	N/A	N/A		✓	✓	✓			✓	✓	✓	N/A	✓	

Note: ✓ represents compliance with facility objective. N/A represents Not Applicable for this Airport Category
Source: Wilbur Smith Associates, MAA

TABLE 3-9
CURRENT SYSTEM PERFORMANCE SUMMARY – LOCAL AIRPORTS

Local Airports	Primary Runway Length (2,000')	ARC (A-I Small)	Taxiway Type (Turnarounds)	Approach Type (Visual)	ATCT (N/A)	ATC Communications (N/A)	Runway Lighting (LIRL and Beacon[1])	Wind Cone – Lighted (Yes)	Runway End Identifier Lights (Yes)	Vertical Glide Slope Indicator (Yes)	Weather Reporting (N/A)	GA Terminal/Admin. Building (N/A)	Fuel (100LL)	Paved Aircraft Parking (N/A)	Hangar (Yes)	Covered Overnight Secure Storage (N/A)	Property Enclosed by Fence (Yes)	Snow Removal (N/A)
Bennett	✓	✓	✓	✓	N/A	N/A	N/A	✓	✓	✓	N/A	N/A		N/A	✓	N/A		N/A
Clearview			✓	✓	N/A	N/A		✓	✓	✓	N/A	N/A	✓	N/A	✓	N/A		✓
Davis	✓	✓	✓	✓	N/A	N/A			✓	✓	N/A	N/A		N/A	✓	N/A		N/A
Essex Skypark	✓	✓	✓	✓	N/A	N/A	✓	✓	✓	✓	N/A	N/A		N/A	✓	N/A		N/A
Fallston	✓	✓	✓	✓	N/A	N/A			✓	✓	N/A	N/A	✓	N/A	✓	N/A		N/A
Kentmorr	✓	✓	✓	✓	N/A	N/A	N/A		✓		N/A	N/A		N/A	✓	N/A		N/A
Massey Aerodrome	✓	✓	✓	✓	N/A	N/A	N/A		✓		N/A	N/A		N/A	✓	N/A		N/A
Mexico Farms	✓	✓	✓	✓	N/A	N/A	N/A	✓	✓	✓	N/A	N/A		N/A	✓	N/A		N/A
Suburban Airpark	✓	✓	✓	✓	N/A	N/A	✓	✓	✓	✓	N/A	N/A	✓	N/A	✓	N/A		N/A

Note: ✓ represents compliance with facility objective. N/A represents Not Applicable for this Airport Category
[1] If paved.
Source: Wilbur Smith Associates, MAA

CHAPTER FOUR
CURRENT SYSTEM PERFORMANCE

Using the objectives, performance measures and benchmarks set forth in the previous chapter, this chapter analyzes specific system attributes unique to Maryland aviation. Much of the analysis in this chapter is derived from multiple sources. Inputs from previous chapters, including mapping of various indicators such as population and other factors, is used. Drive time analysis and general coverage provided by the existing system are important contributors to measuring system performance. This chapter also evaluates the implementation of viable new technology to improve approaches to runways at system airports.

The results of the system evaluation process offers a clear indication of where Maryland's existing airport system is adequate, deficient or duplicative in terms of facilities that it provides, and identifies future system needs. Together with previous chapters, the following sections measure current system performance and provide recommendations that the Administration can implement for future investment.

- Geographic Information System (GIS) Drive Time Analyses
- Localizer Performance with Vertical guidance (LPV)
- Summary

I. GIS DRIVE TIME ANALYSES

Based on the analysis of system coverage contained in this chapter and the ability of system airports to meet facility objectives, specific recommendations will be made to enhance the Maryland airport system. These statewide recommendations will not eliminate or replace the need for individual airport planning efforts. This system analysis does not have the resources necessary to account for unique situations at individual airports. Therefore, local airport planning efforts such as airport master plans, environmental assessments, and site selection studies will continue to play a crucial role in determining facility needs based on the specific considerations at each airport. However, this system planning effort will assist in validating some aspects of those plans, as well as highlight facility needs at a system level.

Drive Time Evaluations

It is reasonable to assume that airports should be located in proximity to existing and potential users. To determine the service coverage of airports, analyses of drive times from each of the existing airports were performed using GIS, a map-based system in which driving speeds are assigned to various roads and a mathematical process is used to calculate the distances that can be driven from the airports in a given time. The road network map used for this analysis was obtained from the Maryland Department of Transportation (MDOT). This analysis resulted in the development of drive time or coverage polygons for each airport.

For purposes of this analysis, 30-minute drive times were used for all general aviation airports. FAA NPIAS criteria indicate that, as a rule, general aviation airports should be located within 30 minutes of their users. Airports with scheduled airline service typically have larger service areas because users are more willing to drive farther to access the national air transportation system via scheduled commercial airlines. For Maryland's Air Carrier Airports, 60-minute drive times were calculated.

In addition to Maryland airports, there are airports located outside the state, but near its borders that also provide air access to Maryland residents. These include airports in the bordering states of Virginia (including airports which serve the District of Columbia), West Virginia, Delaware and Pennsylvania. These airports and the coverage they provide to Maryland are examined in each of the drive time evaluations shown on the following pages.

Airport Coverage

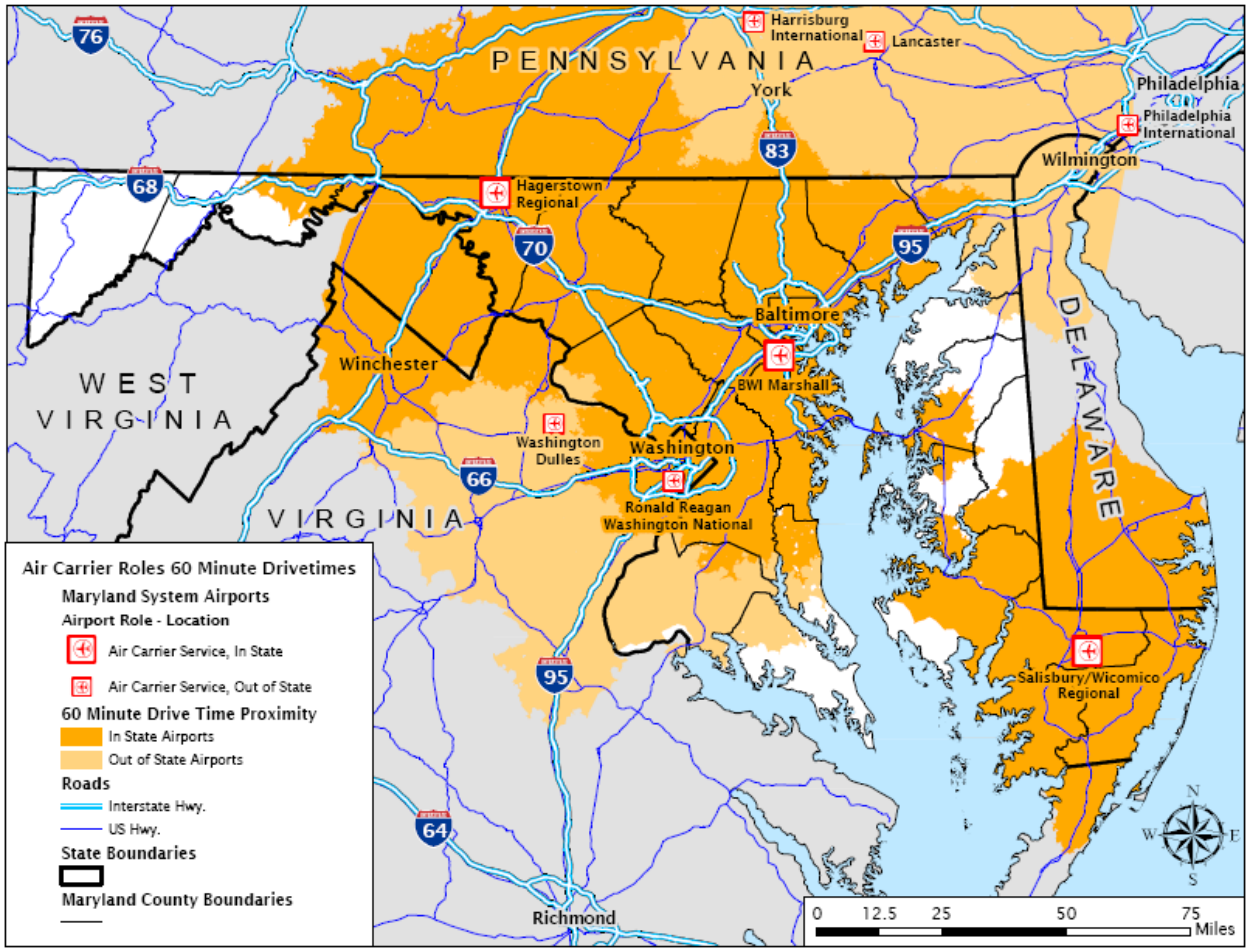
Airport coverage was assessed for each of the roles (Air Carrier, Reliever, General and Local Service) of airports in Maryland as defined in the previous chapter. Each airport role was evaluated for the percentage of the state's population that was covered by a reasonable drive time. In addition, the percent of geographic coverage was also evaluated. Exhibits were prepared that visually depict each airport's coverage area.

Air Carrier Airports

Coverage provided by the Air Carrier Airports was determined by evaluating 60-minute drive times from the three Maryland Air Carrier Airports and five out-of-state airports. **Exhibit 4-1** shows the coverage provided by the eight Air Carrier Airports using 60-minute drive times. More than 91 percent of Maryland's population is within an hour's drive of a Maryland Air Carrier Airport. The high percentage of population coverage illustrates that the three Air Carrier Airports in Maryland are centrally located within major population centers. This is also a reflection of the state's advanced system of high-speed interstate system expanding the reach of 60-minute drive times. Although five out-of-state airports provide coverage to Maryland, only an additional four percent of Maryland's population gains coverage through these airports alone. In total, 95 percent of Maryland's population is within 60 minutes of a commercial service airport.

While much of the state's population is located within one hour of an Air Carrier Airport, only 66 percent of the state's geographic area is located within these polygons. Out-of-state airports account for an additional 10 percent of geographic coverage throughout Maryland.

EXHIBIT 4-1: AIR CARRIER: 60-MINUTE DRIVE TIME



Source: Wilbur Smith Team

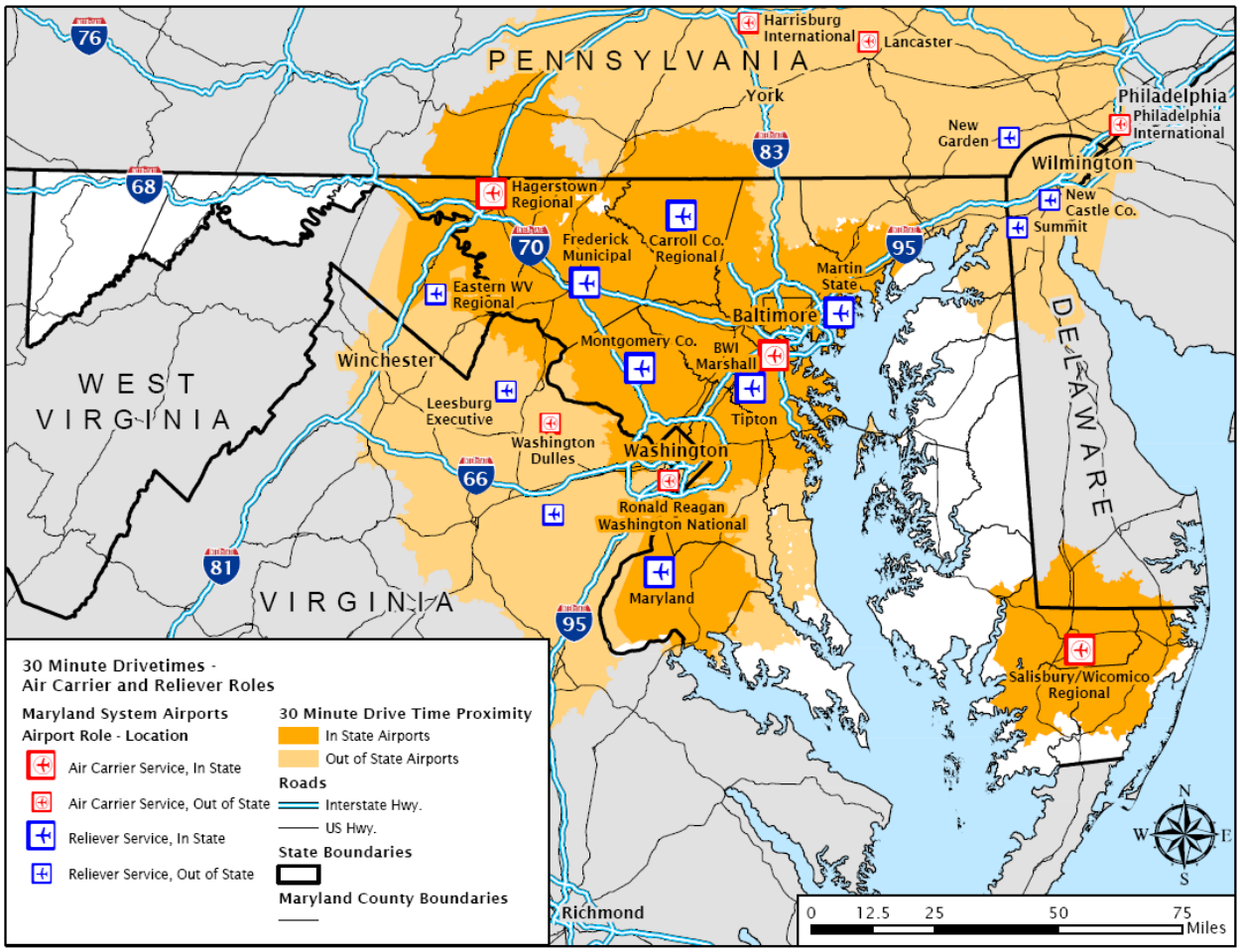
Reliever Airports

Exhibit 4-2 shows the area covered by 30-minute drive times from the six Reliever Airports. Eleven out-of-state commercial and reliever airports also provide service coverage in Maryland. For this analysis, Air Carrier Airports are also included with the Reliever facilities, albeit with 30-minute drive times. While the Air Carrier Airports' primary function is to accommodate scheduled airlines, they also provide facilities that accommodate a wide range of corporate aircraft. Air Carrier Airports are generally capable of providing the same kinds of general aviation services and can serve the general aviation operators found at most Reliever Airports. Each Air Carrier Airport in Maryland and those in adjacent states offer a range of FBO facilities and services.

Approximately 86 percent of Maryland's population is within 30 minutes of a Maryland Reliever Airport or Air Carrier Airport. As shown in Exhibit 4-2, Air Carrier Airports do not add a substantial amount of coverage, largely because most of the Reliever Airports in Maryland are located near Air Carrier Airports. An exception, however, is Salisbury-Ocean City Wicomico Regional Airport, which is an Air Carrier Airport located in an area of Maryland where no other Air Carrier or Reliever Airports exist. Because of the lack of Reliever Airports on Maryland's Eastern Shore, this airport provides exclusive coverage to those portions of Maryland. However, because this area is rural, the amount of population coverage remains high. The additional 11 out-of-state airports provide an additional six percentage of population coverage.

Half of Maryland's geographic area is within 30 minutes of an Air Carrier or Reliever Airport. Out-of-state airports provide an additional 13 percent of geographic coverage in Maryland. The state's largest areas that lack coverage are the east and west regions that have a variety of General and Local Airports which provide additional overall coverage.

EXHIBIT 4-2: AIR CARRIER/RELIEVER: 30-MINUTE DRIVE TIME

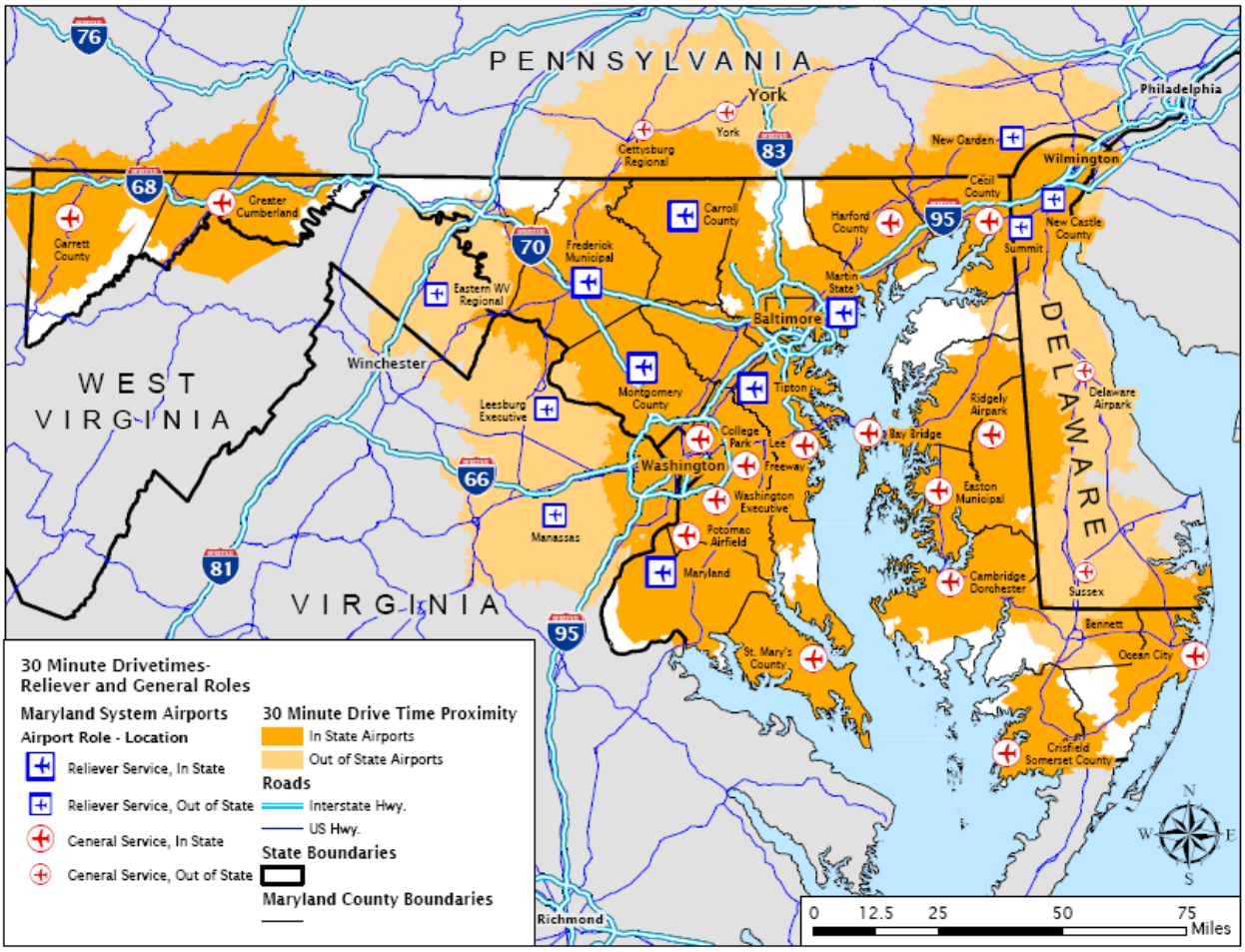


Source: Wilbur Smith Team

General Airports

Coverage provided by 30-minute drive times from 16 General Airports and six Reliever Airports is shown in **Exhibit 4-3**. In addition, 10 out-of-state airports provide coverage along Maryland's borders. As expected, this coverage is greater than the Reliever Airports. Approximately 95 percent of Maryland's population is within 30 minutes of one of the state's General or Reliever Airports. Out-of-state airports boost that coverage to 97 percent. Eighty percent of Maryland's land area is within 30 minutes of one of these Maryland airports. Out-of-state airports add another five percent of coverage to the state. Coverage gaps exist in several areas throughout the state's Eastern Shore, along the northern border and in small areas along portions of the Chesapeake Bay.

EXHIBIT 4-3: RELIEVER/GENERAL: 30-MINUTE DRIVE TIME

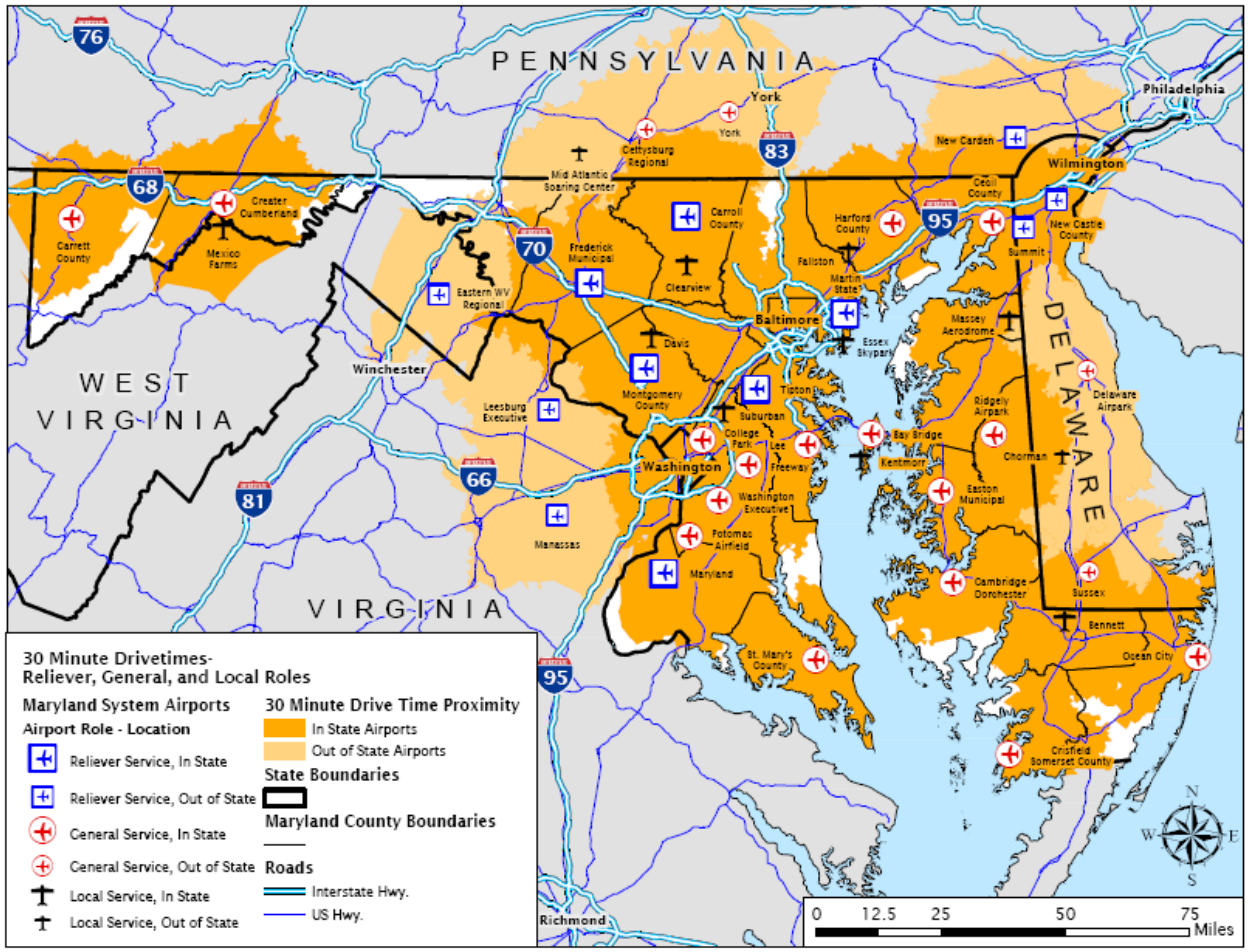


Source: Wilbur Smith Team

Local Airports

There are nine Local Airports in Maryland. **Exhibit 4-4** shows the coverage provided by 30-minute drive times from Local, General and Reliever Airports. The addition of Local Airports provides coverage for nearly the entire state. Nearly all of Maryland's population (97 percent) is within 30 minutes of a Local, General, and Reliever Airport. Coverage from out-of-state airports increases that coverage to over 98 percent. Maryland airports provide 30 minute service to 87 percent of Maryland's geographic area. Including out-of-state airports, Maryland geographic coverage increases to more than 90 percent.

EXHIBIT 4-4: RELIEVER/GENERAL/LOCAL: 30-MINUTE DRIVE TIME



Source: Wilbur Smith Team

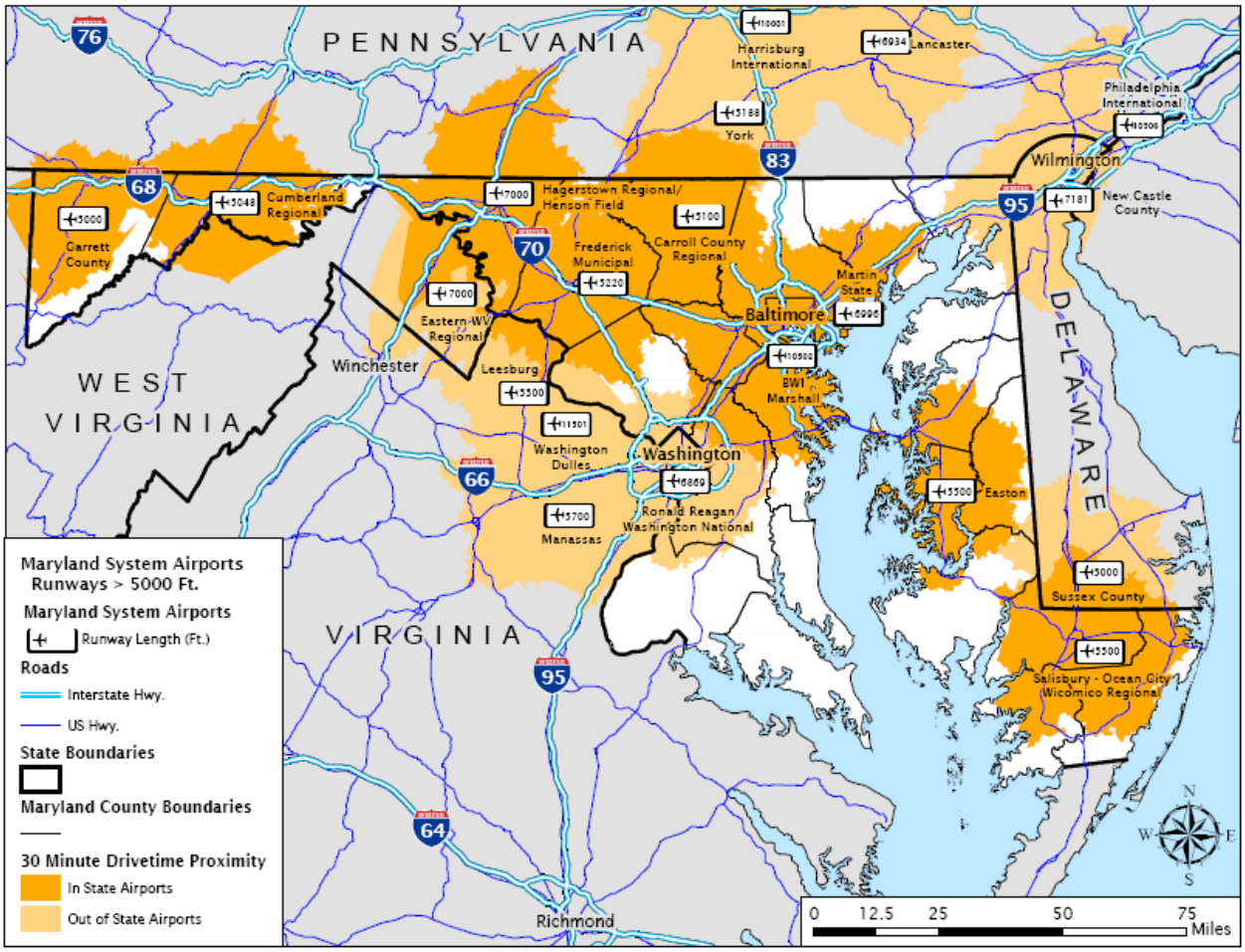
Coverage by Facility

In addition to the presence and coverage of airports with specific roles, it is also useful to examine specific facilities that are within a certain geographic area. This section analyzes key facilities found at Maryland airports.

Airports with Greater than 5,000 Foot Runways

Exhibit 4-5 shows the coverage provided by the nine Maryland and 11 out-of-state airports having runways greater than or equal to 5,000 feet. While most of these airports are concentrated near highly populated centers, several are located in rural areas. Sixty-eight percent of the state's population has 30 minute access to a Maryland airport with a runway at least 5,000 feet. However, considering out-of-state airports, that coverage is significantly boosted to 88 percent. Just over half (56 percent) of Maryland land area gets coverage from Maryland airports having 5,000 foot or greater runways. Land area coverage improves to 64 percent when out-of-state airports are considered.

EXHIBIT 4-5: RUNWAYS > 5,000 FT: 30-MINUTE DRIVE TIME

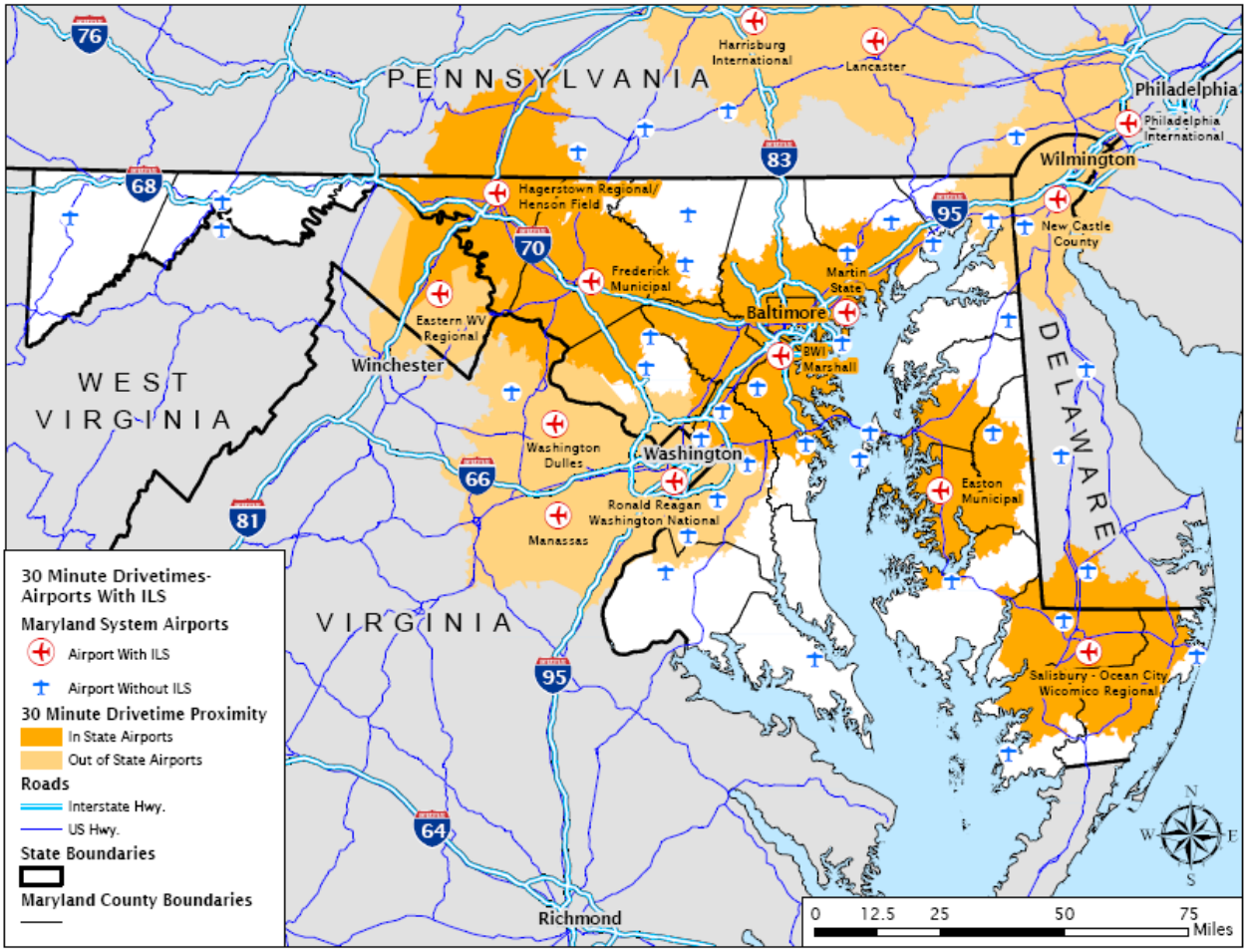


Source: Wilbur Smith Team

Airports with Precision Instrument Approaches

Exhibit 4-6 shows the coverage provided by the six Maryland airports with precision instrument approaches, as well as eight out-of-state airports. Many of these airports are concentrated near population centers as indicated by the fact that 64 percent of Maryland's population is within 30 minutes of an airport with a precision instrument approach, yet only 42 percent of Maryland's geographic area is within 30 minutes of these airports. Out-of-state airports boost coverage to 83 percent for population coverage and 50 percent for geographic coverage.

EXHIBIT 4-6: PRECISION APPROACHES: 30-MINUTE DRIVE TIME

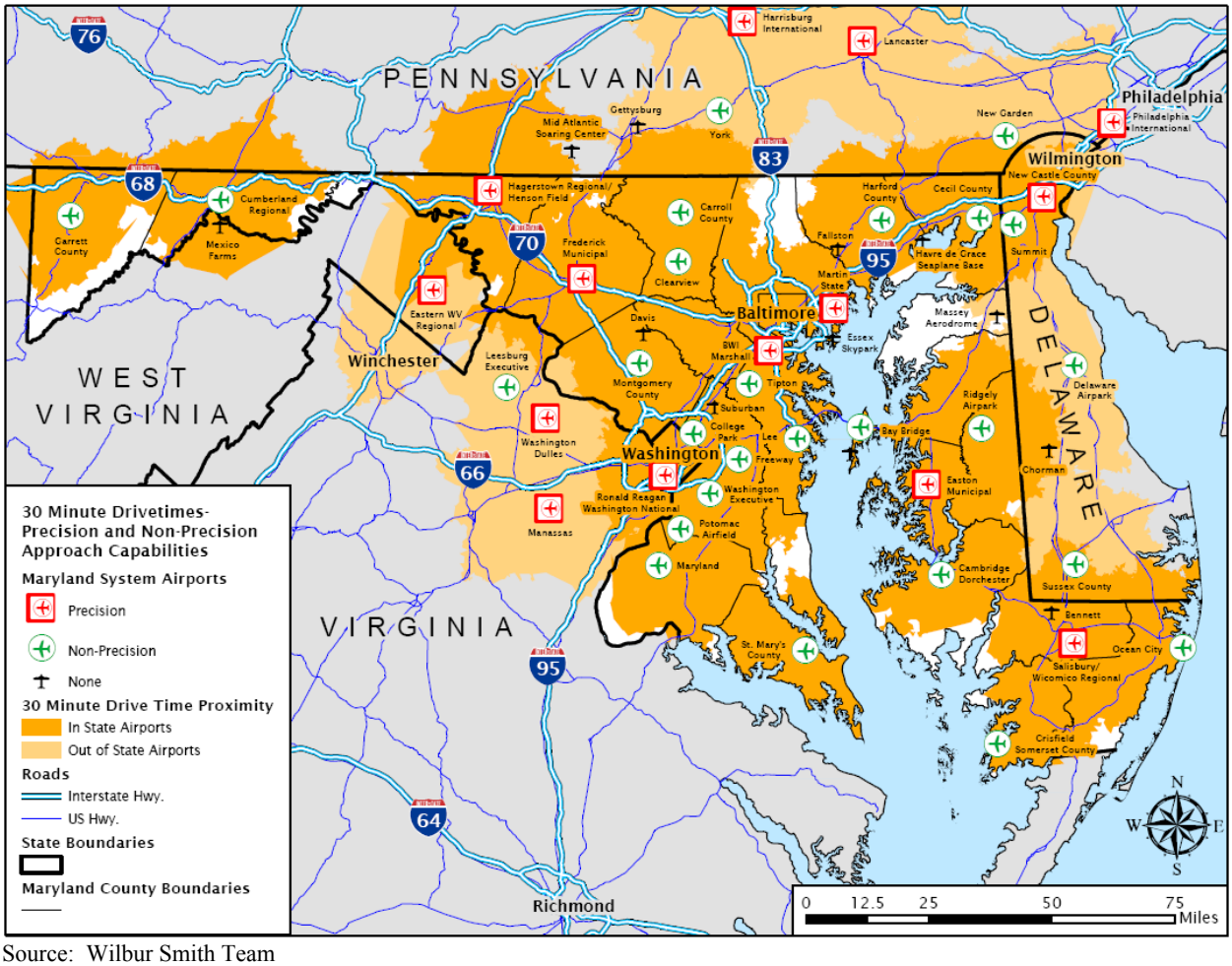


Source: Wilbur Smith Team

Precision and Non-precision Approaches

Exhibit 4-7 shows the coverage provided by airports with either a precision or non-precision approach. Of the 34 system airports (not including Havre de Grace Seaplane Base or Pier 7 Heliport as special use facilities), six have precision and 20 have non-precision approach capabilities. With 98 percent of Maryland's population within 30 minutes of an airport with an instrument approach and 87 percent of Maryland's geographic area within 30 minutes of these airports, the state's airport system provides a high level of coverage in terms of airports with instrument approach capabilities. In short, a traveler can arrive at almost any destination in Maryland 30 minutes after landing at an airport, even in poor weather requiring an instrument approach. Of course, the approach minimums vary at these airports, meaning that certain weather conditions may prevent the use of some airports, but not others. The implementation of advanced approach systems at Maryland airports to lower approach minimums and make airports throughout the state more accessible during poor weather conditions is discussed in the next section of this chapter.

EXHIBIT 4-7: PRECISION/NON-PRECISION APPROACHES: 30-MINUTE DRIVE TIME



Source: Wilbur Smith Team

Summary

The Maryland airport system provides extensive coverage to both the state's residents and places. There are numerous Maryland locations that are afforded coverage by more than one airport. In many cases, population densities support geographic coverage by numerous facilities. The state is generally provided reasonable access to commercial air service, airports capable of serving business jets and other segments of general aviation. Aviation facilities, including instrument approaches, also enjoy significant coverage throughout the state.

A summary of Maryland population and geographic coverage related to system airports as well as out-of-state airports is presented in **Table 4-1** below.

TABLE 4-1
MARYLAND GEOGRAPHIC AND POPULATION COVERAGE

	Land area coverage (Total 10,014 sq. mi.)		Population coverage (Total 2000 - 5,296,486)	
	In state	In / out of state	In state	In / out of state
60 minute air carrier	66.4%	76.3%	91.4%	94.6%
30 minute air carrier/reliever	49.6%	63.2%	86.2%	92.6%
30 minute reliever/general	80.0%	84.5%	94.6%	97.0%
30 minute reliever/general/local	86.6%	90.2%	96.7%	97.8%
> 5,000 ft. Runway	55.6%	63.6%	67.9%	87.8%
Precision Approach	42.2%	49.6%	63.5%	83.2%
Precision and Non-Precision Approach	87.1%	88.4%	98.1%	98.3%

Source: Wilbur Smith Team

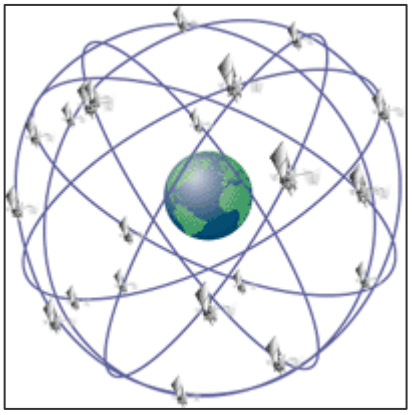
The limited areas and population that are not within a reasonable distance of adequate aviation benefits will be addressed in the next chapter through general recommendations to the Maryland airport system. These recommendations will address the shortfalls that exist in the current system.

II. LOCALIZER PERFORMANCE WITH VERTICAL GUIDANCE (LPV)

A particular point of emphasis with respect to current system performance is the evaluation of viable Global Positioning System (GPS) and Wide Area Augmentation System (WAAS) type instrument approach procedures as they relate to current and planned airport development. This relatively new runway approach technology improves the airport's ability to accommodate aircraft arrivals during weather conditions in which visibility and/or cloud heights would otherwise force pilots to land elsewhere. To better understand this technology and how it can be applied to Maryland airports, it is important to know the background of GPS and WAAS, and how it is applied to aviation uses.

A. Global Positioning System (GPS)

GPS is a space-based radio-navigation system that consists of a constellation of satellites and a network of ground stations used for monitoring and control. A minimum of 24 GPS satellites orbit the Earth at an altitude of approximately 11,000 miles providing users with accurate information on position, velocity, and time anywhere in the world and during all weather conditions. Knowing these key spatial attributes, users can calculate heading, distance and time to a destination. The Federal Aviation Administration is investigating and applying the use of GPS as it pertains to aviation.

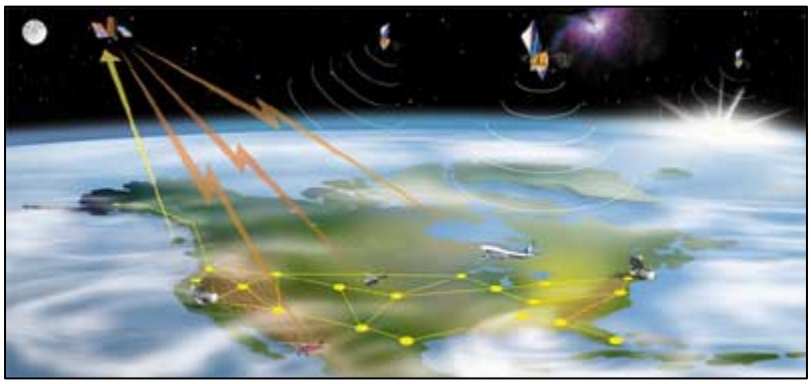


Source: FAA

GPS was initiated in 1973 to reduce the proliferation of ground-based navigation aids. By creating a system that overcame the limitations of many existing navigation systems, GPS became attractive to a broad spectrum of users worldwide. GPS has been successful in virtually all navigation applications, and because its capabilities are accessible using small, inexpensive equipment, GPS is being utilized in a wide array of applications and by users across the globe.

B. Wide Area Augmentation System (WAAS)

WAAS is an extremely accurate navigation system developed for civil aviation. Before WAAS, the U.S. National Airspace System (NAS) did not have the potential to provide horizontal and vertical navigation for approach operations for all users at all locations. Unlike traditional ground-based navigation aids, WAAS covers nearly all of the NAS and all phases of flight: airport departures, en-route navigation and airport arrivals. WAAS provides augmentation information to GPS receivers to enhance the accuracy and reliability of position estimates necessary to navigate aircraft including vertically-guided landing approaches in instrument meteorological conditions at qualified locations in the NAS.



Source: FAA

WAAS allows GPS to be used as a primary means of navigation from takeoff through Category I precision approach. Other modes of transportation also benefit from the increased accuracy, availability, and integrity that WAAS delivers. WAAS broadcast message improves GPS signal accuracy from 100 meters to approximately seven meters.

The benefits of WAAS to civil aviation are substantial. WAAS improves the efficiency of aviation operations due to:

- Greater runway capability
- Reduced separation standards which allow increased capacity in a given airspace without increased risk
- More direct en route flight paths
- New precision approach services
- Reduced and simplified equipment on board aircraft
- Significant government cost savings due to the elimination of maintenance costs associated with older, more expensive ground-based navigation aids (to include NDBs, VORs, DMEs and most Category 1 ILSs)

C. LPV Approaches

Localizer performance with vertical guidance (LPV) approaches are operationally equivalent to the common legacy instrument landing systems (ILS) but are more economical because no navigation infrastructure has to be installed at the runway. As the name suggests, they provide lateral (localizer) guidance as well as vertical guidance and enables descent as low as 200 feet above the runway. LPV approaches can only be flown by aircraft equipped with WAAS receivers. There are more than 1,000 LPV approaches in use today and the FAA is publishing 300 new LPV approaches per year.

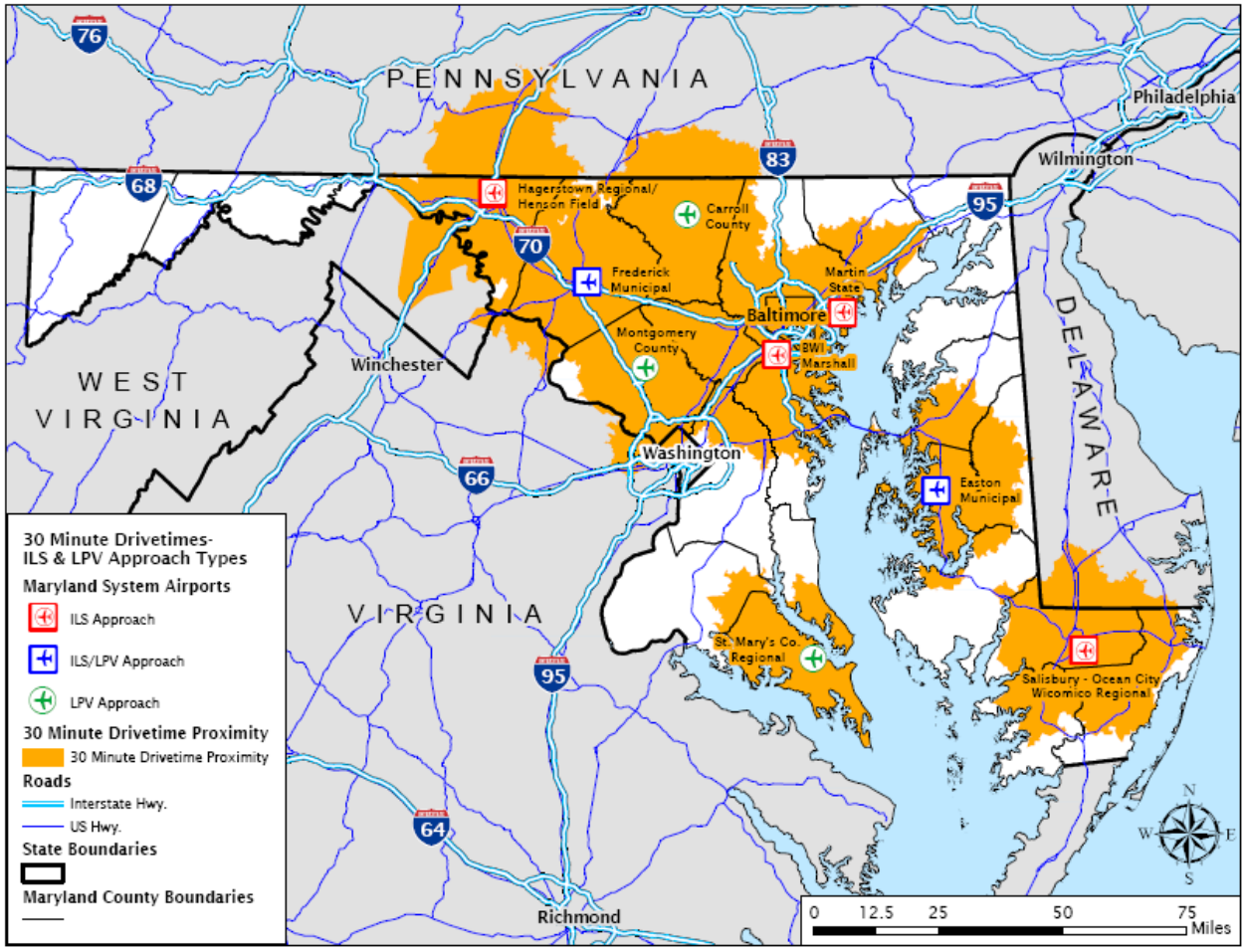
It should be noted that an LPV approach is considered to be a non-precision approach when the Height Above Threshold (HAT) or descent limit above the runway for the approach is equal to or greater than 250 feet. If lower than 250 feet, it is considered a precision approach. This is an important distinction because airport design requirements for precision versus non-precision approaches differ and may reduce/increase clearing necessary to accommodate the approach.

D. LPV Approaches in the Maryland System

Due to the growing trend for satellite based navigation, MAA intends to use the results of this study as a vehicle to evaluate and analyze the suitability of a WAAS approach procedure at specific airports within the system. As demonstrated in the previous section, approximately 98 percent of the state's population has a 30-minute drive time to an airport with a precision or non-precision approach. However, only 64 percent of Maryland's population is within 30 minutes of a Maryland airport with a precision instrument approach and only 42 percent of Maryland's geographic area is within 30 minutes of these airports. As this drive time analysis demonstrates, there are several large portions of the state where precision approach coverage is absent. **Exhibit 4-8** goes further to show coverage of approaches that provide lateral and vertical guidance (both ILS and LPV approaches) throughout Maryland.

While it may not be necessary or practical to implement LPV approaches to precision standards, airports in regions that lack ILS or LPV coverage could take steps to improve approach procedures and/or lower minimums through the use LPV approaches. The introduction of WAAS and LPV approaches offers a cost effective way to implement such improvements.

EXHIBIT 4-8: ILS and LPV APPROACHES: 30-MINUTE DRIVE TIME



Source: Wilbur Smith Team

While major metropolitan areas show reasonable precision and LPV approach coverage with 80 percent of the population within 30 minutes of a Maryland airport providing this service, only 55 percent of the geographic region is covered. The following areas are missing approach coverage that allow for vertical guidance, a critical element of precision and LPV systems. These regions could benefit from improved approaches as Maryland's population increases and instrument flight procedures become more prevalent:

- Northeast corner of the state near the head waters of the Chesapeake Bay
- Locations along the state's Eastern Shore near the Chesapeake Bay and Atlantic Ocean
- South-central region of the state, between St. Mary's county and Washington D.C.

- Northeast border with Pennsylvania
- Western Maryland

Maryland's 34 public airports capable of having an instrument approach procedure were evaluated to determine the viability of GPS-WAAS type instrument approach procedures with LPV minimums as it relates to their current and proposed development plans. This review considers whether current infrastructure elements are sufficient to accommodate an LPV approach based on FAA requirements and if not, what features or adjustments are needed to meet the minimum requirements.

In order to determine the needs of LPV approaches at Maryland airports, it is important to understand the kinds of approaches in place at each airport as well as the lowest minimums for each. The FAA has prioritized the implementation of LPV approaches at airports where:

- The airport and the state desire the LPV approaches through need and desire to provide adequate coverage throughout the system, and
- There are no obstructions, land acquisitions, surveys or other obstacles blocking the way to designing and publishing the procedure.

Another criterion that may prioritize LPV implementation is whether the airport has already established an ILS (precision approach). This is due to the fact that ILS approaches provide lateral and vertical guidance similar to an LPV approach and airports with approaches not having vertical guidance may realize greater benefits than airports that already have an ILS.

Table 4-2 provides information regarding the most advanced approach with the lowest minima available at each system airport. This approach data can be used to demonstrate the coverage of advanced approaches throughout the system necessary to determine where LPV approaches should be implemented. Below is an explanation of terms used in Table 4-2:

Approach Types:

ILS: Instrument Landing System, a ground-based precision approach landing system.
RNAV: Area Navigation, uses network of beacons or GPS to establish an approach procedure, but does not provide vertical guidance.
NBD: Non-Directional Beacon, used to establish non-directional enroute and approach guidance.
VOR: VHF Omni-directional Radio Range, provides enroute and approach course guidance.
LOC: Localizer, provides runway centerline guidance and is one element of the ILS although it may also be used for a non-precision instrument approach as well.
Visual: No instrument approach procedure exists for this airport.

Height Above Touchdown (HAT): The height (in feet) of the approach above the touchdown zone. This is the actual height of the Minimum Descent Altitude (MDA) above the airport as published on the instrument approach procedure.

Visibility Minimum: The minimum visibility specified for approach, landing, or takeoff, expressed in statute miles or in feet where RVR is reported.

TABLE 4-2
APPROACHES AT SYSTEM AIRPORTS

Airport Name by Role	Associated City	Runway Length	Approach Capability	Approach Type	Height Above Touchdown	Visibility Minimum
Air Carrier						
Baltimore/Washington Int'l Thurgood Marshall	Baltimore	10,502	P	ILS	-	RVR 07
Hagerstown Regional Richard A. Henson Field	Hagerstown	7,000	P	ILS	200'	½ mile
Salisbury – Ocean City Wicomico Regional	Salisbury	5,500	P	ILS	200'	½ mile
Reliever						
Carroll County Regional Jack B. Poage Field	Westminster	5,100	NP	LPV	341'	1 mile
Frederick Municipal	Frederick	5,220	P	ILS/LPV	388'	1½ mile
Martin State	Baltimore	6,996	P	ILS	275'	1 mile
Maryland	Indian Head	3,000	NP	RNAV	432'	1 mile
Montgomery County	Gaithersburg	4,201	NP	LPV	269'	1 mile
Tipton	Odenton	3,000	NP	RNAV	410'	1 mile
General						
Bay Bridge	Stevensville	2,903	NP	RNAV	365'	1 mile
Cambridge-Dorchester	Cambridge	4,476	NP	NDB	420'	1 mile
Cecil County	Elkton	3,000	NP	RNAV	494'	1 mile
Cecil County (Proposed)	Elkton	6,400	P	To Be Determined		
Clearview	Westminster	1,845	NP	RNAV	441'	1 mile
College Park	College Park	2,607	NP	RNAV	673'	1 mile
Crisfield-Somerset County	Crisfield	2,490	NP	RNAV	496'	1 mile
Easton Municipal/Newnam Field	Easton	5,500	P	ILS/LPV	205'	¾ mile
Freeway	Mitchellville	2,433	NP	RNAV	532'	1 mile
Garrett County	Oakland	5,000	NP	VOR	487'	1 mile
Greater Cumberland Regional	Cumberland	5,048	NP	LOC	625'	1 mile
Harford County	Churchville	2,000	NP	RNAV	451'	1 mile
Lee	Annapolis	2,505	NP	RNAV	406'	1 mile
Ocean City Municipal	Ocean City	4,072	NP	RNAV	409'	1 mile
Potomac Airfield - Friendly	Friendly	2,665	NP	RNAV	562'	1 mile
Ridgely Airpark	Ridgely	3,214	NP	RNAV	376'	1 mile
St. Mary's County Regional	Leonardtown	4,150	NP	LPV	298'	1 mile
Washington Executive/Hyde Field	Clinton	3,000	NP	RNAV	411'	1 mile
Local						
Bennett	Salisbury	3,150		Visual		
Davis	Laytonsville	2,005		Visual		
Essex Skypark	Baltimore	2,084		Visual		
Fallston	Fallston	2,200		Visual		
Havre de Grace Seaplane Base	Havre de Grace	8,000		Visual		
Kentmorr	Stevensville	2,400		Visual		
Massey Aerodrome	Massey	3,000		Visual		
Mexico Farms	Cumberland	2,120		Visual		
Suburban Airpark	Laurel	2,324		Visual		

Note: Approach Capability: P = Precision, NP = Non-precision
Source: Wilbur Smith Associates, Inc.

Carroll County Regional, Easton Airport, Frederick Municipal, Montgomery County Airpark and St. Mary's County Regional Airport offer LPV approaches. However, with the exception of Easton's LPV precision approach, all of these approaches are considered non-precision.

E. Criteria for LPV Approaches

The criteria necessary to meet design standards to support an LPV precision instrument approach procedure are summarized below and based on FAA Advisory Circular 150/5300-13, Airport Design, Change 12.

1. Minimum Paved Runway Length
2. Runway Markings
3. Runway Edge Lights
4. Parallel Taxiway Separation
5. Approach Lighting System
6. Airport Layout Plan (Only if NPIAS Airport)*
7. Holding Position Signs & Markings*
8. Clear TERPS Glide Path Qualification Surface (GQS)*
9. Clear TERPS Precision "W" Surfaces (OCS)*
10. Clear TERPS Paragraph 251*
11. Clear Precision Obstacle Free Zone (POFZ) 200 x 800*
12. Clear Obstacle Free Zone (OFZ)*
13. Clear Threshold Siting (TSS)*
14. 405 Obstruction Survey Required for Lowest Minima*

Note: "*" indicates not evaluated for this study and would be a part of site specific evaluations further in the development phase of an approach procedure.

Several LPV criteria standards were not evaluated as part of the system plan study since this information is not readily available and/or associated with a master plan level of analysis. These criteria influence the FAA's decision to approve or deny the request for an LPV approach as well as impact the minimum descent and visibility requirements associated with the approach. The following is an overview of the site inputs that influence the implementation of an approach.

The list also includes airport data that the FAA needs to conduct the Airport Airspace Analysis (AAA) specified in FAA Order 7400.2, Procedures for Handling Airspace Matters to determine if the airport is acceptable for instrument approach procedure and the runway's acceptability for the desired minimums. The AAA is normally conducted as part of the ALP approval process.

For an airport to be authorized for a new instrument LPV approach procedure, the runway must have an instrument runway designation. In addition, the instrument runway designation for the desired minimums must be depicted on the ALP. The runway designated for the LPV must meet FAA standards for the specified runway and have adequate airspace to support the instrument approach procedure. The airport must specify the runway direction, the desired approach

minimums, whether circling approach procedures are desired and the appropriate survey data needed to support the procedure using FAA No. 405 Standards for Aeronautical Surveys.

FAA Order 8260, Terminal Instrument Procedures (TERPS), identifies the minimum airport landing surface requirements that must be met prior to the establishment of instrument approach procedures at a public use airport. This order also references other FAA requirements, such as a safety analysis to determine the need for approach lighting and other visual enhancements to mitigate the effects of a difficult approach environment. One of these surfaces is the Glide Path Qualification surface (GQS), which is a TERPS surface that limits the magnitude of penetration of the obstruction clearance surfaces overlying the final approach course. Clearing this surface is to provide a descent path from the Decision Altitude (DA) to landing, free of obstructions that could destabilize the established glide path angle. If the GQS is penetrated, the LPV or any other vertical guidance instrument approach procedure is not authorized.

Another surface is the TERPS "W" surface, which is a sloping Obstruction Clearance Surface (OCS) overlying the final approach course centerline. The surface slope varies with glide path angle. The "W" surface must be clear to achieve the lowest precision minimums. The slope of this surface varies with glide path angle, which is an optimum 3º glide path. The 34:1 surface must be clear. If the "W" surface is penetrated, HAT and visibility will be increased.

Runway edge lighting data was obtained for the system airports and interrelated with LPV approach requirements. High intensity lights are required for Runway Visual Range (RVR) based minimums where extremely low visibility minimums requirements are established. In addition, a parallel taxiway must lead to the runway approach threshold and, with airplanes on centerline, keep the airplanes outside the Obstruction Free Zone (OFZ). Finally, to achieve lower visibility minimums based on credit for lighting, a TERPS specified approach light system is required. **Table 4-3** summarizes the requirements for a LPV approach criteria which will be reviewed in this study to make recommendations for further site specific evaluation.

TABLE 4-3
LPV APPROACH CRITERIA

Criteria	Approach Type			
	Precision Instrument		Non-Precision	
Visibility Minimums	<3/4 statute mile	<1 statute mile	<3/4 statute mile	<1 statute mile
Height Above Touchdown (HAT)	200	200	250	300
Airport Layout Plan Required (Only if NPIAS Airport)	Required	Required	Required	Required
Minimum Runway Length (ft)	4,200 ft Paved	4,200 ft Paved	4,200 ft Paved	3,200 ft Paved
Runway Markings	Precision	Nonprecision	Nonprecision	Nonprecision
Holding Position Signs & Markings	Precision	Nonprecision	Nonprecision	Nonprecision
Runway Edge Lights	HIRL/MIRL	HIRL/MIRL	HIRL/MIRL	HIRL/MIRL
Parallel Taxiway To Threshold	Required	Required	Required	Required
Approach Lights	MALSR, SSALR or ALSF	Recommended	Recommended	Recommended

Source: FAA Advisory Circular 150/5300-13, Airport Design, Change 11

F. LPV Approach Evaluation

Each airport in the Maryland system was evaluated to determine candidates for potential LPV approaches. Airports with at least one runway that met the majority of the stated criteria were identified as potential candidates. Two categories of LPV candidates were identified:

1. **Primary Candidates**: Those meeting all of the first most physical criteria in the table above and require little or no capital improvement to obtain a potential LPV approach. Eight airports were identified for this category and of these airports four existing and one proposed airport may obtain less than ¾ mile visibility if an airport lighting system were installed, such as a MALSR, SSALR or ALSF.

   The Primary Candidates are:

   - Carroll County Regional/ Jack B. Poage Field (< ¾ mile)
   - Cecil County Airport (Proposed) (< ¾ mile)
   - Easton Airport/Newnam Field (< ¾ mile)
   - Frederick Municipal Airport
   - Garrett County Airport
   - Greater Cumberland Regional Airport (< ¾ mile)
   - Martin State Airport (< ¾ mile)
   - Montgomery County Airpark

2. **Secondary Candidates**: The five airports identified in this category require capital improvements, such as extending a runway or relocating a parallel taxiway to be considered for the LPV approach or lower minimums.

   The Secondary Candidates are:

   - Cambridge-Dorchester Airport
   - Ocean City Municipal Airport
   - Ridgely Airpark
   - Saint Mary's County Regional Airport
   - Tipton Airport

As mentioned earlier, while some of these airports offer LPV approaches, those that do may be able to provide lower LPV minimums to benefit their users. Many of Maryland's public use airports could potentially obtain LPV approaches barring other issues such as airspace conflicts and/or obstructions. However, **Table 4-4** shows likely LPV candidates where required improvements to achieve LPV precision approaches or lower minimums may be considered reasonable. While BWI International, Hagerstown Regional and Salisbury-Ocean City Wicomico Regional Airports do not have LPV approaches, they utilize ILS approaches with 200 feet HAT and half mile visibility minimums equivalent to LPV Precision approach standards. Therefore, these three airports were not included as candidates for LPV approaches.

TABLE 4-4
LPV CANDIDATE AIRPORTS (EXISTING ATTRIBUTES)

Airport Name	Height Above Touchdown (200 feet)	Visibility (< 1 statute mile)	Paved Runway Length (4,200 feet)	Runway Edge Lights (HIRL/MIRL)	Taxiway to Threshold (Full Length Taxiway)	Runway/Taxiway Separation (Based on Approach Cat.)	Approach Light System (ALS) (MALSR, SSALR, ALSF)
Primary Candidates							
Carroll County Regional	341’	1mile	5,100	MIRL	Full	300	No
Cecil County (Proposed)	673’	1 mile	6,400	HIRL	Full	TBD	
Easton Municipal/Newnam Field	205’	¾ mile	5,500	MIRL	Full	400	No
Frederick Municipal	388’	1½ mile	5,220	HIRL	Full	340	No
Garrett County	487’	1 mile	5,000	MIRL	Full	240	No
Greater Cumberland Regional	625’	1 mile	5,048	MIRL	Full	400	No
Martin State	275’	1 mile	6,996	HIRL	Full	400	No
Montgomery County	269’	1 mile	4,201	MIRL	Full	240	No
Secondary Candidates							
Cambridge-Dorchester	420’	1 mile	4,476	MIRL	Full	200	No
Ocean City Municipal	409’	1 mile	4,072	MIRL	Full	200	No
Ridgely Airpark	376’	1 mile	3,214	LIRL	Full	300	No
St. Mary’s County Regional	298’	1 mile	4,150	MIRL	Partial	200	No
Tipton	410’	1 mile	3,000	MIRL	Full	500	No

Source: Wilbur Smith Associates, Inc.

Based on the general criteria reviewed above, several airports may require infrastructure improvements to implement an LPV approach. Some of these improvements may go beyond reasonable constraints for LPV precision standards calling for limits to approach minimums to be instituted to avoid exceptional development requirements.

These criteria represent only physical site requirements evaluated in this study. As mentioned earlier, there are other attributes, such as clearing airspace around airport environment, which must be evaluated to determine the actual impact to airport surroundings and needs to accommodate an LPV approach. **Table 4-5** highlights the recommended LPV approach minimums and resultant airfield improvement requirements for candidate airports.

TABLE 4-5
LPV CANDIDATE AIRPORTS (REQUIRED IMPROVEMENTS)

Airport Name	LPV Approach Goal Minimums			Required Infrastructure Improvements
	Capability	HAT	Visibility	
Primary Candidates				
Carroll County Regional	Precision	200'	¾ mile	No major infrastructure needed Add ALS for ½ mile visibility
Cecil County (Proposed)	Precision	200'	¾ mile	Build to accommodate LPV Add ALS for ½ mile visibility
Easton Municipal/Newnam Field	Precision	200'	¾ mile	No major infrastructure needed Add ALS for ½ mile visibility
Frederick Municipal	Precision	200'	¾ mile	No major infrastructure needed
Garrett County	Precision	200'	¾ mile	No major infrastructure needed
Greater Cumberland Regional	Precision	200'	¾ mile	No major infrastructure needed Add ALS for ½ mile visibility
Martin State	Precision	200'	¾ mile	No major infrastructure needed Add ALS for ½ mile visibility
Montgomery County	Precision	200'	¾ mile	No major infrastructure needed
Secondary Candidates				
Cambridge-Dorchester	Precision	200'	¾ mile	Relocate taxiway 40'
Ocean City Municipal	Precision	200'	¾ mile	Relocate taxiway 40' and extend runway 128'
Ridgely Airpark	Non-Precision	300'	1 mile	Add MIRL Extend runway 986' for precision
St. Mary's County Regional	Precision	200'	¾ mile	Relocate taxiway 40' and extend runway 50'
Tipton	Non-Precision	300'	1 mile	Extend runway 200'

Source: Wilbur Smith Associates

III. SUMMARY

This chapter focused on the coverage of system airports based on individual airport roles as well as runway length and approach capabilities. While adequate coverage exists for various categories of measurement, there are areas of the state that lack adequate coverage where system improvements may be made. The next chapter will identify deficiencies within the system and lay the ground work for recommendations in support of future system improvements.

A growing number of airports and aircraft are joining the movement toward GPS-based navigation for all segments of flight. The LPV approaches presented in this chapter represents the importance and interest pilots, airports and the MAA have in new technologies. To accommodate these new technologies and provide the aviation community with enhanced approach capabilities, there will be unique demands put on airports. This chapter reviewed the general steps needed to meet the design standards for LPV approach procedures at 13 candidate airports throughout Maryland. This sets the stage for further dialogue and study on implementing LPV approaches to help meet the long-term needs of aviation in Maryland.

CHAPTER FIVE
FUTURE AIRPORT AND SYSTEM PERFORMANCE

Previous chapters of this study evaluated performance measures related to recommended facility objectives as well as the geographic and population coverage afforded by each airport in the system based on their defined role (Air Carrier, Reliever, General and Local Service). Compared to other states throughout the country, Maryland has an excellent system of airports that provide an exceptional mix of facilities that accommodate all categories of aviation.

Using the information presented in previous chapters, this chapter evaluates the adequacy of the state's airports at the functional level, as well as an entire system. Chapter 3, *Airport Roles*, defined and evaluated facility objectives for each system airport. Chapter 4, *Current System Performance*, presented geographic coverage by each airport role classification and evaluated important Maryland system attributes such as population and land area was covered by a reasonable drive time. Voids in the facilities provided and geographic coverage serve as the basis for determining recommendations for enhancing the future system of airports and thereby improving the performance of the system.

This chapter will identify airport and system deficiencies and provide recommendations to meet performance targets through the following sections.

- Future Airport Roles – Recommend projects necessary to meet facility objectives based on airport role classifications
- Future System Coverage – Recommend projects necessary to provide adequate statewide coverage of aviation facilities to its potential users
- Summary

I. PROJECTS RECOMMENDED TO MEET ROLE

Each airport in the system was classified based on its designation in the FAA's National Plan of Integrated Airport Systems (NPIAS). If the airport was one of 15 Maryland system airports not included in the NPIAS, this airport was categorized based on the current level and type of activity. Potential activity, as presented in the projection of demand chapter, was also considered. Facility objectives for each functional role of airport were developed based on reasonable standards for airports within its respective category. Projects were then recommended to meet shortfalls. Recommended projects to meet the facility objectives are presented in **Table 5-1** and listed by airport. It is important to note; however, that this project list is solely based on anticipated system needs. Airports may need a variety of additional projects to support local objectives. As such, it is quite likely that an airport's five-year capital improvement program and/or its master plan will identify the need for a variety of additional projects.

TABLE 5-1
SYSTEM PLAN: RECOMMENDED PROJECTS

Airport Name	Associated City	Recommended Projects
Air Carrier Airports		
Baltimore/Washington Int'l Thurgood Marshall	Baltimore	No projects to meet facility objectives
Hagerstown Regional Richard A. Henson Field	Hagerstown	No projects to meet facility objectives
Salisbury – Ocean City Wicomico Regional	Salisbury	No projects to meet facility objectives
Reliever Airports		
Carroll County Regional	Westminster	• Precision Approach • Runway Lighting(HIRL and Beacon) • Covered Overnight Secure Storage • Snow Removal
Frederick Municipal	Frederick	• Air Traffic Control Tower • GA Terminal/Admin Building • Covered Overnight Secure Storage
Martin State	Baltimore	No projects to meet facility objectives
Maryland	Indian Head	• Primary Runway to 5,000' • ARC C-II Standards • Full Parallel Taxiway • Precision Approach • ATC Communications • Runway Lighting(HIRL and Beacon) • Lighted Wind Cone • Vertical Glide Slope Indicator • Weather Reporting • GA Terminal/Admin Building • Covered Overnight Secure Storage • Property Enclosed by Fence
Montgomery County	Gaithersburg	• Primary Runway to 5,000' • ARC C-II standards • Precision Approach • Air Traffic Control Tower • Runway Lighting(HIRL and Beacon)
Tipton	Odenton	• Primary Runway to 5,000' • ARC C-II standards • Precision Approach • Runway Lighting(HIRL and Beacon) • Covered Overnight Secure Storage • Snow Removal

TABLE 5-1 (Cont.)
SYSTEM PLAN: RECOMMENDED PROJECTS

Airport Name	Associated City	Recommended Projects
General Airports		
Bay Bridge	Stevensville	• Primary Runway to 3,500’
Cambridge-Dorchester	Cambridge	No projects to meet facility objectives
Cecil County	Elkton	• Primary Runway to 3,500’ • Weather Reporting • Property Enclosed by Fence
Cecil County (Proposed)	TBD	No projects to meet facility objectives
College Park	College Park	• Primary Runway to 3,500’ • GA Terminal/Admin Building
Crisfield-Somerset County	Crisfield	• Primary Runway to 3,500’ • Partial Parallel Taxiway • Weather Reporting • GA Terminal/Admin Building • Property Enclosed by Fence • Snow Removal
Easton/Newnam Field	Easton	No projects to meet facility objectives
Freeway	Mitchellville	• Primary Runway to 3,500’ • ARC B-I Standards • Weather Reporting • GA Terminal/Admin Building • Property Enclosed by Fence
Garrett County	Oakland	No projects to meet facility objectives
Greater Cumberland Regional	Cumberland	• Property Enclosed by Fence • Snow Removal
Harford County	Churchville	• Primary Runway to 3,500’ • ARC B-I Standards • Partial Parallel Taxiway • Runway Lighting(MIRL and Beacon) • Weather Reporting • GA Terminal/Admin Building • Paved Aircraft Parking • Property Enclosed by Fence • Snow Removal
Lee	Annapolis	• Primary Runway to 3,500’ • ARC B-I Standards • Runway Lighting(MIRL and Beacon) • GA Terminal/Admin Building • Paved Aircraft Parking
Ocean City Municipal	Ocean City	• Property Enclosed by Fence • Snow Removal
Potomac Airfield – Friendly	Friendly	• Primary Runway to 3,500’ • ARC B-I Standards • Runway Lighting(MIRL and Beacon) • Paved Aircraft Parking • Property Enclosed by Fence • Snow Removal

TABLE 5-1 (Cont.)
SYSTEM PLAN: RECOMMENDED PROJECTS

Airport Name	Associated City	Recommended Projects
General Airports (cont.)		
Ridgely Airpark	Ridgely	• Primary Runway to 3,500' • Runway Lighting(MIRL and Beacon) • Vertical Glide Slope Indicator • GA Terminal/Admin Building • Property Enclosed by Fence • Snow Removal
St. Mary's County Regional	Leonardtown	No projects to meet facility objectives
Washington Executive/Hyde Field	Clinton	• Primary Runway to 3,500' • Runway Lighting(MIRL and Beacon) • Weather Reporting • GA Terminal/Admin Building • Snow Removal
Local Airports		
Bennett	Salisbury	• Fuel (100LL) • Property Enclosed by Fence
Clearview	Westminster	• Primary Runway to 2,000' • ARC A-I Small Standards • Runway Lighting(LIRL and Beacon) • Property Enclosed by Fence
Davis	Laytonsville	• Runway Lighting(LIRL and Beacon) • Lighted Wind Cone • Fuel (100LL) • Property Enclosed by Fence
Essex Skypark	Baltimore	• Fuel (100LL) • Property Enclosed by Fence
Fallston	Fallston	• Runway Lighting(LIRL and Beacon) • Lighted Wind Cone • Property Enclosed by Fence
Kentmorr	Stevensville	• Lighted Wind Cone • Vertical Glide Slope Indicator • Fuel (100LL) • Property Enclosed by Fence
Massey Aerodrome	Massey	• Lighted Wind Cone • Vertical Glide Slope Indicator • Fuel (100LL) • Property Enclosed by Fence
Mexico Farms	Cumberland	• Fuel (100LL) • Property Enclosed by Fence
Suburban Airpark	Laurel	• Property Enclosed by Fence

Source: Wilbur Smith Associates, Inc.

As shown, there are nine airports within the system that meet recommended facility objectives. Other airports have recommendations for a limited number of projects, while some have significant projects recommended to meet stated facility objectives. Below is a summary of projects recommended to meet facility objectives by each airport role:

- **Air Carrier Airports**: All of the Air Carrier Airports within the system meet or exceed their recommended facility objectives. Therefore, from a facility objectives perspective, no projects are recommended at these airports. It is important to note, however, that in order to keep up with passenger demands and local development interests beyond the evaluation parameters of the system plan, numerous improvements are actually being pursued at these three airports. For example, over the next 5 years, Baltimore Washington International Thurgood Marshall Airport plans to spend over $200 million on capital projects. These projects include a master plan, terminal improvements, airfield pavement program projects and runway safety area improvements, among others.

- **Reliever Airports**: Many projects for airports in the Reliever category focus on meeting airfield design related standards. For example, three of the six Reliever airports support runway extension recommendations to meet the 5,000 foot runway goal as well as improvements necessary to meet C-II design standards. These projects as well as suggested approach and lighting projects necessary to enhance airport access during inclement weather represent the bulk of project suggested for Reliever airports. Martin State is the only airport in this category where no projects are recommended to meet facility objectives.

- **General Airports**: Five airports in the General category do not require projects to meet recommended facility objectives. The remaining 12 airports require between one and seven projects to meet their role objectives. One of the most common and potentially highest cost projects recommended for General airports is a runway extension to provide a minimum of 3,500 feet of length. Other projects recommended for airports in this category include a variety of other airside and landside improvements necessary to meet system goals.

- **Local Airports**: Many of the projects recommended for airports in the Local category provide for the basic necessities required to be a system airport. Common projects include a fence to separate the general public from the aircraft operations areas. Another common project recommended for this category is the provision of 100LL fuel. While some airports in this category have fuel, most do not.

For some system airports, the recommended facilities may be unrealistic due to site limitations, environmental constraints, community opposition, and/or lack of funding. Each airport should be individually studied to determine the purpose and need, feasibility, funding and impact associated recommended system plan improvements. Again, it is up to each airport sponsor to develop a CIP and/or master plan to guide and phase development.

II. PROJECTS RECOMMENDED TO IMPROVE SYSTEM COVERAGE

While the previous section focused on the specific needs of an airport to meet facility objectives associated with a role classification, this section will evaluate improvements related to coverage or accessibility of airports and key facilities throughout Maryland. **Table 5-2** summarizes the geographic and population coverage provided by the various categories of airport by role. In addition, statewide coverage for airports having 5,000 foot runways and various approach capabilities are also provided.

TABLE 5-2
MARYLAND GEOGRAPHIC AND POPULATION COVERAGE

	Land area coverage (Total 10,014 sq. mi.)		Population coverage (Total 2000 - 5,296,486)	
	In state	In / out of state	In state	In / out of state
Air Carrier Airports	66.4%	76.3%	91.4%	94.6%
Reliever Airports	49.6%	63.2%	86.2%	92.6%
General Airports	80.0%	84.5%	94.6%	97.0%
Local Airports	86.6%	90.2%	96.7%	97.8%
> 5,000 ft. Runway	55.6%	63.6%	67.9%	87.8%
Precision Approach	42.2%	49.6%	63.5%	83.2%
Precision and Non-Precision Approach	87.1%	88.4%	98.1%	98.3%

Note: Airport functionality is consolidated within each airport level For example; Air Carrier Airports may accommodate reliever type aircraft activity. Therefore, Air Carrier Airports are considered in calculating Reliever Airport coverage. Likewise, Reliever Airports are included in the measure of General Airport coverage, and so on.
Source: Wilbur Smith Team

Projects needed to enhance the coverage of aviation resources throughout the state are provided in **Table 5-3** and based on findings presented in the Geographic Information System (GIS) Drive Time Analyses found in the previous chapter. The recommended improvements go beyond those already recommended to meet existing role classifications presented in the previous section. As these recommendations are provided to simply improve coverage throughout the state, some projects listed may be unobtainable due to physical site limitations. Further site-specific study should be conducted on the feasibility associated with recommended system enhancement projects.

TABLE 5-3
SYSTEM PLAN: FUTURE SYSTEM COVERAGE

Coverage Description	Coverage Issues	Recommended Projects
60 Minute Air Carrier	Western and Eastern MD voids	Improvements in roadway network to effectively expand the reach of existing air carrier airports

30 Minute Air Carrier/Reliever	Western, Eastern and South Central MD voids	Improvements for several general airports to achieve reliever level status and enhance reliever coverage
		• Bay Bridge
		  ○ Primary Runway to 5,000'
		  ○ ARC C-II: Runway widening to 100' and other standards
		  ○ Precision Approach
		  ○ Runway Lighting(HIRL)
		• Cambridge-Dorchester
		  ○ Primary Runway to 5,000'
		  ○ ARC C-II: Runway widening to 100' and other standards
		  ○ Precision Approach
		  ○ Runway Lighting(HIRL)
		• Easton
		  ○ Runway Lighting(HIRL)
		• Garret County
		  ○ ARC C-II: Runway widening to 100' and other standards
		  ○ Precision Approach
		  ○ Runway Lighting(HIRL)
		• Greater Cumberland
		  ○ Precision Approach
		  ○ Runway Lighting(HIRL)
		• Ridgely
		  ○ Primary Runway to 5,000'
		  ○ ARC C-II: Runway widening to 100' and other standards
		  ○ Precision Approach
		  ○ Runway Lighting(HIRL)
		• St. Mary's County
		  ○ Primary Runway to 5,000'
		  ○ ARC C-II: Runway widening to 100' and other standards
		  ○ Precision Approach
		  ○ Runway Lighting(HIRL)

30 Minute Reliever/General	Good Coverage	No projects to enhance coverage
30 Minute Reliever/General/Local	Good Coverage	No projects to enhance coverage
> 5,000 ft. Runway	North East and South Central voids	Runway extensions to provide enhanced coverage of airports with 5,000' runways • Cambridge-Dorchester • Cecil County • Harford County • Ridgely • St. Mary's County
Precision Approach	Western, Eastern South Central and Northern voids	Precision approaches to improve coverage and access of airports during inclement weather conditions • Cambridge-Dorchester • Carroll County • Cecil County • Garrett County • Greater Cumberland • Harford County • Lee • Maryland • Ridgely • St. Mary's

TABLE 5-3 (Cont.)
SYSTEM PLAN: FUTURE SYSTEM COVERAGE

Coverage Description	Coverage Description	Coverage Description
Precision and Non-Precision Approach	Opportunities to Expand LPV Capabilities	Primary candidates for new LPV approach (<¾ mile reduced visibility minimums where applicable). See Chapter 4 for secondary candidates. • Cecil County Airport (Proposed) (< ¾ mile) • Garrett County • Greater Cumberland (< ¾ mile) • Martin State (< ¾ mile)

Source: Wilbur Smith Associates, Inc.

Precision and non-precision approach enhancements are based on the findings presented in the previous chapter and signify opportunities to expand the presence of LPV approach systems throughout the state and increase the accessibility of airports where LPV approaches would provide the greatest benefit to users. While existing LPV enhancements to achieve lower minimums are presented in the previous chapter, the table above introduces new LPV approach systems to primary candidate airports where current precision or non-precision approaches could be expanded.

Maryland's airport system provides most of the state and its residents with outstanding access to air transportation. There are areas of Maryland; however, that are not covered by certain airport classifications. Improvements to existing airports that may enhance its role or expand its accessibility may increase the overall coverage throughout the state. The projects recommended in the table above are intended to offer enhanced coverage to a wider geographic and population base.

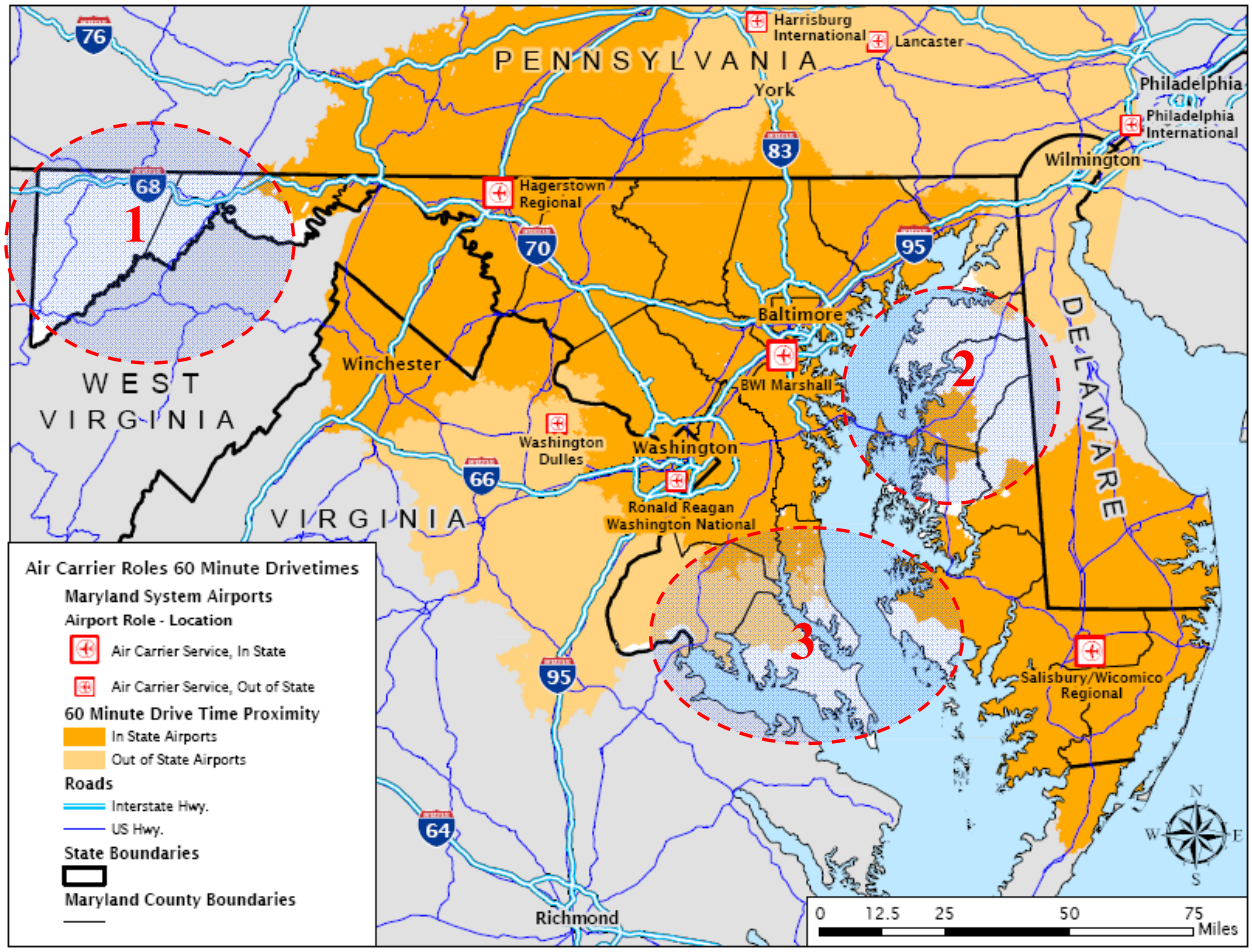
The following is a summary of recommended projects by airport role, which could improve overall aviation system coverage in Maryland. In each category where coverage is less than ideal, drive time maps are provided which highlight coverage Void Areas where reasonable access may be reduced. "Push-pins" where enhancements at existing airports would improve coverage are also illustrated. While most airports requiring improvements to enhance coverage are within their respective Void Area, some airports bordering a Void Area have also been identified in order to improve coverage

- **Air Carrier Airports**: The 60-minute drive analysis conducted for this group of airports shows gaps (Areas 1, 2, and 3) of coverage in western and eastern Maryland as demonstrated in **Exhibit 5-1**. Airport users and air carrier passengers living in western, eastern and south central Maryland may have more than an hour drive to access an airport with commercial service. While over 91 percent of the state's population has convenient access to a Maryland Air Carrier Airport, only 66 percent of the land area of the state is within the same distance. It should be noted that much of the state's population and land area is provided coverage from out-of-state airports in Virginia and Pennsylvania.

  It is not recommended that an additional air carrier airport be built in Maryland to fill these voids. In total, these areas represent less than nine percent of the state population.

In addition, the low levels of airline passenger service at Air Carrier Airports nearest to these remote areas do not suggest a demand for air carrier passenger service. Rather, this suggests that on-going and future roadway projects in these areas should continue to improve the reach of the current Air Carrier Airports through highway and other access improvements.

EXHIBIT 5-1: AIR CARRIER AIRPORTS: VOID AREAS

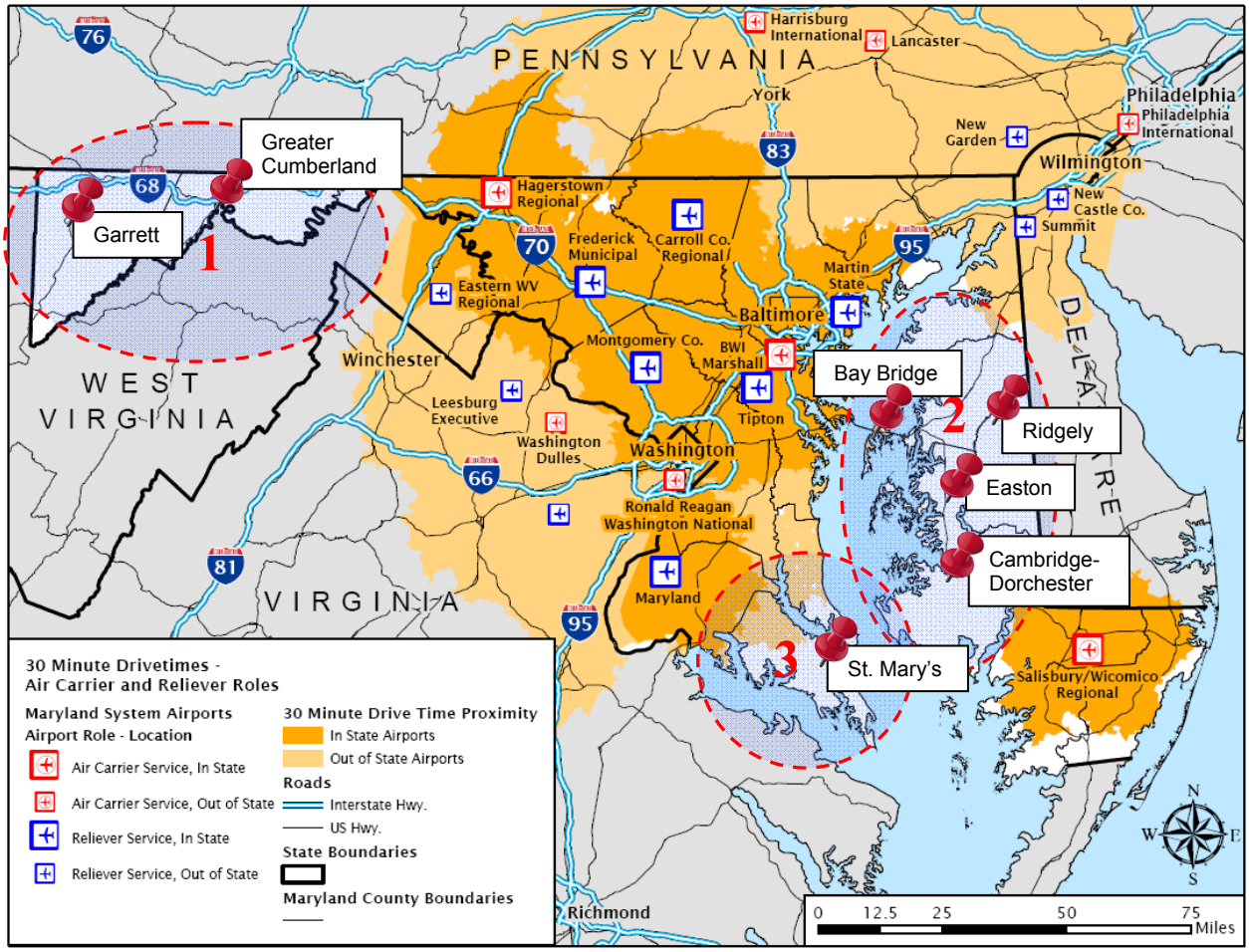


Source: Wilbur Smith Team

- **Reliever Airports:** Voids 1, 2, and 3 in the 30-minute drive time coverage for Reliever Airports (included Air Carrier also) are shown in western, eastern and south central Maryland, respectively on **Exhibit 5-2**. A 30-minute drive time surrounding these airports covers approximately 86 percent of Maryland's population while land coverage is 50 percent, the lowest coverage amounts of all airport role categories. These voids suggest the need to improve several General Airports to "Reliever level" status to enhance Reliever coverage. In Void Area 1, Garrett County and Greater Cumberland Airports should undergo facility and service enhancements to achieve reliever level

capabilities. Improvements to Bay Bridge, Easton, Cambridge-Dorchester, and Ridgely Airports would provide coverage for Reliever level facilities in Void Area 2. Void Area 3 would be eliminated by improvements at St. Mary's Airport. Projects recommended for these airports to enhance system coverage focus primarily on airside related development such as runway extensions, design standardization, better approach capabilities and runway lighting improvements. These projects would fill voids in the reliever coverage category.

EXHIBIT 5-2: RELIEVER AIRPORTS: VOID AREAS



Source: Wilbur Smith Team

The Reliever Airport functional level identifies those airports that contribute significantly to the system by accommodating all levels of general aviation activity. The General Airports discussed above should ideally be upgraded to the Reliever Airport functional level. However, existing constraints at these General Airport functional level facilities may make expansion, specifically related to a 5,000 foot long runway and/or precision approaches, extremely unlikely. For those airports included in the General

Airport functional level, minimum facility objectives have been identified. The MASP recommends that any airport included in the General Airport functional level and within these void areas be developed to the fullest extent possible in efforts to comply with Reliever Airport functional level objectives. If meeting the Reliever Airport facility objectives is impossible or unfeasible, the minimum facility objectives of the General Airport functional level should be still be applied.

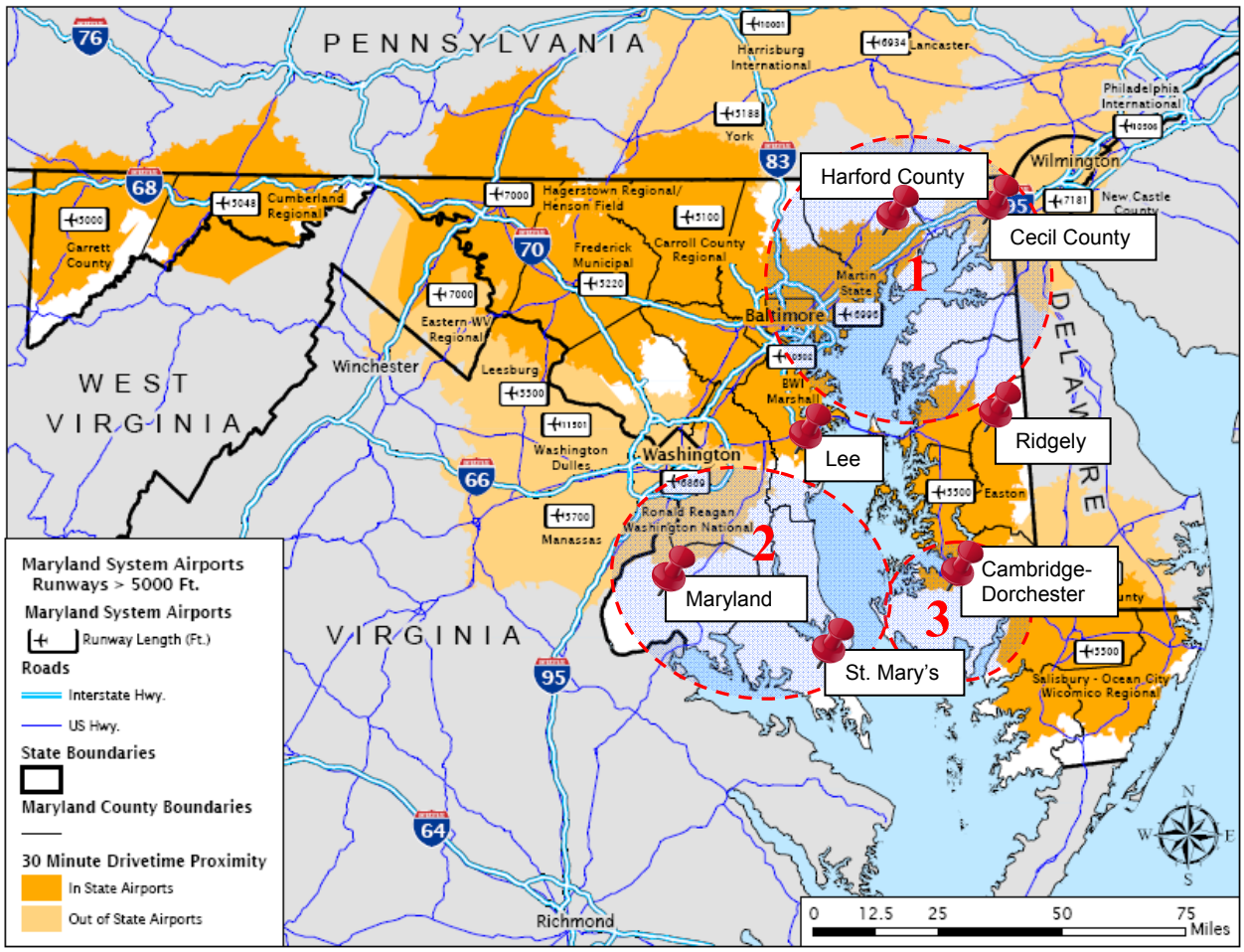
- **General Airports:** The measure of General Airport coverage encompasses a 30-minute drive from all Maryland General Airports. Reliever Airports are included in this coverage analysis because of their ability to accommodate the basic needs of general aviation as well as their own more demanding requirements. Approximately 95 percent of Maryland's population is within a 30-minute drive from an in-state Reliever and/or General Airport. Based on this high level of coverage, no coverage void areas were determined and projects based on coverage are not recommended for this category.

- **Local Airports:** The measure of Local Airport coverage encompasses a 30-minute drive from all Maryland Reliever, General and Local Airports. Reliever and General Airports are included in this coverage analysis because of their ability to accommodate the basic needs of local and recreational general aviation as well as their own more demanding requirements. Approximately 97 percent of Maryland's population is within a 30-minute drive from a Maryland Reliever, General or Local Airport. Similar to the previous category and based on the same high level of coverage, no projects are recommended for this category.

- **5,000 Foot Runway:** Runways with 5,000 or more feet of available pavement provide the operators of most business/corporate aircraft with locations to access the national airspace system. Based on 30-minute drive time analyses, there are voids in 5,000 foot runway coverage in the northeastern (Area 1) and south central (Area 2) portions of the state, as shown in **Exhibit 5-3**.

  To fill voids in Area 1 and support the need for 5,000 foot or longer runways throughout the state, runway extensions at Cecil County, Harford County and Ridgely Airports are ideal. For Area 2, a 5,000 foot runway at St. Mary's, and Lee airports would enhance coverage. In Void Area 3, an extension to Cambridge-Dorchester Airport's runway would provide enhanced geographic coverage in this void.

EXHIBIT 5-3: RUNWAYS > 5,000 FT: VOID AREAS

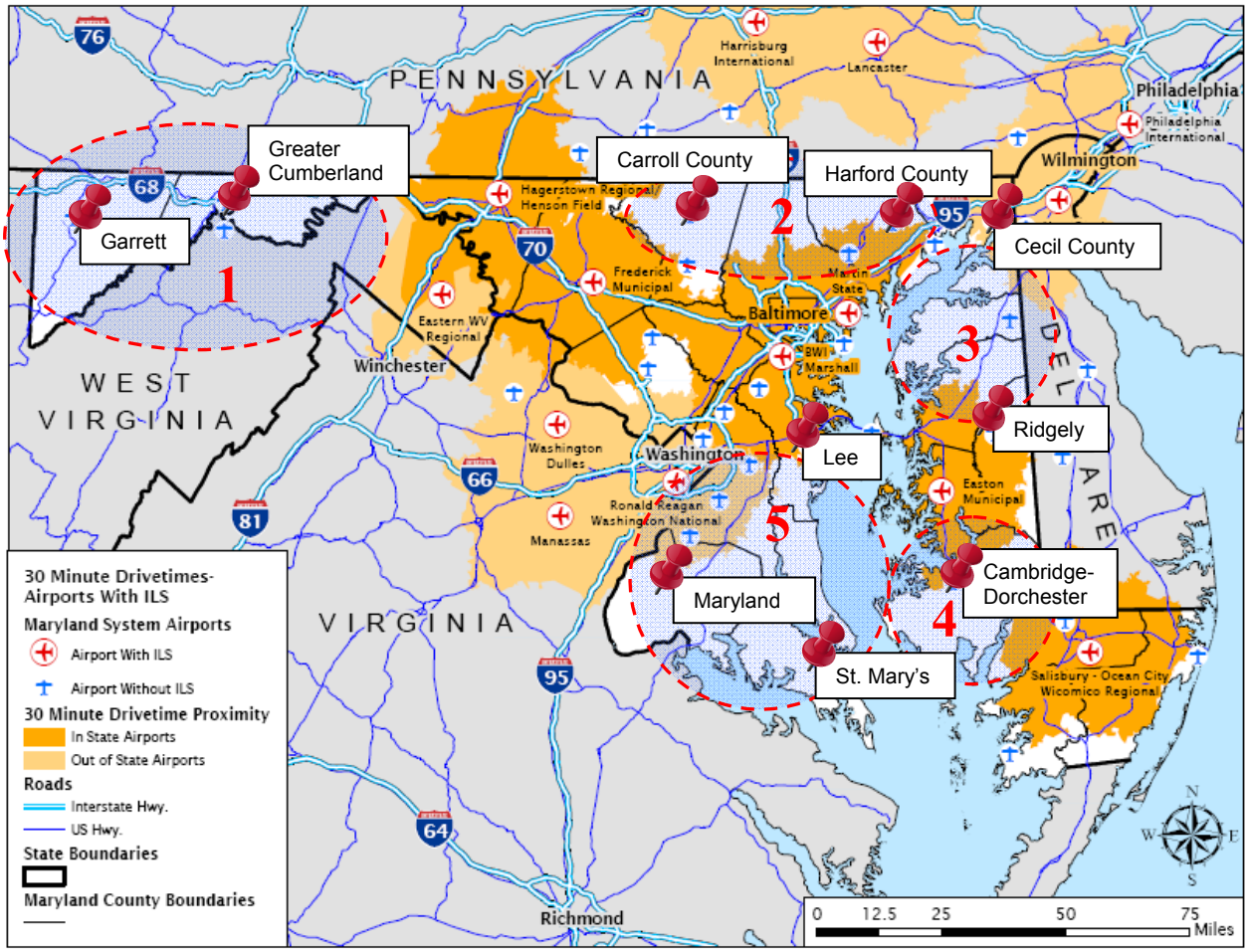


Source: Wilbur Smith Team

- **Precision Approach:** With only 50 percent of the land area and 87 percent of the population covered by airports with precision approaches, enhancements in the area of precision approach capabilities are recommended. The 30-minute drive time analysis conducted for this category demonstrates voids in western (Area 1), northern (Area 2), eastern (Area 3), south eastern (Area 4) and south central (Area 5) Maryland as shown in Exhibit 5-4. These gaps in coverage support precision approach enhancements at Garrett County and Greater Cumberland in Area 1, Carroll and Harford Counties in Area 2, Cecil County and Ridgely in Area 3, Cambridge-Dorchester in Area 4, and Lee, Maryland, and St. Mary's Airports in Area 5.

  Duplicative recommendations for enhanced approach capabilities for meeting facility objectives as well as coverage exist for several airports. Additional study in the implementation of specific approaches should be done to determine the appropriate system to be used at each airport. Detailed airspace analysis is necessary to determine the ultimate feasibility of enhanced approaches.

EXHIBIT 5-4: PRECISION APPROACHES: VOID AREAS



Source: Wilbur Smith Team

- **Precision/Non-Precision Approach:** Based on the drive time analysis approximately 87 percent of Maryland and 98 percent of the population is within 30 minutes of a precision or non-precision approach. Therefore, no coverage voids were identified for this category. Based on the discussion of LPV approach capabilities in the previous chapter; however, approach capabilities at many airports throughout the state may be enhanced through implementation of reduced visibility and height minimums. LPV approaches represent a new technology in airspace management allowing airports greater accessibility than ever before. Primary candidates for LPV approaches (new or reduced minimums) include Carroll County, Cecil County (Proposed), Easton, Frederick Municipal, Garrett County, Greater Cumberland, Martin State, and Montgomery County Airports. These airports require little to no ancillary improvements to support approach development. However, of these airports, four represent opportunities for new LPV approach implementation: Cecil County (Proposed), Garrett County, Greater Cumberland, and Martin State Airports. It is recommended that these four airports have

LPV approaches to provide adequate coverage throughout the system and other airports described earlier seek to lower existing LPV minimums. Additional recommendations for secondary LPV candidates are highlighted in Chapter 4 and may require substantial airside improvements to support enhanced approach capabilities.

The ideal statewide aviation system of airports would provide 100 percent coverage to all potential users in all categories. Considering the various concentrations of airport users scattered throughout the state; however, reasonable coverage below 100 percent is not only expected, it is developmentally and financially responsible. This system plan provides a reasonable level of coverage to potential aviation system users throughout the state. It seeks to improve coverage of reliever airport capabilities in order to attract and retain a wide variety of users within the state. Technological advancements in aviation support systems play a key role in the accessibility of airports. Filling voids in statewide coverage for these types of airports and aviation systems allows the state to provide a higher level of services to aviation users. The following table summarizes airport improvements to enhance coverage.

TABLE 5-4
SYSTEM PLAN: COVERAGE PROJECT SUMMARY

Coverage Category	Airport	Improvement
Air Carrier Airports	None	Highway improvements to enhance accessibility
Reliever Airports	Cambridge-Dorchester Easton Garrett County Greater Cumberland Ridgely St. Mary's	Improvements to achieve Reliever Airport capabilities beyond current General Airport capabilities
General Airports	None	None
Local Airports	None	None
5,000 Foot Runways	Cambridge-Dorchester Cecil County Harford County Ridgely St. Mary's County	Runway extensions of various lengths to achieve 5,000 feet length
Precision Approach	Cambridge-Dorchester Carroll County Cecil County Garrett County Greater Cumberland Harford County Lee Ridgely St. Mary's	Projects to survey property, remove obstructions and install equipment necessary for approved precision approach systems
Precision/Non-Precision Approach	Cecil County (Proposed) (< ¾ mile) Garrett County Greater Cumberland (< ¾ mile) Martin State (< ¾ mile)	Projects to survey and remove obstructions for LPV primary candidate airports

Source: Wilbur Smith Associates, Inc.

III. SUMMARY

The Maryland system of airports provides an excellent mix of facilities to a variety of airport users throughout the state. The coverage of airports is exceptional, reaching a majority of the state population and land area. Areas of improvement can be made; however, to increase the accessibility and utility of the airports and promote a more balanced overall system.

Recommended projects to meet facility objectives as well as those suggested to improve system coverage should undergo independent analysis to determine their benefit to the Airport and surrounding community. Additional projects identified in the Airport's Capital Improvement Program (ACIP) may be of higher priority to the Airport and could outweigh the benefits of a project to enhance coverage.

This chapter provides recommended projects to meet immediate needs related to facility objectives based on an airport's role as well as projects necessary to fill voids in system-wide coverage and future role criteria. **Table 5-5** summarizes all the recommended projects by airport. Duplicative projects related to approach enhancements for facility objectives and coverage were eliminated by showing the recommended approach system ideally suited for each airport based on the role of the airport, existing approach capabilities, required infrastructure improvements and realistic implementation possibilities.

The final chapter will evaluate the feasibility of each project and the benefit that it provides to the airport and the system overall. Additionally, a planning-order of magnitude cost for each project will be developed using available unit cost data. Finally, each recommended project will be prioritized based on safety/security, suggested role compliance and coverage needs. Combined, these inputs will establish a phased implementation approach to system development over the short, medium and long-term.

TABLE 5-5
SYSTEM PLAN: RECOMMENDED PROJECTS

Airport Name	Role Related Project Recommendations	Coverage Related Project Recommendations
Air Carrier Airports		
Baltimore/Washington Int'l Thurgood Marshall	No projects	
Hagerstown Regional Richard A. Henson Field	No projects	
Salisbury – Ocean City Wicomico Regional	No projects	
Reliever Airports		
Carroll County Regional	• LPV Approach (<¾ mile) • Runway Lighting(HIRL and Beacon) • Covered Overnight Secure Storage • Snow Removal	No Projects
Frederick Municipal	• Air Traffic Control Tower • GA Terminal/Admin Building • Covered Overnight Secure Storage	No Projects
Martin State	No projects	• LPV Approach (<¾ mile)
Maryland	• Primary Runway to 5,000' • ARC C-II Standards • Full Parallel Taxiway • Precision Approach • ATC Communications • Runway Lighting(HIRL and Beacon) • Lighted Wind Cone • Vertical Glide Slope Indicator • Weather Reporting • GA Terminal/Admin Building • Covered Overnight Secure Storage • Property Enclosed by Fence	No Projects
Montgomery County	• Primary Runway to 5,000' • ARC C-II standards • Precision Approach • Air Traffic Control Tower • Runway Lighting(HIRL and Beacon)	No Projects
Tipton	• Primary Runway to 5,000' • ARC C-II standards • Precision Approach • Runway Lighting(HIRL and Beacon) • Covered Overnight Secure Storage • Snow Removal	No Projects

TABLE 5-5 (Cont.)
SYSTEM PLAN: RECOMMENDED PROJECTS

Airport Name	Role Related Project Recommendations	Coverage Related Project Recommendations
General Airports		
Bay Bridge	• Primary Runway to 3,500’	• Runway to 5,000’ from 3,500’ • ARC to C-II • Precision Approach • Runway Lighting(HIRL)
Cambridge-Dorchester	No projects	• Primary Runway to 5,000’ • ARC to C-II • Precision Approach • Runway Lighting(HIRL)
Cecil County	• Primary Runway to 3,500’ • Weather Reporting • Property Enclosed by Fence	• Runway to 5,000’ from 3,500’ • Precision Approach
Cecil County (Proposed)	No projects	• LPV Approach (<¾ mile)
College Park	• Primary Runway to 3,500’ • GA Terminal/Admin Building	No Projects
Crisfield-Somerset County	• Primary Runway to 3,500’ • Partial Parallel Taxiway • Weather Reporting • GA Terminal/Admin Building • Property Enclosed by Fence • Snow Removal	No Projects
Easton/Newnam Field	No projects	• Runway Lighting(HIRL)
Freeway	• Primary Runway to 3,500’ • ARC B-I Standards • Weather Reporting • GA Terminal/Admin Building • Property Enclosed by Fence	No Projects
Garrett County	• GA Terminal/Admin Building	• ARC to C-II • Precision Approach • Runway Lighting(HIRL) • LPV Approach
Greater Cumberland Regional	• Property Enclosed by Fence • Snow Removal	• Precision Approach • Runway Lighting(HIRL) • LPV Approach (<¾ mile)
Harford County	• Primary Runway to 3,500’ • ARC B-I Standards • Partial Parallel Taxiway • Runway Lighting(MIRL and Beacon) • Weather Reporting • GA Terminal/Admin Building • Paved Aircraft Parking • Property Enclosed by Fence • Snow Removal	• Runway to 5,000’ from 3,500’ • Precision Approach

TABLE 5-5 (Cont.)
SYSTEM PLAN: RECOMMENDED PROJECTS

Airport Name	Role Related Project Recommendations	Coverage Related Project Recommendations
General Airports (cont.)		
Lee	• Primary Runway to 3,500' • ARC B-I Standards • Runway Lighting(MIRL and Beacon) • GA Terminal/Admin Building • Paved Aircraft Parking	• Precision Approach
Ocean City Municipal	• Property Enclosed by Fence • Snow Removal	No Projects
Potomac Airfield – Friendly	• Primary Runway to 3,500' • ARC B-I Standards • Runway Lighting(MIRL and Beacon) • Paved Aircraft Parking • Property Enclosed by Fence • Snow Removal	No Projects
Ridgely Airpark	• Primary Runway to 3,500' • Runway Lighting(MIRL and Beacon) • Vertical Glide Slope Indicator • GA Terminal/Admin Building • Property Enclosed by Fence • Snow Removal	• Runway to 5,000' from 3,500' • Precision Approach
St. Mary's County Regional	No projects	• Primary Runway to 5,000' • ARC to C-II • Precision Approach • Runway Lighting(HIRL)
Washington Executive/Hyde Field	• Primary Runway to 3,500' • Runway Lighting(MIRL and Beacon) • Weather Reporting • GA Terminal/Admin Building • Snow Removal	No Projects
Local Airports		
Bennett	• Fuel (100LL) • Property Enclosed by Fence	No Projects
Clearview	• Primary Runway to 2,000' • ARC A-I Small Standards • Runway Lighting(LIRL and Beacon) • Property Enclosed by Fence	No Projects
Davis	• Runway Lighting(LIRL and Beacon) • Lighted Wind Cone • Fuel (100LL) • Property Enclosed by Fence	No Projects
Essex Skypark	• Fuel (100LL) • Property Enclosed by Fence	No Projects
Fallston	• Runway Lighting(LIRL and Beacon) • Lighted Wind Cone • Property Enclosed by Fence	No Projects

TABLE 5-5 (Cont.)
SYSTEM PLAN: RECOMMENDED PROJECTS

	Role Related Project Recommendations	Coverage Related Project Recommendations
Local Airports (cont.)		
Kentmorr	• Lighted Wind Cone • Vertical Glide Slope Indicator • Fuel (100LL) • Property Enclosed by Fence	No Projects
Massey Aerodrome	• Lighted Wind Cone • Vertical Glide Slope Indicator • Fuel (100LL) • Property Enclosed by Fence	No Projects
Mexico Farms	• Fuel (100LL) • Property Enclosed by Fence	No Projects
Suburban Airpark	• Property Enclosed by Fence	No Projects

Source: Wilbur Smith Associates, Inc.

CHAPTER SIX
IMPLEMENTATION PLAN

Chapter Five presented recommended projects for Maryland system airports to meet facility objectives and enhance overall system coverage. Choices on which projects are funded are made by understanding their feasibility, associated benefits, priority for development and overall cost. This chapter examines projects in additional detail in order to better understand these attributes. To do this, this chapter identifies costs associated with system plan projects and sets a priority for their implementation. This chapter is organized as follows:

- Feasibility and Benefits – Presents the challenges associated with projects and their contribution to the airport and overall system.
- Priority of Development – Sets project priority perimeters to rank the degree of importance for each project and define the plan for implementing projects throughout the state.
- Project Costs – Defines the rough order of magnitude costs associated with each recommended project based on known project costs, capital budgets or industry standards
- Summary

I. FEASIBILITY AND BENEFITS

As discussed in previous chapters, the projects recommended are intended to provide system airports with enhancements to meet suggested roles as well as improve system wide coverage. In order to accomplish these recommendations, airport sponsors may be faced with challenges including environmental restrictions, physical conditions, funding limitations, and/or the need for increased political and/or public understanding and support. When presented with development constraints, airport sponsors should look to the Maryland Aviation Administration and the Federal Aviation Administration for advice regarding future development.

The actual feasibility of development projects recommended in this study will undoubtedly vary widely based upon the actual conditions (physical, fiscal, and political) at each airport.

Each recommended project in this study provides a tangible benefit to the respective airport and to the system as a whole. The types of benefits may include increased safety and security of the airport operations area, increased capacity of the airfield through runway, taxiway and approach improvements or improved facilities provided to pilots, visitors and employees through terminal area development. The benefits associated with each project should be studied along with the challenges discussed above to determine what the project would mean to the airport's operation, financial situation and standing within the community. Typically, an airport master plan and/or airport layout plan is the vehicle to determine what projects are needed to meet local demand

II. PRIORITY OF DEVELOPMENT

The analyses completed in previous chapters evaluated system development needs at airports over the next 20 years, based on each airport's role in the system as well as forecast activity and operational efficiency. One of the most critical elements in the planning process is the application of basic financial, economic and management rationale to determine the feasibility of each project contained in the system plan. It is not critical to develop all recommended projects in this study immediately. On the contrary, it would be more prudent to systematically implement improvements in order to spread development costs through the 20-year period and focus efforts on critical projects in the early stages.

Based on discussions with the MAA, short, medium and long-term implementation periods have been established and shown in **Table 6-1** in order to prioritize individual projects over the next 20 years. A description of each period and type of project in each period is provided below.

- **Short Term (1-5 years)**: Projects included in the short term are related to the safety and security of each airport in the system. Sample projects include the installation of fencing around the airport property and aircraft operations area as well as snow removal equipment to improve safety and accessibility during winter months. Also important to overall airport safety, are the adherence FAA airport design standards. Projects recommended to meet FAA Airport Reference Code (ARC) standards related to an airport's recommended **role** are considered critical for the safety of its users and deemed short term projects. Projects necessary to meet ARC standards related system **coverage** and intended to increase the distribution of facilities meeting reliever airport standards are not considered critical for the safety and not deemed short term projects.

- **Mid-Term (6-10 years)**: Mid-term projects are those recommended to meet facility objectives associated with airport roles. Detailed in Chapter 3, the current system of Maryland airports was stratified into five roles, based predominately on their current NPIAS classification in addition to how the airport functions in the system. Airports not included in the NPIAS were categorized similarly based on their level of service and type of activity. General facility objectives recommended to support each airport's role were identified. From those objectives and through an analysis of existing facilities, recommended projects were determined. These projects will fall within the six to ten year timeframe.

- **Long Term (11-20 years)**: Projects recommended for the long term are primarily related to enhancing the geographic coverage of airports throughout the state. Airport coverage was assessed for each of the roles (Air Carrier, Reliever, General and Local Service) of airports in Maryland as a part of Chapter 4. Each airport role was evaluated for the percentage of the state's population and geography that was covered by a reasonable drive time. Gaps or voids in coverage within the system represented areas where further development of an airport could improve accessibility, thus enhancing coverage. The result is a series of long term projects that, while not urgent for safety or security and not intended to meet facility objectives, improves overall coverage of airports throughout the state.

It is important to note that projects recommended in this study are not intended to replace a master plan, but rather offer a high-level evaluation of the current system. An airport's master plan, as well as unique circumstances, will dictate what type of facilities will be in place at an individual airport.

III. PROJECT COSTS

Once the specific needs and improvements for the system have been established and prioritized, the next is to determine realistic costs for implementing the plan. A planning level estimate was developed for each recommended project using historic unit costs for similar Maryland projects as well as standard generic planning costs. Cost estimates for each development project are shown in 2008 dollars. Implementation of these capital projects should only be undertaken after detailed design and further refinement of costs. **Table 6-1** presents the estimated cost and priority associated with each recommended system plan project for each system airport. It should be noted that additional costs associated land acquisition, environmental permitting and remediation, design, etc. may be required with certain projects.

TABLE 6-1
RECOMMENDED PROJECTS: COSTS AND PHASING

Airport Name	Short Term (1-5 years)	Medium Term (6-10 years)	Long Term (11-20 years)
Air Carrier Airports			
Baltimore/Washington Int'l Thurgood Marshall		No Projects	
Hagerstown Regional Richard A. Henson Field		No Projects	
Salisbury – Ocean City Wicomico Regional		No Projects	
SUB TOTAL	**$ 0**	**$ 0**	**$ 0**
Reliever Airports			
Carroll County Regional			
LPV Approach (<¾ mile)		$ 1,000,000	
Runway Lighting (HIRL/Beacon)		308,000	
Covered Overnight Secure Storage		1,500,000	
Snow Removal	$ 250,000		
Frederick Municipal			
Air Traffic Control Tower		3,500,000	
GA Terminal/Admin Building		800,000	
Covered Overnight Secure Storage		1,500,000	
LPV Approach			$ 250,000
Martin State			
LPV Approach (<¾ mile)			1,000,000
Maryland			
Primary Runway to 5,000'		7,000,000	
ARC C-II Standards	2,000,000		
Full Parallel Taxiway		4,000,000	
Precision Approach		1,500,000	
ATC Communications		-	
Runway Lighting (HIRL/Beacon)		380,000	
Lighted Wind Cone		5,000	
Vertical Glide Slope Indicator		100,000	
Weather Reporting		100,000	
GA Terminal/Admin Building		800,000	
Covered Overnight Secure Storage		1,500,000	
Property Enclosed by Fence	679,000		
Montgomery County			
Primary Runway to 5,000'		3,000,000	
ARC C-II standards	27,700,000		
Precision Approach		1,500,000	
Air Traffic Control Tower		3,500,000	
Runway Lighting (HIRL/Beacon)		308,000	
Tipton			
Primary Runway to 5,000'		3,810,000	
ARC C-II standards	475,000		
Precision Approach		1,500,000	
Runway Lighting (HIRL/Beacon)		380,000	
Covered Overnight Secure Storage		1,500,000	
Snow Removal	250,000		
SUB TOTAL	**$ 31,354,000**	**$ 39,491,000**	**$ 1,250,000**

TABLE 6-1 (Cont.)
RECOMMENDED PROJECTS: COSTS AND PHASING

Airport Name	Short Term (1-5 years)	Medium Term (6-10 years)	Long Term (11-20 years)
General Airports			
Bay Bridge			
Primary Runway to 3,500'		$ 3,000,000	
Runway to 5,000' from 3,500'			$ 10,000,000
ARC to C-II			3,500,000
Precision Approach			1,500,000
Runway Lighting (HIRL)			308,000
Cambridge-Dorchester			
Primary Runway to 5,000'			1,400,000
ARC to C-II			3,610,000
Precision Approach			1,500,000
Runway Lighting (HIRL)			308,000
Cecil County			
Primary Runway to 3,500'		800,000	
Weather Reporting		100,000	
Property Enclosed by Fence	$ 40,000		
Runway to 5,000' from 3,500'			2,250,000
Precision Approach			1,500,000
Cecil County (Proposed)			
LPV Approach (<¾ mile)			1,000,000
College Park			
Primary Runway to 3,500'		1,500,000	
GA Terminal/Admin Building		600,000	
Crisfield-Somerset County			
Primary Runway to 3,500'		1,735,000	
Partial Parallel Taxiway		1,000,000	
Weather Reporting		100,000	
GA Terminal/Admin Building		600,000	
Property Enclosed by Fence	236,000		
Snow Removal	100,000		
Easton/Newnam Field			
Runway Lighting (HIRL)			332,000
LPV Approach (<¾ mile)			1,000,000
Freeway			
Primary Runway to 3,500'		1,600,000	
ARC B-I Standards	3,500,000		
Weather Reporting		100,000	
GA Terminal/Admin Building		600,000	
Property Enclosed by Fence	72,000		
Garrett County			
GA Terminal/Admin Building		600,000	
ARC to C-II			2,500,000
Precision/LPV Approach			1,500,000
Runway Lighting (HIRL)			308,000
Greater Cumberland Regional			
Property Enclosed by Fence	565,000		
Snow Removal	100,000		
Precision/LPV Approach			1,000,000
Runway Lighting (HIRL)			305,000

TABLE 6-1 (Cont.)
RECOMMENDED PROJECTS: COSTS AND PHASING

Airport Name	Short Term (1-5 years)	Medium Term (6-10 years)	Long Term (11-20 years)
General Airports (cont.)			
Harford County			
Primary Runway to 3,500'		$ 2,000,000	
ARC B-I Standards	$ 1,500,000		
Partial Parallel Taxiway		1,500,000	
Runway Lighting (MIRL/Beacon)		280,000	
Weather Reporting		100,000	
GA Terminal/Admin Building		600,000	
Paved Aircraft Parking		500,000	
Property Enclosed by Fence	108,000		
Snow Removal	100,000		
Runway to 5,000' from 3,500'			$ 2,250,000
Precision Approach			1,500,000
Lee			
Primary Runway to 3,500'		1,500,000	
ARC B-I Standards	1,500,000		
Runway Lighting (MIRL/Beacon)		211,000	
GA Terminal/Admin Building		600,000	
Paved Aircraft Parking		500,000	
Precision Approach			1,500,000
Ocean City Municipal			
Property Enclosed by Fence	1,003,000		
Snow Removal	100,000		
Potomac Airfield – Friendly			
Primary Runway to 3,500'		1,250,000	
ARC B-I Standards	1,500,000		
Runway Lighting (MIRL/Beacon)		211,000	
Paved Aircraft Parking		500,000	
Property Enclosed by Fence	90,000		
Snow Removal	100,000		
Ridgely Airpark			
Primary Runway to 3,500'		750,000	
Runway Lighting (MIRL/Beacon)		302,000	
Vertical Glide Slope Indicator		100,000	
GA Terminal/Admin Building		600,000	
Property Enclosed by Fence	277,000		
Snow Removal	100,000		
Runway to 5,000' from 3,500'			2,250,000
Precision Approach			1,500,000
St. Mary's County Regional			
Primary Runway to 5,000'			5,039,000
ARC to C-II			3,342,000
Precision Approach			1,500,000
Runway Lighting (HIRL)			302,000
Washington Executive/Hyde Field			
Primary Runway to 3,500'		1,200,000	
Runway Lighting (MIRL/Beacon)		211,000	
Weather Reporting		100,000	
GA Terminal/Admin Building		600,000	
Snow Removal	100,000		
SUB TOTAL	**$ 11,091,000**	**$ 25,950,000**	**$ 53,004,000**

TABLE 6-1 (Cont.)
RECOMMENDED PROJECTS: COSTS AND PHASING

Airport Name	Short Term (1-5 years)	Medium Term (6-10 years)	Long Term (11-20 years)
Local Airports			
Bennett			
Fuel (100LL)		$ 125,000	
Property Enclosed by Fence	$ 99,000		
Clearview			
Primary Runway to 2,000'		1,200,000	
ARC A-I Small Standards	1,500,000		
Runway Lighting (LIRL/Beacon)		121,000	
Property Enclosed by Fence	90,000		
Davis			
Runway Lighting (LIRL/Beacon)		121,000	
Lighted Wind Cone		5,000	
Fuel (100LL)		125,000	
Property Enclosed by Fence	25,000		
Essex Skypark			
Fuel (100LL)		125,000	
Property Enclosed by Fence	945,000		
Fallston			
Runway Lighting (LIRL/Beacon)		133,000	
Lighted Wind Cone		5,000	
Property Enclosed by Fence	36,000		
Kentmorr			
Lighted Wind Cone		5,000	
Vertical Glide Slope Indicator		100,000	
Fuel (100LL)		125,000	
Property Enclosed by Fence	36,000		
Massey Aerodrome			
Lighted Wind Cone		5,000	
Vertical Glide Slope Indicator		100,000	
Fuel (100LL)		125,000	
Property Enclosed by Fence	167,000		
Mexico Farms			
Fuel (100LL)		125,000	
Property Enclosed by Fence	90,000		
Suburban Airpark			
Property Enclosed by Fence	94,000		
SUB TOTAL	**$ 3,082,000**	**$ 2,545,000**	**$ 0**
GRAND TOTAL	**$ 45,527,000**	**$ 67,986,000**	**$ 54,254,000**

Source: Wilbur Smith Associates, Inc.

IV. SUMMARY

Table 6-2 presents a summary of the project costs and phasing broken down by airport categories or roles presented throughout this study. Total estimated costs for all recommended system projects amount to more than $167 million. The split of overall development between the short, mid- and long-term periods is 27 percent, 41 percent, and 32 percent, respectively.

TABLE 6-2
RECOMMENDED PROJECTS: COSTS AND PHASING SUMMARY

Airport Category	Short Term (1-5 years)	Medium Term (6-10 years)	Long Term (11-20 years)
Commercial Airports	$ 0	$ 0	$ 0
Reliever Airports	31,354,000	39,491,000	1,250,000
General Airports	11,091,000	25,950,000	53,004,000
Local Airports	3,082,000	2,545,000	0
GRAND TOTAL	**$ 45,527,000**	**$ 67,986,000**	**$ 54,254,000**

Source: Wilbur Smith Associates, Inc.

Total costs for projects in the short term (1-5 years) are over $45 million. Although property fencing and snow removal equipment costs are common expenditures in this period, the majority of costs associated with development within this period are related to improvements to comply with FAA design standards and achieve recommended ARC goals. Almost 69 percent of all project costs in the short-term period are allocated to reliever airports.

The mid-term (6-10 years) project costs are estimated to reach nearly $68 million. Reliever airports account for 58 percent of all mid-term project costs in while general airport project costs represent 38 percent of the total for the period. Almost all (98 percent) of the development for reliever airports takes place during the first ten years of the planning period.

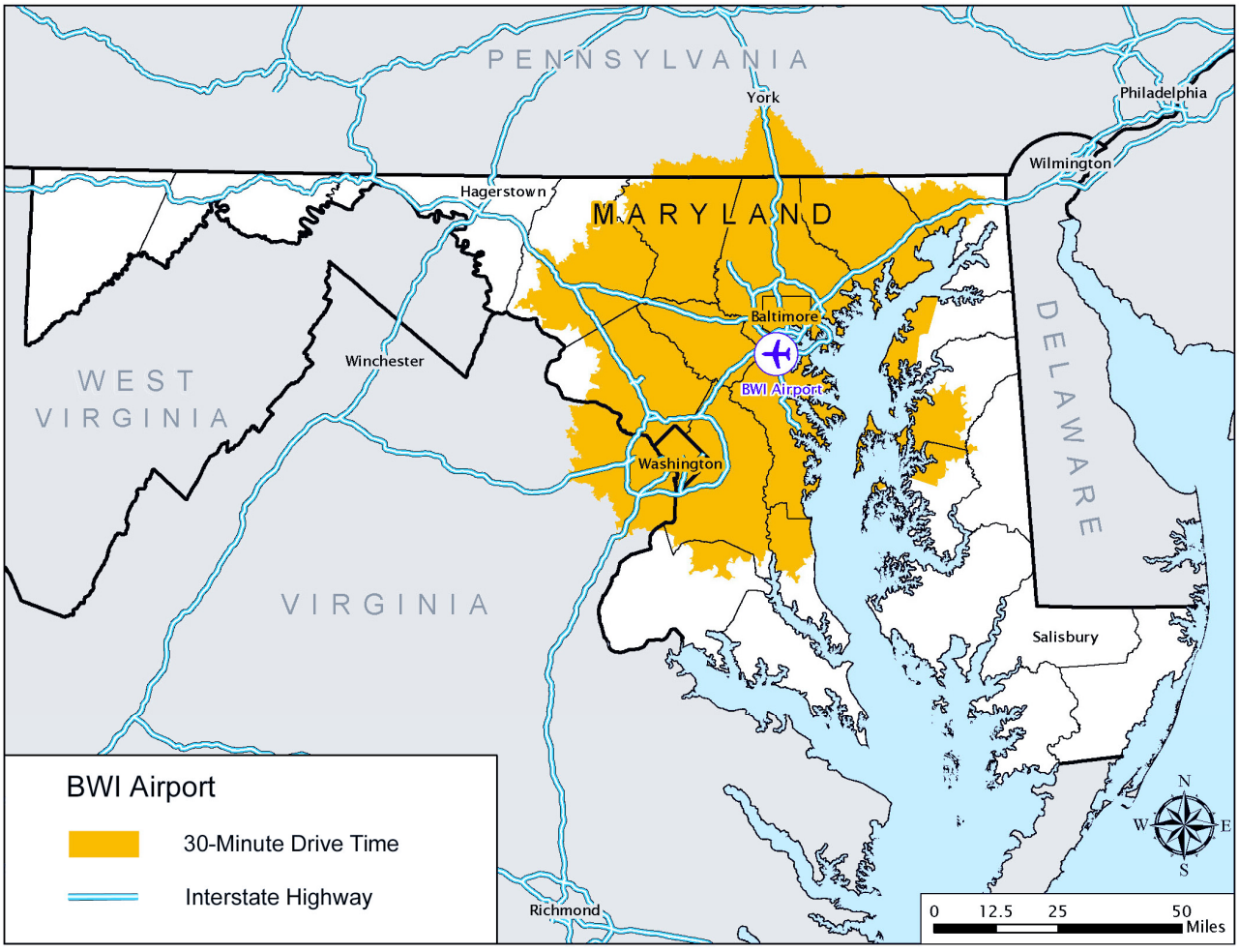
The long-term (11-20 years) projects costs total over $54 million. An overwhelming 98 percent of costs in the long-term period are devoted to projects at general airports. Most of the project costs in this category are associated with runway extensions and airfield design improvements to enhance the coverage of general airports throughout the state.

BALTIMORE-WASHINGTON INTERNATIONAL THURGOOD MARSHALL AIRPORT
BALTIMORE, MARYLAND

AIRPORT LOCATION AND FACILITIES

Baltimore-Washington International Thurgood Marshall Airport is located 10 miles south of Baltimore and 30 miles north of Washington, D.C in Baltimore City County. Existing aviation facilities at the airport include a paved 10,502-foot primary runway with a precision approach and 9,501, 6,000, and 5,000-foot secondary runways. The airport has high intensity runway lighting (HIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	10,502 feet
Primary Runway Width	200 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Precision
Fuel Type(s)	Jet-A, 100 LL



BWI Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Baltimore-Washington International Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Baltimore-Washington International Airport, this System Plan recommends the role of Air Carrier for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Baltimore-Washington International Airport as a Primary Commercial Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	Air Carrier
FAA/NPIAS Role	Primary Commercial

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Baltimore-Washington International Airport estimate that based aircraft will increase from 97 in 2006 to 146 in 2026. The projected annual general aviation aircraft operations are expected to increase from 38,900 in 2006 to approximately 47,300 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	64	96
Multi-Engine	20	30
Jet	13	20
Helicopter	0	0
Other	0	0
Total	97	146

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	38,900	47,300

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

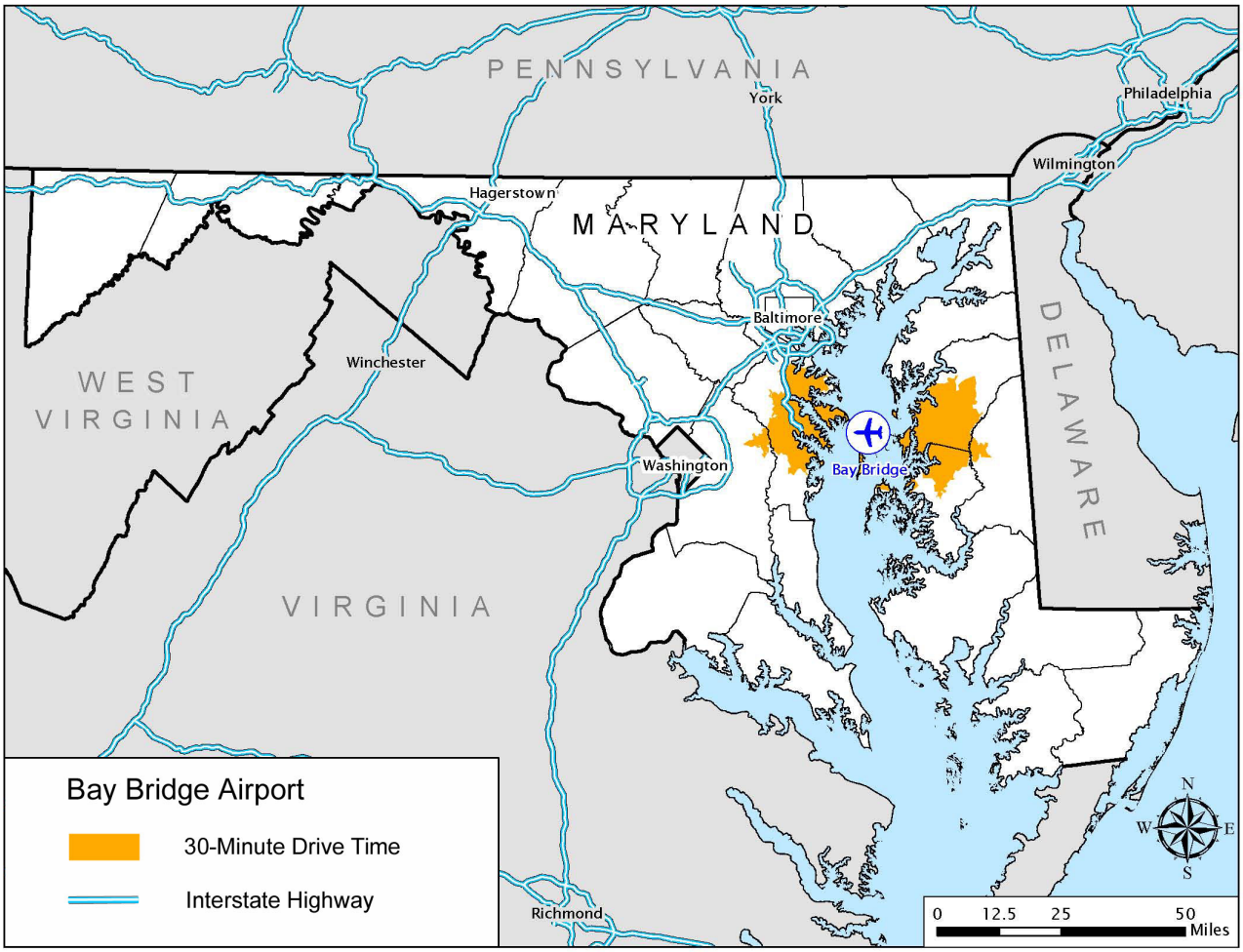
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
No projects	-
To Meet COVERAGE Objectives	
Project	**Project Cost**
No Projects	-

BAY BRIDGE AIRPORT
STEVENSVILLE, MARYLAND

AIRPORT LOCATION AND FACILITIES

Bay Bridge Airport is located one mile west of Stevensville in Queen Anne's County. Existing aviation facilities at the airport include a paved 2,903-foot primary runway with a non-precision approach. The airport has medium intensity runway lighting (MIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	2,903 feet
Primary Runway Width	60 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Non-precision
Fuel Type(s)	Jet-A, 100 LL



Bay Bridge Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Bay Bridge Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Bay Bridge Airport, this System Plan recommends the role of General for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Bay Bridge Airport as a General Aviation Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	General
FAA/NPIAS Role	General Aviation

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Bay Bridge Airport estimate that based aircraft will remain at 82 from 2006 to 2026. The projected annual general aviation aircraft operations are expected to increase from 52,100 in 2006 to approximately 71,800 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	70	70
Multi-Engine	10	10
Jet	0	0
Helicopter	2	2
Other	0	0
Total	82	82

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	52,100	71,800

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

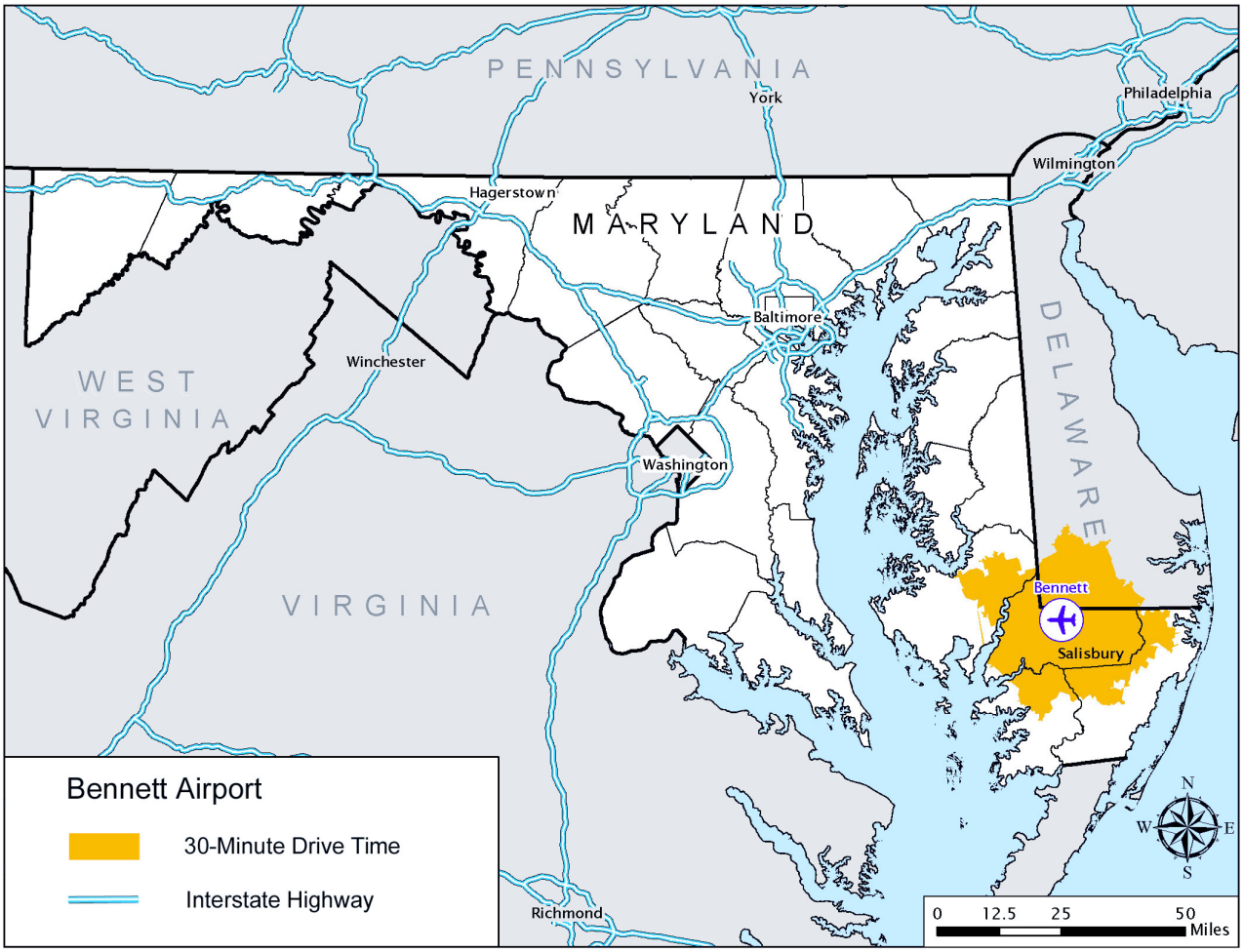
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
Primary Runway to 3,500 feet	$3,000,000
Total	**$3,000,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
Primary Runway to 5,000 feet from 3,500 feet	$10,000,000
ARC to C-II	$3,500,000
Precision Approach	$1,500,000
Runway Lighting (HIRL)	$308,000
Total	**$15,308,000**

BENNETT AIRPORT
SALISBURY, MARYLAND

AIRPORT LOCATION AND FACILITIES

Bennett Airport is located four miles northwest of Salisbury in Wicomico County. Existing aviation facilities at the airport include a turf 3,150-foot primary runway with a visual approach. The airport has low intensity runway lighting (LIRL) and a turnaround taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	3,150 feet
Primary Runway Width	95 feet
Primary Runway Surface	Turf
Taxiway Type	Turnaround
Approach Type	Visual
Fuel Type(s)	None



Bennett Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Bennett Airport is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Bennett Airport, this System Plan recommends the role of Local for the Airport. The Airport is not included in the FAA's most recent National Plan of Integrated Airport Systems (NPIAS) and relies on state and local funding for airport improvements.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	Local
FAA/NPIAS Role	Non-NPIAS

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Bennett Airport estimate that based aircraft will increase from 10 in 2006 to 13 in 2026. The projected annual general aviation aircraft operations are expected to increase from 2,000 in 2006 to approximately 2,600 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	10	13
Multi-Engine	0	0
Jet	0	0
Helicopter	0	0
Other	0	0
Total	10	13

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	2,000	2,600

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

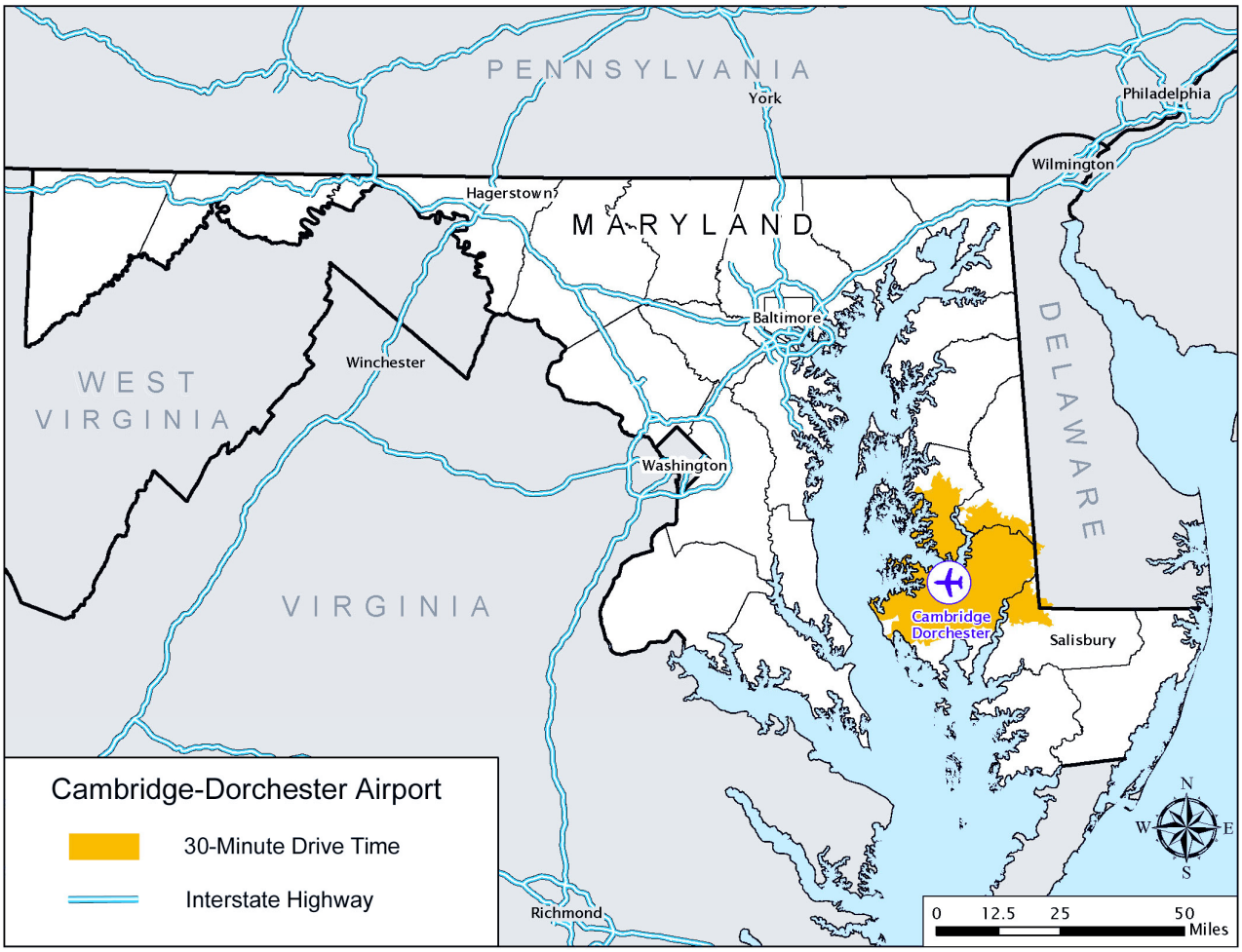
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
Fuel (100LL)	$125,000
Property Enclosed by Fence	$99,000
Total	**$224,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
No Projects	-

CAMBRIDGE-DORCHESTER AIRPORT
CAMBRIDGE, MARYLAND

AIRPORT LOCATION AND FACILITIES

Cambridge-Dorchester Airport is located three miles southeast of Cambridge in Dorchester County. Existing aviation facilities at the airport include a paved 4,476-foot primary runway with a non-precision approach. The airport has medium intensity runway lighting (MIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	4,476 feet
Primary Runway Width	75 feet
Primary Runway Surface	Paved
Taxiway Type	Full Parallel
Approach Type	Non-precision
Fuel Type(s)	Jet-A, 100LL



Cambridge-Dorchester Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Cambridge-Dorchester Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Cambridge-Dorchester Airport, this System Plan recommends the role of General for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Cambridge-Dorchester Airport as a General Aviation Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	General
FAA/NPIAS Role	General Aviation

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Cambridge-Dorchester Airport estimate that based aircraft will increase from 55 in 2006 to 95 in 2026. The projected annual general aviation aircraft operations are expected to increase from 23,600 in 2006 to approximately 41,900 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	51	88
Multi-Engine	4	7
Jet	0	0
Helicopter	0	0
Other	0	0
Total	55	95

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	23,600	41,900

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

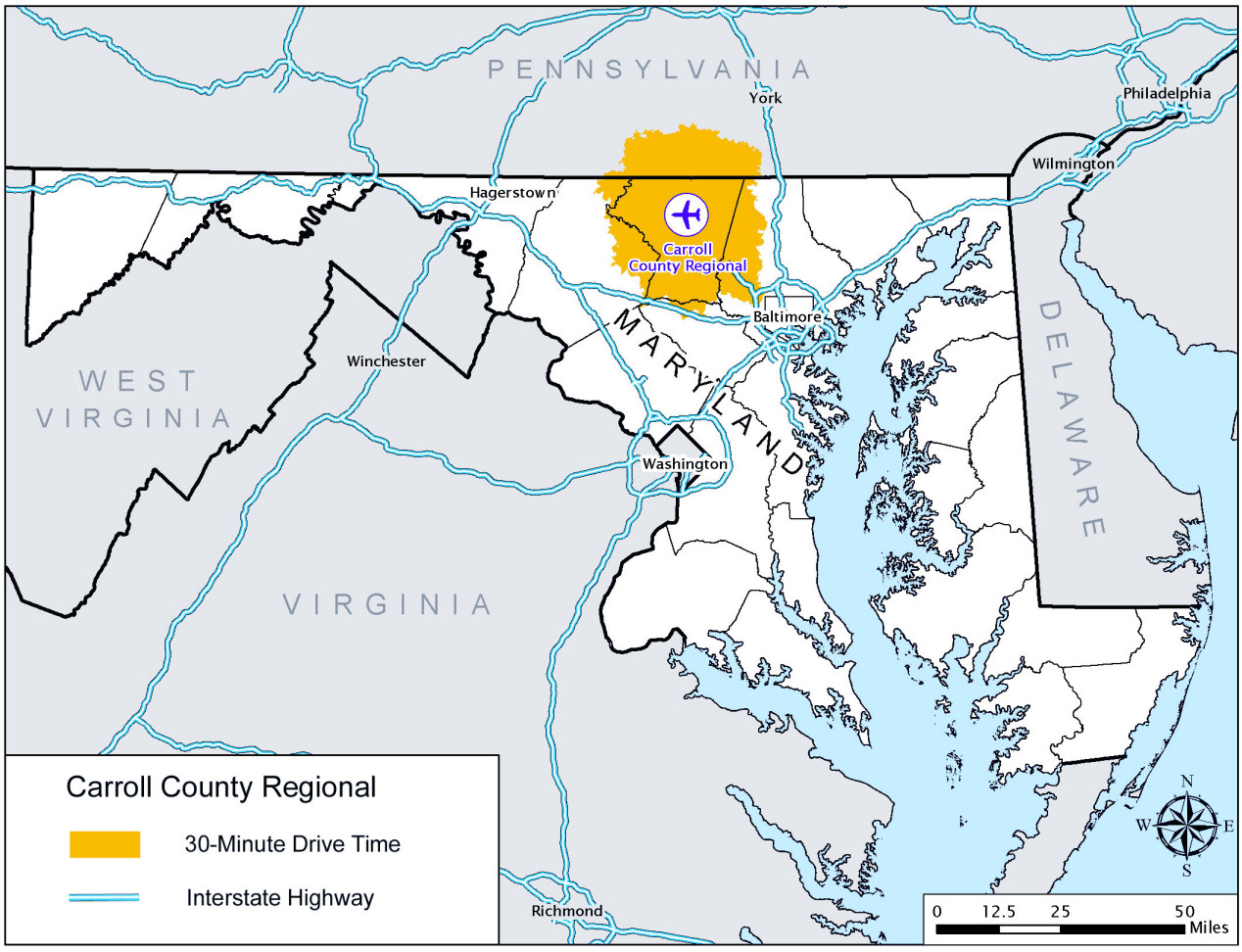
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
No projects	-
To Meet COVERAGE Objectives	
Projects	**Project Cost**
Primary Runway to 5,000 feet	$1,400,000
ARC to C-II	$3,610,000
Precision Approach	$1,500,000
Runway Lighting (HIRL)	$308,000
Total	**$6,818,000**

CARROLL COUNTY AIRPORT
WESTMINSTER, MARYLAND

AIRPORT LOCATION AND FACILITIES

Carroll County Airport is located three miles north of Westminster in Carroll County. Existing aviation facilities at the airport include a paved 5,100-foot primary runway with a non-precision approach. The airport has medium intensity runway lighting (MIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	5,100 feet
Primary Runway Width	100 feet
Primary Runway Surface	Paved
Taxiway Type	Full Parallel
Approach Type	Non-precision
Fuel Type(s)	Jet-A, 100LL



Carroll County Regional – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Carroll County Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Carroll County Airport, this System Plan recommends the role of Reliever for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Carroll County Airport as a Reliever Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	Reliever
FAA/NPIAS Role	Reliever

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Carroll County Airport estimate that based aircraft will increase from 133 in 2006 to 173 in 2026. The projected annual general aviation aircraft operations are expected to increase from 116,300 in 2006 to approximately 208,800 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	111	135
Multi-Engine	15	20
Jet	5	16
Helicopter	2	2
Other	0	0
Total	133	173

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	116,300	208,800

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

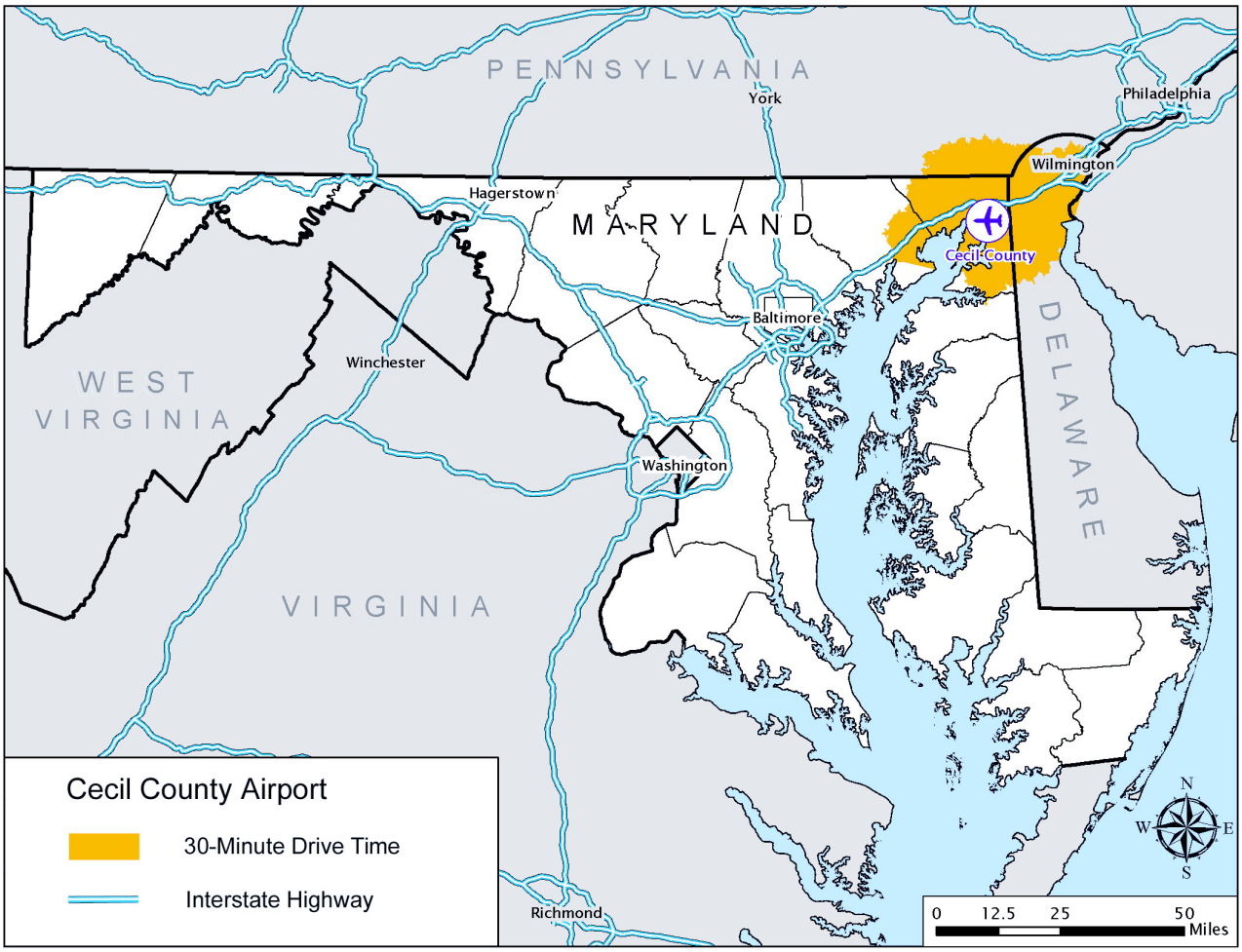
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
LPV Approach (<3/4 mile)	$1,000,000
Runway Lighting (HIRL)	$308,000
Covered Overnight Secured Storage	$1,500,000
Snow Removal	$250,000
Total	**$3,058,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
No projects	-

CECIL COUNTY AIRPORT
ELKTON, MARYLAND

AIRPORT LOCATION AND FACILITIES

Cecil County Airport is located three miles southwest of Elkton in Cecil County. Existing aviation facilities at the airport include a paved 3,000-foot primary runway with a non-precision approach. The airport has medium intensity runway lighting (MIRL) and a partial parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	3,000 feet
Primary Runway Width	70 feet
Primary Runway Surface	Paved
Taxiway Type	Partial Parallel
Approach Type	Non-precision
Fuel Type(s)	Jet-A, 100LL



Cecil County Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Cecil County Airport is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Cecil County Airport, this System Plan recommends the role of General for the Airport. The Airport is not included in the FAA's most recent National Plan of Integrated Airport Systems (NPIAS) and relies on state and local funding for airport improvements.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	General
FAA/NPIAS Role	Non-NPIAS

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Cecil County Airport estimate that based aircraft will increase from 65 in 2006 to 138 in 2026. The projected annual general aviation aircraft operations are expected to increase from 25,100 in 2006 to approximately 53,500 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	59	121
Multi-Engine	3	6
Jet	0	2
Helicopter	0	3
Other	3	6
Total	65	138

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	25,100	53,500

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

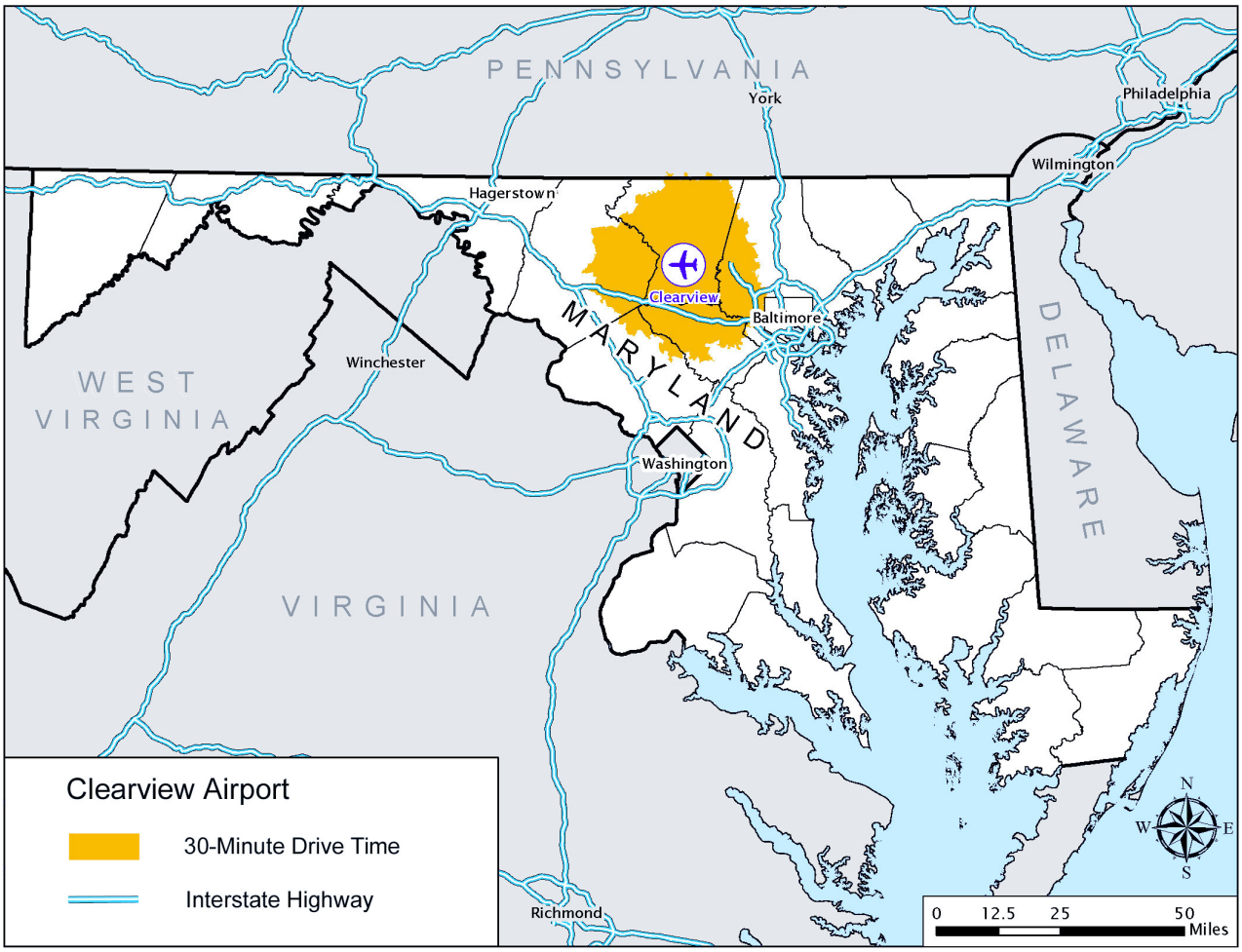
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
Primary Runway to 3,500 feet	$800,000
Weather Reporting	$100,000
Property Enclosed by Fence	$40,000
Total	**$940,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
Primary Runway to 5,000 feet from 3,500 feet	$2,250,000
Precision Approach	$1,500,000
Total	**$3,750,000**

CLEARVIEW AIRPORT
WESTMINSTER, MARYLAND

AIRPORT LOCATION AND FACILITIES

Clearview Airport is located seven miles south of Westminster in Carroll County. Existing aviation facilities at the airport include a paved 1,845-foot primary runway with a non-precision approach. The airport has non-standard runway lighting and a partial parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	1,845 feet
Primary Runway Width	30 feet
Primary Runway Surface	Paved
Taxiway Type	Partial Parallel
Approach Type	Non-precision
Fuel Type(s)	100LL



Clearview Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Clearview Airport is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Clearview Airport, this System Plan recommends the role of Local for the Airport. The Airport is not included in the FAA's most recent National Plan of Integrated Airport Systems (NPIAS) and relies on state and local funding for airport improvements.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	Local
FAA/NPIAS Role	Non-NPIAS

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Clearview Airport estimate that based aircraft will increase from 32 in 2006 to 43 in 2026. The projected annual general aviation aircraft operations are expected to increase from 15,300 in 2006 to approximately 21,500 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	32	43
Multi-Engine	0	0
Jet	0	0
Helicopter	0	0
Other	0	0
Total	32	43

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	15,300	21,500

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

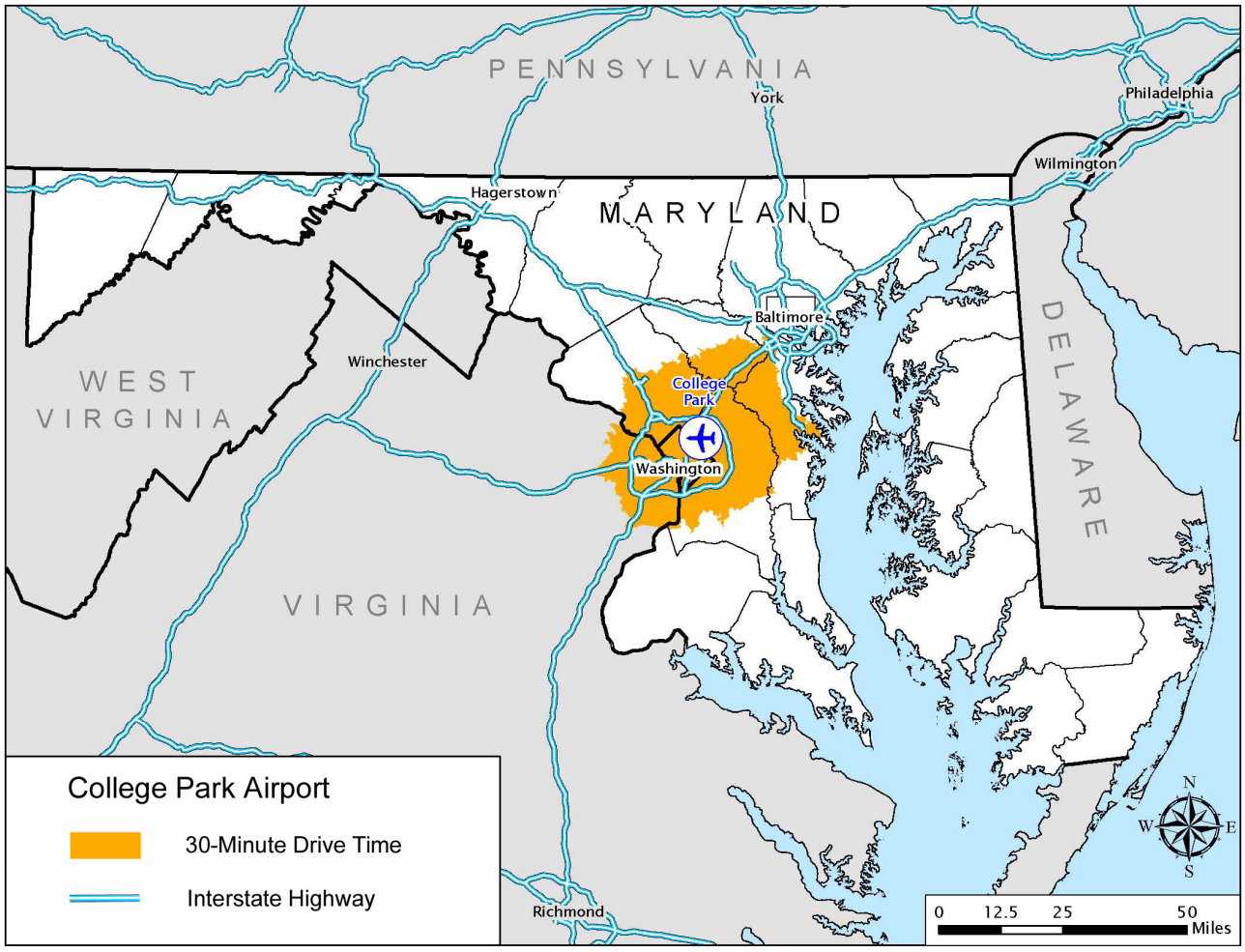
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
Primary Runway to 2,000 feet	$1,200,000
ARC A-1 Small Standards	$1,500,000
Runway Lighting (LIRL)	$121,000
Property Enclosed by Fence	$90,000
Total	**$2,911,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
No Projects	-

COLLEGE PARK AIRPORT
COLLEGE PARK, MARYLAND

AIRPORT LOCATION AND FACILITIES

College Park Airport is located one mile east of College Park in Prince George's County. Existing aviation facilities at the airport include a paved 2,607-foot primary runway with a non-precision approach. The airport has medium intensity runway lighting (MIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	2,607 feet
Primary Runway Width	60 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Non-precision
Fuel Type(s)	100LL



College Park Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

College Park Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at College Park Airport, this System Plan recommends the role of General for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies College Park Airport as a General Aviation Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	General
FAA/NPIAS Role	General Aviation

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for College Park Airport estimate that based aircraft will decrease from 29 in 2006 to 14 in 2026. The projected annual general aviation aircraft operations are expected to increase from 15,300 in 2006 to approximately 21,300 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	26	13
Multi-Engine	1	0
Jet	0	0
Helicopter	2	1
Other	0	0
Total	29	14

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	15,300	21,300

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

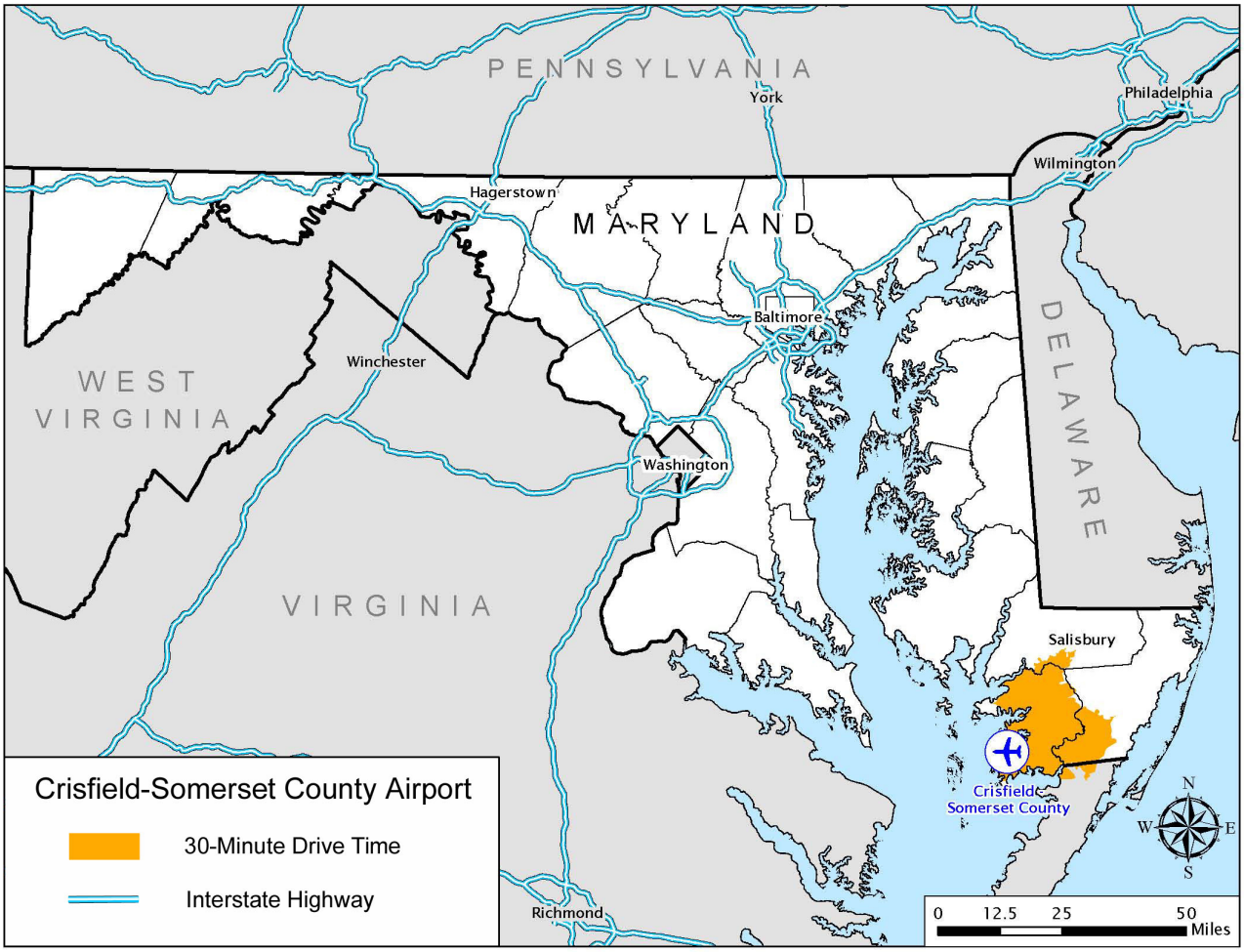
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
Primary Runway to 3,500 feet	$1,500,000
GA Terminal/Admin Building	$600,000
Total	**$2,100,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
No projects	-

CRISFIELD-SOMERSET AIRPORT
CRISFIELD, MARYLAND

AIRPORT LOCATION AND FACILITIES

Crisfield-Somerset Airport is located three miles northeast of Crisfield in Somerset County. Existing aviation facilities at the airport include a paved 2,490-foot primary runway with a non-precision approach. The airport has medium intensity runway lighting (MIRL) and a turnaround taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	2,490 feet
Primary Runway Width	75 feet
Primary Runway Surface	Paved
Taxiway Type	Turnaround
Approach Type	Non-precision
Fuel Type(s)	100LL



Crisfield-Somerset Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Crisfield-Somerset Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Crisfield-Somerset Airport, this System Plan recommends the role of General for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Crisfield-Somerset Airport as a General Aviation Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	General
FAA/NPIAS Role	General Aviation

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Crisfield-Somerset Airport estimate that based aircraft will remain at 6 from 2006 through 2026. The projected annual general aviation aircraft operations are expected to increase from 4,700 in 2006 to approximately 43,000 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	4	4
Multi-Engine	0	0
Jet	0	0
Helicopter	0	0
Other	2	2
Total	6	6

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	4,700	43,000

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

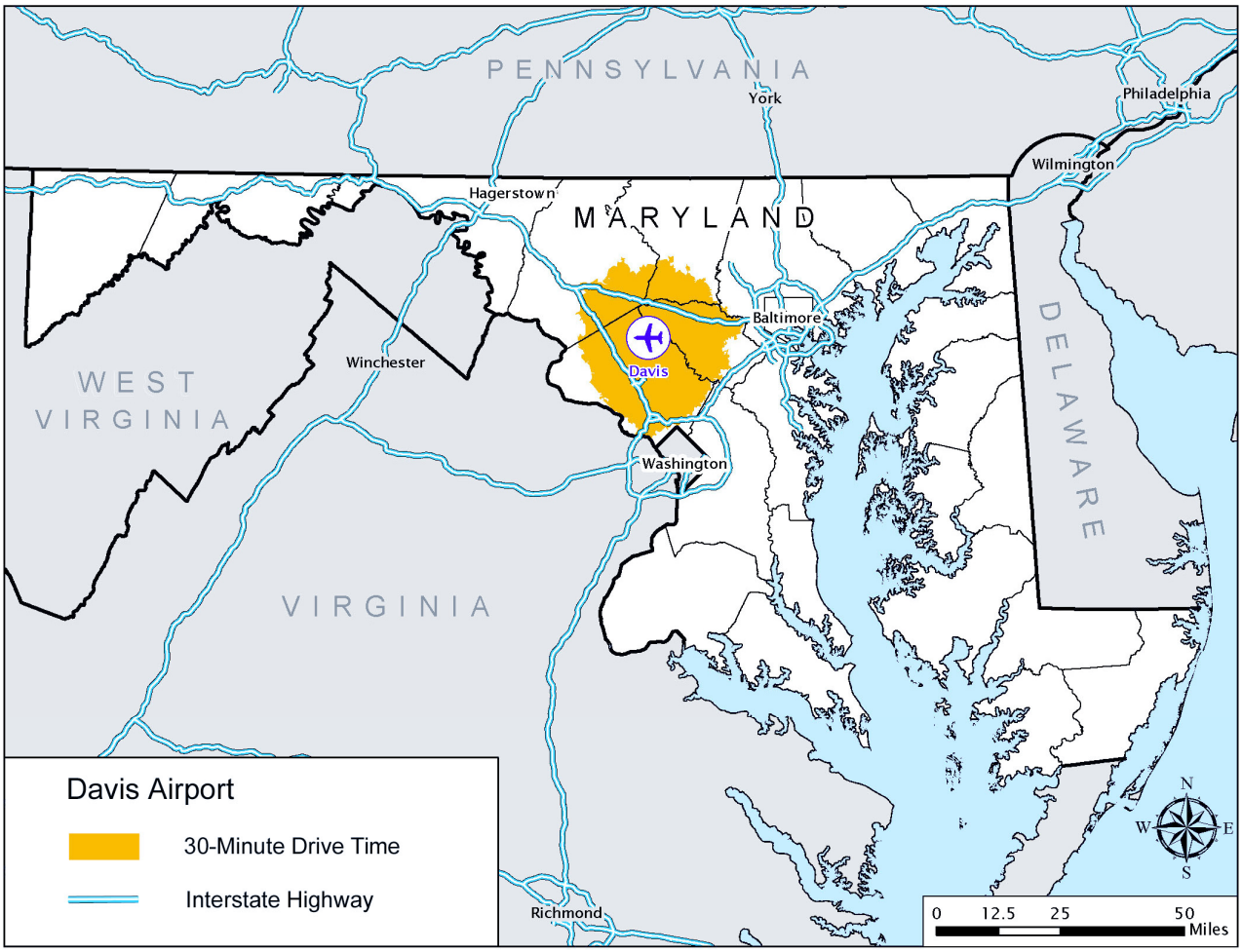
FACILITY RECOMMENDATIONS			
To Meet ROLE Objectives			
Project	**Project Cost**	**Project**	**Project Cost**
Primary Runway to 3,500 feet	$1,735,000	Property Enclosed by Fence	$236,000
Partial Parallel Taxiway	$1,000,000	Snow Removal	$100,000
Weather Reporting	$100,000		
GA Terminal/Admin Building	$600,000		
Total		**$3,771,000**	
To Meet COVERAGE Objectives			
Project		**Project Cost**	
No Projects		-	

DAVIS AIRPORT
LAYTONSVILLE, MARYLAND

AIRPORT LOCATION AND FACILITIES

Davis Airport is located three miles north of Laytonsville in Montgomery County. Existing aviation facilities at the airport include a paved/turf 2,005-foot primary runway with a visual approach. The airport has no runway lighting and a partial parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	2,005 feet
Primary Runway Width	25 feet
Primary Runway Surface	Paved/Turf
Taxiway Type	Partial Parallel
Approach Type	Visual
Fuel Type(s)	None



Davis Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Davis Airport is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Davis Airport, this System Plan recommends the role of Local for the Airport. The airport is not included in the FAA's most recent National Plan of Integrated Airport Systems (NPIAS) and relies on state and local funding for airport improvements.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	Local
FAA/NPIAS Role	Non-NPIAS

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Davis Airport estimate that based aircraft will increase from 29 in 2006 to 39 in 2026. The projected annual general aviation aircraft operations are expected to increase from 5,100 in 2006 to approximately 7,800 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	29	39
Multi-Engine	0	0
Jet	0	0
Helicopter	0	0
Other	0	0
Total	29	39

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	5,100	7,800

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

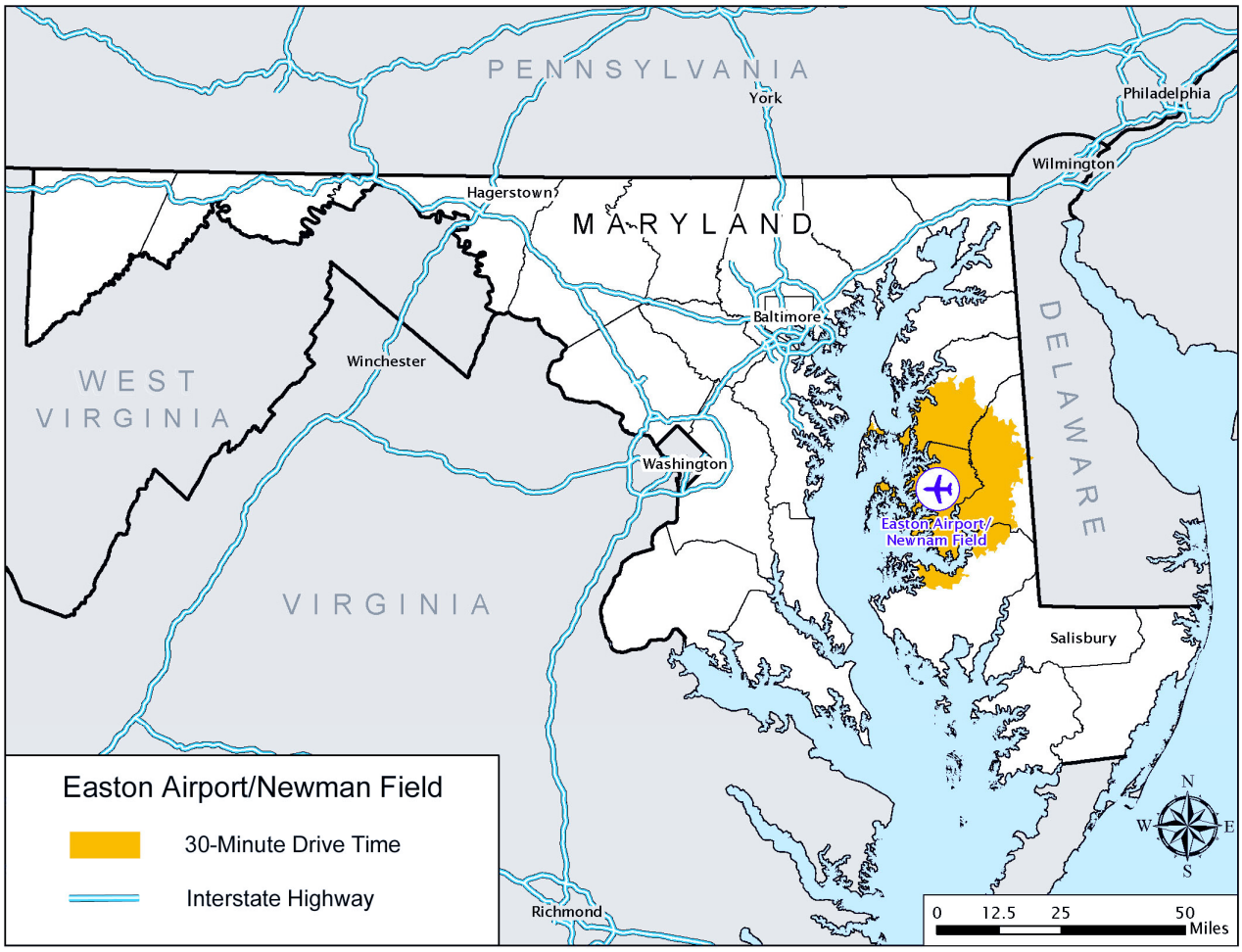
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
Runway Lighting (LIRL)	$121,000
Lighted Wind Cone	$5,000
Fuel (100LL)	$125,000
Property Enclosed by Fence	$25,000
Total	**$276,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
No projects	-

EASTON MUNICIPAL/NEWNAM FIELD AIRPORT
EASTON, MARYLAND

AIRPORT LOCATION AND FACILITIES

Easton Municipal/Newnam Field Airport is located two miles north of Easton in Talbot County. Existing aviation facilities at the airport include a paved 5,500-foot primary runway with a precision approach. The airport has medium intensity runway lighting (MIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	5,500 feet
Primary Runway Width	100 feet
Primary Runway Surface	Paved
Taxiway Type	Full Parallel
Approach Type	Precision
Fuel Type(s)	Jet-A, 100LL



Easton Airport/Newnam Field – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Easton Municipal/Newnam Field Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Easton Municipal/Newnam Field Airport, this System Plan recommends the role of General for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Easton Municipal/Newnam Field Airport as a General Aviation Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	General
FAA/NPIAS Role	General Aviation

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Easton Municipal/Newnam Field Airport estimate that based aircraft will increase from 151 in 2006 to 170 in 2026. The projected annual general aviation aircraft operations are expected to increase from 91,100 in 2006 to approximately 98,600 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	109	115
Multi-Engine	25	28
Jet	12	22
Helicopter	5	5
Other	0	0
Total	151	170

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	91,100	98,600

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

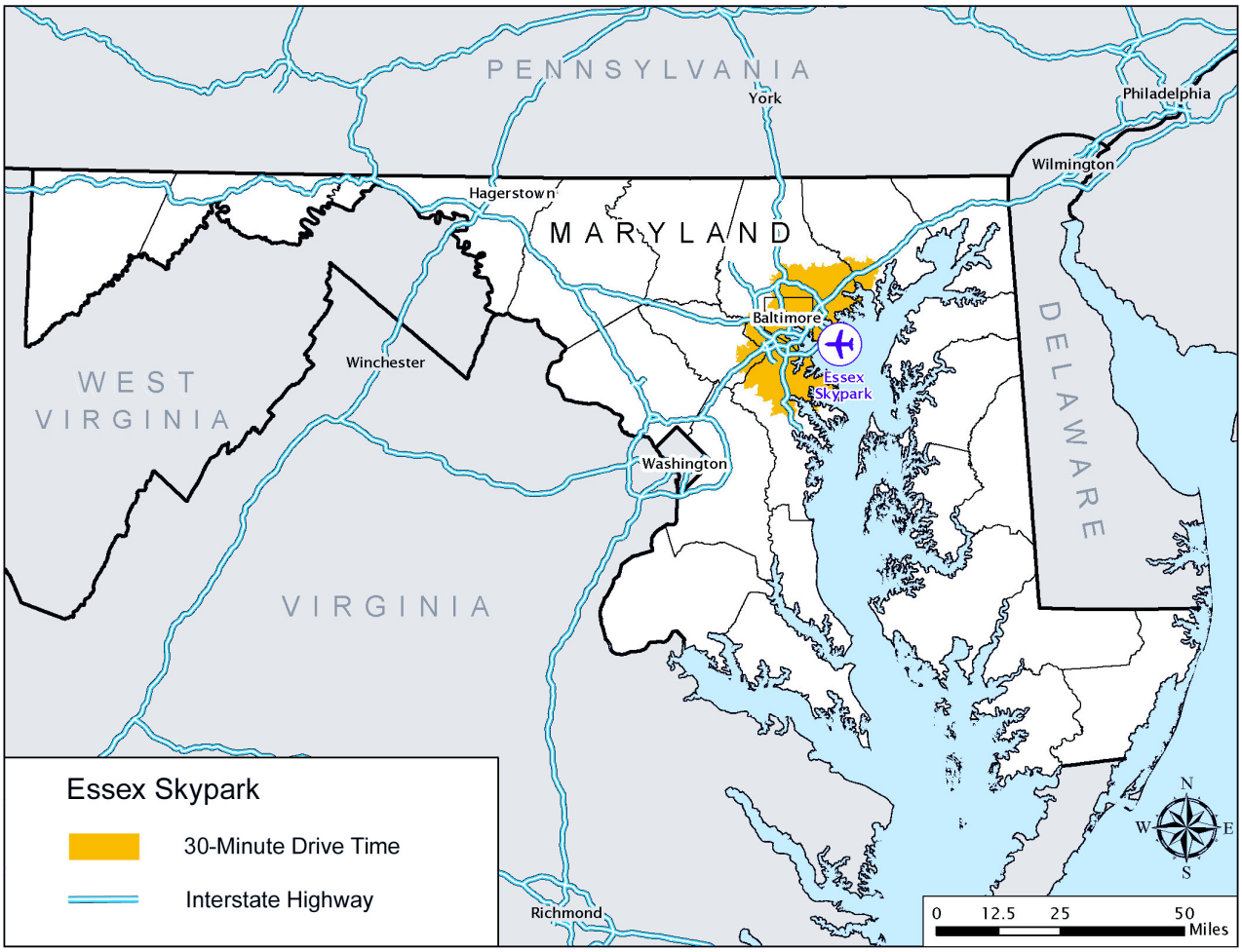
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
No Projects	-
To Meet COVERAGE Objectives	
Project	**Project Cost**
Runway Lighting (HIRL)	$332,000
LPV Approach (<3/4 mile)	$1,000,000
Total	**$1,332,000**

ESSEX SKYPARK
BALTIMORE, MARYLAND

AIRPORT LOCATION AND FACILITIES

Essex Skypark is located three miles southeast of Baltimore in Baltimore County. Existing aviation facilities at the airport include a paved 2,084-foot primary runway with a visual approach. The airport has low intensity runway lighting (LIRL) and a turnaround taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	2,084 feet
Primary Runway Width	28 feet
Primary Runway Surface	Paved
Taxiway Type	Turnaround
Approach Type	Visual
Fuel Type(s)	None



Essex Skypark – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Essex Skypark is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Essex Skypark, this System Plan recommends the role of Local for the Airport. The Airport is not included in the FAA's most recent National Plan of Integrated Airport Systems (NPIAS) and relies on state and local funding for airport improvements.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	Local
FAA/NPIAS Role	Non-NPIAS

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Essex Skypark estimate that based aircraft will increase from 36 in 2006 to 48 in 2026. The projected annual general aviation aircraft operations are expected to increase from 8,584 in 2006 to approximately 9,600 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	34	45
Multi-Engine	0	0
Jet	0	0
Helicopter	0	0
Other	2	3
Total	36	48

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	8,584	9,600

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

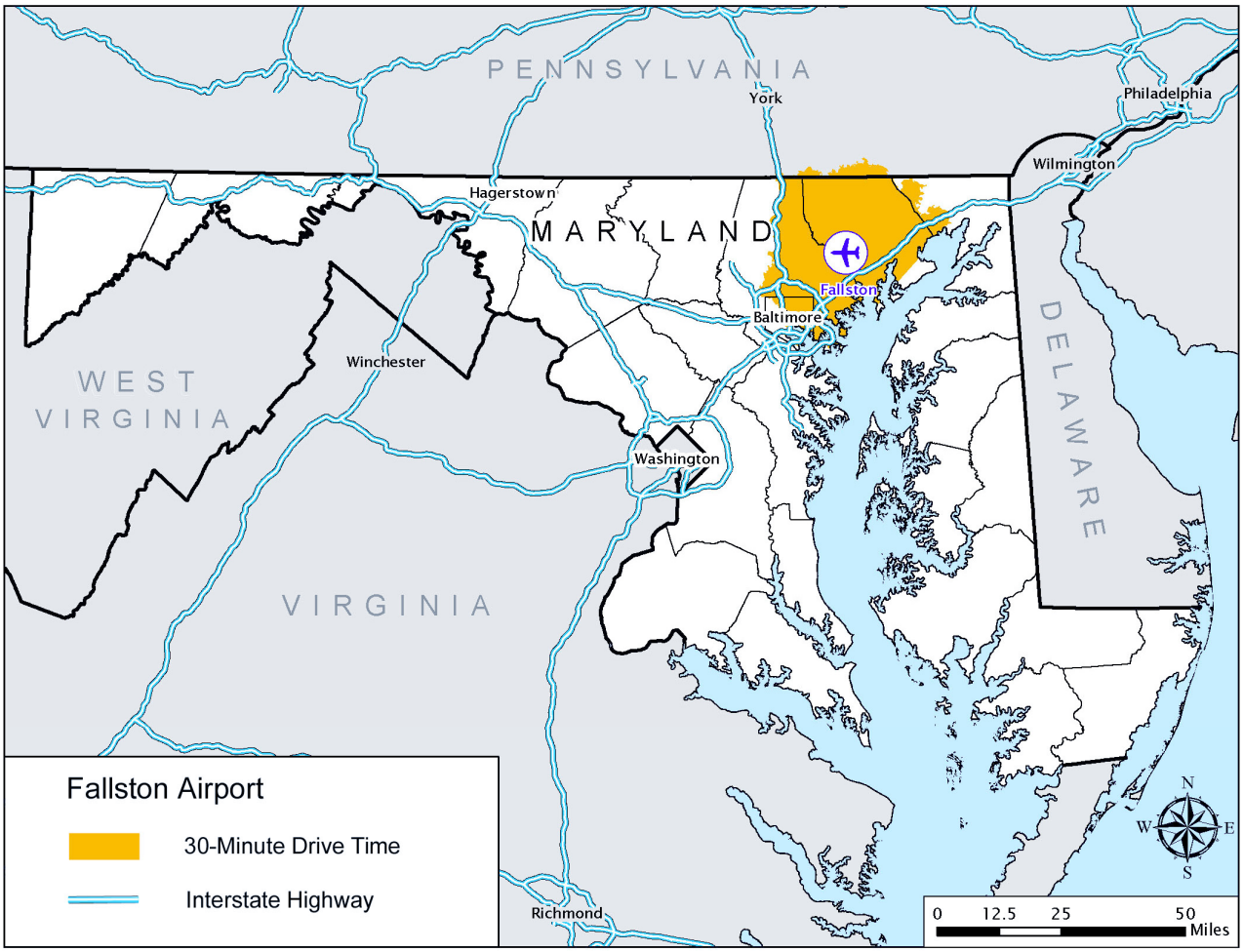
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
Fuel (100LL)	$125,000
Property Enclosed by Fence	$945,000
Total	**$1,070,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
No Projects	-

FALLSTON AIRPORT
FALLSTON, MARYLAND

AIRPORT LOCATION AND FACILITIES

Fallston Airport is located one mile south of Fallston in Hartford County. Existing aviation facilities at the airport include a paved 2,200-foot primary runway with a visual approach. The airport has non-standard runway lighting and a turnaround taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	2,200 feet
Primary Runway Width	50 feet
Primary Runway Surface	Paved
Taxiway Type	Turnaround
Approach Type	Visual
Fuel Type(s)	100LL



Fallston Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Fallston is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Fallston Airport, this System Plan recommends the role of Local for the Airport. The airport is not included in the FAA's most recent National Plan of Integrated Airport Systems (NPIAS) and relies on state and local funding for airport improvements.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	Local
FAA/NPIAS Role	Non-NPIAS

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Fallston Airport estimate that based aircraft will increase from 33 in 2006 to 44 in 2026. The projected annual general aviation aircraft operations are expected to increase from 9,189 in 2006 to approximately 13,200 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	33	44
Multi-Engine	0	0
Jet	0	0
Helicopter	0	0
Other	0	0
Total	33	44

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	9,189	13,200

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

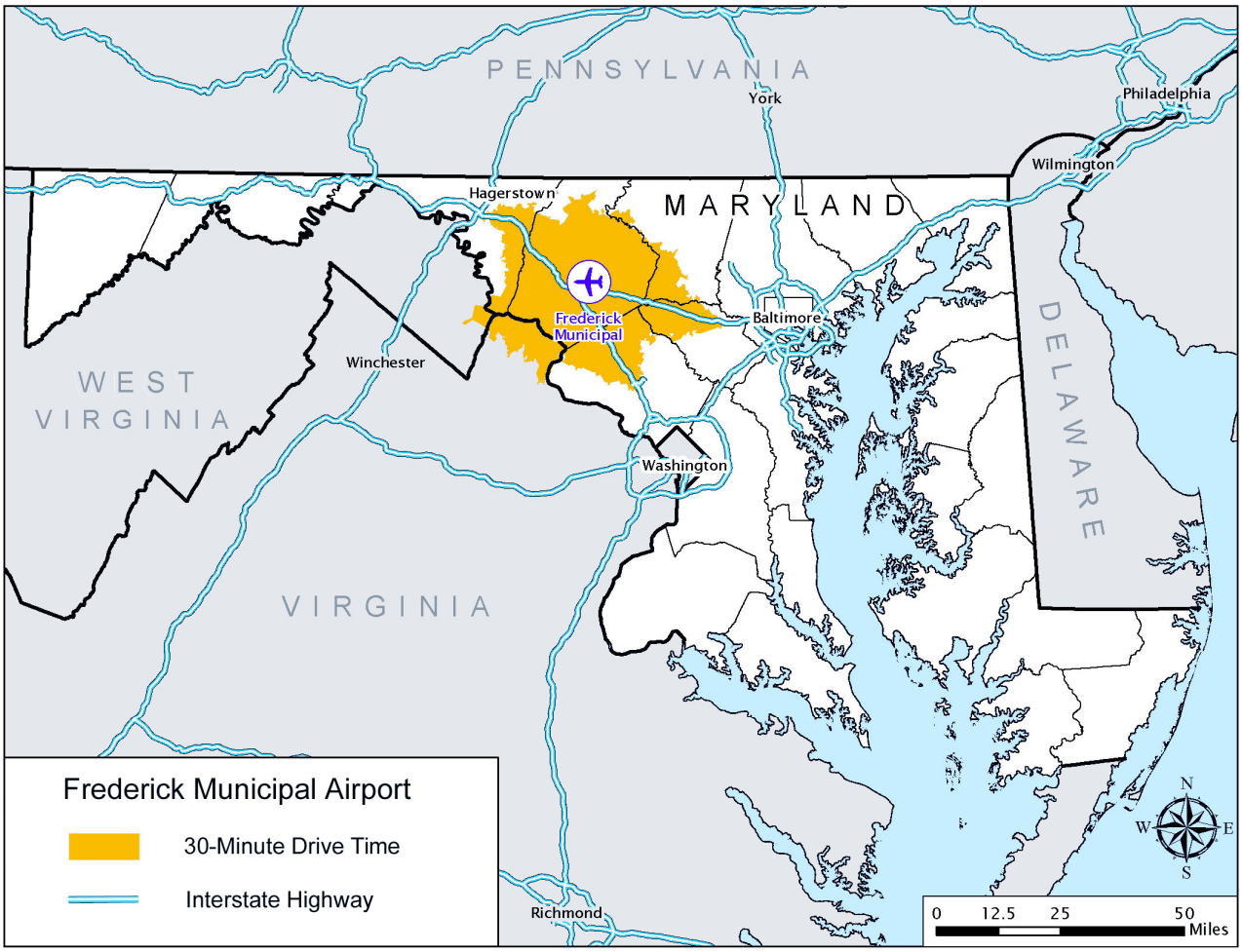
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
Runway Lighting (LIRL and Beacon)	$133,000
Lighted Wind Cone	$5,000
Property Enclosed by Fence	$36,000
Total	**$174,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
No Projects	-

FREDERICK MUNICIPAL AIRPORT
FREDERICK, MARYLAND

AIRPORT LOCATION AND FACILITIES

Frederick Municipal Airport is located one mile east of Frederick in Frederick County. Existing aviation facilities at the airport include a paved 5,220-foot primary runway with a precision approach. The airport has high intensity runway lighting (HIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	5,220 feet
Primary Runway Width	100 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Precision
Fuel Type(s)	Jet-A, 100LL



Frederick Municipal Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Frederick Municipal Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Frederick Municipal Airport, this System Plan recommends the role of Reliever for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Frederick Municipal Airport as a Reliever Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	Reliever
FAA/NPIAS Role	Reliever

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Frederick Municipal Airport estimate that based aircraft will increase from 295 in 2006 to 372 in 2026. The projected annual general aviation aircraft operations are expected to increase from 131,000 in 2006 to approximately 163,500 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	206	247
Multi-Engine	23	29
Jet	13	26
Helicopter	13	20
Other	40	50
Total	295	372

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	131,000	163,500

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

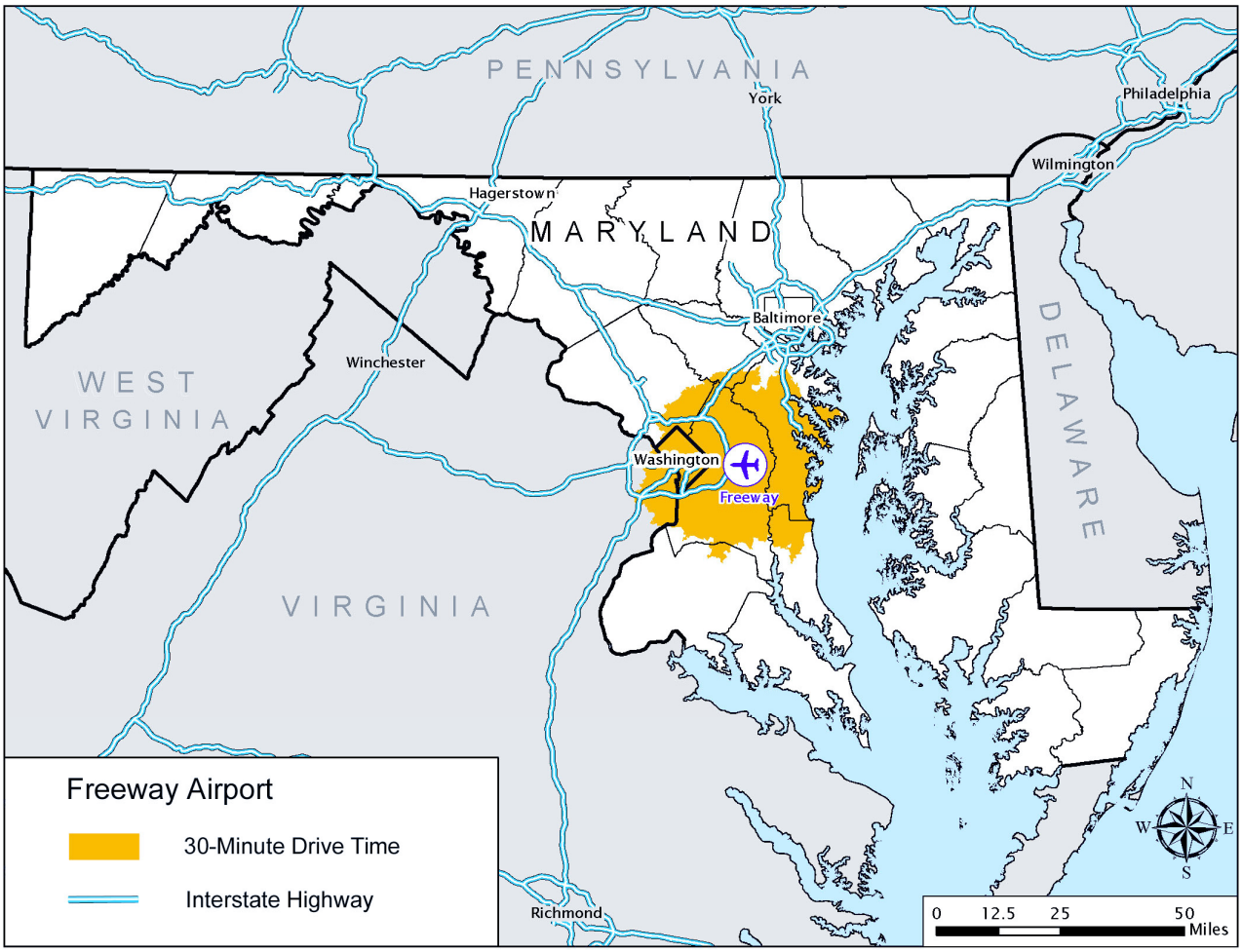
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
Air Traffic Control Tower	$3,500,000
GA Terminal/Admin Building	$800,000
Covered Overnight Secured Storage	$1,500,000
Total	**$5,800,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
LPV Approach	$250,000
Total	**$250,000**

FREEWAY AIRPORT
MITCHELLVILLE, MARYLAND

AIRPORT LOCATION AND FACILITIES

Freeway Airport is located 2 miles northwest of Mitchellville in Prince George's County. Existing aviation facilities at the airport include a paved 2,433-foot primary runway with a non-precision approach. The airport has medium intensity runway lighting (MIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	2,433 feet
Primary Runway Width	40 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Non-precision
Fuel Type(s)	100LL



Freeway Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Freeway Airport is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Freeway Airport, this System Plan recommends the role of General for the Airport. The airport is not included in the FAA's most recent National Plan of Integrated Airport Systems (NPIAS) and relies on state and local funding for airport improvements.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	General
FAA/NPIAS Role	Non-NPIAS

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Freeway Airport estimate that based aircraft will increase from 93 in 2006 to 125 in 2026. The projected annual general aviation aircraft operations are expected to increase from 61,456 in 2006 to approximately 87,500 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	88	119
Multi-Engine	4	5
Jet	0	0
Helicopter	0	0
Other	1	1
Total	93	125

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	61,456	87,500

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

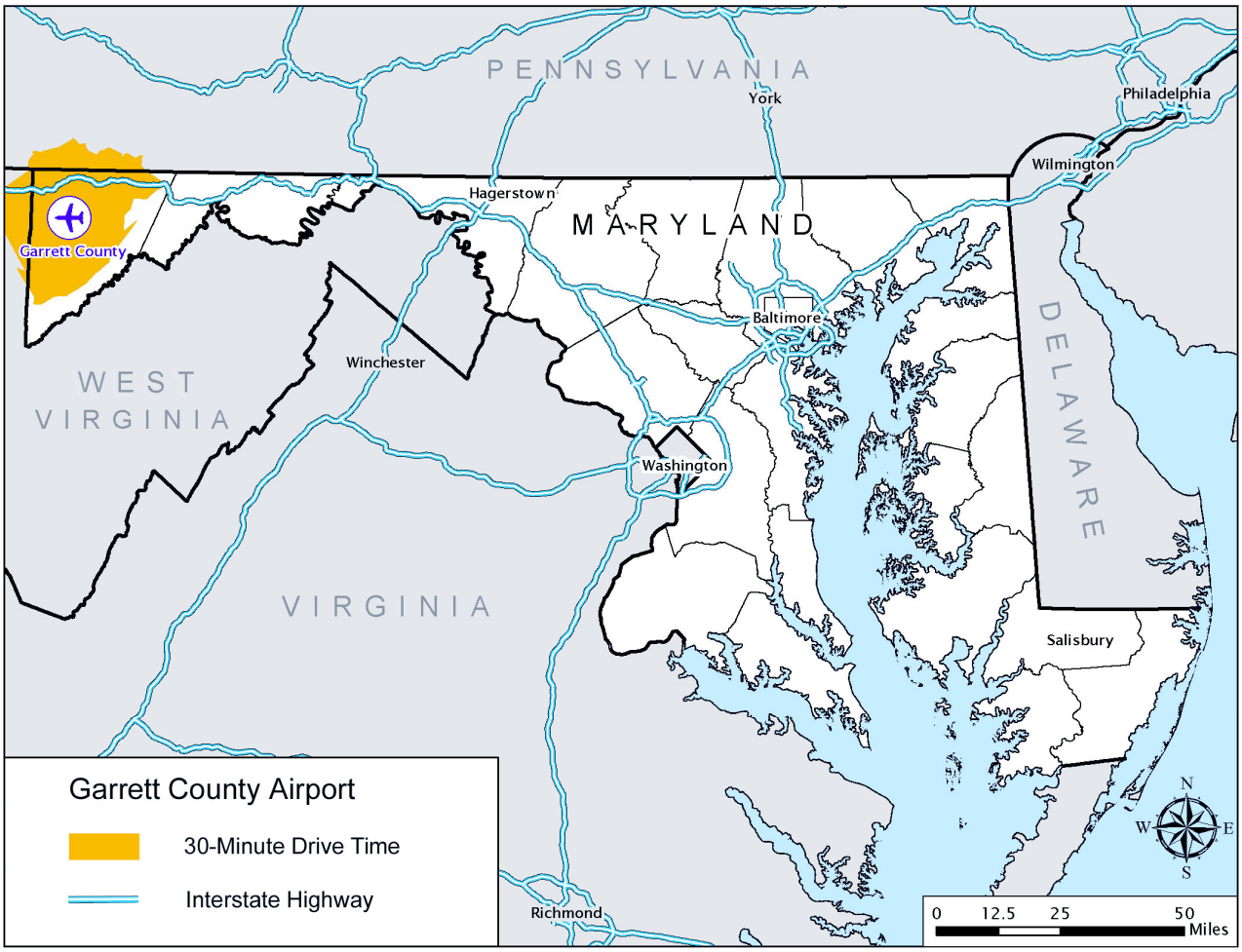
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
Primary Runway to 3,500 feet	$1,600,000
ARC B-1 Standards	$3,500,000
Weather Reporting	$100,000
GA Terminal/Admin Building	$600,000
Property Enclosed by Fence	$72,000
Total	**$5,872,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
No Projects	-

GARRETT COUNTY AIRPORT
OAKLAND, MARYLAND

AIRPORT LOCATION AND FACILITIES

Garrett County Airport is located 13 miles northeast of Oakland in Garrett County. Existing aviation facilities at the airport include a paved 5,000-foot primary runway with a non-precision approach. The airport has medium intensity runway lighting (MIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	5,000 feet
Primary Runway Width	75 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Non-precision
Fuel Type(s)	Jet-A, 100LL



Garrett County Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Garrett County Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Garrett County Airport, this System Plan recommends the role of General for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Garrett County Airport as a General Aviation Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	General
FAA/NPIAS Role	General Aviation

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Garrett County Airport estimate that based aircraft will increase from 23 in 2006 to 55 in 2026. The projected annual general aviation aircraft operations are expected to increase from 21,400 in 2006 to approximately 51,600 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	16	38
Multi-Engine	5	12
Jet	0	0
Helicopter	2	5
Other	0	0
Total	23	55

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	21,400	51,600

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

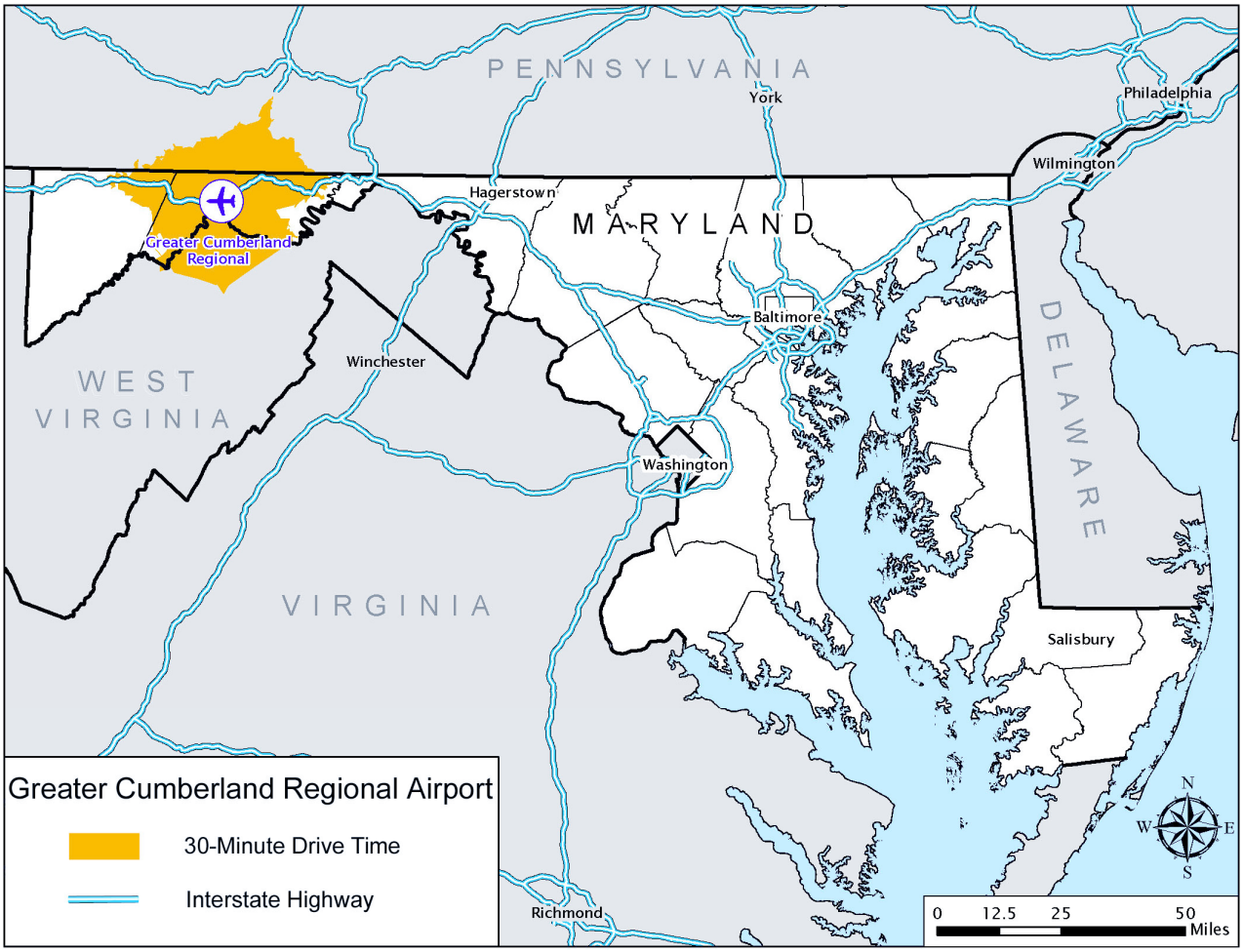
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
GA Terminal/Admin Building	$600,000
Total	**$600,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
ARC to C-II	$2,500,000
Precision Approach/LPV Approach	$1,500,000
Runway Lighting (HIRL)	$308,000
Total	**$4,308,000**

GREATER CUMBERLAND REGIONAL AIRPORT
WILEY FORD, WEST VIRGINIA

AIRPORT LOCATION AND FACILITIES

Greater Cumberland Regional Airport is located two miles south of Cumberland, Maryland in Mineral County, Wiley Ford, West Virginia. Existing aviation facilities at the airport include a paved 5,048-foot primary runway with a non-precision approach. The airport has medium intensity runway lighting (MIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	5,048 feet
Primary Runway Width	150 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Non-precision
Fuel Type(s)	Jet-A, 100LL



Greater Cumberland Regional Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Greater Cumberland Regional Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Greater Cumberland Regional Airport, this System Plan recommends the role of General for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Greater Cumberland Regional Airport as a General Aviation Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	General
FAA/NPIAS Role	General Aviation

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Greater Cumberland Regional Airport estimate that based aircraft will increase from 58 in 2006 to 63 in 2026. The projected annual general aviation aircraft operations are expected to increase from 22,800 in 2006 to approximately 24,900 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	45	50
Multi-Engine	4	4
Jet	2	2
Helicopter	2	2
Other	5	5
Total	58	63

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	22,800	24,900

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

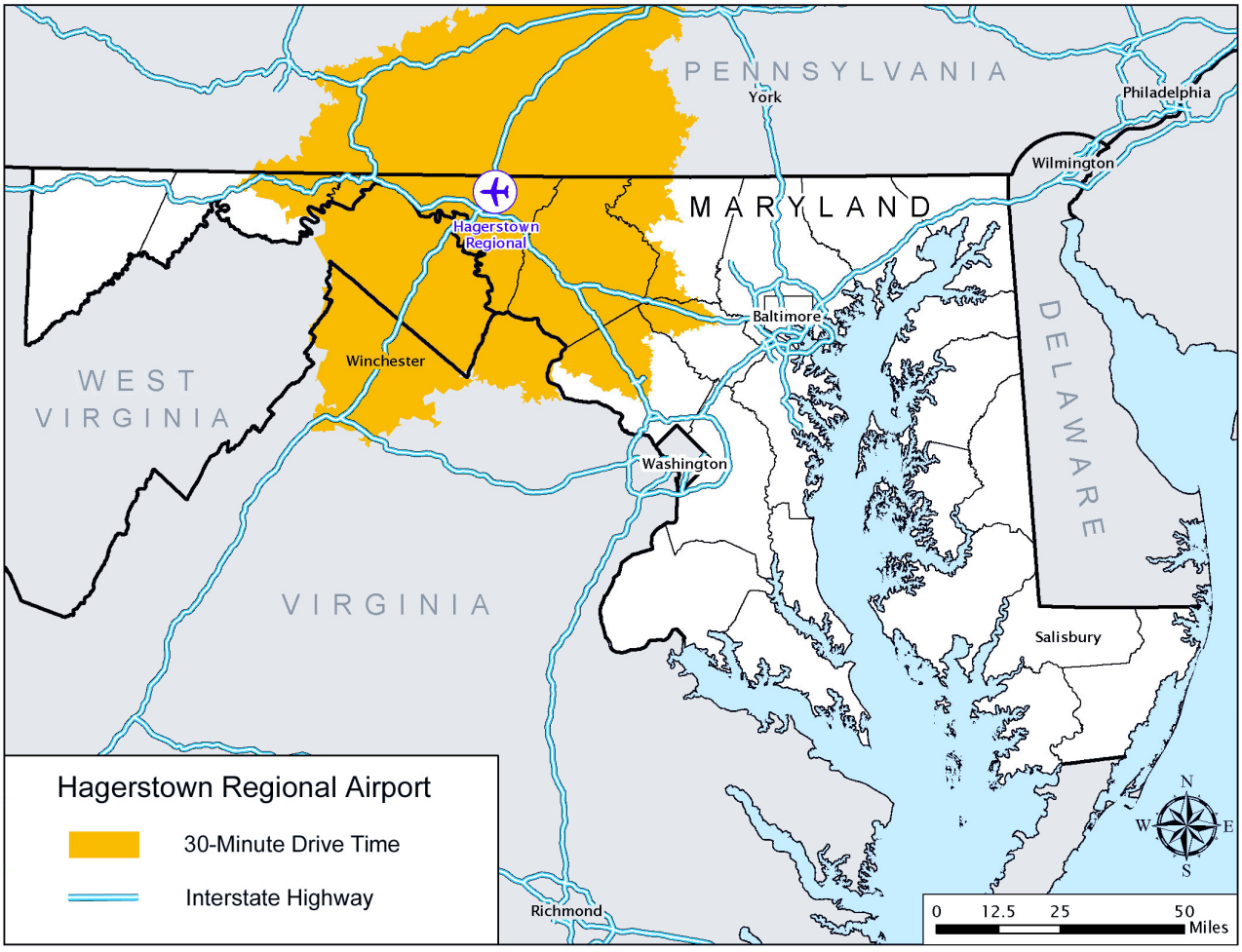
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
Property Enclosed by Fence	$565,000
Snow Removal	$100,000
Total	**$665,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
Precision Approach/LPV Approach (<3/4 mile)	$1,000,000
Runway Lighting (HIRL)	$305,000
Total	**$1,305,000**

HAGERSTOWN REGIONAL AIRPORT
RICHARD A. HENSON FIELD
HAGERSTOWN, MARYLAND

AIRPORT LOCATION AND FACILITIES

Hagerstown Regional Airport is located 4 miles north of Hagerstown in Washington County. Existing aviation facilities at the airport include a paved 7,000-foot primary runway with a precision approach. The airport has high intensity runway lighting (HIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	7,000 feet
Primary Runway Width	150 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Precision
Fuel Type(s)	Jet-A, 100 LL



Hagerstown Regional Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Hagerstown Regional Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Hagerstown Regional Airport, this System Plan recommends the role of Air Carrier for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Hagerstown Regional Airport as a Primary Commercial Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	Air Carrier
FAA/NPIAS Role	Primary Commercial

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Hagerstown Regional Airport estimate that based aircraft will increase from 193 in 2006 to 233 in 2026. The projected annual general aviation aircraft operations are expected to increase from 39,766 in 2006 to approximately 56,800 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	160	192
Multi-Engine	23	28
Jet	4	5
Helicopter	3	4
Other	3	4
Total	193	233

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	39,766	56,800

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

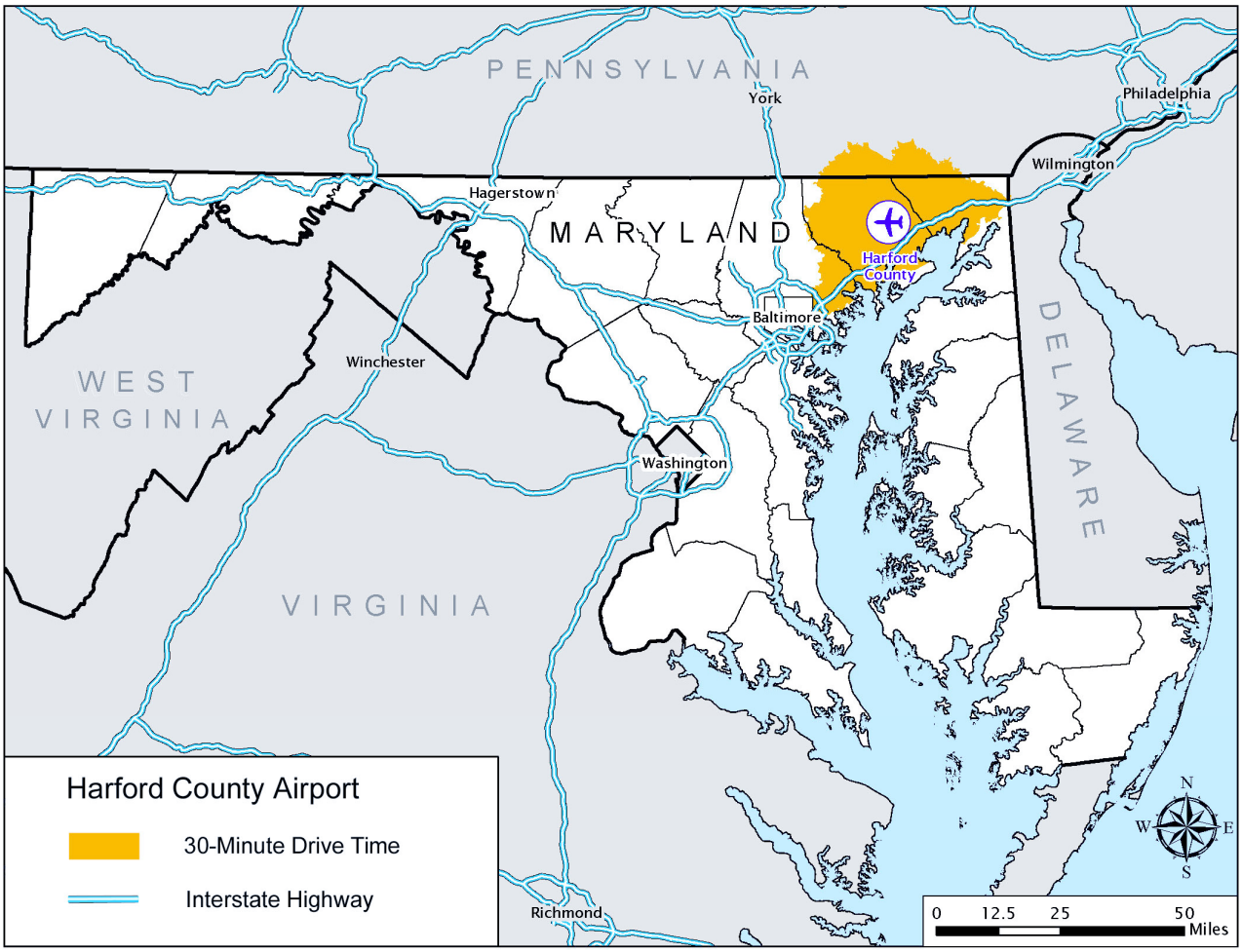
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
No Projects	-
To Meet COVERAGE Objectives	
Project	**Project Cost**
No Projects	-

HARFORD COUNTY AIRPORT
CHURCHVILLE, MARYLAND

AIRPORT LOCATION AND FACILITIES

Harford County Airport is located three miles east of Churchville in Harford County. Existing aviation facilities at the airport include a paved 2,000-foot primary runway with a non-precision approach. The airport has non-standard runway lighting and a turnaround taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	2,000 feet
Primary Runway Width	40 feet
Primary Runway Surface	Paved
Taxiway Type	Turnaround
Approach Type	Non-precision
Fuel Type(s)	100LL



Harford County Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Harford County Airport is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Harford County Airport, this System Plan recommends the role of General for the Airport. The Airport is not included in the FAA's National Plan of Integrated Airport Systems (NPIAS) and relies on state and local funding for airport improvements.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	General
FAA/NPIAS Role	Non-NPIAS

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Harford County Airport estimate that based aircraft will increase from 67 in 2006 to 99 in 2026. The projected annual general aviation aircraft operations are expected to increase from 37,500 in 2006 to approximately 55,800 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	60	89
Multi-Engine	0	0
Jet	0	0
Helicopter	0	0
Other	7	10
Total	67	99

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	37,500	55,800

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

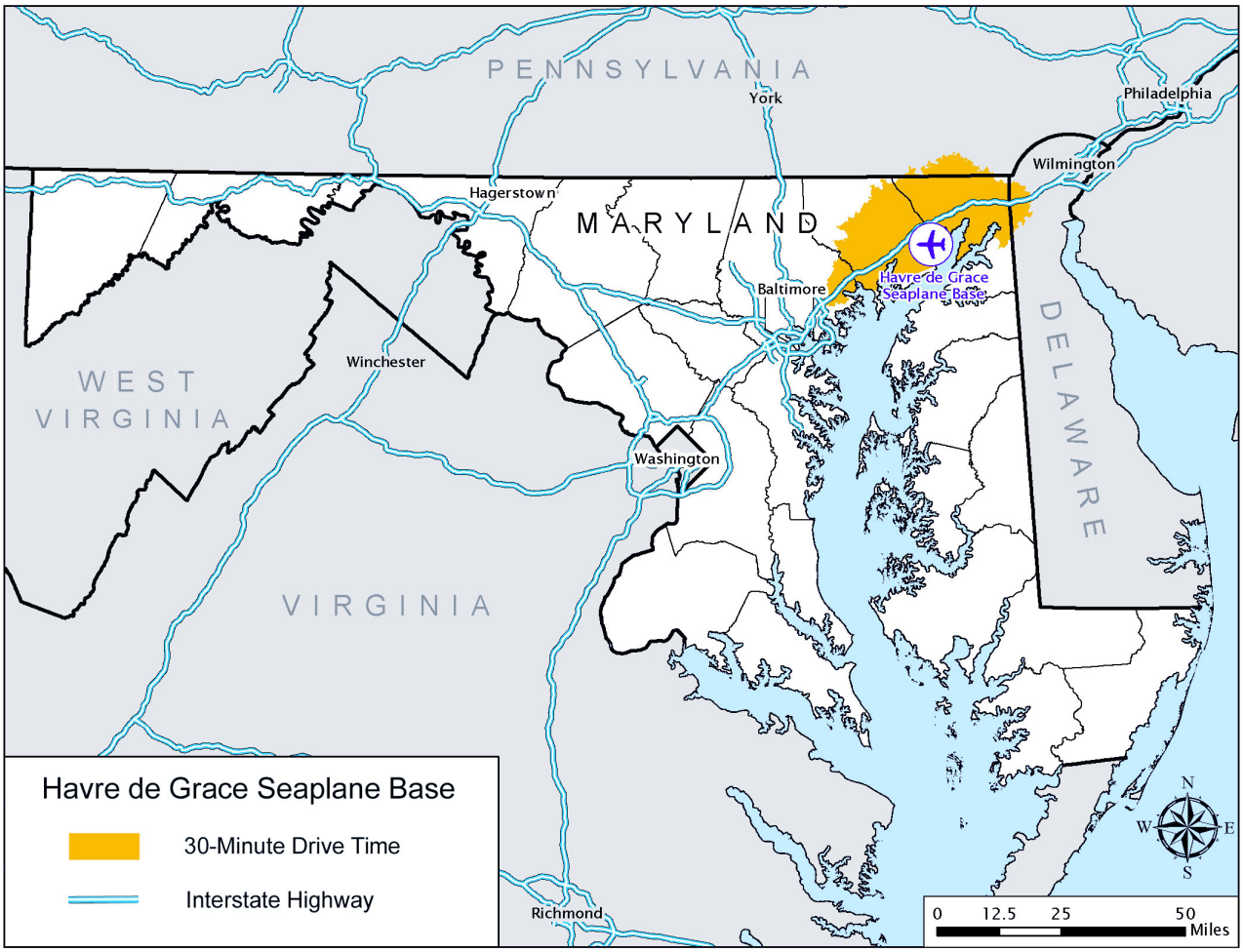
FACILITY RECOMMENDATIONS			
To Meet ROLE Objectives			
Project	**Project Cost**	**Project**	**Project Cost**
Primary Runway to 3,500 feet	$2,000,000	GA Terminal/Admin Building	$600,000
ARC B-I Standards	$1,500,000	Paved Aircraft Parking	$500,000
Partial Parallel Taxiway	$1,500,000	Property Enclosed by Fence	$108,000
Runway Lighting (MIRL and Beacon)	$280,000	Snow Removal	$100,000
Weather Reporting	$100,000		
Total		**$6,688,000**	
To Meet COVERAGE Objectives			
Project		**Project Cost**	
Primary Runway to 5,000 feet from 3,500 feet		$2,250,000	
Precision Approach		$1,500,000	
Total		**$3,750,000**	

HAVRE DE GRACE SEAPLANE BASE
HAVRE DE GRACE, MARYLAND

AIRPORT LOCATION AND FACILITIES

Havre de Grace Seaplane Base is located one mile east of Havre de Grace in Harford County. Existing aviation facilities at the airport include an 8,000-foot water primary runway with a visual approach. The airport has no runway lighting and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	8,000 feet
Primary Runway Width	200 feet
Primary Runway Surface	Water
Taxiway Type	Full parallel
Approach Type	Visual
Fuel Type(s)	None



Havre de Grace Seaplane Base – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Havre de Grace Seaplane Base is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Havre de Grace Seaplane Base, this System Plan recommends the role of Special Facility for the Airport. The Airport is not included in the FAA's most recent National Plan of Integrated Airport Systems (NPIAS) and relies on state and local funding for airport improvements.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	Special Facility
FAA/NPIAS Role	Non-NPIAS

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Havre de Grace Seaplane Base estimate that based aircraft will increase from two in 2006 to three in 2026. The projected annual general aviation aircraft operations are expected to increase from 240 in 2006 to approximately 300 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	1	1
Multi-Engine	0	0
Jet	0	0
Helicopter	0	0
Other	1	2
Total	2	3

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	240	300

FACILITY OBJECTIVES

Due to its unique operation, the role and coverage objectives for the Havre de Grace Seaplane Base were not evaluated in this study. Therefore, no facility recommendations were provided. Important projects, however, may be studied and justified within the five-year capital improvement program in order to support local objectives.

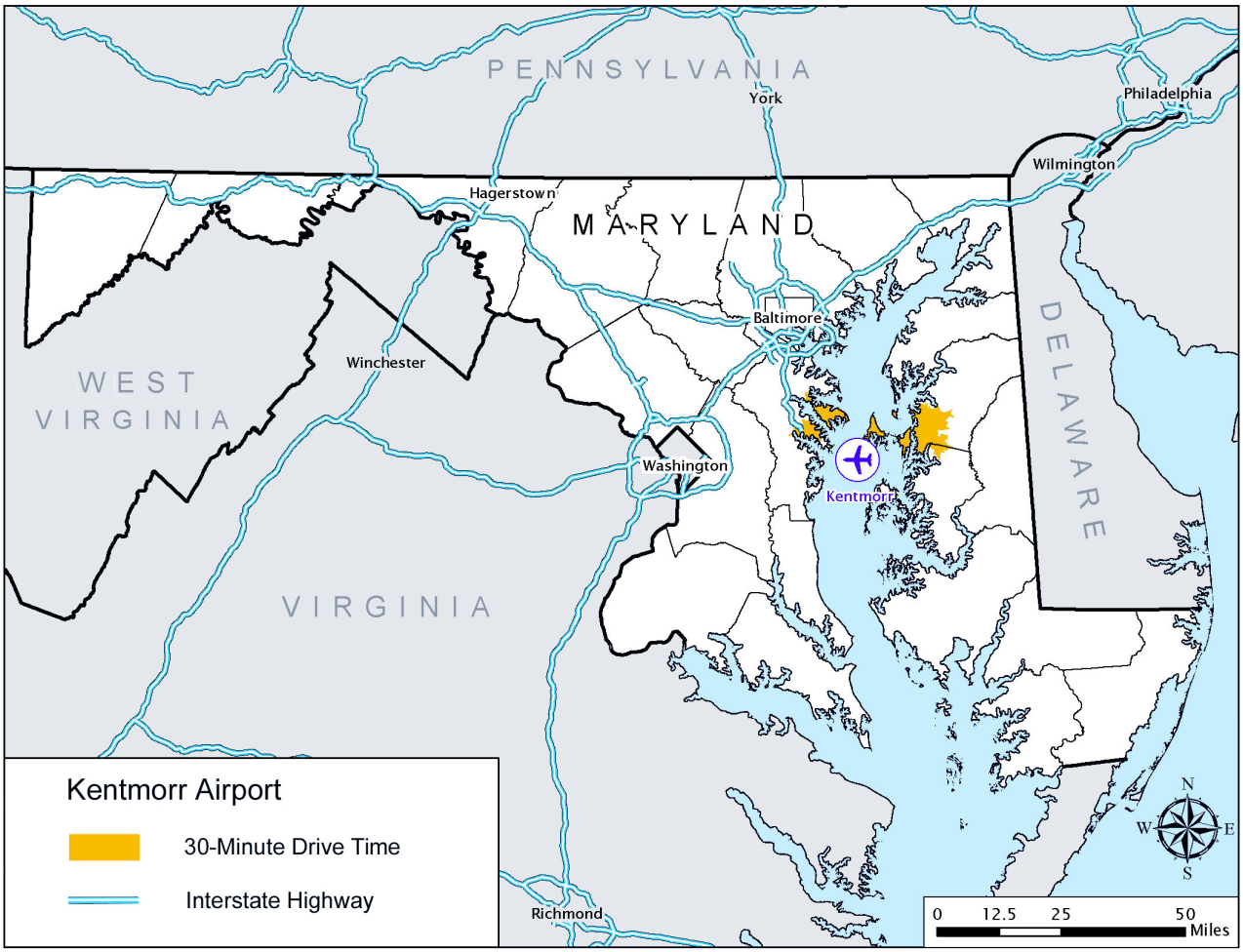
FACILITY RECOMMENDATIONS
To Meet ROLE Objectives
N/A
To Meet COVERAGE Objectives
N/A

KENTMORR AIRPORT
STEVENSVILLE, MARYLAND

AIRPORT LOCATION AND FACILITIES

Kentmorr Airport is located 5 miles southwest of Stevensville in Queen Anne's County. Existing aviation facilities at the airport include a turf 2,400-foot primary runway with a visual approach. The airport has no runway lighting and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	2,400 feet
Primary Runway Width	90 feet
Primary Runway Surface	Turf
Taxiway Type	Full parallel
Approach Type	Visual
Fuel Type(s)	None



Kentmorr Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Kentmorr Airport is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Kentmorr Airport, this System Plan recommends the role of Local for the Airport. The Airport is not included in the FAA's most recent National Plan of Integrated Airport Systems (NPIAS) and relies on state and local funding for airport improvements.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	Local
FAA/NPIAS Role	Non-NPIAS

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Kentmorr Airport estimate that based aircraft will increase from 16 in 2006 to 22 in 2026. The projected annual general aviation aircraft operations are expected to increase from 500 in 2006 to approximately 700 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	16	22
Multi-Engine	0	0
Jet	0	0
Helicopter	0	0
Other	0	0
Total	16	22

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	500	700

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

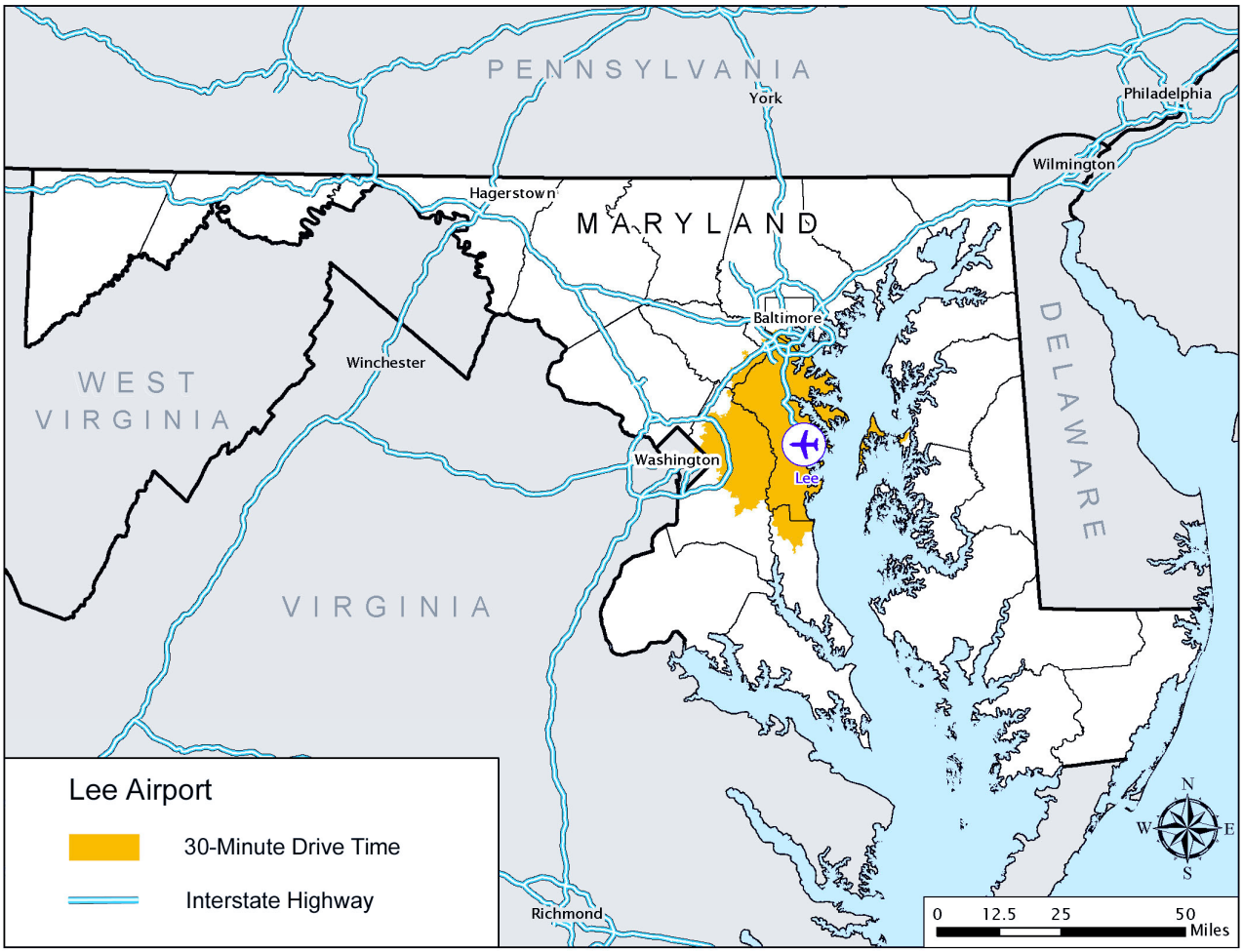
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
Lighted Wind Cone	$5,000
Vertical Glide Slope Indicator	$100,000
Fuel (100LL)	$125,000
Property Enclosed by Fence	$36,000
Total	**$266,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
No Projects	-

LEE AIRPORT
ANNAPOLIS, MARYLAND

AIRPORT LOCATION AND FACILITIES

Lee Airport is located 5 miles southwest of Annapolis in Anne Arundel County. Existing aviation facilities at the airport include a paved 2,505-foot primary runway with a non-precision approach. The airport has low intensity runway lighting (LIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	2,505 feet
Primary Runway Width	48 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Non-precision
Fuel Type(s)	100LL



Lee Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Lee Airport is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Lee Airport, this System Plan recommends the role of General for the Airport. The Airport is not included in the FAA's most recent National Plan of Integrated Airport Systems (NPIAS) and relies on state and local funding for airport improvements.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	General
FAA/NPIAS Role	Non-NPIAS

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Lee Airport estimate that based aircraft will increase from 102 in 2006 to 137 in 2026. The projected annual general aviation aircraft operations are expected to increase from 31,638 in 2006 to approximately 41,100 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	98	132
Multi-Engine	3	4
Jet	0	0
Helicopter	0	0
Other	1	1
Total	102	137

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	31,638	41,100

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

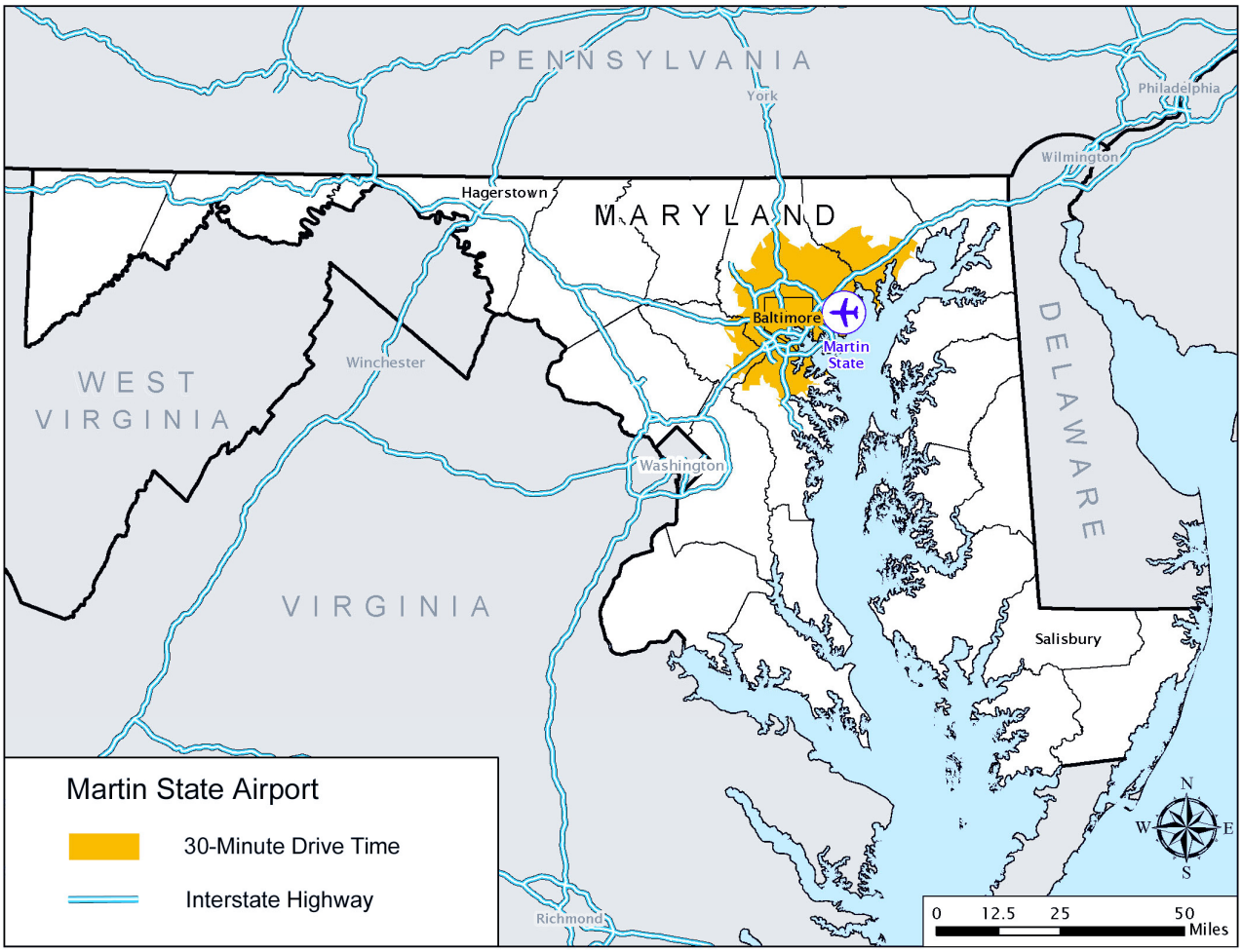
FACILITY RECOMMENDATIONS			
To Meet ROLE Objectives			
Project	**Project Cost**	**Project**	**Project Cost**
Primary Runway to 3,500 feet	$1,500,000	GA Terminal/Admin Building	$600,000
ARC B-I Standards	$1,500,000	Paved Aircraft Parking	$500,000
Runway Lighting (MIRL)	$211,000		
Total		**$4,311,000**	
To Meet COVERAGE Objectives			
Project		**Project Cost**	
Precision Approach		$1,500,000	
Total		**$1,500,000**	

MARTIN STATE AIRPORT
BALTIMORE, MARYLAND

AIRPORT LOCATION AND FACILITIES

Martin State Airport is located 9 miles east of Baltimore in Baltimore County. Existing aviation facilities at the airport include a paved 6,996-foot primary runway with a precision approach. The airport has high intensity runway lighting (HIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	6,996 feet
Primary Runway Width	180 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Precision
Fuel Type(s)	Jet-A, 100LL



Martin State Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Martin State Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Martin State Airport, this System Plan recommends the role of Reliever for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Martin State Airport as a Reliever Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	Reliever
FAA/NPIAS Role	Reliever

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Martin State Airport estimate that based aircraft will increase from 303 in 2006 to 400 in 2026. The projected annual general aviation aircraft operations are expected to increase from 85,039 in 2006 to approximately 124,600 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	188	218
Multi-Engine	34	52
Jet	29	78
Helicopter	27	34
Other	25	18
Total	303	400

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	85,039	124,600

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

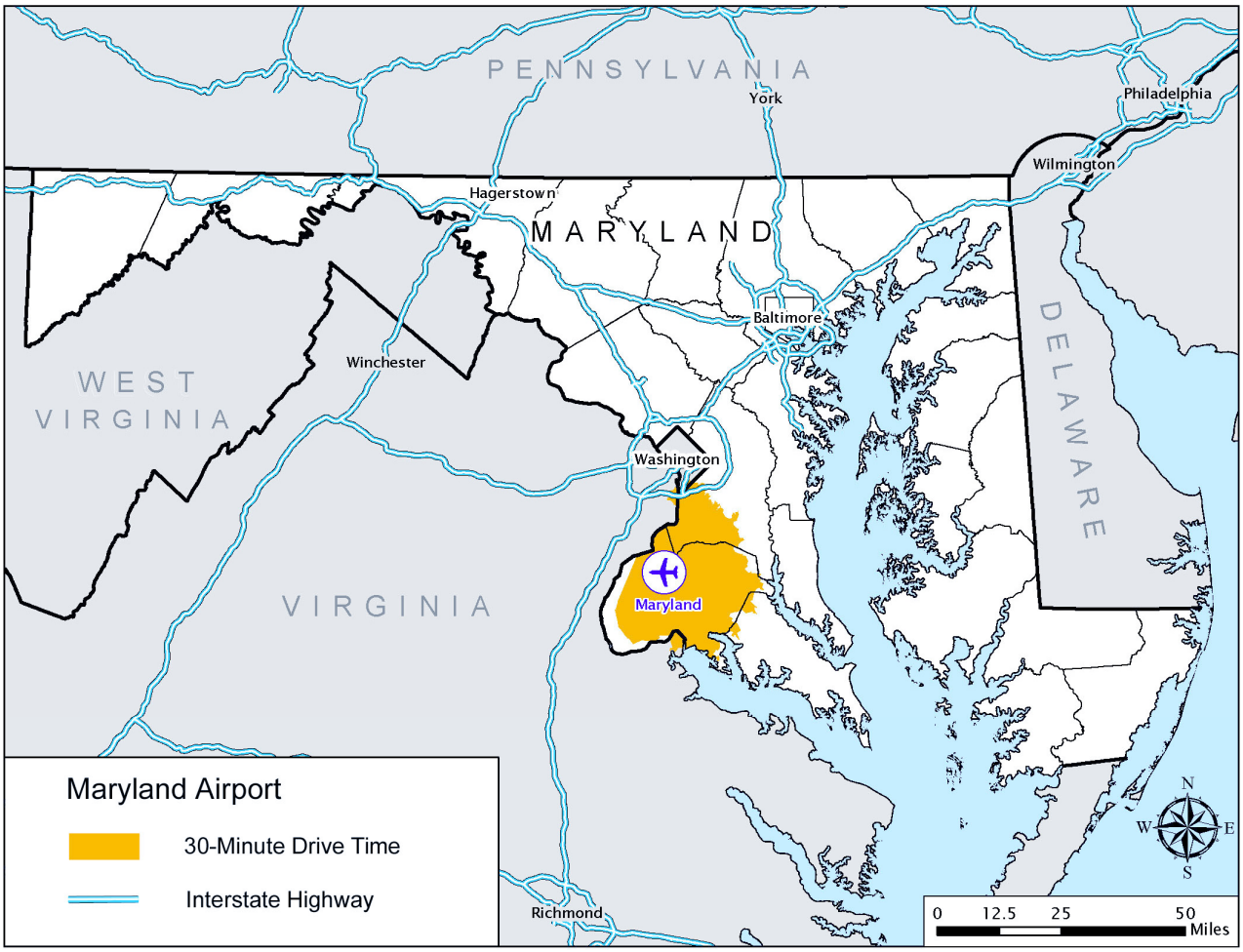
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
No Projects	-
To Meet COVERAGE Objectives	
Project	**Project Cost**
LPV Approach (<3/4 mile)	$1,000,000
Total	**$1,000,000**

MARYLAND AIRPORT
INDIAN HEAD, MARYLAND

AIRPORT LOCATION AND FACILITIES

Maryland Airport is located 4 miles east of Indian Head in Charles County. Existing aviation facilities at the airport include a paved 3,000-foot primary runway with a non-precision approach. The airport has low intensity runway lighting (LIRL) and a turnaround taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	3,000 feet
Primary Runway Width	50 feet
Primary Runway Surface	Paved
Taxiway Type	Turnaround
Approach Type	Non-precision
Fuel Type(s)	Jet-A, 100LL



Maryland Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Maryland Airport is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Maryland Airport, this System Plan recommends the role of Reliever for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Maryland Airport as a Reliever Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	Reliever
FAA/NPIAS Role	Reliever

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Maryland Airport estimate that based aircraft will increase from 75 in 2006 to 109 in 2026. The projected annual reliever aircraft operations are expected to increase from 22,600 in 2006 to approximately 32,700 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	71	99
Multi-Engine	4	6
Jet	0	2
Helicopter	0	2
Other	0	0
Total	75	109

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	22,600	32,700

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

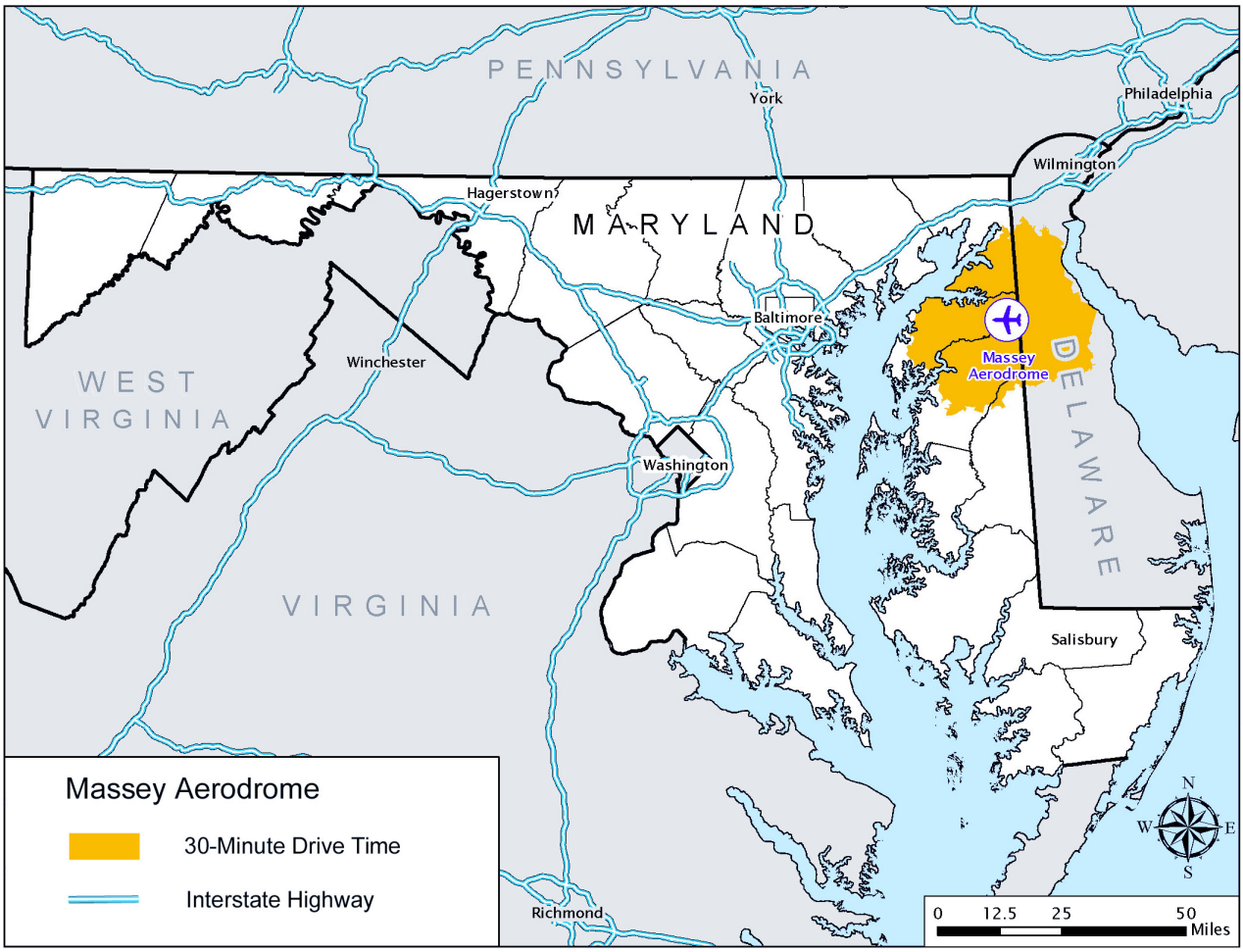
FACILITY RECOMMENDATIONS			
To Meet ROLE Objectives			
Project	**Project Cost**	**Project**	**Project Cost**
Primary Runway to 5,000 feet	$7,000,000	Lighted Wind Cone	$5,000
ARC C-II Standards	$2,000,000	Vertical Glide Slope Indicator	$100,000
Full Parallel Taxiway	$4,000,000	Weather Reporting	$100,000
Precision Approach	$1,500,000	GA Terminal/Admin Building	$800,000
ATC Communications	-	Covered Overnight Secure Storage	$1,500,000
Runway Lighting (HIRL and Beacon)	$380,000	Property Enclosed by Fence	$679,000
Total		**$18,064,000**	
To Meet COVERAGE Objectives			
Project		**Project Cost**	
No Projects		-	

MASSEY AERODROME
MASSEY, MARYLAND

AIRPORT LOCATION AND FACILITIES

Massey Aerodrome is located 2 miles east of Massey in Kent County. Existing aviation facilities at the airport include a turf 3,000-foot primary runway with a visual approach. The airport has no runway lighting and a turnaround taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	3,000 feet
Primary Runway Width	100 feet
Primary Runway Surface	Turf
Taxiway Type	Turnaround
Approach Type	Visual
Fuel Type(s)	None



Massey Aerodrome – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Massey Aerodrome is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Massey Aerodrome, this System Plan recommends the role of Local for the Airport. The Airport is not included in the FAA's most recent National Plan of Integrated Airport Systems (NPIAS) and relies on state and local funding for airport improvements.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	Local
FAA/NPIAS Role	Non-NPIAS

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Massey Aerodrome estimate that based aircraft will increase from 25 in 2006 to 34 in 2026. The projected annual reliever aircraft operations are expected to increase from 6,000 in 2006 to approximately 6,800 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	20	27
Multi-Engine	0	0
Jet	0	0
Helicopter	0	0
Other	5	7
Total	25	34

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	6,000	6,800

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

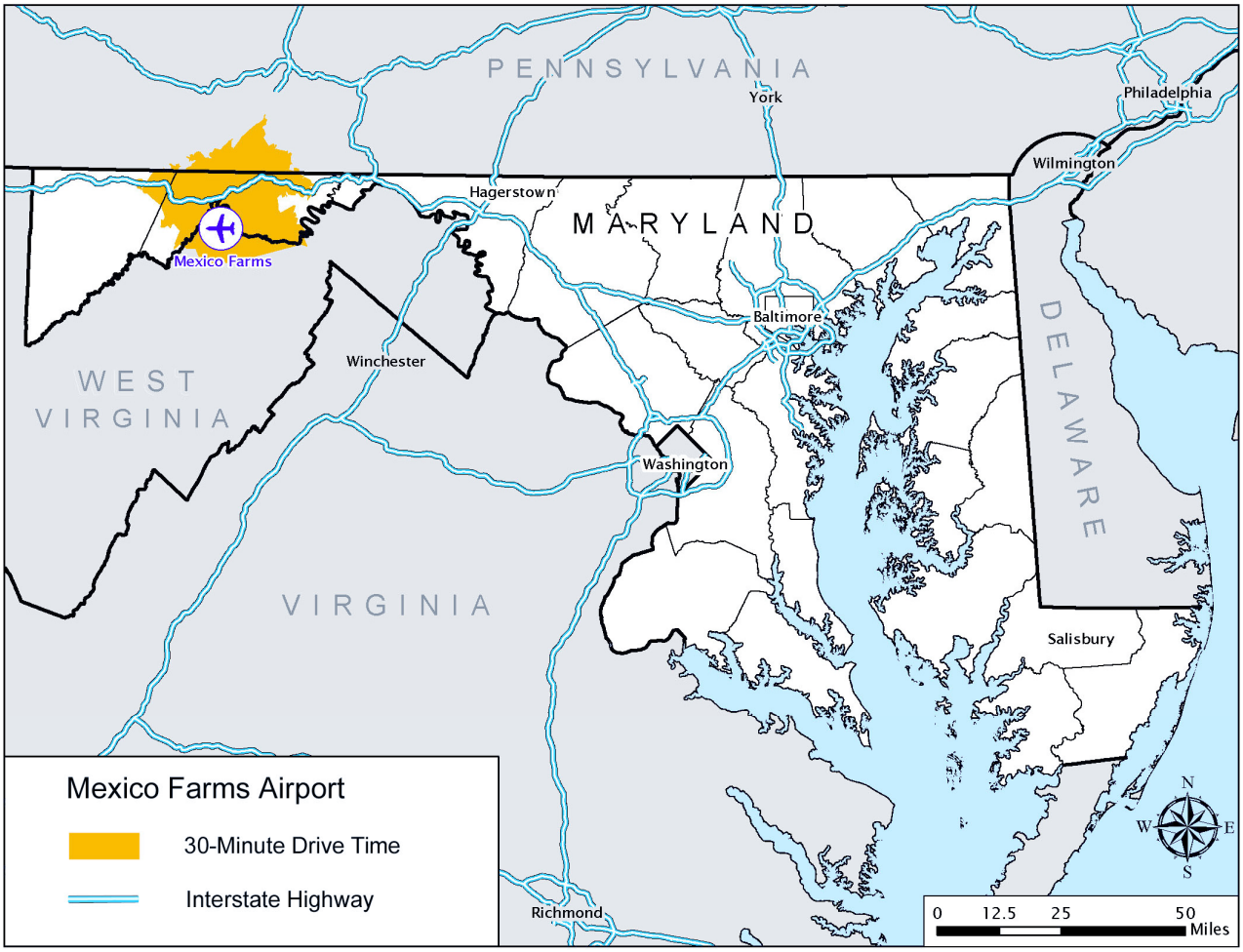
FACILITY RECOMMENDATIONS			
To Meet ROLE Objectives			
Project	**Project Cost**	**Project**	**Project Cost**
Lighted Wind Cone	$5,000	Fuel (100LL)	$125,000
Vertical Glide Slope Indicator	$100,000	Property Enclosed by Fence	$167,000
Total		**$397,000**	
To Meet COVERAGE Objectives			
Project		**Project Cost**	
No Projects		-	

MEXICO FARMS AIRPORT
CUMBERLAND, MARYLAND

AIRPORT LOCATION AND FACILITIES

Mexico Farms Airport is located 3 miles south of Cumberland in Allegany County. Existing aviation facilities at the airport include a turf 2,120-foot primary runway with a visual approach. The airport has no runway lighting and a turnaround taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	2,120 feet
Primary Runway Width	190 feet
Primary Runway Surface	Turf
Taxiway Type	Turnaround
Approach Type	Visual
Fuel Type(s)	None



Mexico Farms Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Mexico Farms Airport is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Mexico Farms Airport, this System Plan recommends the role of Local for the Airport. The Airport is not included in the FAA's most recent National Plan of Integrated Airport Systems (NPIAS) and relies on state and local funding for airport improvements.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	Local
FAA/NPIAS Role	Non-NPIAS

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Mexico Farms Airport estimate that based aircraft will increase from 16 in 2006 to 22 in 2026. The projected annual local aircraft operations are expected to increase from 1,261 in 2006 to approximately 2,200 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	11	15
Multi-Engine	0	0
Jet	0	0
Helicopter	0	0
Other	5	7
Total	16	22

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	1,261	2,200

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

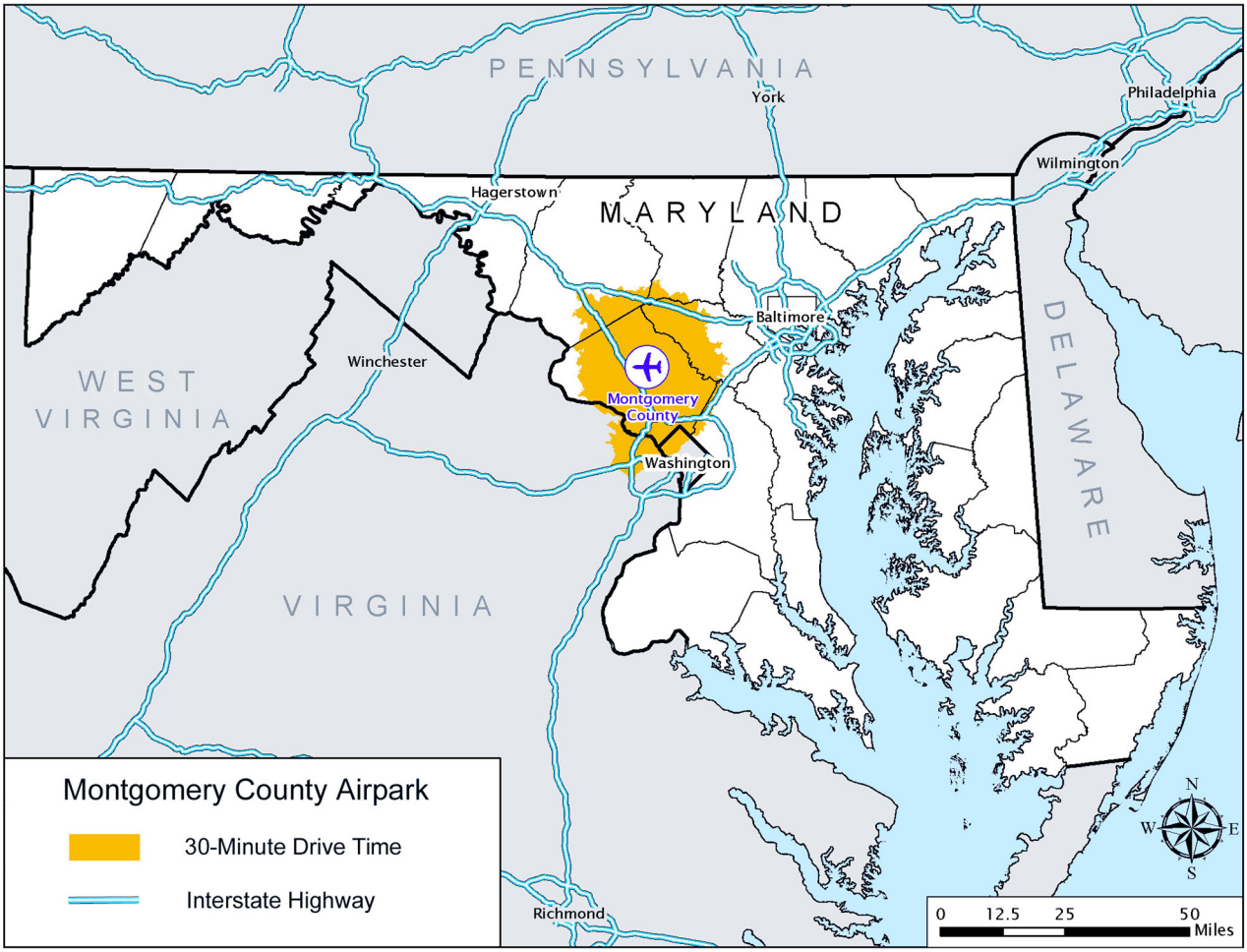
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
Fuel (100LL)	$125,000
Property Enclosed by Fence	$90,000
Total	**$215,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
No Projects	-

MONTGOMERY COUNTY AIRPARK
GAITHERSBURG, MARYLAND

AIRPORT LOCATION AND FACILITIES

Montgomery County Airpark is located 3 miles northeast of Gaithersburg in Montgomery County. Existing aviation facilities at the airport include a paved 4,201-foot primary runway with a non-precision approach. The airport has medium intensity runway lighting (MIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	4,201 feet
Primary Runway Width	75 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Non-precision
Fuel Type(s)	Jet-A, 100LL



Montgomery County Airpark – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Montgomery County Airpark is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Montgomery County Airpark, this System Plan recommends the role of Reliever for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Montgomery County Airpark as a Reliever Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	Reliever
FAA/NPIAS Role	Reliever

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Montgomery County Airpark estimate that based aircraft will increase from 260 in 2006 to 299 in 2026. The projected annual local aircraft operations are expected to increase from 147,300 in 2006 to approximately 169,500 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	220	250
Multi-Engine	35	40
Jet	4	8
Helicopter	1	1
Other	0	0
Total	260	299

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	147,300	169,500

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

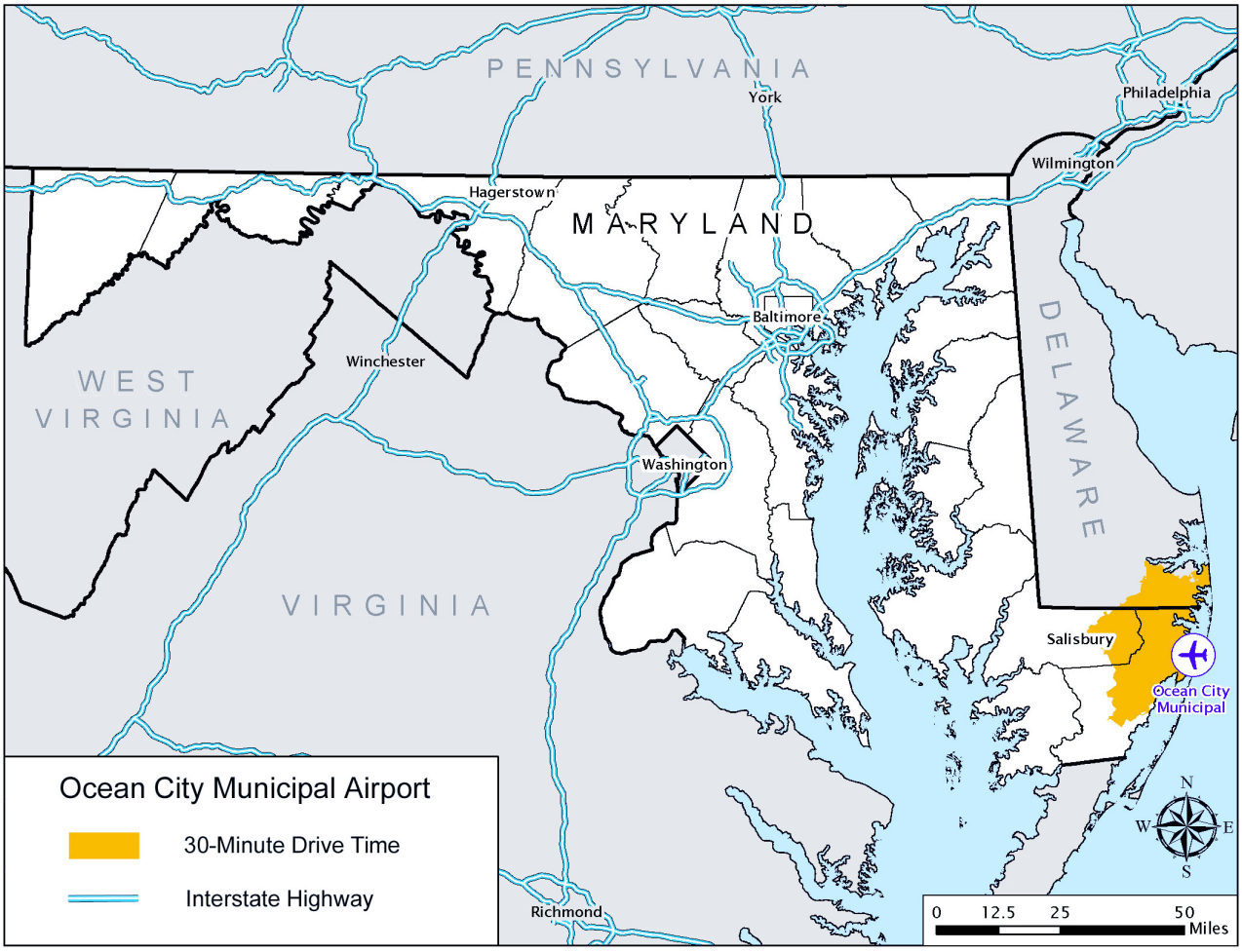
FACILITY RECOMMENDATIONS			
To Meet ROLE Objectives			
Project	**Project Cost**	**Project**	**Project Cost**
Primary Runway to 5,000 feet	$3,000,000	Air Traffic Control Tower	$3,500,000
ARC C-II Standards	$27,700,000	Runway Lighting (HIRL)	$308,000
Precision Approach	$1,500,000		
Total		**$36,008,000**	
To Meet COVERAGE Objectives			
Project		**Project Cost**	
No Projects		-	

OCEAN CITY MUNICIPAL AIRPORT
OCEAN CITY, MARYLAND

AIRPORT LOCATION AND FACILITIES

Ocean City Municipal Airport is located 2 miles southwest of Ocean City in Worcester County. Existing aviation facilities at the airport include a paved 4,072-foot primary runway with a non-precision approach. The airport has medium intensity runway lighting (MIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	4,072 feet
Primary Runway Width	75 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Non-precision
Fuel Type(s)	Jet-A, 100LL



Ocean City Municipal Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Ocean City Municipal Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Ocean City Municipal Airport, this System Plan recommends the role of General for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Ocean City Municipal Airport as a General Aviation Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	General
FAA/NPIAS Role	General Aviation

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Ocean City Municipal Airport estimate that based aircraft will increase from 40 in 2006 to 59 in 2026. The projected annual general aviation aircraft operations are expected to increase from 27,600 in 2006 to approximately 41,300 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	30	45
Multi-Engine	7	10
Jet	0	1
Helicopter	2	2
Other	1	1
Total	40	59

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	27,600	41,300

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

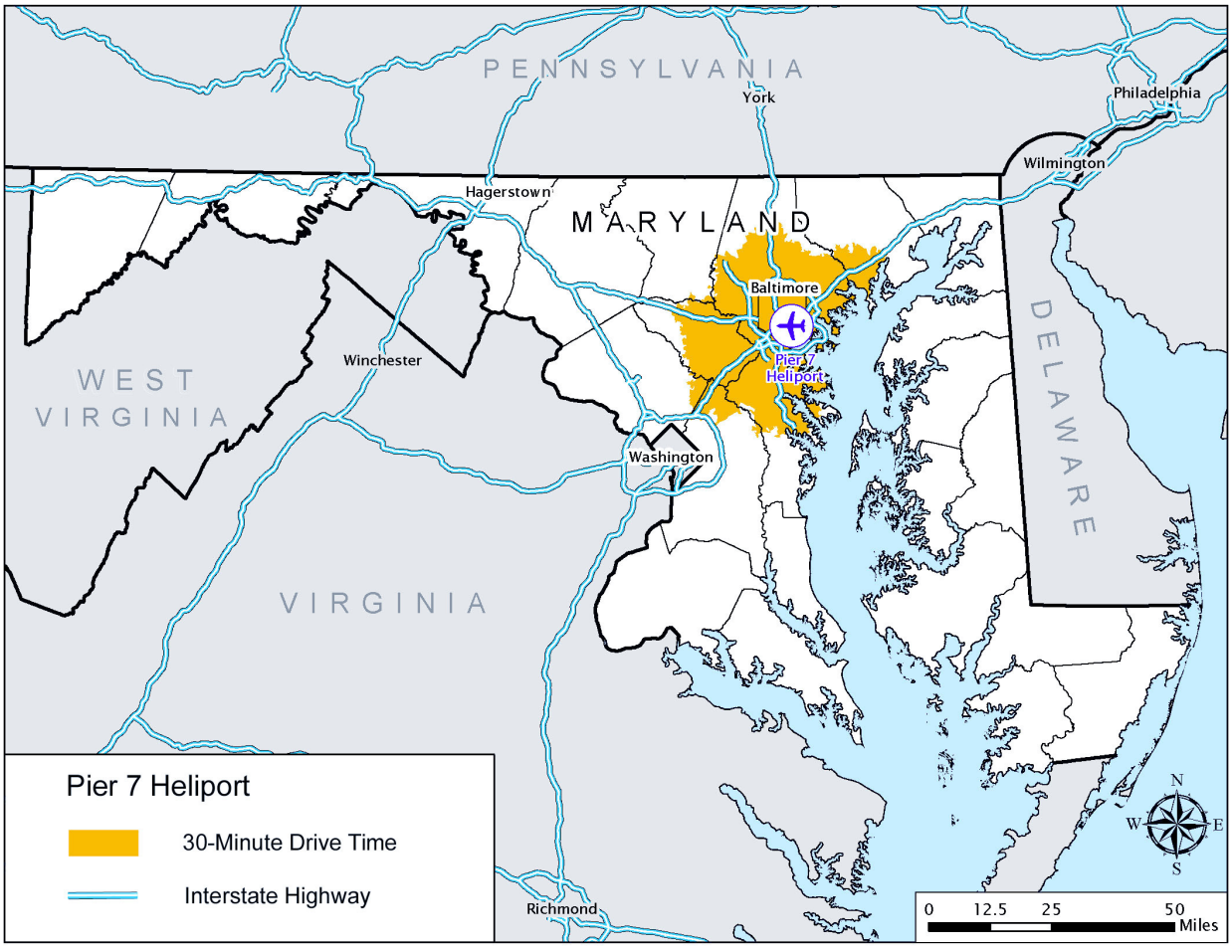
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
Property Enclosed by Fence	$1,003,000
Snow Removal	$100,000
Total	**$1,103,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
No Projects	-

PIER 7 HELIPORT
BALTIMORE, MARYLAND

AIRPORT LOCATION AND FACILITIES

Pier 7 Heliport is located 4 miles northeast of Baltimore in Baltimore City County. Existing aviation facilities at the heliport include a 45-foot by 45-foot concrete helipad. The heliport also has a lighted wind indicator.

EXISTING AIRPORT FACILITIES	
Helipad Dimensions	45 x 45 feet
Helipad Surface	Concrete
Fuel Type(s)	Jet-A



Pier 7 Heliport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Pier 7 Heliport is a privately-owned facility that supports a limited number of users and activities. Based on the level of service and type of activity at Pier 7 Heliport, this System Plan recommends the role of Special Facility for the heliport. The heliport is not included in the FAA's most recent National Plan of Integrated Airport Systems (NPIAS) and relies on state and local funding for airport improvements.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	Special Facility
FAA/NPIAS Role	Non-NPIAS

CURRENT AND FORECAST ACTIVITY

No activity forecasts have been developed for Pier 7 Heliport as it is a new facility in the Maryland system. There are a total of 3 based helicopters at the heliport and limited space to accommodate additional aircraft. Based on interviews with the facility manager, the heliport experienced approximately 3,700 annual aircraft operations in 2008. The projected annual operations are expected to increase; however, formal forecasts have not been developed for the facility. As aviation activity at the heliport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2008)**	**Future (2026)**
Helicopter	3	Unknown
Other	0	Unknown
Total	3	Unknown

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2008)	**Future (2026)**
Operations	3,700	Unknown

FACILITY OBJECTIVES

Due to its unique operation, the role and coverage objectives for the Pier 7 Heliport were not evaluated in this study. Therefore, no facility recommendations were provided. Important projects, however, may be studied and justified within the five-year capital improvement program in order to support local objectives.

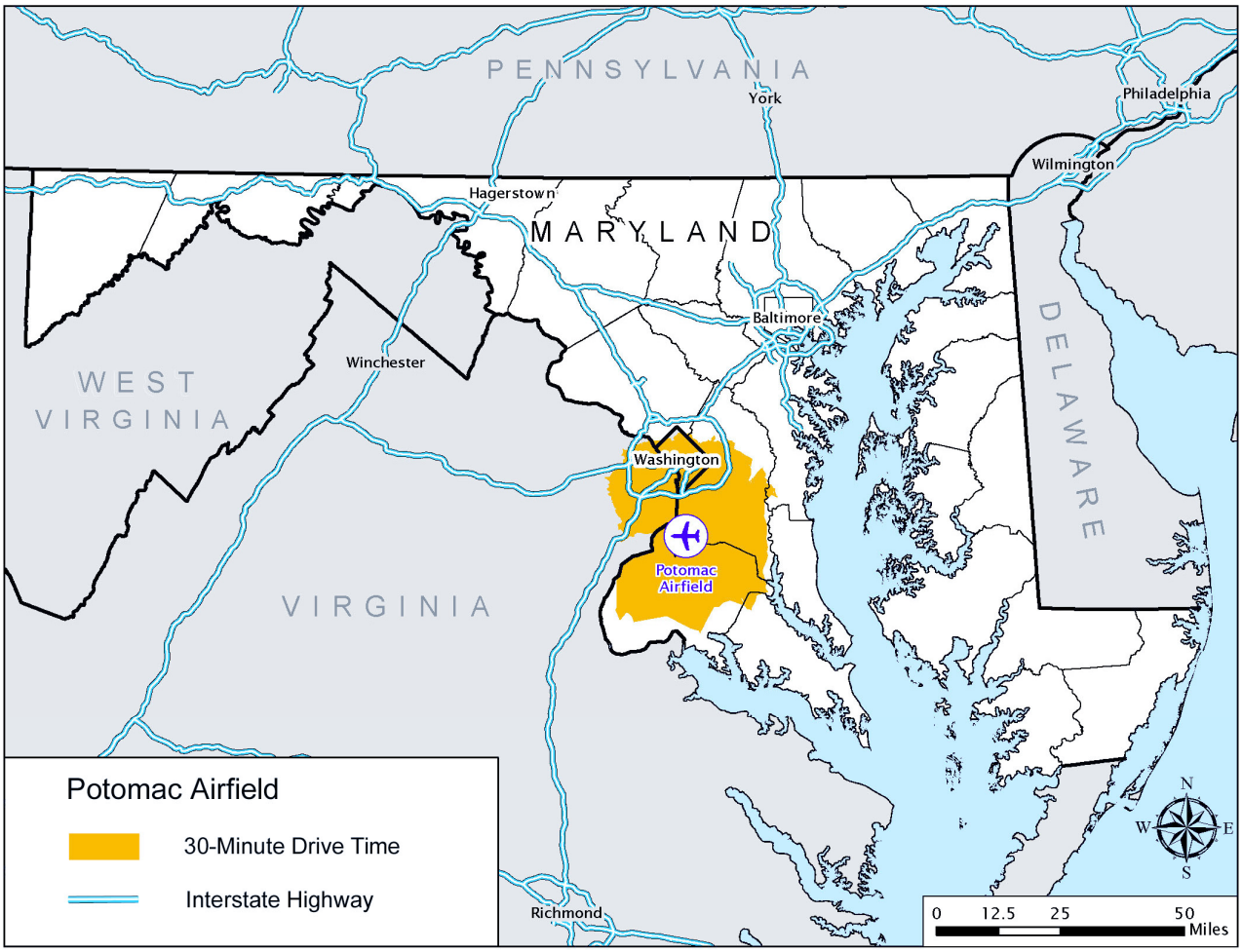
FACILITY RECOMMENDATIONS
To Meet ROLE Objectives
N/A
To Meet COVERAGE Objectives
N/A

POTOMAC AIRFIELD
FRIENDLY, MARYLAND

AIRPORT LOCATION AND FACILITIES

Potomac Airfield is located 9 miles east of Friendly in Prince George's County. Existing aviation facilities at the airport include a paved 2,665-foot primary runway with a non-precision approach. The airport has low intensity runway lighting (LIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	2,665 feet
Primary Runway Width	40 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Non-precision
Fuel Type(s)	100LL



Potomac Airfield– 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Potomac Airfield is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Potomac Airfield, this System Plan recommends the role of General for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Potomac Airfield as a Reliever Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	General
FAA/NPIAS Role	Reliever

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Potomac Airfield estimate that based aircraft will increase from 91 in 2006 to 123 in 2026. The projected annual general aviation aircraft operations are expected to increase from 12,000 in 2006 to approximately 12,300 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	88	119
Multi-Engine	3	4
Jet	0	0
Helicopter	0	0
Other	0	0
Total	91	123

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	12,000	12,300

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

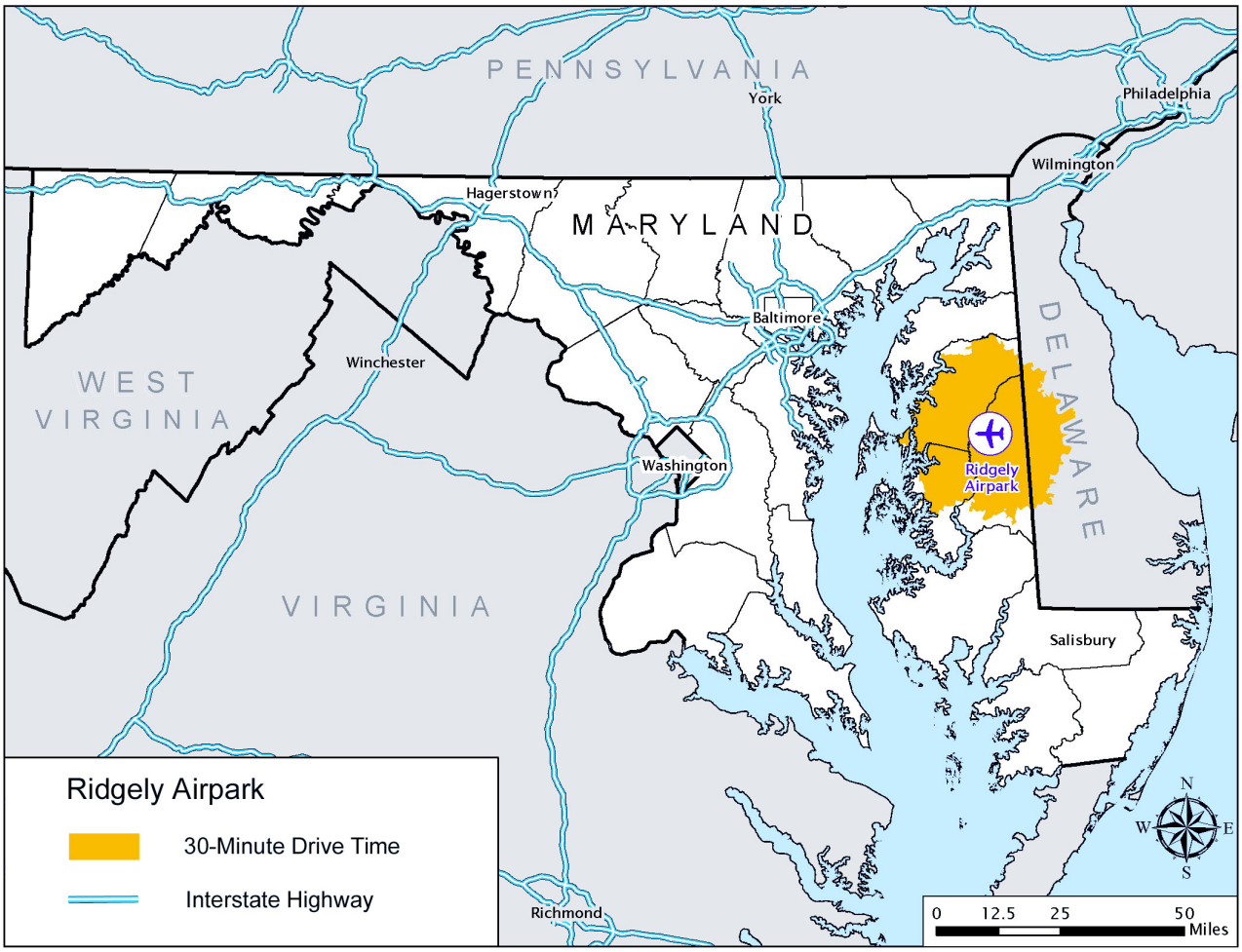
FACILITY RECOMMENDATIONS			
To Meet ROLE Objectives			
Project	**Project Cost**	**Project**	**Project Cost**
Primary Runway to 3,500 feet	$1,250,000	Paved Aircraft Parking	$500,000
ARC B-I Standards	$1,500,000	Property Enclosed by Fence	$90,000
Runway Lighting (MIRL)	$211,000	Snow Removal	$100,000
Total		**$3,651,000**	
To Meet COVERAGE Objectives			
Project		**Project Cost**	
No Projects		-	

RIDGELY AIRPARK
RIDGELY, MARYLAND

AIRPORT LOCATION AND FACILITIES

Ridgely Airpark is located 2 miles northeast of Ridgely in Caroline County. Existing aviation facilities at the airport include a paved 3,214-foot primary runway with a non-precision approach. The airport has low intensity runway lighting (LIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	3,214 feet
Primary Runway Width	50 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Non-precision
Fuel Type(s)	Jet-A, 100LL



Ridgely Airpark – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Ridgely Airpark is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Ridgely Airpark, this System Plan recommends the role of General for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Ridgely Airpark as a General Aviation Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	General
FAA/NPIAS Role	General Aviation

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Ridgely Airpark estimate that based aircraft will increase from 26 in 2006 to 39 in 2026. The projected annual general aviation aircraft operations are expected to increase from 15,500 in 2006 to approximately 23,200 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	9	13
Multi-Engine	1	2
Jet	0	0
Helicopter	0	0
Other	16	24
Total	26	39

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	15,500	23,200

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

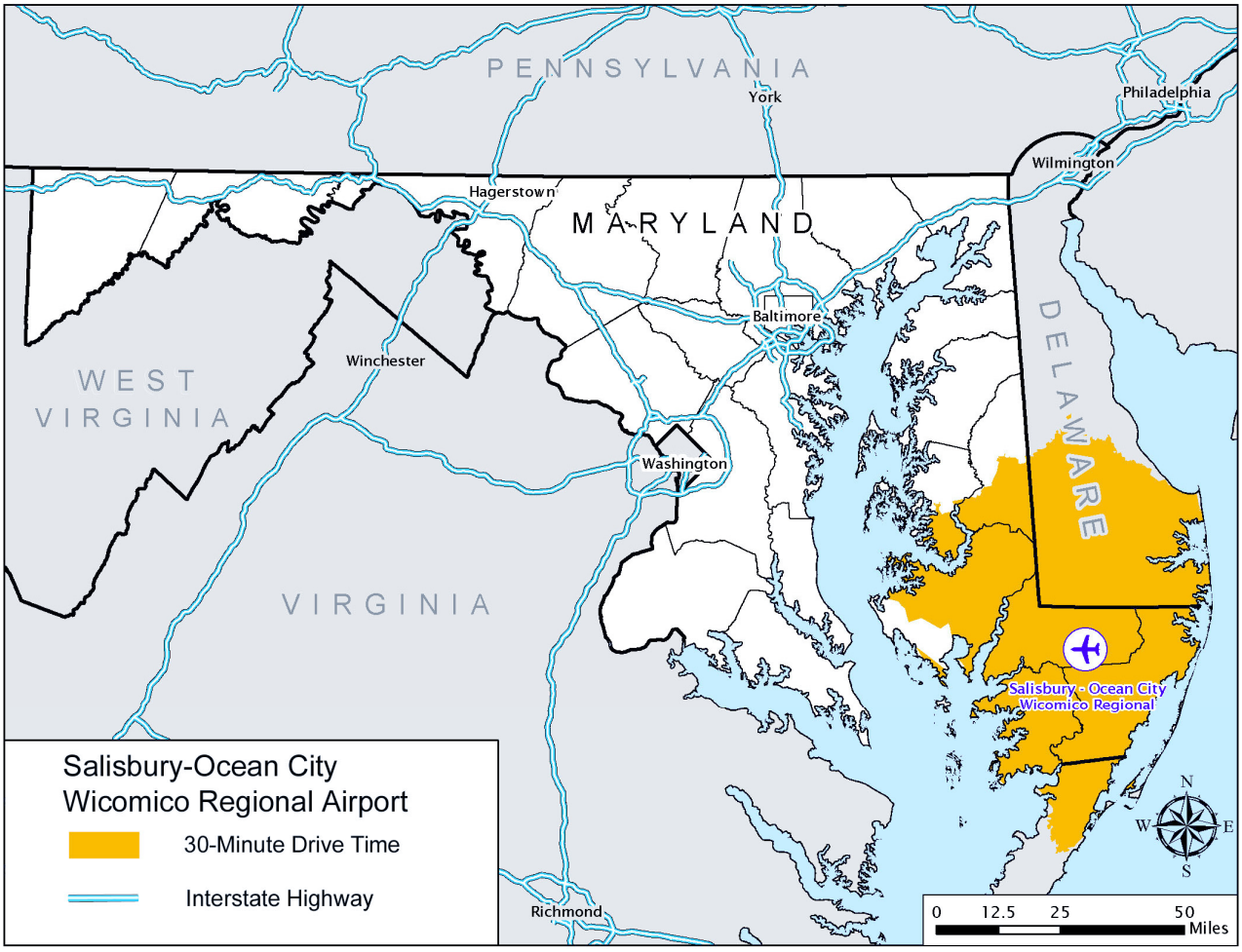
FACILITY RECOMMENDATIONS			
To Meet ROLE Objectives			
Project	**Project Cost**	**Project**	**Project Cost**
Primary Runway to 3,500 feet	$750,000	GA Terminal/Admin Building	$600,000
Runway Lighting (MIRL)	$302,000	Property Enclosed by Fence	$277,000
Vertical Glide Slope Indicator	$100,000	Snow Removal	$100,000
Total		**$2,129,000**	
To Meet COVERAGE Objectives			
Project		**Project Cost**	
Primary Runway to 5,000 feet from 3,500 feet		$2,250,000	
Precision Approach		$1,500,000	
Total		**$3,750,000**	

SALISBURY–OCEAN CITY: WICOMICO REGIONAL AIRPORT
SALISBURY, MARYLAND

AIRPORT LOCATION AND FACILITIES

Salisbury–Ocean City: Wicomico Regional Airport is located 4 miles southeast of Salisbury in Wicomico County. Existing aviation facilities at the airport include a paved 5,500-foot primary runway with a precision approach. The airport has high intensity runway lighting (HIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	5,500 feet
Primary Runway Width	100 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Precision
Fuel Type(s)	Jet-A, 100LL



Salisbury–Ocean City: Wicomico Regional Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Salisbury–Ocean City: Wicomico Regional Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Salisbury–Ocean City: Wicomico Regional Airport, this System Plan recommends the role of Air Carrier for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Salisbury–Ocean City: Wicomico Regional Airport as a Primary Commercial Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	Air Carrier
FAA/NPIAS Role	Primary Commercial

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Salisbury–Ocean City: Wicomico Regional Airport estimate that based aircraft will increase from 156 in 2006 to 174 in 2026. The projected annual general aviation aircraft operations are expected to remain at 24,400 total operations from 2006 to 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	108	115
Multi-Engine	42	47
Jet	4	7
Helicopter	2	5
Other	0	0
Total	156	174

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	24,400	24,400

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

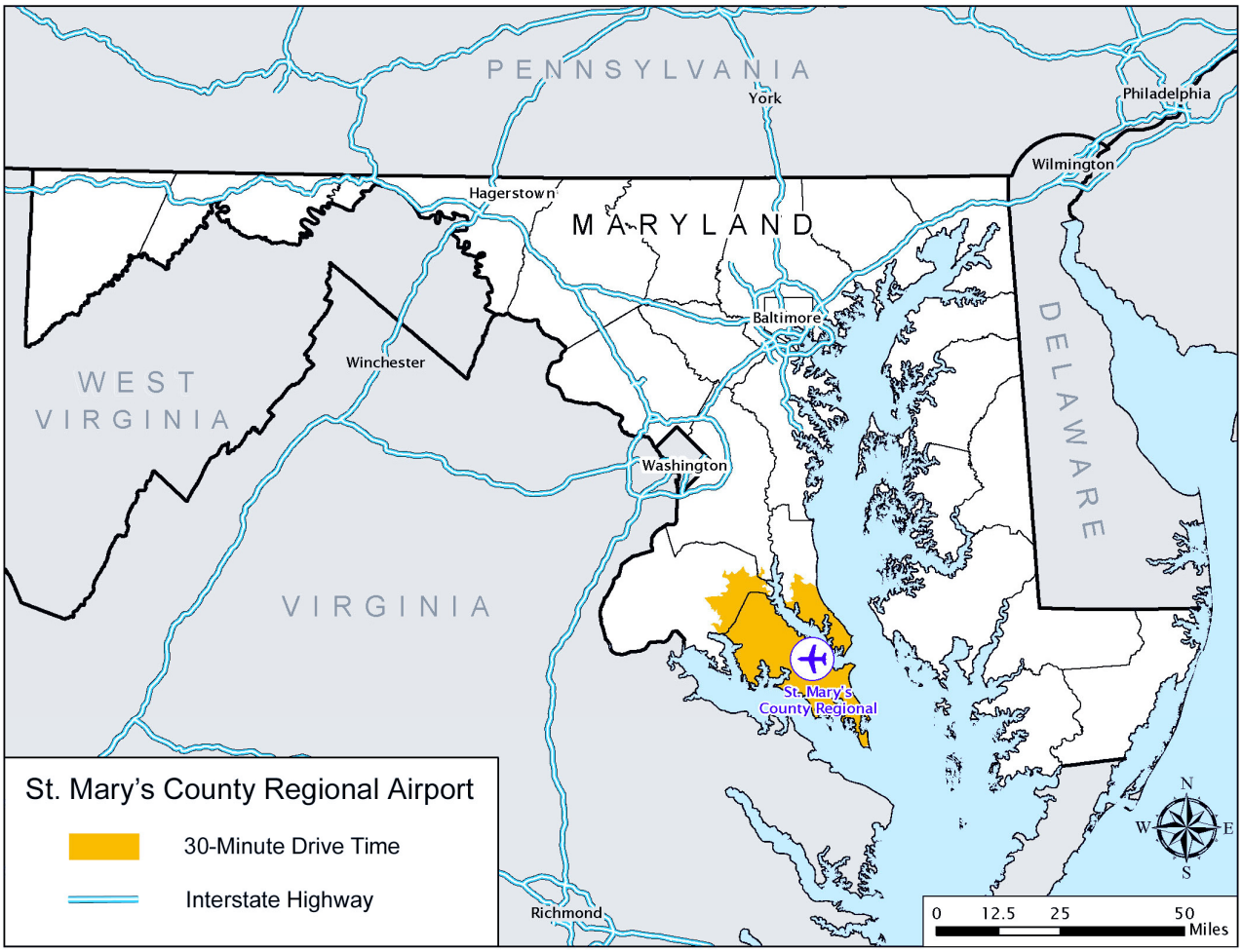
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
No Projects	-
To Meet COVERAGE Objectives	
Project	**Project Cost**
No Projects	-

ST. MARY'S COUNTY REGIONAL AIRPORT
LEONARDTOWN, MARYLAND

AIRPORT LOCATION AND FACILITIES

St. Mary's County Regional Airport is located 4 miles northeast of Leonardtown in St. Mary's County. Existing aviation facilities at the airport include a paved 4,150-foot primary runway with a non-precision approach. The airport has medium intensity runway lighting (MIRL) and a partial parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	4,150 feet
Primary Runway Width	75 feet
Primary Runway Surface	Paved
Taxiway Type	Partial parallel
Approach Type	Non-precision
Fuel Type(s)	Jet-A, 100LL



St. Mary's County Regional Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

St. Mary's County Regional Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at St. Mary's County Regional Airport, this System Plan recommends the role of General for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies St. Mary's County Regional Airport as a General Aviation Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	General
FAA/NPIAS Role	General Aviation

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for St. Mary's County Regional Airport estimate that based aircraft will increase from 97 in 2006 to 124 in 2026. The projected annual general aviation aircraft operations are expected to increase from 53,400 in 2006 to approximately 66,200 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	85	106
Multi-Engine	8	10
Jet	0	3
Helicopter	1	1
Other	3	4
Total	97	124

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	53,400	66,200

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

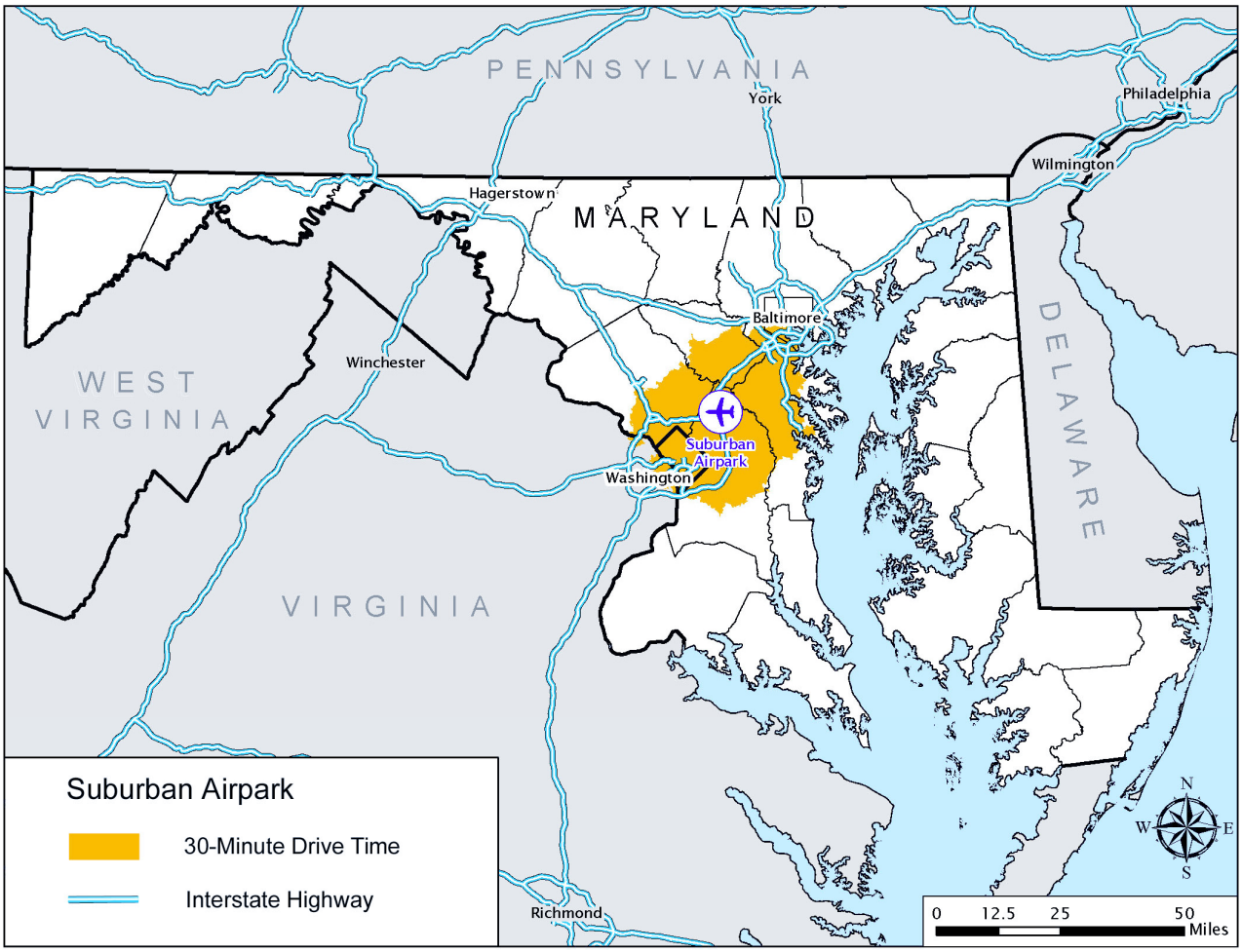
FACILITY RECOMMENDATIONS			
To Meet ROLE Objectives			
Project		**Project Cost**	
No Projects		-	
To Meet COVERAGE Objectives			
Project	**Project Cost**	**Project**	**Project Cost**
Primary Runway to 5,000 feet	$5,039,000	Precision Approach	$1,500,000
ARC to C-II	$3,342,000	Runway Lighting (HIRL)	$302,000
Total		**$10,183,000**	

SUBURBAN AIRPARK
LAUREL, MARYLAND

AIRPORT LOCATION AND FACILITIES

Surburban Airpark is located 2 miles southeast of Laurel in Prince George's County. Existing aviation facilities at the airport include a paved 2,324-foot primary runway with a visual approach. The airport has low intensity runway lighting (LIRL) and a partial parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	2,324 feet
Primary Runway Width	40 feet
Primary Runway Surface	Paved
Taxiway Type	Partial parallel
Approach Type	Visual
Fuel Type(s)	100LL



Suburban Airpark – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Suburban Airpark is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Suburban Airpark, this System Plan recommends the role of Local for the Airport. The airport is not included in the FAA's most recent National Plan of Integrated Airport Systems (NPIAS) and relies on state and local funding for airport improvements.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	Local
FAA/NPIAS Role	Non-NPIAS

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Suburban Airpark estimate that based aircraft will increase from 35 in 2006 to 47 in 2026. The projected annual general aviation aircraft operations are expected to increase from 1,750 in 2006 to approximately 4,700 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	35	47
Multi-Engine	0	0
Jet	0	0
Helicopter	0	0
Other	0	0
Total	35	47

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	1,750	4,700

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

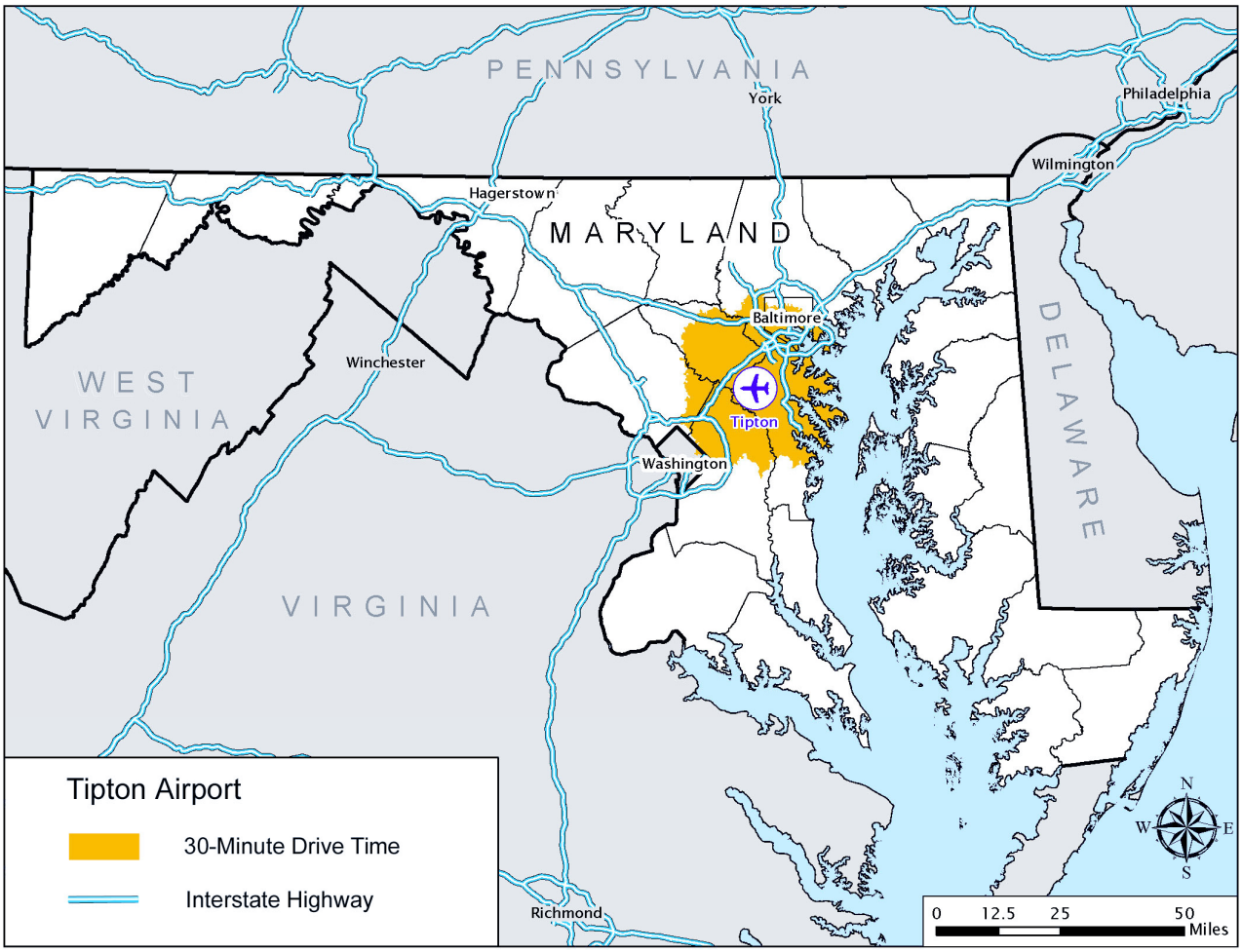
FACILITY RECOMMENDATIONS	
To Meet ROLE Objectives	
Project	**Project Cost**
Property Enclosed by Fence	$94,000
Total	**$94,000**
To Meet COVERAGE Objectives	
Project	**Project Cost**
No Projects	-

TIPTON AIRPORT
ODENTON, MARYLAND

AIRPORT LOCATION AND FACILITIES

Tipton Airport is located 1 mile southwest of Odenton in Anne Arundel County. Existing aviation facilities at the airport include a paved 3,000-foot primary runway with a non-precision approach. The airport has medium intensity runway lighting (MIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	3,000 feet
Primary Runway Width	75 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Non-precision
Fuel Type(s)	Jet-A, 100LL



Tipton Airport – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Tipton Airport is a publicly-owned airport that supports a variety of users and activities. Based on the level of service and type of activity at Tipton Airport, this System Plan recommends the role of Reliever for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Tipton Airport as a Reliever Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Public
Recommended MASP Role	Reliever
FAA/NPIAS Role	Reliever

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Tipton Airport estimate that based aircraft will increase from 116 in 2006 to 184 in 2026. The projected annual general aviation aircraft operations are expected to remain at 47,000 from 2006 to 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	103	163
Multi-Engine	6	10
Jet	0	0
Helicopter	7	11
Other	0	0
Total	116	184

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	47,000	47,000

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

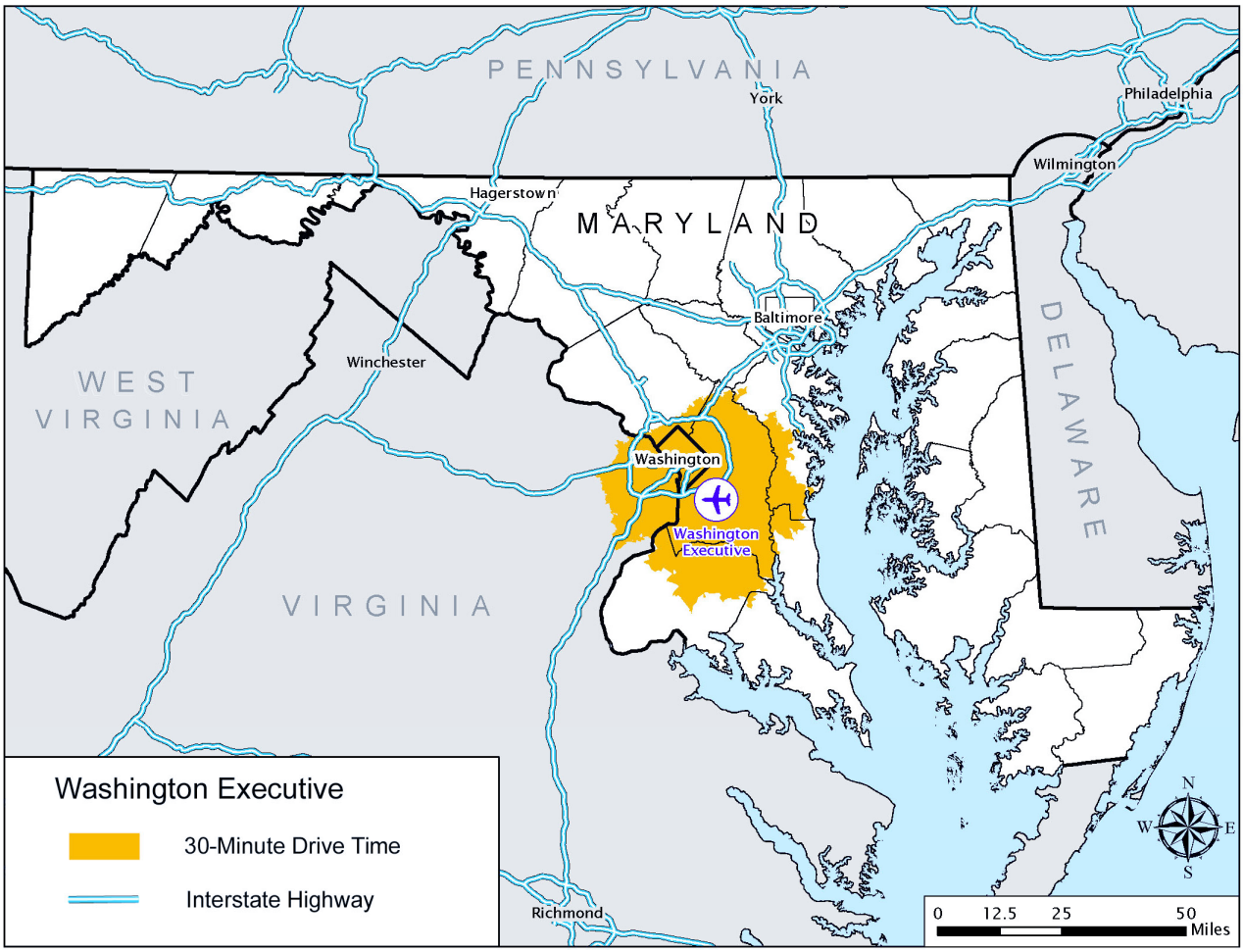
FACILITY RECOMMENDATIONS			
To Meet ROLE Objectives			
Project	**Project Cost**	**Project**	**Project Cost**
Primary Runway to 5,000 feet	$3,810,000	Runway Lighting (HIRL & Beacon)	$380,000
ARC C-II Standards	$475,000	Covered Overnight Secured Storage	$1,500,000
Precision Approach	$1,500,000	Snow Removal	$250,000
Total		**$7,915,000**	
To Meet COVERAGE Objectives			
Project		**Project Cost**	
No Projects		-	

WASHINGTON EXECUTIVE/HYDE FIELD AIRPORT
CLINTON, MARYLAND

AIRPORT LOCATION AND FACILITIES

Washington Executive/Hyde Field Airport is located 2 miles southwest of Clinton in Prince George's County. Existing aviation facilities at the airport include a paved 3,000-foot primary runway with a non-precision approach. The airport has low intensity runway lighting (LIRL) and a full parallel taxiway.

EXISTING AIRPORT FACILITIES	
Primary Runway Length	3,000 feet
Primary Runway Width	60 feet
Primary Runway Surface	Paved
Taxiway Type	Full parallel
Approach Type	Non-precision
Fuel Type(s)	Jet-A, 100LL



Washington Executive – 30 Minute Drive Time Map

AIRPORT OWNERSHIP AND ROLE

Washington Executive/Hyde Field Airport is a privately-owned airport that supports a limited number of users and activities. Based on the level of service and type of activity at Washington Executive/Hyde Field Airport, this System Plan recommends the role of General for the Airport. In the most recent National Plan of Integrated Airport Systems (NPIAS), the FAA classifies Washington Executive/Hyde Field Airport as a Reliever Airport. NPIAS airports are eligible for federal Airport Improvement Program (AIP) funding.

AIRPORT OWNERSHIP AND ROLE	
Airport Ownership	Private
Recommended MASP Role	General
FAA/NPIAS Role	Reliever

CURRENT AND FORECAST ACTIVITY

Activity forecasts developed for Washington Executive/Hyde Field Airport estimate that based aircraft will increase from 56 in 2006 to 75 in 2026. The projected annual general aviation aircraft operations are expected to increase from 5,692 in 2006 to approximately 7,500 in 2026. As aviation activity at the airport increases in the future, additional facilities may be required.

BASED AIRCRAFT PROJECTIONS		
Based Aircraft	**Current (2006)**	**Future (2026)**
Single Engine	55	74
Multi-Engine	1	1
Jet	0	0
Helicopter	0	0
Other	0	0
Total	56	75

GENERAL AVIATION AIRCRAFT OPERATIONS PROJECTIONS		
	Current (2006)	**Future (2026)**
Operations	5,692	7,500

FACILITY OBJECTIVES

Future facility needs for the airport were determined based on the airport's recommended role and the facility objectives identified for that functional level. The following table summarizes projects recommended to meet system plan role and coverage objectives. Additional projects, however, may be listed within the five-year capital improvement program in order to support local objectives.

FACILITY RECOMMENDATIONS			
To Meet ROLE Objectives			
Project	**Project Cost**	**Project**	**Project Cost**
Primary Runway to 3,500 feet	$1,200,000	GA Terminal/Admin Building	$600,000
Runway Lighting (MIRL)	$211,000	Snow Removal	$100,000
Weather Reporting	$100,000		
Total		**$2,211,000**	
To Meet COVERAGE Objectives			
Project		**Project Cost**	
No Projects		-	