

4. ALTERNATIVES ANALYSIS

4.1 Chapter Overview

The Alternatives Analysis reviews the performance of the Virginia air transportation system as a whole to determine if there are deficiencies or gaps in current system performance. The system is then evaluated assuming that recommended facility, service, and equipment (FS&E) objectives for each airport are implemented. Results of the FS&E analysis are an important input for updating Virginia's Air Transportation System Plan. It should be noted that all proposed facilities for an airport must be specifically justified during the airport master planning process and included on an approved Airport Layout Plan (ALP) before any federal funding can be allocated.

The FS&E objectives established for Virginia airports are a result of the defined airport classifications presented in the previous chapter. Each airport role within Virginia's Air Transportation System—whether Commercial Service, Reliever, General Aviation-Regional, General Aviation-Community, or Local Service—is linked to specific FS&E objectives. The previous chapter explained the development of current roles for all airports, includes information on the historic context within which roles for Virginia airports were established, and provides an analysis on the ability of each airport to fulfill its FS&E Objectives.

Based on an analysis of current system performance, options for enhancing the performance of Virginia's Airport System to resolve gaps and deficiencies are identified and reviewed.

4.1.1 Factors Used to Review System Performance

To pinpoint current deficiencies or gaps within Virginia's system of airports, population coverage within drive time service areas of airports and/or airport assets were analyzed to determine accessibility to Virginia's residents and major centers of population. Drive time coverages were calculated for the following system performance measures:

- **Access to Any System Airport** - Accessibility to any commercial service airport within a 45-minute drive time and/or any general aviation airport within a 30-minute drive time.
- **Access to Airports with Commercial Airline Service** - Accessibility to any airport with scheduled commercial airline service within a 45-minute drive time.
- **Access to Airports with a Runway Length of 5,500 feet or Greater** - Accessibility to any airport with a runway length of 5,500 feet or greater within a 30-minute drive time.
- **Access to Airports with a Precision Instrument Approach** - Accessibility to any airport with a precision runway approach supported by vertical guidance within a 30-minute drive time.
- **Access to Airports with On-Site Weather Reporting Equipment** - Accessibility to any airport with on-site weather reporting equipment within a 30-minute drive time.

- **Access to Airports that Serve Business Aircraft Needs** - Accessibility to any airport that meets all of the characteristics for a “business airport” within a 30-minute drive time, a classification defined as an airport with 1) a runway that is 5,500 feet long or longer; 2) a precision approach that is supported by vertical guidance; and 3) on-site weather reporting equipment.

The process to evaluate current accessibility for each of the measures noted above was supported by GIS analysis and mapping. Service areas of 45-minute and 30-minute drive time intervals for each airport were determined using assumed speed limits for different road types (highway, local road, etc.) within the State of Virginia and then using network analysis to determine the shape and area of the drive time polygons on the state road map. Drive time polygons of 45 minutes were used to reflect the ultimate DOAV goal within which to provide all Virginia residents with convenient access to commercial service airports. These drive time polygons were then overlaid on population data by census block group to identify the portion of population coverage throughout Virginia. The current conditions used the latest available 2010 Census block group data. When calculating future population coverage, growth rates were applied to the block groups by county to determine the future population distribution.¹

Comparisons between current 2010 conditions and conditions reported by the prior state aviation system plan were also accomplished for some measurement factors. This comparison helped to demonstrate characteristic changes that have taken place in the Virginia Airport System since the last state plan was completed in 2003.

For the Alternatives Analysis, the following steps were considered:

- **Current performance** of the system for each of the measures noted was determined by analyzing coverage using the GIS-developed drive times and census data
- Results of current system performance were used to conduct an **adequacy review** to determine if there are any apparent gaps or deficiencies in the system
- The results of the adequacy review determined if **alternatives for increasing current system performance** are needed
- An **alternatives identification and review** was completed for those factors where current system performance was deemed to be less than desirable
- The review of system alternatives resulted in information that highlights **recommendations for future system performance**

¹ Commonwealth of Virginia Labor Market Information (LMI), <https://data.virginialmi.com>

4.1.2 Current System Performance

This section provides mapping and analysis that describes how Virginia’s existing system of airports is performing relative to each of the performance measures.

4.1.3 Access to Any System Airport

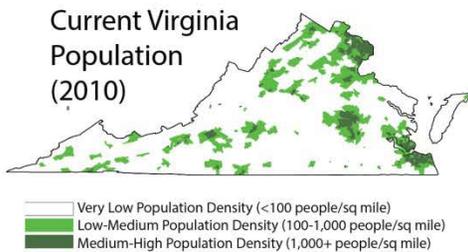
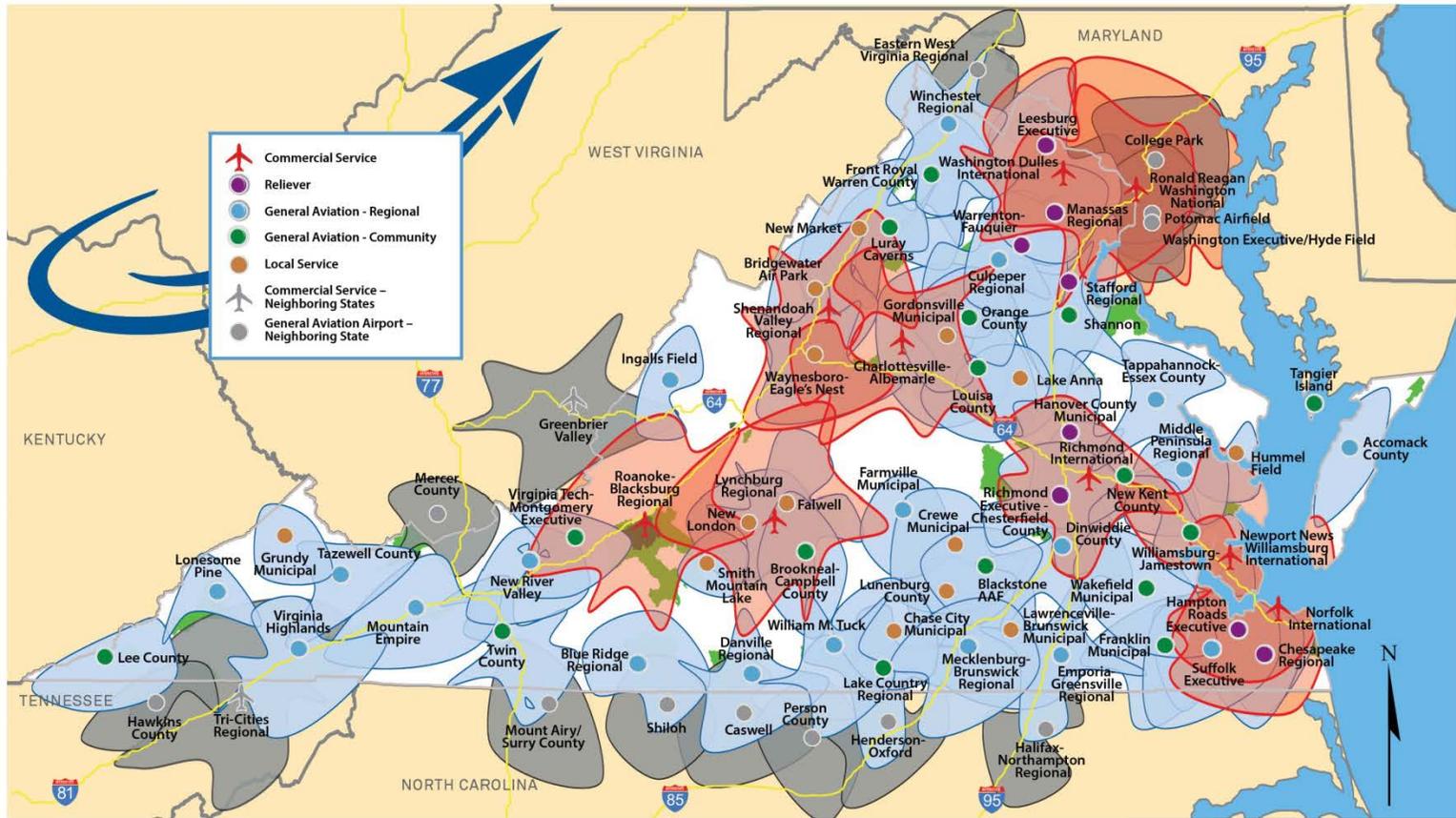
Figure 4-1 demonstrates accessibility as measured by drive times to any system airport. Some drive times for commercial service and general aviation airports overlap, resulting in duplicative accessibility coverage in some areas. In summary, 94.7 percent of Virginia’s residents are currently within 45 minutes or less of one or more of Virginia’s commercial service or within 30 minutes of one or more general aviation airports.

In the Airport Cooperative Research Program (ACRP) Synthesis 14, *Airport System Planning Practices*, the FAA suggested that state aviation system plans should consider what role, if any, airports in neighboring states play in serving aviation demand. As a result, airports were identified in Maryland, West Virginia, Kentucky, Tennessee, and North Carolina that are close enough to the state border that their drive time areas include parts of Virginia. The attributes of these neighboring state airports contribute to the calculation of existing coverage. The role that airports in neighboring states play in serving Virginia’s aviation needs was considered for each of the individual system performance measures.

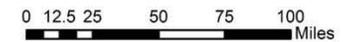
The analysis included coverage provided by either commercial service airports or general aviation airports in neighboring states that are within a 45-minute and/or a 30-minute drive time of Virginia. As Figure 4-1 shows, Virginia receives additional accessibility coverage from out-of-state airports. When including out-of-state airport contributions to total airport accessibility coverage for Virginia’s population, coverage increases to 95.1 percent within a 45-minute or less drive time interval. At 45-minutes, the out-of-state airports exclusively serve approximately 33,000 Virginia residents, or an additional 0.4 percent of the total population. Virginia’s 2010 population was estimated at 8 million. The system plan GIS analysis shows that 7.6 million of these residents are within 45 minutes or less of a commercial service airport or 30 minutes or less of a general aviation airport.

Table 4-1 shows population coverage in percent and total residents within Virginia provided by in- and out-of-state airports with 45 and 30 minute drive times considered for this particular system performance measure.

Figure 4 - 1: Current Access to Any Airport



VIRGINIA POPULATION ACCESSIBILITY



Within 30 Minutes of Virginia General Aviation Airport

78.7%

Within 30 Minutes of GA and/or 45 Minutes of Commercial Service Virginia Airport

94.7%

Additional Coverage Within 30 Minutes of GA and/or 45 Minutes of Commercial Service Neighboring State Airport

0.4%

Within 45 Minutes of Virginia Commercial Service Airport

77.3%

+

Total Coverage in Virginia 95.1%

Table 4 - 1: Existing and Future Population Coverage for 45 and 30 Minutes System Drive Times

Virginia Airports Coverage 45 Min Commercial Service and 30 Min General Aviation		Virginia Airports and Neighboring State Airports Coverage 45 Min Commercial Service and 30 Min General Aviation			
Total for Airports in Virginia		Virginia Commercial Service Coverage – 45 Minute Drive Times		Neighbor State Additional Commercial Service Coverage – 45 Minute Drive Times	
Population 2010	7,576,797	Population 2010	6,182,237	Population 2010	91,844
Percent 2010	94.7%	Percent 2010	77.3%	Percent 2010	1.1%
Population 2020	8,425,495	Population 2020	6,889,359	Population 2020	92,912
Percent 2020	94.8%	Percent 2020	77.5%	Percent 2020	1.0%
Additional Outside Virginia		Virginia General Aviation Coverage – 30 Minute Drive Times		Neighbor State Additional General Aviation Coverage – 30 Minute Drive Times	
Population 2010	33,421	Population 2010	6,295,445	Population 2010	758,974
Percent 2010	0.4%	Percent 2010	78.7%	Percent 2010	9.5%
Population 2020	34,080	Population 2020	7,063,416	Population 2020	807,479
Percent 2020	0.4%	Percent 2020	79.5%	Percent 2020	9.1%
Complete Coverage Virginia					
Population 2010	7,610,218				
Percent 2010	95.1%				
Population 2020	8,459,575				
Percent 2020	95.2%				

Source: AECOM, 2015

4.1.4 Access to Airports with Commercial Air Service

Access to airports that are served by scheduled commercial airlines is important to Virginia’s residents, businesses, and visitors. Virginia has a total of nine commercial service airports. Scheduled airline service ranges from non-stop service to international destinations provided at Washington Dulles, to service by a single carrier supported by the Essential Air Service (EAS) program at Shenandoah Valley Regional Airport. In the past, the cities of Danville (Danville Regional Airport) in Pittsylvania County near the North Carolina border and Hot Springs (Ingalls Field) in Bath County, North-Central Virginia, had scheduled airline service. As the commercial airline industry has consolidated and contracted, Ingalls Field lost scheduled airline service in 1993 and Danville Regional Airport lost scheduled service in 1995.

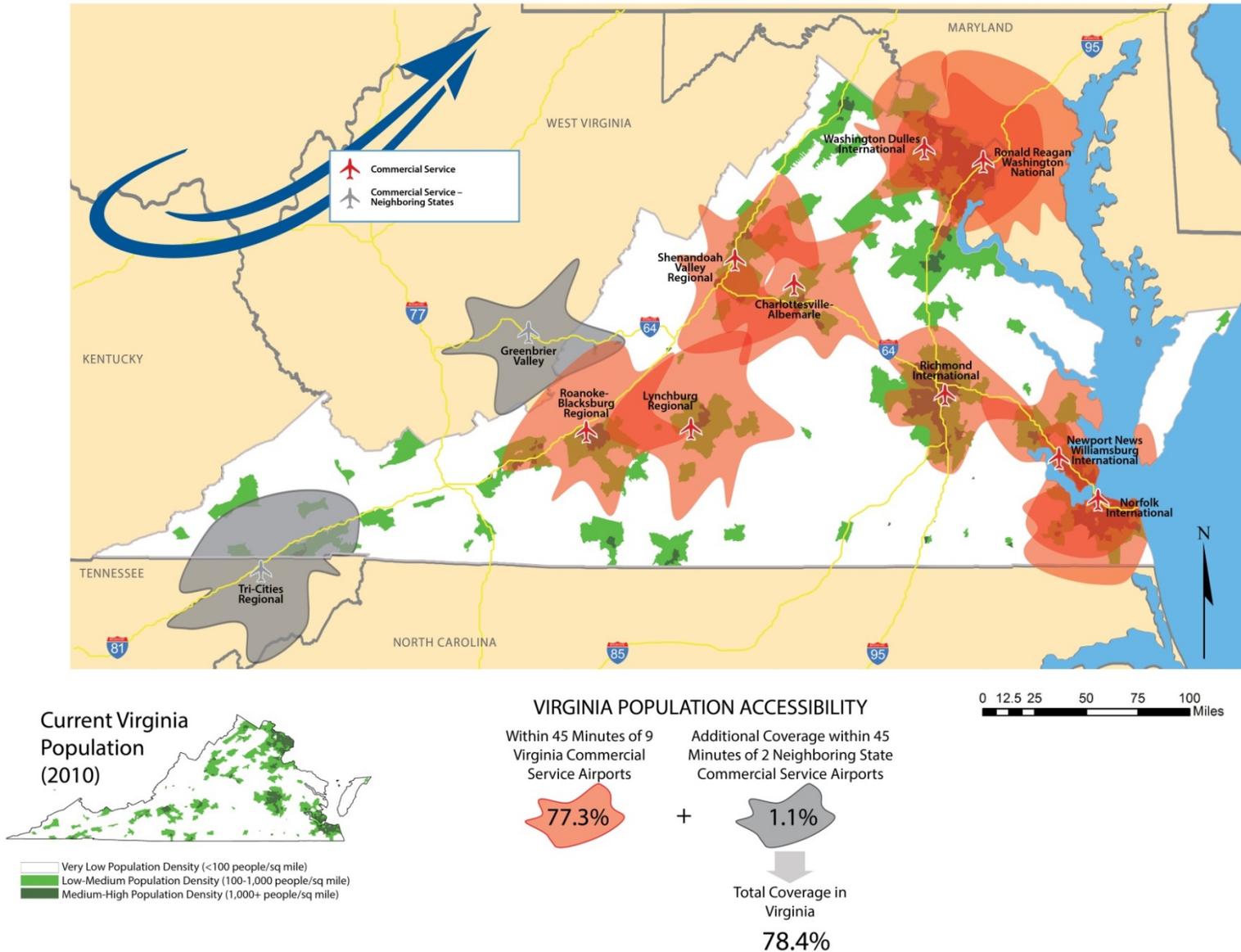
Commercial airline service is market-demand driven. While there are some incentives that communities can provide to attract carriers, ultimately, passenger demand in the market place determines service success. The volume of commercial airline service for any given location fluctuates in response to the

presence or lack of demand. In recent years, carriers have closed some connecting hubs, reduced capacity in terms of seats available, and retired less cost effective aircraft. These actions have all been in an attempt to improve financial performance and have resulted in fewer commercial airline flights for many markets throughout the U.S.

GIS analysis for this system plan shows that 6.18 million or 77.3% of the Commonwealth's 8 million residents are within 45 minutes or less of a Virginia airport with commercial service. **Figure 4-2** shows current accessibility to all commercial service airports in Virginia within a 45-minute drive time.

Similar to the accessibility assessment for all system airports, an analysis was also completed to determine if there are commercial service airports in neighboring states that serve residents of Virginia. A 45-minute drive time for commercial service airports in neighboring states was considered. As depicted on Figure 4-2, commercial service airports at Lewisburg, West Virginia (Greenbrier Valley Airport) and Bristol/Kingsport/Johnson City, Tennessee (Tri-Cities Regional Airport) have 45-minute drive time service areas that extend into Virginia. When factoring in these two additional commercial service airports, total population coverage for accessibility to a commercial service airport increases from 77.3 percent to 78.4 percent (approximately 92,000 additional residents) as shown on Table 4-1.

Figure 4 - 2: Current Access to Commercial Service Airports within a 45 Minute Drive Time



4.1.5 Access to Airports with a Runway Length of 5,500 Feet or Greater

The proper number and distribution of airports with runway lengths capable of serving a full range of aircraft in the general aviation fleet are important to the viability of Virginia’s airport system, and particularly to the needs of the business community. To determine current system adequacy, a review was undertaken to identify the percent of Virginia’s population that is within 30 minutes or less of one or more system airports that have a runway length of 5,500 feet or greater. For this particular system evaluation factor, a 30-minute drive time was used for all airports, both commercial service and general aviation. **Figure 4-3** presents the results of the GIS analysis that was conducted to determine current system performance relative to this measure.

There are currently 17 commercial service and/or general aviation system airports in Virginia that have a runway length of 5,500 feet or greater. Figure 4-3 demonstrates that 73.7 percent of all residents (5.9 million) are within 30 minutes of one or more of those airports. **Table 4-2** details the coverage offered by system airports that meet or exceed a runway length of 5,500 feet.

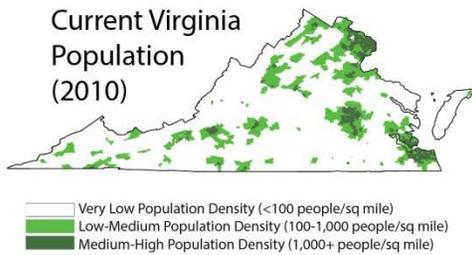
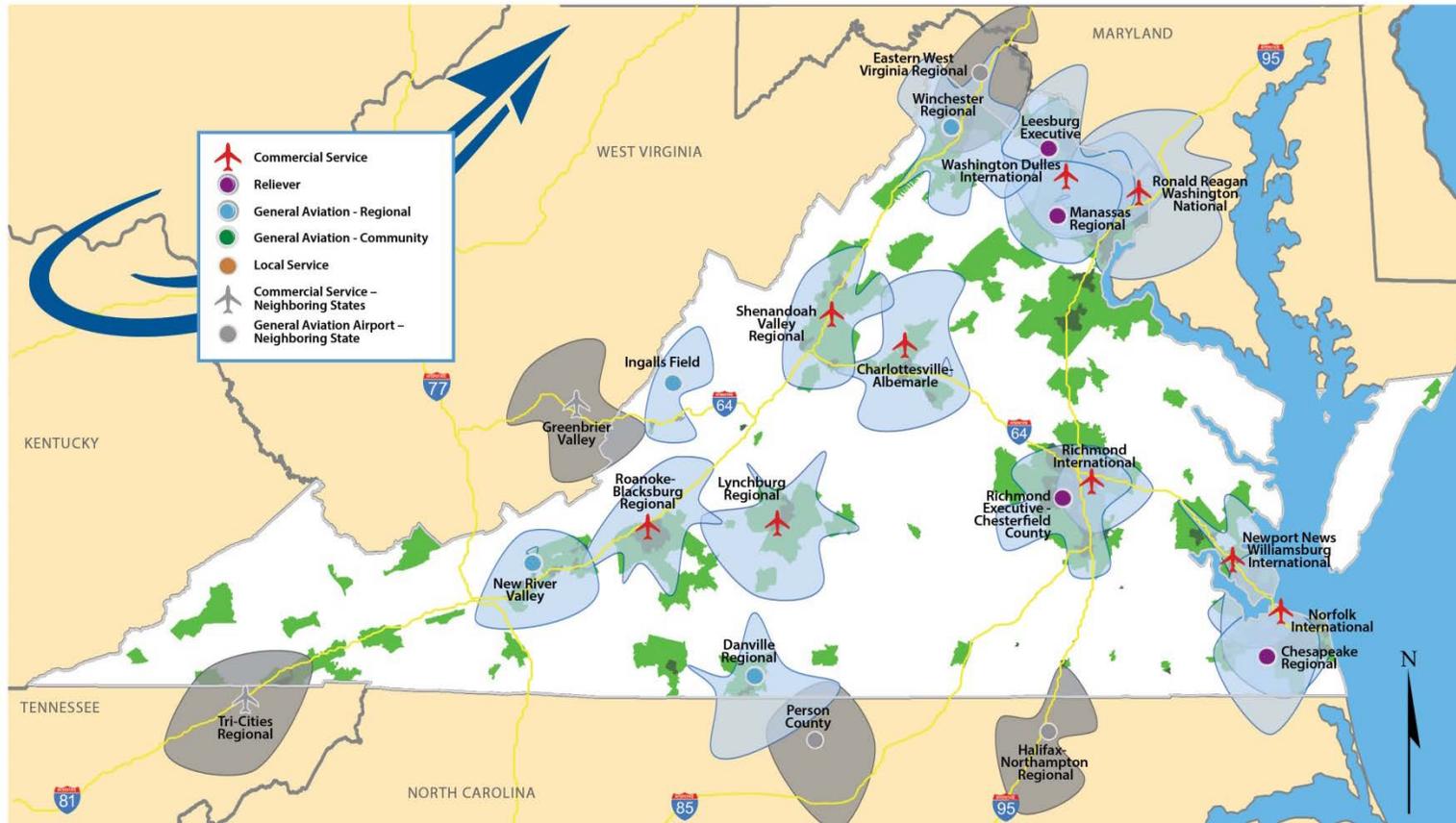
Table 4 - 2: Access to Airports with a Runway Length of 5,500 Feet or Greater

Total Coverage	
Population 2010	5,934,844
Percent 2010	74.2%
Population 2020	6,577,878
Percent 2020	74.0%
Virginia Coverage	
Population 2010	5,895,696
Percent 2010	73.7%
Population 2020	6,538,318
Percent 2020	73.6%
Additional Non-Virginia Coverage	
Population 2010	39,147
Percent 2010	0.5%
Population 2020	39,561
Percent 2020	0.4%

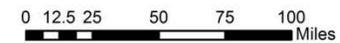
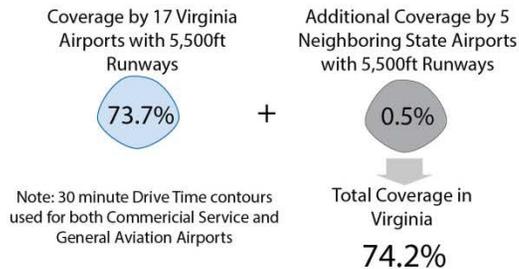
Source: Census Data 2010, Commonwealth of Virginia Labor Market Information (LMI), <https://data.virginialmi.com>

Similar to other system performance evaluation criteria, airports in neighboring states that contribute to accessibility for Virginia residents were also considered. As reflected on Figure 4-3, there are four airports in neighboring states that have an airport with a runway length of 5,500 feet or greater that contribute to current accessibility for this system performance measure. Table 4-3 shows details of the coverage provided by airports in neighboring states that meet or exceed a runway length of 5,500 feet.

Figure 4 - 3: Current Access to Airports with a Runway Length of 5,500 feet or Greater



VIRGINIA POPULATION ACCESSIBILITY



When coverage from airports in neighboring states is factored in, total coverage increases from 73.7 percent to 74.2 percent. Approximately 39,000 additional Virginia residents have accessibility to runways of 5,500 feet or greater provided by an airport in a neighboring state. In summary, 5.93 million of the state's 8 million residents are within 30 minutes or less of an airport that has one runway that is at least 5,500 feet long.

4.1.6 Access to Airports with a Precision Instrument Approach

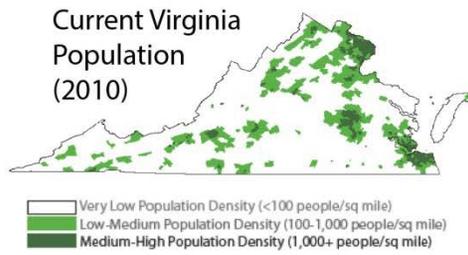
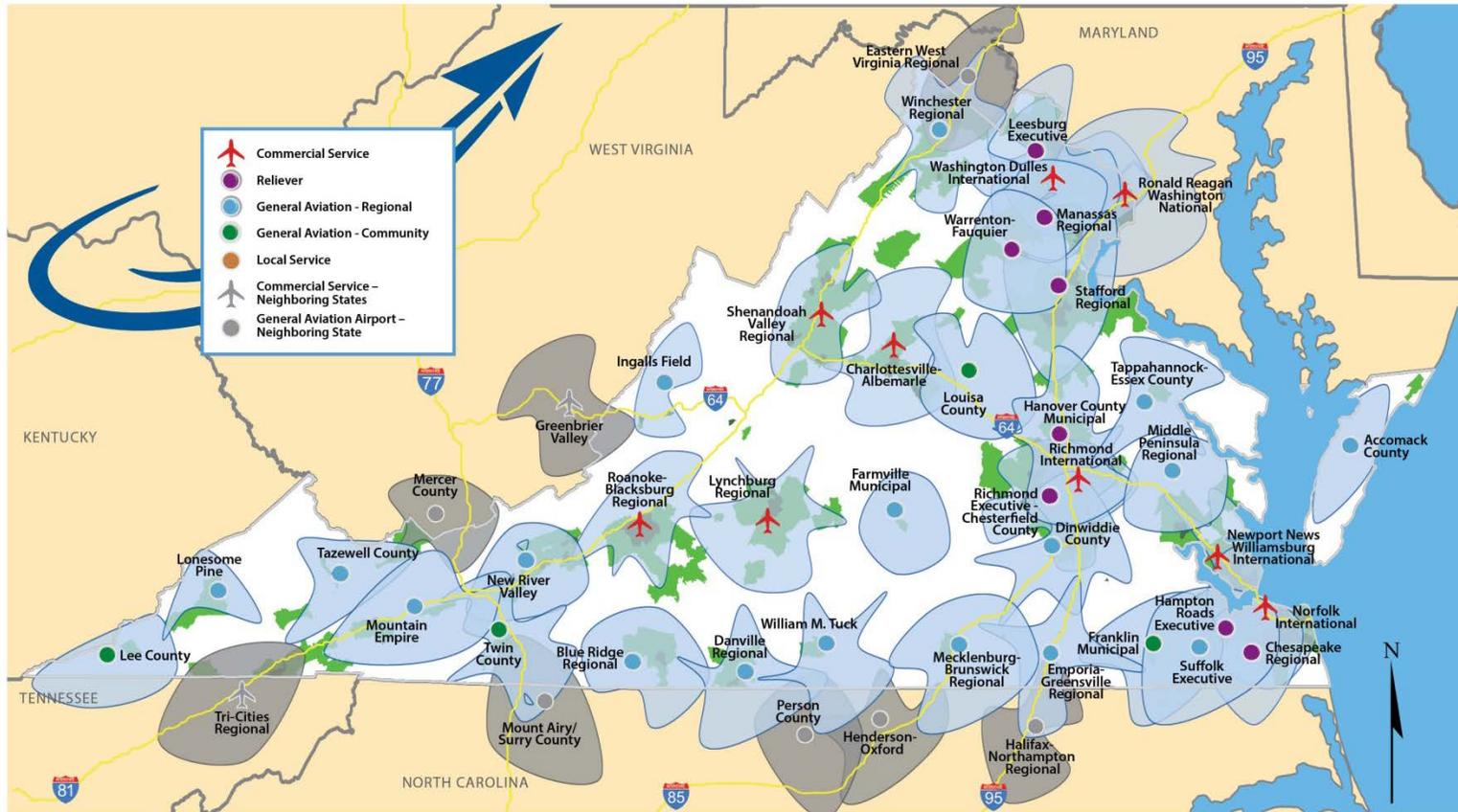
When runways are equipped with precision approach capabilities, the utility of the runway is increased as aircraft are able to operate under Instrument Flight Rule (IFR) conditions. IFR conditions exist during periods of reduced visibility and most aircraft prefer operating at an airport with precision approach capability. All airports in the Virginia system (with the exception of Grundy Municipal) have a published approach (non-precision); most of these non-precision approaches are supported by GPS technology. Not all system airports, however, have a full precision approach that is supported by equipment that provides both vertical and lateral guidance.

Precision approaches, and the equipment that supports this type of instrument approach, are most often approved, installed, and maintained by the FAA. The FAA has certain criteria, related to volumes of IFR operations that must be met before an airport can be considered for a full precision approach. Consequently, not all system airports have or will have a precision approach. Precision approach types considered for this system evaluation factor include ILS and RNAV/LPV. The newer generation RNAV/LPV, which is less costly to install and maintain, has expanded the number of airports in the Virginia system that are equipped with precision approach capability.

Figure 4-4 depicts the 38 system airports that currently have a precision approach supported by vertical guidance and their respective 30 minute service areas.

Based on GIS analysis, 87.5 percent (7.00 million people) of Virginia's population is within 30 minutes or less of an airport with an established precision approach. In addition, there are eight airports in neighboring states that have a precision approach and a 30-minute service area that extends into Virginia. Taking into consideration the accessibility provided by both out-of-state and Virginia airports, 7.03 million of Virginia's residents, 87.9%, are currently within 30 minutes or less of one or more airports that have a precision approach with vertical guidance. **Table 4-3** presents the associated population coverage details.

Figure 4 - 4: Current Access to Airports with Precision Approach and LPV Guidance



VIRGINIA POPULATION ACCESSIBILITY

Coverage by 38 Virginia Airports with Precision or RNAV LPV Approach

87.2%

Additional Coverage by 8 Neighboring State Airports with Precision or RNAV LPV Approach

0.7%

Note: 30 minute Drive Time contours used for both Commercial Service and General Aviation Airports

Total Coverage in Virginia
87.9%

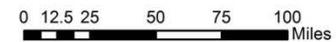


Table 4 - 3: Airports with Current Precision Approach/Vertical Guidance

Total Coverage	
Population 2010	7,032,846
Percent 2010	87.9%
Population 2020	7,827,196
Percent 2020	88.1%
Virginia Coverage	
Population 2010	6,979,528
Percent 2010	87.2%
Population 2020	7,772,772
Percent 2020	87.5%
Additional Non-Virginia Coverage	
Population 2010	53,319
Percent 2010	0.7%
Population 2020	54,424
Percent 2020	0.6%

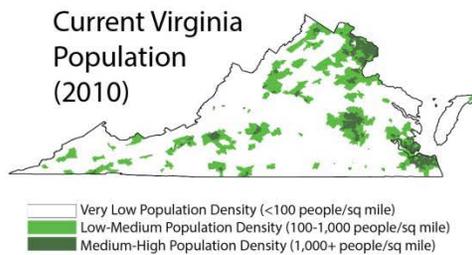
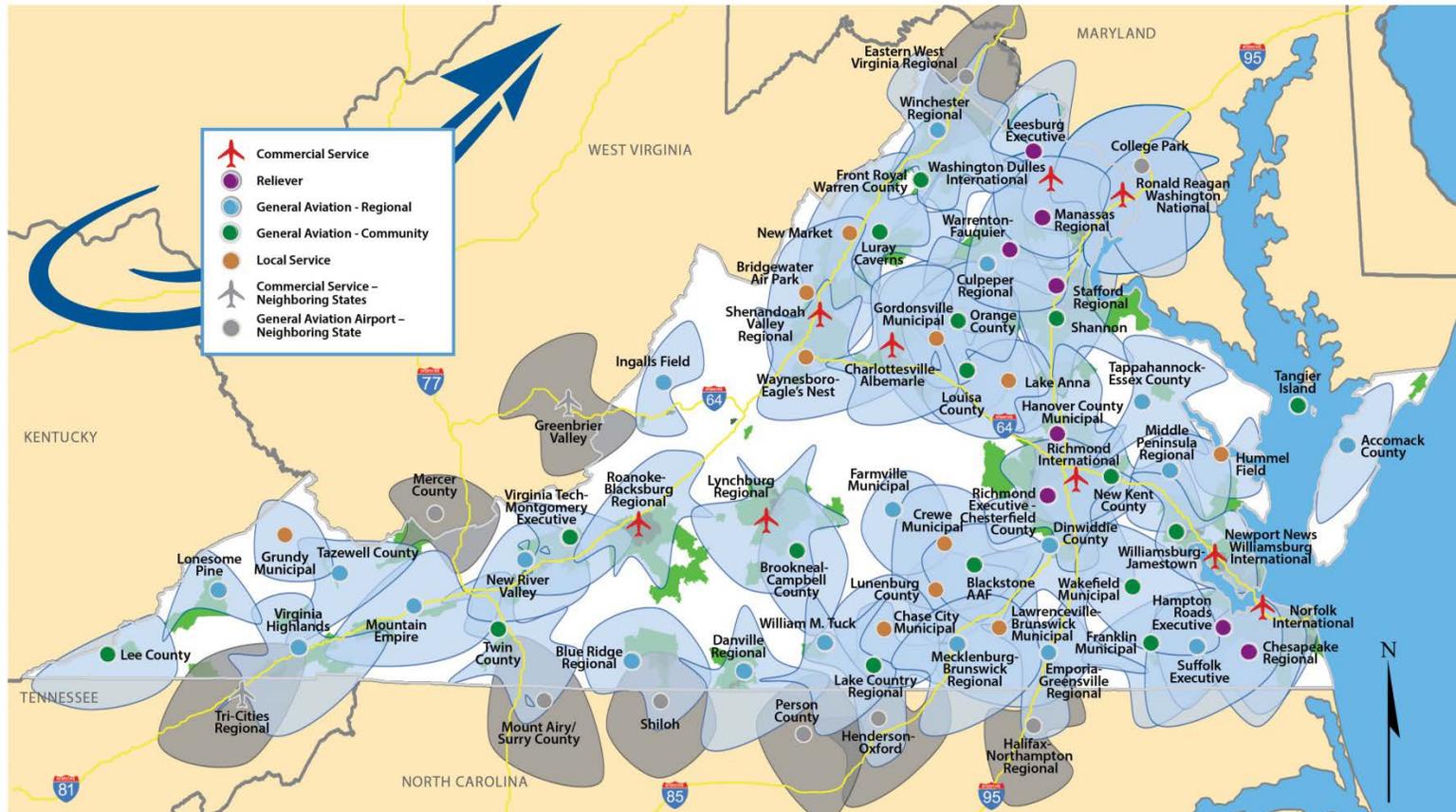
Source: Census Data 2010, Commonwealth of Virginia Labor Market Information (LMI), <https://data.virginialmi.com>

4.1.7 Access to Airports with On- Site Weather Reporting Equipment

In recent years, the Department of Aviation has focused on providing on-site weather reporting equipment for most system airports. Today, 63 of the 66 system airports have some type of on-site weather reporting equipment. As shown in **Figure 4-5**, this results in 92.6 percent of Virginia’s population, or 7.41 million, being within 30 minutes or less of a Virginia airport that is equipped with on-site weather reporting equipment. **Table 4-4** shows the results of the GIS analysis for accessibility to airports with current on-site weather reporting systems.

When 30-minute service areas for airports in neighboring states are considered, there are 10 additional airports that provide Virginia residents with accessibility to an airport that has on-site weather reporting equipment. These out-of-state airports serve approximately 23,000 additional Virginia residents and increase current accessibility coverage for this system performance measure to 92.9 percent.

Figure 4 - 5: Current Access to Airports with On-Site Weather Reporting Systems



VIRGINIA POPULATION ACCESSIBILITY

Coverage by 63 Virginia Airports with Weather Systems Additional Coverage by 10 Neighboring State Airports with Weather Systems



Note: 30 minute Drive Time contours used for both Commercial Service and General Aviation Airports

Total Coverage in Virginia
92.9%

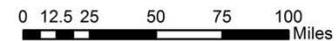


Table 4 - 4: Airports with Current On-Site Weather Reporting Equipment

Total Coverage	
Population 2010	7,435,668
Percent 2010	92.9%
Population 2020	8,268,376
Percent 2020	93.1%
Virginia Coverage	
Population 2010	7,412,431
Percent 2010	92.6%
Population 2020	8,244,395
Percent 2020	92.8%
Additional Non-Virginia Coverage	
Population 2010	23,237
Percent 2010	0.3%
Population 2020	23,981
Percent 2020	0.3%

Source: Census Data 2010, Commonwealth of Virginia Labor Market Information (LMI), <https://data.virginialmi.com>

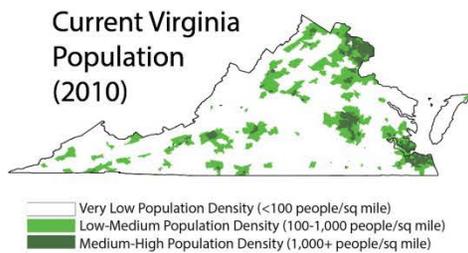
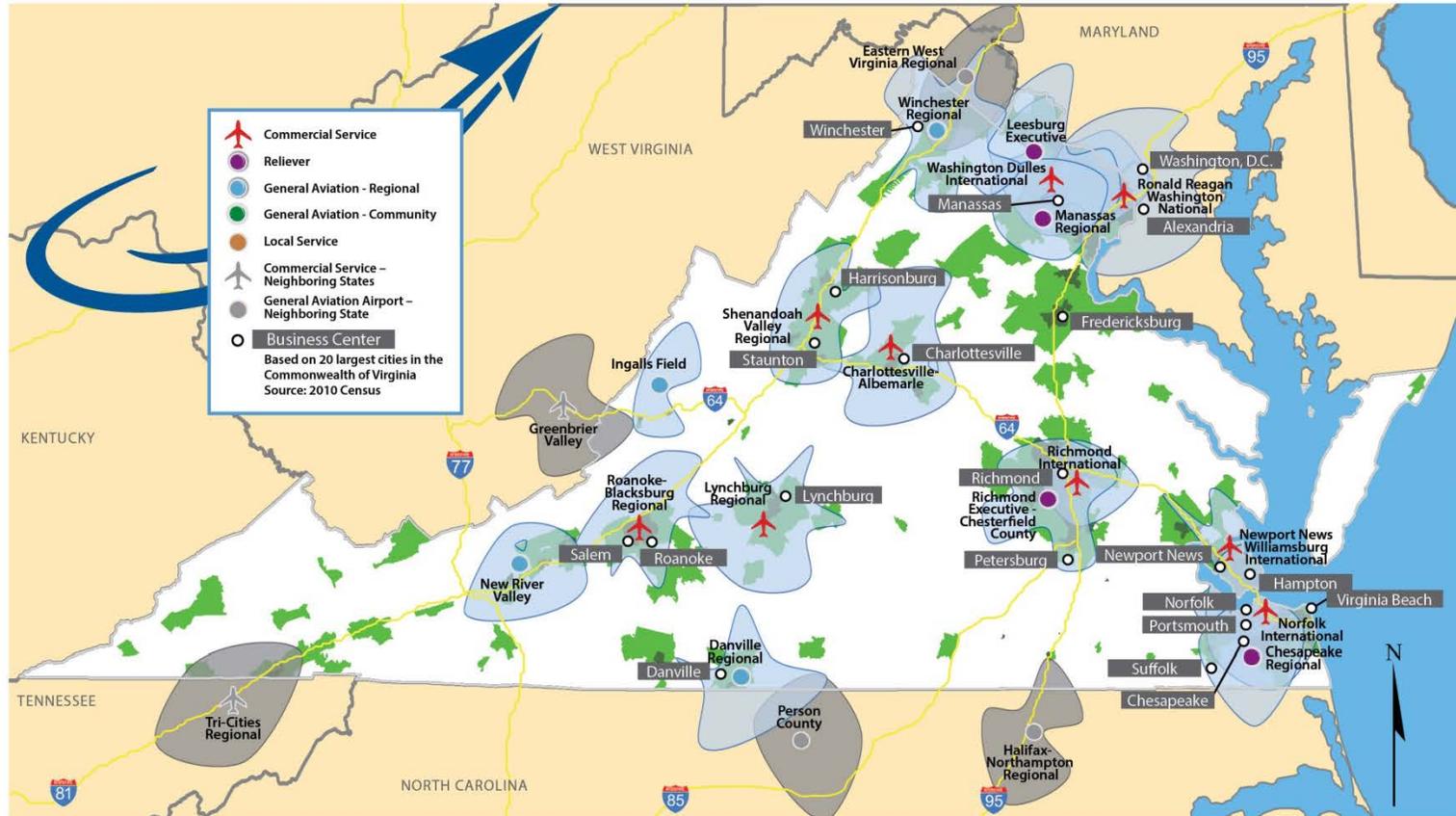
4.1.8 Access to Business Class Airports

To support economic growth and diversification, as well as transportation needs and connections to domestic and some international locations, the Commonwealth of Virginia should be equipped with “business class” airports. A business class airport supports the needs of the majority of the most demanding general aviation business jets. For this particular system evaluation criterion, business class airports are defined as airports that have the following three characteristics: 1) a runway that is 5,500 feet long or longer, 2) a precision approach that is supported by vertical guidance, and 3) on-site weather reporting equipment. **Figure 4-6** shows that 17 airports in Virginia currently meet all three of the characteristics for a business class airport. Figure 4-6 depicts the location of these business class airports relative to the 20 largest urban/employment centers in Virginia.

Currently 73.7 percent of Virginia’s residents are within a 30-minute or less drive time from a Virginia airport meeting all three criteria for a business class airport. In addition, there are four airports in neighboring states that provide a modest amount of additional coverage as it relates to this accessibility measure. When both Virginia airports and airports in neighboring states are considered, currently 5.93 million (74.2 percent) of Virginia’s total residents are within 30-minutes or less of a business class airport.

Table 4-5 details the coverage provided by all Virginia airports along with nearby airports in neighboring states that currently meet all three criteria for a business class airport.

Figure 4 - 6: Current Access to Business Class Airports



VIRGINIA POPULATION ACCESSIBILITY

Coverage by 17 Virginia Business Class Airports

73.7%

+

Additional Coverage by 5 Neighboring State Business Class Airports

0.5%

Note: 30 minute Drive Time contours used for both Commercial Service and General Aviation Airports

Total Coverage in Virginia 74.2%

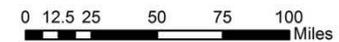


Table 4 - 5: Current Business Class Airports

Total Coverage	
Population 2010	5,933,834
Percent 2010	74.2%
Population 2020	6,576,879
Percent 2020	74.0%
Virginia Coverage	
Population 2010	5,895,696
Percent 2010	73.7%
Population 2020	6,538,318
Percent 2020	73.6%
Additional Non-Virginia Coverage	
Population 2010	38,137
Percent 2010	0.5%
Population 2020	38,561
Percent 2020	0.4%

Source: Census Data 2010, Commonwealth of Virginia Labor Market Information (LMI), <https://data.virginialmi.com>

4.2 Results of Current System Performance Review

Table 4-6 summarizes information that shows how the current system is performing relative to each of the established system performance measures. As expected, the most significant coverage/accessibility is provided when all commercial service and general aviation airports are accounted for. This performance rating is based on a total of 76 airports, 66 in Virginia and 10 in neighboring states.

Table 4 - 6: Results of Current System Performance Review*

	Virginia Airports		Out of State Airports		Total Coverage	
	Population	% of State	Population	% of State	Population	% of State
Accessibility to Any Airport	7,576,797	94.7%	33,421	0.4%	7,610,218	95.1%
Accessibility to Commercial Service Airport	6,182,237	77.3%	91,844	1.1%	6,274,081	78.4%
Accessibility to 5,500-Foot Runway	5,895,696	73.7%	39,147	0.5%	5,934,844	74.2%
Accessibility to Precision Approach	6,979,528	87.2%	53,318	0.7%	7,032,846	87.9%
Accessibility to Weather Reporting	7,412,431	92.6%	23,237	0.3%	7,435,668	92.9%
Accessibility to Business Class Airports	5,895,696	73.7%	38,137	0.5%	5,933,834	74.2%

* Results based on GIS mapping using 2010 Census data.
Source: AECOM, 2015

Over 95 percent of Virginia’s existing population is within a service area for one or more Virginia or neighboring state airports based on 45-minute drive times to commercial service and 30 minutes to general aviation airports.

Over 78 percent of Virginia's population is within the 45-minute service area of one of 11 commercial service airports, including nine in Virginia and two in neighboring states.

The lowest current system performance ratings are for accessibility to airports that have a runway length of 5,500 feet or greater and are business class airports. Currently just over 74 percent of Virginia's residents are within 30 minutes or less of an airport that has at least one runway with a length of 5,500 feet or longer. Out of the 66 Virginia airports, 17 currently have at least one runway that is 5,500 feet or longer. In addition, there are five airports in neighboring states that provide accessibility in this category.

The percent of Virginia's population that is within a 30-minute drive time from a business class airport also stands at just over 74 percent. This business class airport coverage is currently provided by a total of 22 airports that meet all three of the established criteria; 17 of these airports are in Virginia and five are in neighboring states.

Total accessibility for Virginia residents to an airport that has a precision approach with vertical guidance currently stands at 87.9 percent. This includes coverage provided by 38 airports in Virginia and eight airports in neighboring states.

Currently, 92.9 percent of Virginia's population is within a 30-minute or less drive time of an airport that has on-site weather reporting capabilities. This coverage is provided primarily by 63 airports in Virginia and by 10 other airports in neighboring states.

Overall, the current performance of Virginia's airport system in terms of accessibility is good, with three of the criteria near or over 90 percent. The lower performing criterion, where less than 75 percent coverage is achieved, is related to runway length deficiencies (i.e. 5,500 foot runway, business class, etc.). It is important to determine if there are viable alternatives for improving the system's future performance, specifically with regard to runway length and business class airport features. The following sections examine each of the system performance measures to determine if there are reasonable options for improving the system and addressing deficiencies.

4.3 Alternatives Identification and Review

4.3.1 Access to Any System Airport

For the system performance measure related to access any airport, there are two alternatives:

- A. Maintain the Existing Virginia Airport System
- B. Expand the Virginia Airport System

4.3.1.1 Maintain the Existing Virginia Airport System

Under this alternative, the number of airports in the Virginia system would remain unchanged with nine commercial service airports and 57 general aviation airports for a total of 66 airports. Given the predicted population shifts to urban areas in the future, it is expected that the existing system performance for this measure will increase population coverages, even with no improvements to the system.

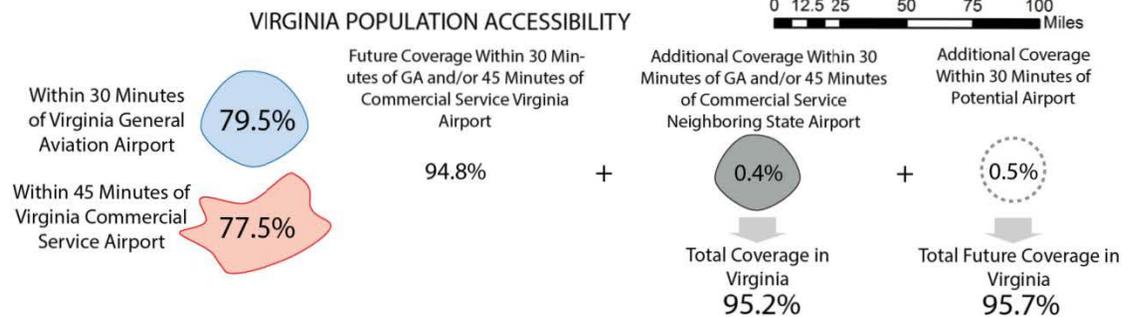
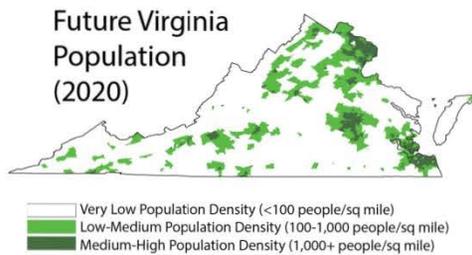
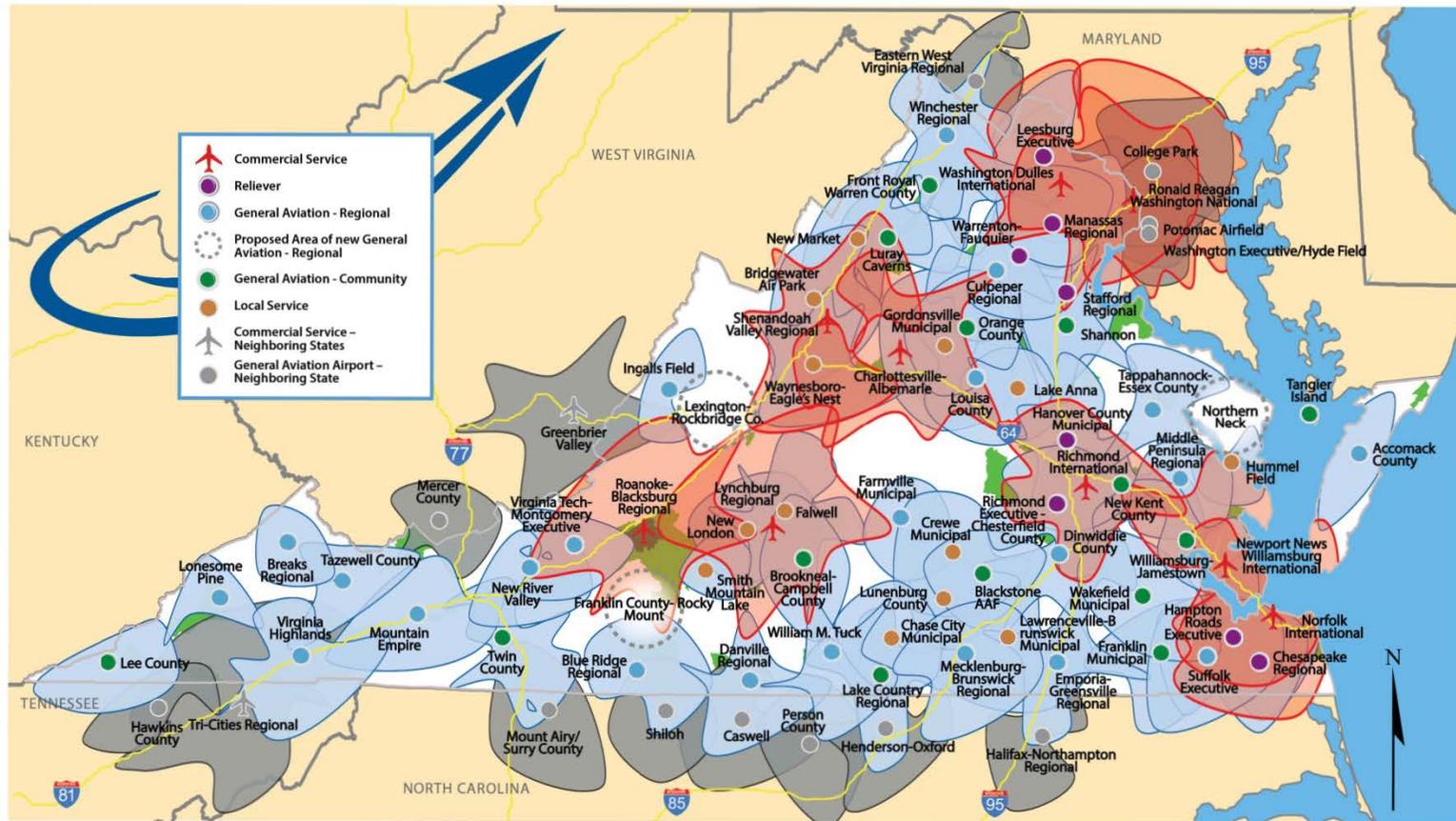
By the year 2020, Virginia's population is projected to increase from the 2010 US Census count of 8,001,024 to 8,884,623. Natural growth within the airport service areas by 2020 indicates that system performance for this measure will slightly increase from 95.1 percent to 95.2 percent based on 45 or 30-minute drive time intervals. The number of Virginia residents within either a 45-minute or a 30-minute airport service area (Virginia or out-of-state airports) is likely to increase from the existing 7.61 million to a projected 8.46 million people even if no other actions are taken (see Table 4-1 and **Figure 4-7**).

When the last system plan update was completed, based on 2000 population estimates for the Commonwealth, an estimated 6.73 million residents were within a 30 to 45-minute drive time of one or more system airports. Based on analyses completed in this update for 2010 population data, the coverage has increased to 7.61 million people.

The prior system plan indicated that by 2010, approximately 7.45 million residents would be within a 45 or 30-minute service area of one or more system airports. Current analysis shows that this estimate has been exceeded, with current coverage by all system airports serving an estimated 7.61 million residents. Even if the existing system is maintained without neighboring state airports and no additional airports are developed, by 2020 an estimated 8.43 million Virginia residents will be within the 45- or 30-minute service area of at least one airport. Future 2020 population coverage for the existing airport system is shown in Figure 4-7.

The Virginia Department of Transportation has extensive plans for improving the surface roadway system over the next 20 years. While these plans are not defined in terms of improving access to the airports in the Commonwealth, that will be a collateral benefit. As these proposed surface roadway system improvements are built, they will improve accessibility to some of the airports in the state aviation system. Sample projects currently underway include Transform 66, which is working to provide multi-modal alternatives in Northern Virginia, and Route 29 Solutions, which is working to improve mobility in the Charlottesville area. These and other projects may allow for better than predicted access of the population of Virginia to the airport system as the road network mobility improves.

Figure 4 - 7: Future Access to Existing and Recommended Airport System



4.3.1.2 Expand the Virginia Airport System

The only alternative to allow for increased coverage in terms of access to any airport is to add new airports to the Virginia airport system. As the Nation's airport system matures, the rate at which new airports are constructed in the U.S. has slowed considerably. New airports are most frequently developed when existing airports reach capacity and cannot be expanded to serve additional demand or when an area demonstrates aviation demand, but has no existing airport to accommodate such demand.

The National Plan of Integrated Airport Systems (NPIAS) is the FAA's guide for developing the national airport system. Currently, the NPIAS includes two new general aviation airports for Virginia, one in the Rockbridge County area near Lexington (Lexington-Rockbridge County Airport) and one in the Franklin County area near Rocky Mount (Franklin County-Rocky Mount Airport). At this point, these additional airport facilities are not site-specific. FAA's inclusion of these additional airports in the NPIAS does not, however, guarantee their development. Local support and funding for any new airport from a "qualified" local sponsor is needed.

The Virginia Air Transportation System Plan Update 2003 also called for another new airport to serve the northernmost peninsula of Virginia, Northern Neck. While a new airport for this area of Virginia is not currently included in the NPIAS, there is still a possibility that this airport may be developed to increase system coverage and provide additional business access for more demanding corporate aircraft. As a result, potential increases in accessibility that could be gained from its development are reviewed in this alternatives analysis.

In addition to these three potential new airports, there are also plans to replace the existing airport that serves Grundy. This replacement, to be named Breaks Regional Airport, would not change system accessibility coverage. Input from DOAV indicates that it would be their intent to ultimately develop the new airports, including Breaks Regional to meet FS&E objectives for a General Aviation-Regional Airport, as defined in Chapter 3.

To quantify the impact on system performance of the development of three additional airports, additional GIS analysis was conducted. Figure 4-7 shows how access to any airport for Virginia residents could be increased with the development of three new system airports.

As Figure 4-7 shows, the three additional airports in Lexington-Rockbridge County, Franklin County-Rocky Mount, and Northern Neck area would in fact fill "gaps" in the system and provide coverage to areas of Virginia that are now beyond a 30-minute drive time for an existing system airport. Assuming that all three additional general aviation airports were developed in the foreseeable future, total coverage for all residents, considering both Virginia and nearby out-of-state airports, would increase from 8.45 million or 95.2 percent to 8.50 million or 95.7 percent based on 2020 population estimates for 45- and 30-minute drive time intervals. The Sensitivity Analysis of Chapter 6 will further examine if there is a need to consider any additional new airport sites.

Development of a new general aviation airport is a process that typically spans several years. As noted, the development of a new airport also requires a development commitment and financial support from a qualified local sponsor. New airport development typically includes feasibility studies, site selection, master

planning, environmental studies and permitting, land acquisition, design, and engineering before construction can be undertaken.

4.3.2 Access to Airports with Commercial Airline Service

In the current airline operating environment, most airlines are consolidating rather than expanding. There have been a few instances in recent years where carriers, such as Allegiant, started providing commercial air service to airports that previously were strictly general aviation facilities, Fort Collins, Colorado and St. Augustine, Florida are examples. On the other hand, some cities, that were served by only one smaller regional carrier, have lost service altogether.

As a state agency, the Virginia Department of Aviation has limited influence and control over providing additional commercial airline service to new locations in Virginia. As a result, there is really only one viable alternative for this particular system performance measure—to maintain the existing system.

4.3.2.1 Maintain the Existing Virginia Commercial Service Airport System

When the last system plan update was completed, based on 2000 population estimates for the Commonwealth, an estimated 5,374,180 residents were within a 45-minute drive time or less of an airport with scheduled commercial airline service. Based on analysis completed in this update, this number has now increased to 6,274,081 Virginia residents, representing 78.4 percent of the state's estimated 2010 population. This is the Virginia population within 45 minutes or less of a commercial service airport in Virginia or in a neighboring state as indicated in Figure 4-2.

The prior system plan indicated that by 2010, 5,992,471 residents would be within 45 minutes or less of a commercial service airport. Current analysis shows that this estimate has been exceeded with current coverage by commercial service airports serving an estimated 6,274,081 residents.

With population growth projected for Virginia by 2020, the commercial service airports considered in this analysis will have an estimated 6,982,271 residents within their 45 minute service areas. Based on projected population growth and with the existing commercial service airport system maintained, coverage for this particular system performance measure will increase from 78.4 percent to 78.6 percent in 2020.

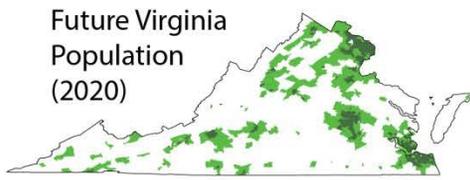
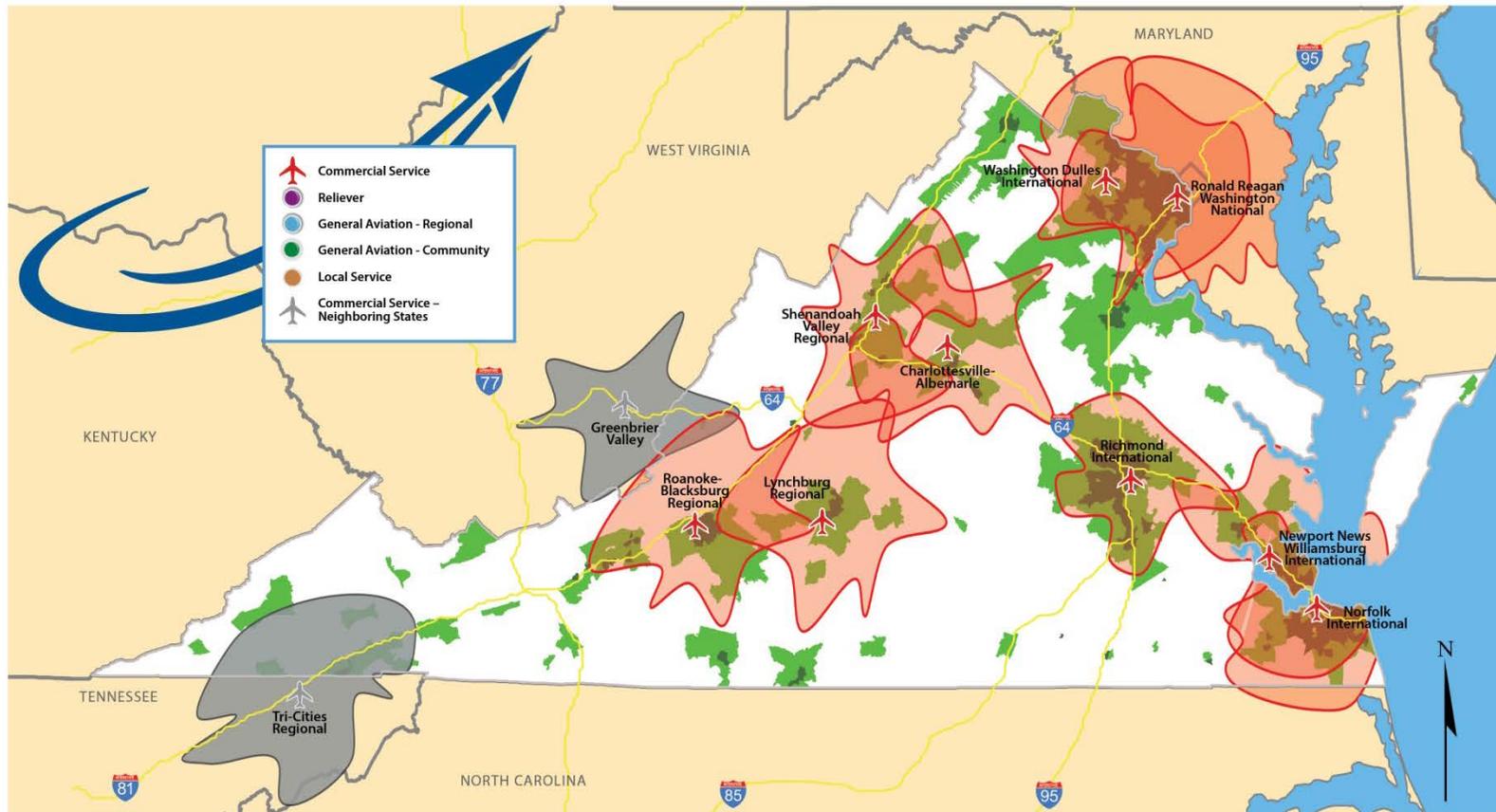
Figure 4-8 shows expected population coverage in 2020 using 45 minute drive times for all commercial service airports.

4.3.3 Access to Airports with a Runway Length of 5,500 feet or Greater

For this particular system performance measure, there are three options:

- A. Maintain the Existing Airport System
- B. Improve Existing System Airports to Meet Role Related Facility Objectives
- C. Consider Longer Term Potential for 5,500-foot Runway Improvements

Figure 4 - 8: Future Access to Commercial Service Airports



Very Low Population Density (<100 people/sq mile)
 Low-Medium Population Density (100-1,000 people/sq mile)
 Medium-High Population Density (1,000+ people/sq mile)

VIRGINIA POPULATION ACCESSIBILITY

Within 45 Minutes of 9 Virginia Commercial Service Airports

77.5%

+

Additional Coverage within 45 Minutes of 2 Neighboring State Commercial Service Airports

1.0%

Total Coverage in Virginia
 78.5%



4.3.3.1 Maintain the Existing Airport System

As previously shown in Figure 4-3, there are 17 airports in Virginia and five airports in neighboring states that provide accessibility to runway lengths equal to or greater than 5,500 feet. Currently, 74.2 percent of all Virginia residents (5.93 million residents) are within 30 minutes or less of one of these 22 airports.

Figure 4-9 shows that if no changes are made to the existing system, by 2020, 6.58 million residents will be within 30 minutes or less of these airports. While the number of residents increases, the percent of the state’s total population with access to these airports will decrease slightly from 74.2 percent to 74 percent due to population shifts to portions of the state outside of coverage areas. Clearly, maintaining the existing system is not likely to be the best alternative for this performance measure since it will not offer any improvement.

4.3.3.2 Improve System Airports to Meet Role Related Facility Objectives

As presented in Chapter 3, Virginia airports have various objectives for runway length to help them best fulfill their designated role in the State Airport System or to meet the needs of their projected operating fleet. Results of the facility requirements analysis show that there are nine additional airports that should ideally have a runway that is at least 5,500 feet long. These projects are needed to fulfill facility recommendations for airport roles or to satisfy demand from anticipated fleet with more demanding aircraft. These nine airports are shown as follows:

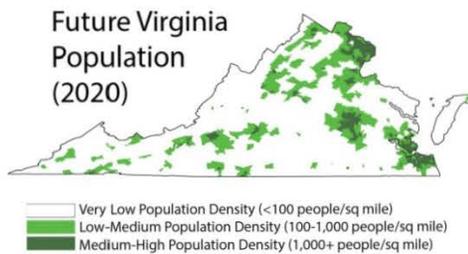
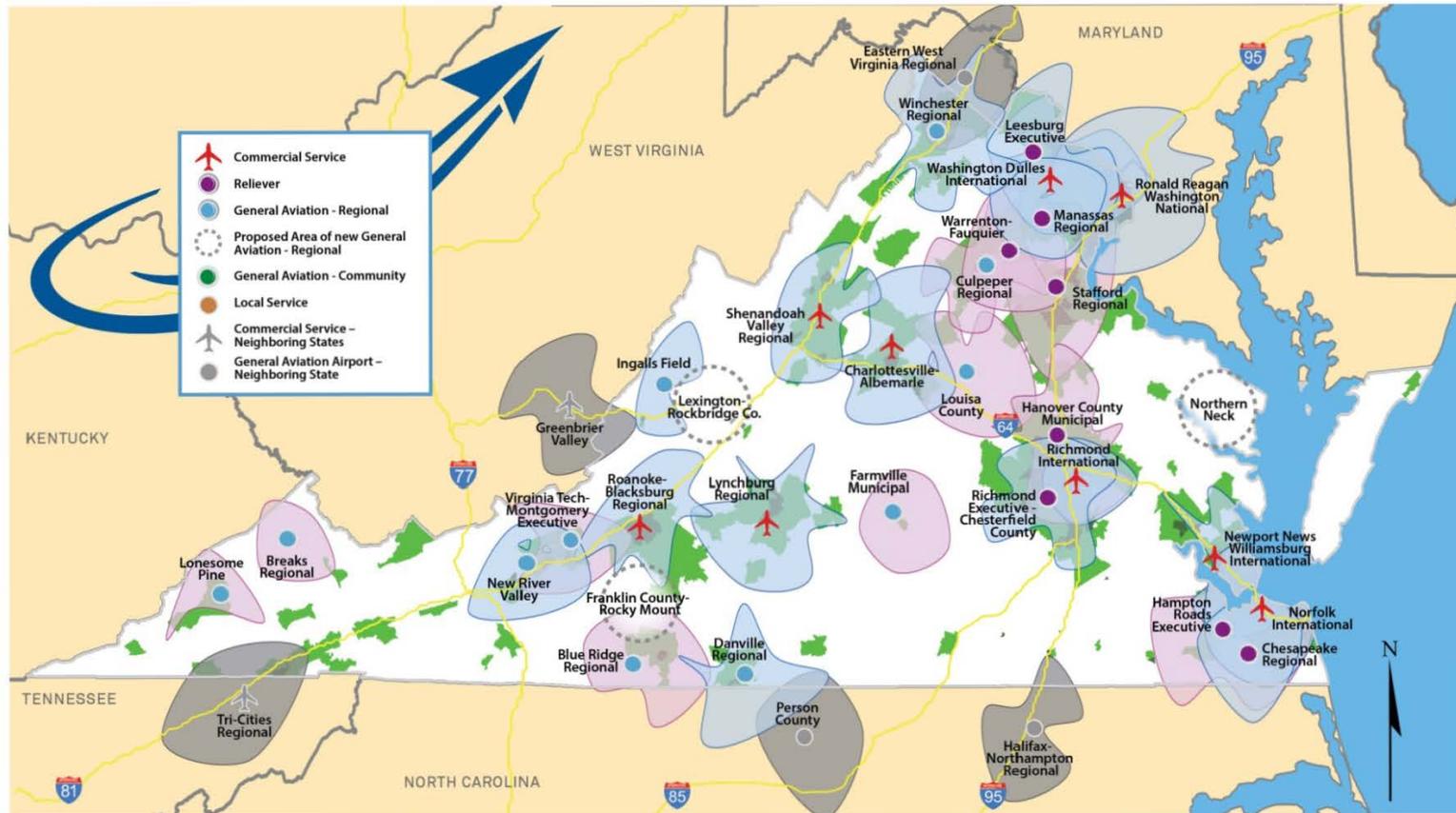
<u>Airport Identifier</u>	<u>Airport Name</u>	<u>Current VATSP System Role</u>
PVG	Hampton Roads Executive	Reliever
OFP	Hanover County	Reliever
RMN	Stafford Regional	Reliever
HWY	Warrenton-Fauquier	Reliever
MTV	Blue Ridge Regional	GA-Regional
CRJ	Culpeper County	GA-Regional
FVX	Farmville Municipal	GA-Regional
LNP	Lonesome Pine	GA-Regional
BCB	Virginia Tech-Montgomery Executive	GA-Community

Figure 4-9 shows how accessibility and coverage could change by 2020 if all nine of these airports achieve their recommended runway length of 5,500 feet or greater. If the existing system is maintained, by 2020, 74 percent of Virginia’s population will be within 30-minutes or less of an airport that has at least one runway that is 5,500 feet long. If all nine airports shown above implement runway extensions, the coverage will increase to 83.8 percent of the state’s population, an additional 9.8 percent or approximately 868,000 additional residents.

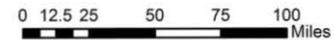
4.3.3.3 Long Range Potential for Airport Improvements to Achieve a 5,500- foot Runway Length

If all nine recommended extensions to runways that would result in a length of 5,500 feet or greater are realized, system performance for this measure will increase by 9.8 percent. In addition to the recommendations for runway extensions in the previous section, there is potential for the Virginia Airport

Figure 4 - 9: Future Access to Airports with a Runway Length of 5,500 feet or Greater



VIRGINIA POPULATION ACCESSIBILITY



Future Coverage by 17 Virginia Airports with 5,500ft Runways

73.6%

+

Additional Future Coverage by 5 Neighboring State Airports with 5,500ft Runways

0.4%

+

Additional Coverage by 11 Airports with Recommended Improvements

10.5%

+

Additional Coverage by 3 Potential Airports

1.1%

Total Future Coverage in Virginia

74.0%

Recommended Coverage

84.5%

Potential Coverage

85.6%

Note: 30 minute Drive Time contours used for both Commercial Service and General Aviation Airports

System to realize longer term improvements that would further increase system performance for this measure.

As previously noted, this system plan recommends three new general aviation airports serving Lexington-Rockbridge County, Franklin County-Rocky Mount, and the Northern Neck area, as well as Breaks Regional Airport. It is the Department’s goal to have each of these four airports developed to meet FS&E objectives for a General Aviation-Regional Airport, as defined by this plan. Based on documented demand, local support, environmental and physical characteristics of each airport site, and funding availability, it would be DOAV’s objective to have each of these airports developed with a runway that is 5,500 feet long.

Some additional areas of the state with notable concentrations of population are outside a service area of an airport with a 5,500-foot runway as shown in Figure 4-9. The “growth” area of the state that warrants consideration for an airport with a 5,500-foot runway lies on a I-64 corridor between Richmond and Charlottesville. This area is currently served by the Louisa County Airport with a 4,300 foot long runway. At such time as the airport’s master plan or ALP are updated, the need, justification, and feasibility of extending this airport’s runway to 5,500 feet should be further explored. Louisa County would be the tenth airport recommended for runway length improvement and would increase coverage from 9.8 to 10.3 percent. The Louisa County Airport is located north of I-64. Much of the projected population growth west of Richmond will occur south of I-64. The sensitivity analysis in Chapter 6 will further analyze and consider the need for another potential new airport in this area.

As shown in Figure 4-9, if all 14 additional airports, including 10 current, three new, and Breaks Regional (Grundy Municipal replacement) were to ultimately achieve a runway length of 5,500-feet, the system population coverage for this criterion would increase from the current 74.2 percent to 85.6 percent, or by a total of 1,678,014 residents.

4.3.4 Access to Airports with a Precision Instrument Approach

Virginia’s current system provides 87.5 percent, or 7.0 million residents, with access to airports that have a precision approach supported by vertical guidance. As discussed in conjunction with current system performance, 38 out of the 66 system airports in Virginia have a precision approach that is supported by vertical guidance. In addition, there are eight airports in neighboring states that also provide coverage for Virginia residents for this particular performance measure. Thus, 87.9 percent of all residents are within 30 minutes or less of a precision approach airport which translates to 7.03 million residents within a current service area.

For this system performance measure, there are three options:

- A. Maintain the Existing Airport System
- B. Improve Existing System Airports to Meet Role Related Facility Objectives
- C. Consider Longer Term Potential for Precision Approaches

4.3.4.1 Maintain the Existing Airport System

Figure 4-10 shows that if the existing system is maintained with projected population growth by 2020, there will be 7.83 million residents in the 30-minute service areas for airports served by a precision approach with

vertical guidance. This increases system performance for this measure from 87.9 percent in 2010 to 88.1 percent by 2020 without any action taken.

4.3.4.2 Improve System Airports to Meet Role Related Facility Objectives

FS&E objectives established in this system plan update generally call for airports in Commercial Service, Reliever, and General Aviation-Regional roles to have a precision approach. As previously shown in Chapter 3, Table 3-15, there are also airports in the General Aviation Community role category that currently have an RNAV/LPV approach.

FS&E Objectives call for both Culpepper and Virginia Highlands to have a precision approach. Equipping these airports with a precision approach provides an increase of 70,000 residents within a 30-minute service area.

4.3.4.3 Longer Term Potential for Precision Approach Improvements

Virginia's existing coverage provided by airports that have a precision approach is excellent and has increased notably in recent years as a result of DOAV initiatives. As technology continues to evolve and improve, the opportunities for equipping airports with precision approach capabilities will continue to expand.

As previously discussed, the potential exists for Virginia to add three new system airports in the Franklin County-Rocky Mount, Lexington-Rockbridge County, and Northern Neck areas, and Breaks Regional to replace Grundy Municipal Airport. If these airports are developed, consideration should be given to equipping them with RNAV/LPV approaches.

Figure 4-10 shows the location of these four sites and demonstrates that equipping them with precision approaches would fill remaining gaps in system coverage. These four additional approaches would increase coverage to a total of 90.2 percent or 8.01 million Virginia residents.

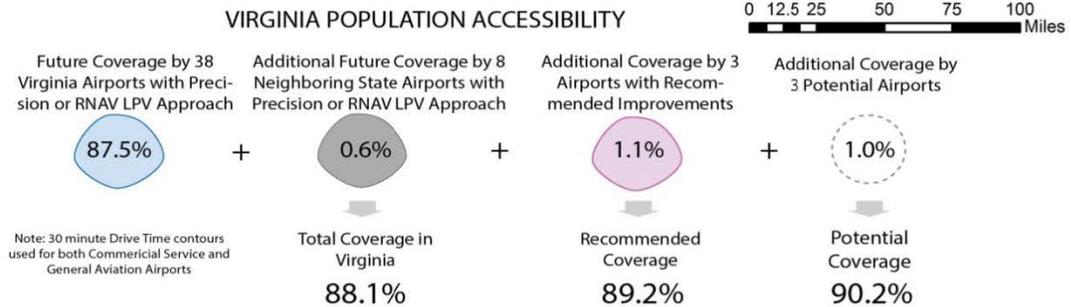
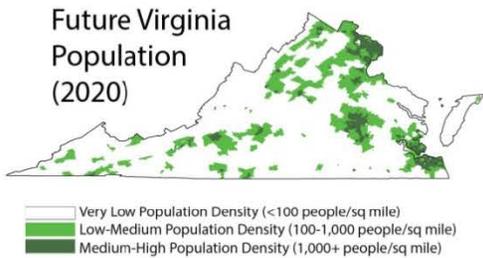
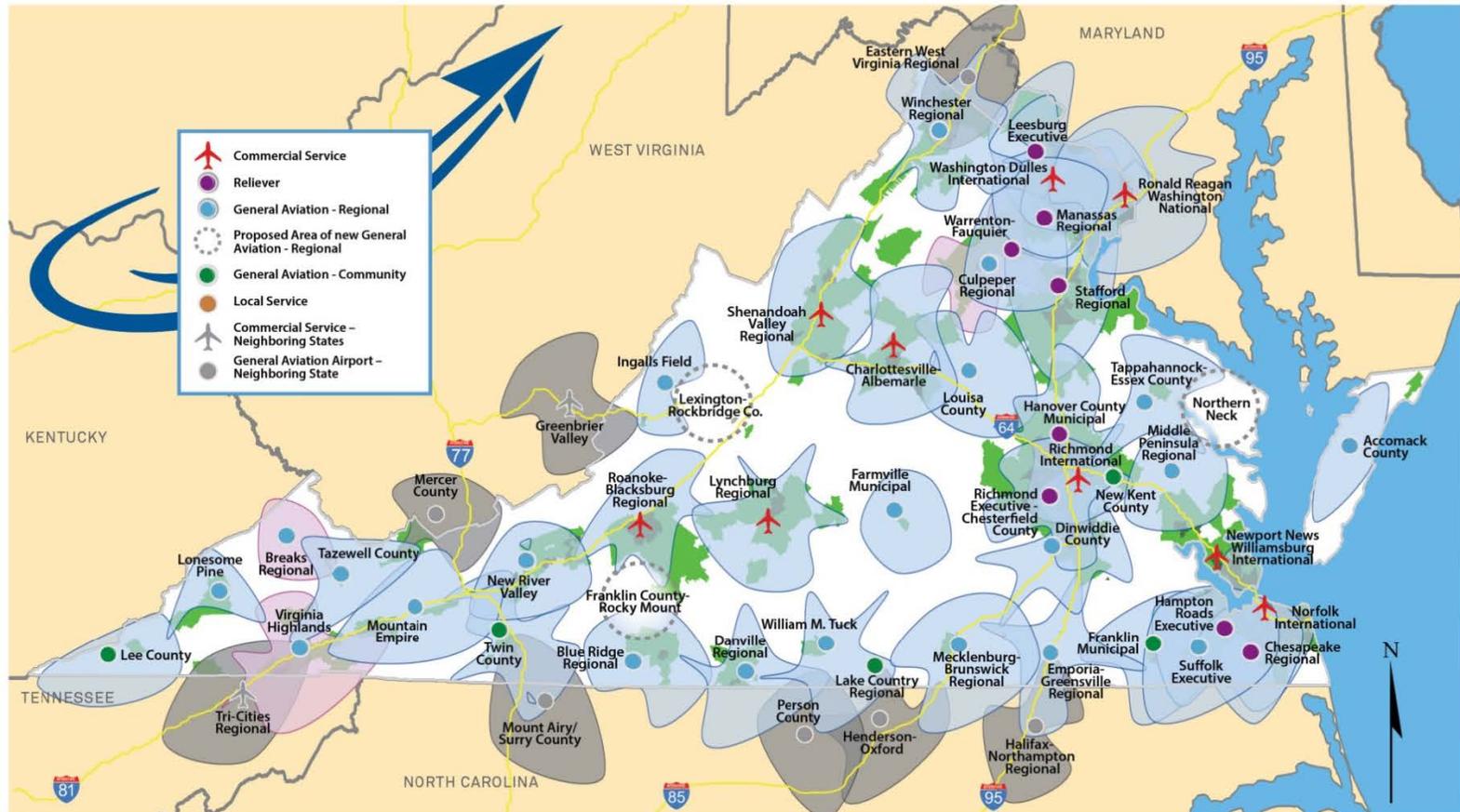
4.3.5 Access to Airports with On- Site Weather Reporting Equipment

In recent years, the number of Virginia system airports that have on-site weather reporting equipment has increased significantly. Of Virginia's 66 system airports, 63 currently have on-site weather reporting equipment. In addition, the 30-minute service areas for 10 airports in neighboring states with on-site weather reporting help to contribute to Virginia's current system performance for this measure, where total coverage is at 92.9 percent.

For this system performance measure, there are three options:

- A. Maintain the Existing Airport System
- B. Improve Existing System Airports to Meet Role Related Facility Objectives
- C. Consider Longer Term Potential for On-Site Weather Reporting Equipment

Figure 4 - 10: Future Access to Airports with a Precision Approach



4.3.5.1 Maintain the Existing System

Given the anticipated population growth by 2020 and no change to weather reporting equipment performance, this system evaluation measure will increase slightly from 92.9 percent to 93.1 percent. There are currently an estimated 7.43 million residents in the coverage area, and with the status quo, this is expected to increase to 8.27 million.

4.3.5.2 Improve the Existing System

It is a DOAV goal to provide each system airport with on-site weather reporting equipment through continuation of their ongoing initiative. **Figure 4-11** depicts existing system airports that are without weather reporting equipment, which includes those listed below:

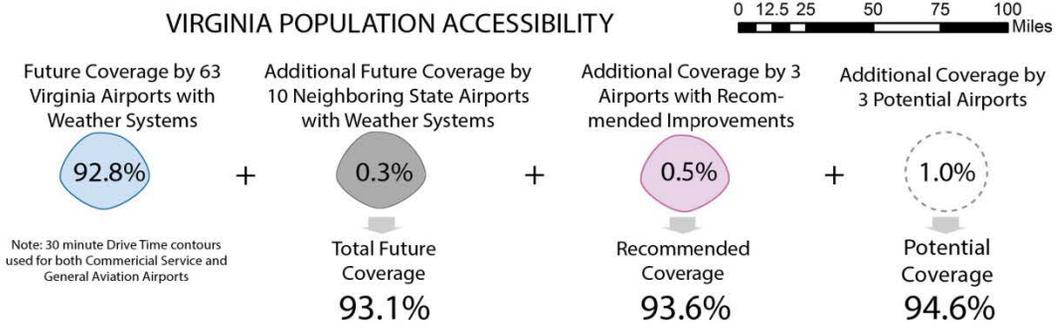
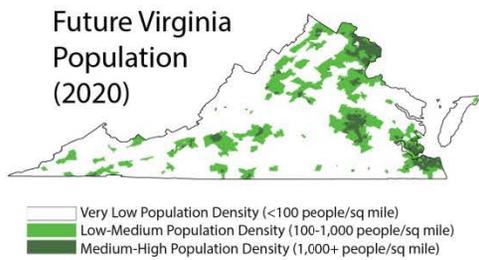
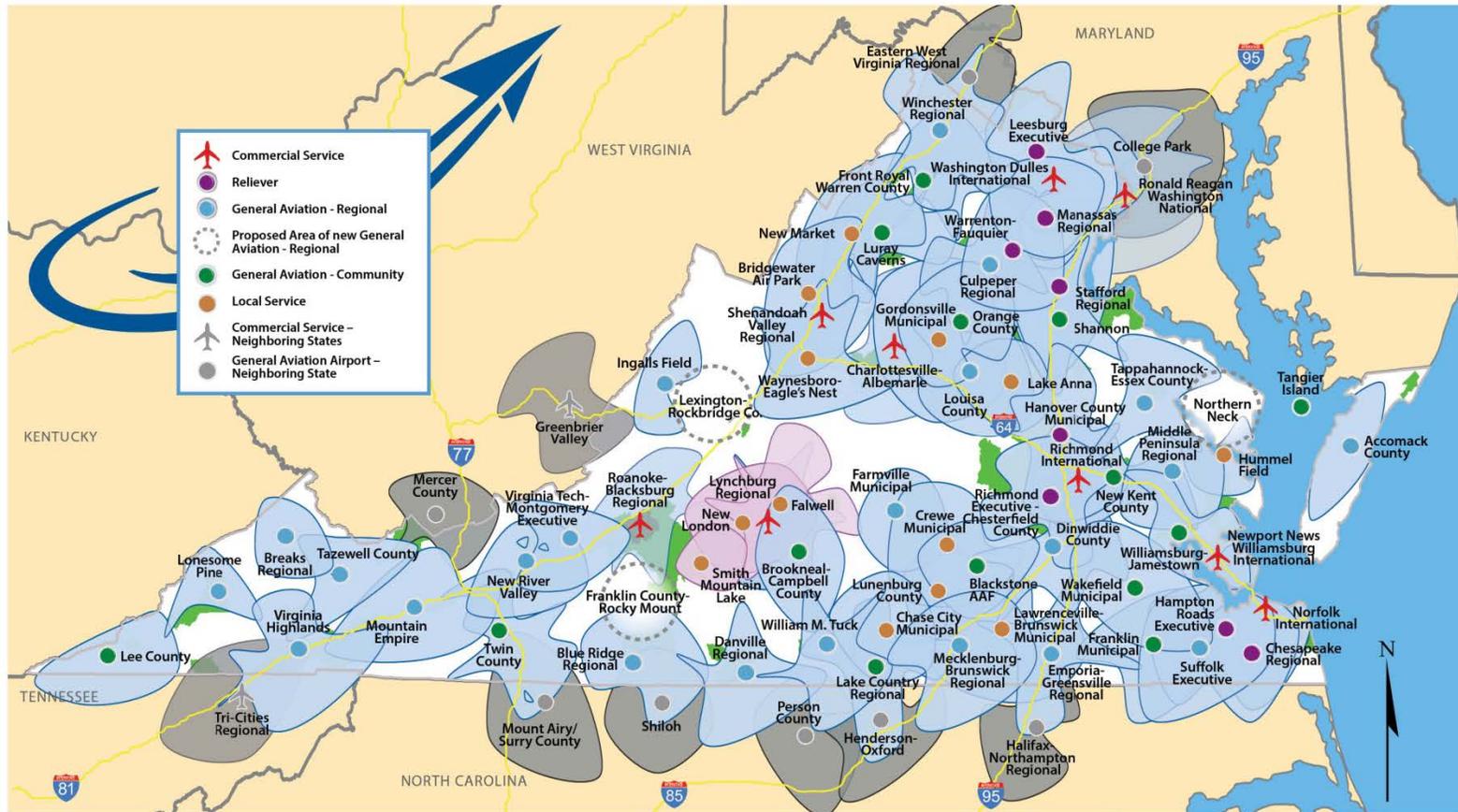
<u>Airport Identifier</u>	<u>Airport Name</u>	<u>Current VATSP Service Role</u>
W24	Falwell	General Aviation Local Service
W90	New London	General Aviation Local Service
W91	Smith Mountain Lake	General Aviation Local Service

These three airports should be equipped with on-site weather reporting equipment; this improvement would increase system performance for this measure from a no-action rating of 93.1 percent to 93.6 percent in 2020.

4.3.5.3 Long Range Potential for On- Site Weather Reporting Improvements

As Figure 4-10 illustrates, if new airports are developed to serve Lexington-Rockbridge County, Franklin County-Rocky Mount, and Northern Neck areas, these airports are recommended to provide on-site weather reporting equipment and would increase system performance for this measure to 94.6 percent.

Figure 4 - 11: Future Access to Airports with On-Site Weather Reporting System



4.3.6 Access to Airports that Serve Business Aircraft Needs

Figure 4-12 shows airports in Virginia and neighboring states that currently meet all three criteria for a business class airport, relative to Virginia’s major centers of employment. Most of the business centers identified are well covered within the 30-minute drive time area of an existing business class airport except for Fredericksburg and Suffolk.

For this system performance measure, there are three options:

- A. Maintain the Existing Airport System
- B. Improve Existing System Airports to Meet Role Related Facility Objectives
- C. Consider Longer Term Potential for business class airport improvements

4.3.6.1 Maintain the Existing System

The existing 17 business class airports in Virginia and neighboring states provide coverage to 74.2 percent of the state’s residents, or 5.93 million people. By 2020 (see Figure 4-12) if no business class airports are added, the number of residents served will increase to 6.58 million. However, the percent share actually decreases slightly over 2010 to 74.0 percent. Given the role of business class airports to serve and contribute to economic growth, the status quo alternative would not be viable for a state focused on improving its economic environment and the infrastructure that supports business growth.

4.3.6.2 Improve System Airports to Meet Role- Related Facility Objectives

Figure 4-12 shows how system performance for this measure could increase if FS&E objectives identified for study airports are implemented. There are several airports that are recommended to meet the business class airport criteria (5,500 foot runway, precision approach or RNAV LPV, on-site weather reporting equipment) in the Facility Requirements Chapter.

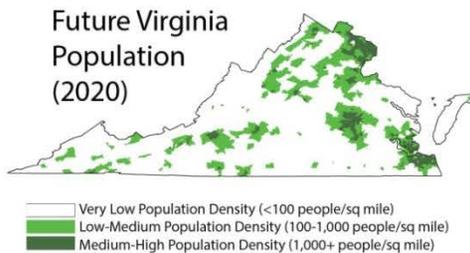
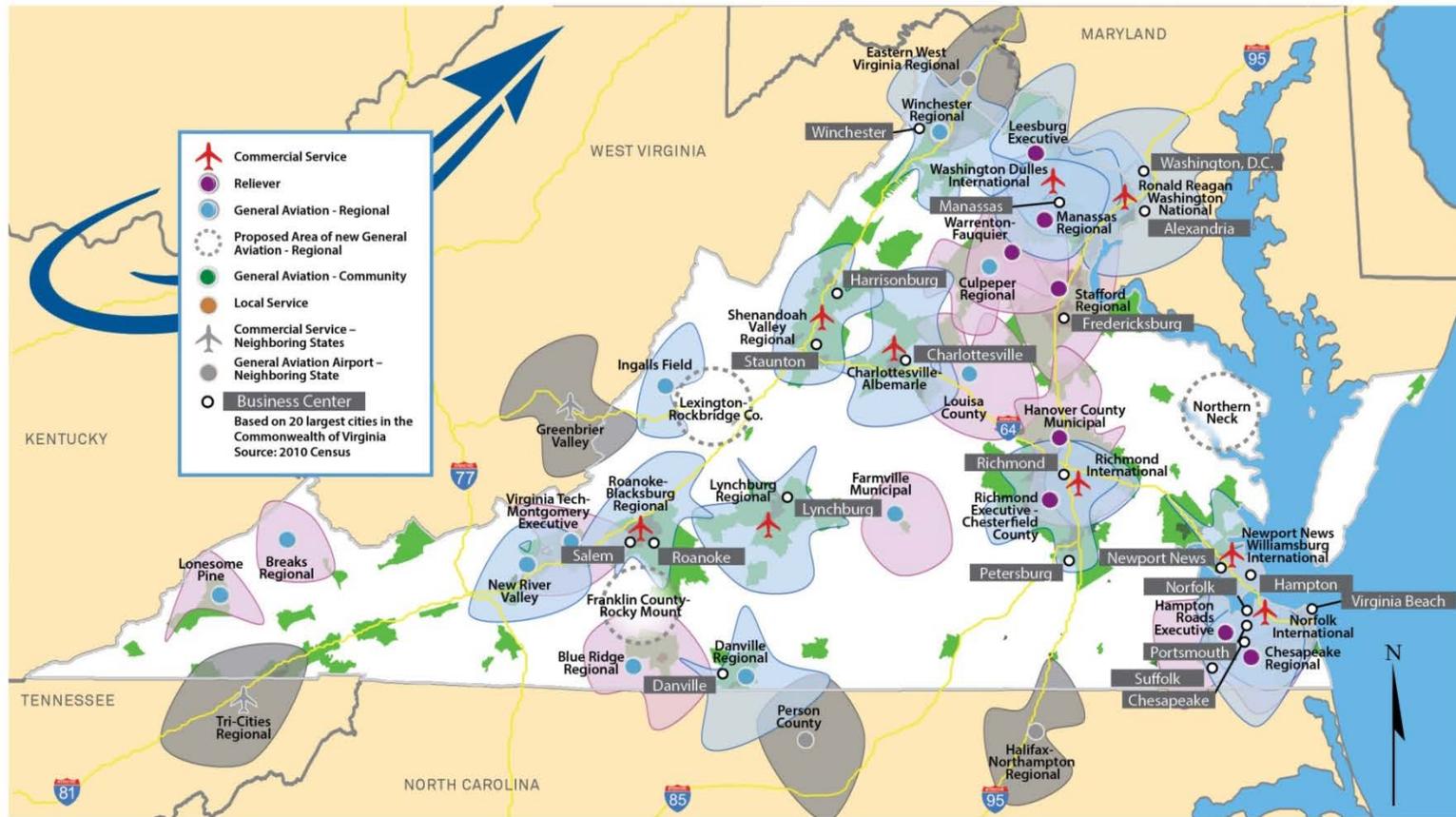
If these airports are improved as recommended, business centers near Fredericksburg and Suffolk that are now beyond the 30-minute service area would be covered by a business class airport. These improvements would increase the number of business class airports to 27 and all top employment centers in the state would be served.

By implementing these facility improvements, the number of Virginia residents within 30 minutes of a business class airport would increase to more than 7.49 million or 84.3 percent, a notable increase in performance for this measure and a positive influence on economic growth.

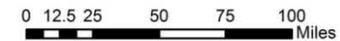
4.3.6.3 Additional Business Class Airport Improvements

As previously noted in this chapter, there are three new general aviation airports and one replacement airport that are planned for development. If these airports are built, their development should ultimately include all characteristics for a business class airport: 5,500-foot runway, precision approach or RNAV LPV, and on-site weather reporting equipment.

Figure 4 - 12: Future Access to Business Class Airports



VIRGINIA POPULATION ACCESSIBILITY



Similarly, Louisa County and Virginia Tech-Montgomery Executive Airports are identified as candidates for improvements related to business class airport criteria. A runway extension would provide the Louisa County Airport with the three criteria for a business airport and service coverage north of the growing I-64 corridor between Charlottesville and Richmond. A runway extension and precision approach with vertical guidance would qualify Virginia Tech-Montgomery Executive as a business class airport located along the I-81 corridor in one of the most densely populated counties in Virginia.

Figure 4-12 shows additional coverage that could be achieved with the addition of these three potential new airports and with the development of Louisa County, Virginia Tech-Montgomery Executive, and Breaks Regional as business class airports. There are some parts of the state that will still fall outside the 30-minute service area of a business airport, even with the 11 additional recommended and the three potential new business class airports.

Areas of Virginia that should be monitored for their need to have access to a business class airport include:

- The areas in the vicinity of the junction of I-81 and I-66 in northern Virginia,
- The area along I-81 in southern Virginia
- The area south of I-64 between Richmond and Charlottesville.

In this southern potential growth area between Wytheville and Marion, the Mountain Empire Airport currently provides facilities that approach those identified in this study for a business class airport. The airport’s current runway length is 5,252 feet; the airport is already equipped with an RNAV/LPV approach and has on-site weather reporting equipment. Site constraints at this airport may limit the feasibility of achieving a 5,500-foot or longer runway and therefore is currently not recommended for a runway extension or improvement to a business class airport. Consideration may also be given to develop features at the Virginia Highlands Airport to meet Business Class requirements as defined in this VATSP. West of Richmond, a runway extension to 5,500 feet is recommended for Louisa County to provide an increase of population coverage north of I-64. Much of the forecasted population growth west of Richmond is anticipated to develop south of the I-64 corridor. The Louisa County 30-minute drive-time area will not cover any significant area south of I-64. Therefore, consideration has been given to develop a fourth potential new airport in the area west of Richmond and south of I-64 near Fluvanna and Goochland Counties. These counties are among the fastest growing counties in the Commonwealth within a 30 to 45 minute drive time of an existing airport.

4.4 Alternatives Analysis Conclusions

This section summarizes findings from the alternatives analysis/review completed in this chapter.

4.4.1 Access to Any System Airports

Virginia has an excellent system of 57 general aviation and nine commercial service airports. Analysis shows that if previous plans to provide new (Regional) general aviation airports to serve the general areas of Lexington-Rockbridge County, Franklin County-Rocky Mount and Northern Neck are feasible and implemented, overall accessibility to system airports will improve.

As local conditions support the development of new airports, their implementation should be pursued. Lexington-Rockbridge County and Franklin County-Rocky Mount are recognized by the FAA in the NPIAS. If

local support for a new airport in Northern Neck exists, one of the first steps toward its development would be to qualify the airport for inclusion in the NPIAS.

There are also plans for Breaks Regional Airport in place for the existing Grundy Municipal. This system plan update supports that replacement. If Breaks Regional is built to VATSP GA Regional role standards and ultimately business class airport requirements as defined in this VATSP Update, it may not have a significant impact on system accessibility, but it may have the potential to raise system performance for other measures considered in this analysis. When implemented, Breaks Regional should be included in the VATSP Regional Airport category.

4.4.2 Access to Airports with Commercial Airline Service

In order to support commercial airline service at a “new and additional” airport, a certain critical mass of both resident and visitor travelers would be needed. The proximity of other established commercial service airports, their level of service and the fare structure of carriers providing service, also factor into determining if additional commercial service airports can be supported.

A review of population projections shows that the most densely populated cities and counties in Virginia are currently within the service areas of the nine existing commercial service airports. The next two most densely populated metropolitan areas in the state that are outside of a commercial service airport 45-minute drive time contour are the Montgomery County/Blacksburg area, served by the Virginia Tech-Montgomery Executive Airport and the Pittsylvania County/Danville area that is served by the Danville Municipal Airport.

Blacksburg is approximately 40 miles from Roanoke-Blacksburg Regional and Danville is about 55 miles from the Piedmont Triad International Airport in Greensboro, North Carolina. The proximity of these two commercial service airports within a 45-minute drive time of another commercial service airport greatly reduces the feasibility that new commercial airline service could be sustained by Virginia Tech-Montgomery Executive or re-established at Danville.

In addition, decisions by commercial carriers to provide or not to provide service in certain locations are demand driven. Though modified airport attributes may encourage expanded service, ultimately it is the decision of the airlines where to offer service. For the reasons described above, it is recommended to maintain and promote the existing commercial service airport system.

4.4.3 Access to Airports with a Runway Length of 5,500 feet or Greater

The lowest performing measure in the system analysis is related to adequate service coverage by airports with 5,500-foot runways. The relationship of runway length to positive economic development and growth highlighted this deficiency as one requiring attention. A key facility attribute to addressing this void is adequate runway length to support business aircraft. To meet this objective, ten system airports have been identified for runway extensions that would improve their runway length to at least 5,500 feet as shown in **Table 4-7**. It is important to note that need/feasibility for these runway extensions must be justified and accepted on the local level. Additional feasibility, planning, environmental studies, and financial studies would be required before these extensions could be implemented.

Table 4 - 7: Airports Recommended for a 5,500-foot Runway Length

Airport Name	Current VATSP System Role	Current Runway Length	Recommended Runway Length
Hampton Roads Executive	Reliever	5,350 feet	5,500 feet
Hanover County	Reliever	5,402 feet	5,500 feet
Stafford Regional	Reliever	5,000 feet	5,500 feet
Warrenton-Fauquier	Reliever	5,000 feet	5,500 feet
Blue Ridge Regional	GA-Regional	4,999 feet	5,500 feet
Culpeper Regional	GA-Regional	5,000 feet	5,500 feet
Farmville Municipal	GA-Regional	4,400 feet	5,500 feet
Lonesome Pine	GA-Regional	5,400 feet	5,500 feet
Louisa County	GA-Community	4,300 feet	5,500 feet
Virginia Tech-Montgomery Executive	GA-Community	4,550 feet	5,500 feet
Potential New Airports/Replacement Airport			
Airport Name	Current VATSP System Role	Current Runway Length	Potential Runway Length
Franklin County-Rocky Mount	New/GA Regional	N/A	5,500 feet
Lexington-Rockbridge County	New/GA Regional	N/A	5,500 feet
Northern Neck	New/GA Regional	N/A	5,500 feet
Breaks Regional	Local Service	2,258 feet	5,500 feet

Source: AECOM, 2015

In addition, if three new airports, together with Breaks Regional, are developed, system accessibility for this measure has the potential to further increase and support economic growth. Some of the runway extensions shown in Table 4-7 will be further discussed in Chapter 7: Plan Summary and Recommendations, as to their economic viability and feasibility.

4.4.4 Access to Airports with a Precision Instrument Approach

Existing airports that are recommended for a new RNAV/LPV approach include Culpeper and Virginia Highlands.

The system plan also noted other parts of Virginia that could benefit from new approach capabilities (RNAV/LPV) in the event there are new or replacement airports developed. If the existing Grundy Municipal Airport is replaced, assuming demand and feasibility reviews are positive; this replacement airport should be equipped with an RNAV/LPV approach. Further, if new airports are developed to serve Franklin County-Rocky Mount, Lexington-Rockbridge County, and/or the Northern Neck, consideration should be given to providing these airports with RNAV/LPV approach capabilities.

4.4.5 Access to Airports with an On- Site Weather Reporting System

Currently, there are only three system airports that are not equipped with on-site weather reporting. It is recommended that the following existing system airports be equipped with on-site weather reporting equipment to complete this positive ongoing DOAV initiative:

- Falwell (Local Service)
- New London (Local Service)
- Smith Mountain Lake (Local Service)

It is worth noting that the three airport sponsors have rejected DOAV offers to provide and install on-site weather reporting equipment at their site. The new airports, if developed, including Lexington-Rockbridge County, Franklin County-Rocky Mount, Northern Neck and Breaks Regional, should all be equipped accordingly.

4.4.6 Access to Airports that Serve Business Aircraft Needs

As noted in FAA Advisory Circular 150/5070-7, *The Airport System Planning Process*, one of the primary objectives of a state airport system plan is to provide a “balanced” airport system. While there are several ways that this balance can be defined, one is to provide a system of airports that is well distributed geographically. Specific to the business class airports, and their relationship to supporting economic development and business growth, it is important that most geographic areas of Virginia be supported by airports that have the capability to service a wide range of general aviation business jets. It is also important that those areas of the Commonwealth that have the highest population densities, as well as those that are projected to have the highest rates of average annual population growth, be adequately supported by one or more business class airports.

Table 4-8 provides a summary of population and rates of population growth projected for select cities and counties in Virginia, with a focus on those that are expected to have annual average rates of population growth exceeding the state average.

The facility and service objectives presented in Chapter 3 establish that all Commercial Service, Reliever and General Aviation-Regional airports should meet the facility characteristics of a business class airport. Given the need to address business class airport voids in the system, actions to improve new and existing business class airports to business class characteristics have been identified. All recommended business class airports should be improved to meet all three criteria for a business class airport (5,500-foot runway, precision approach with vertical guidance, and on-site weather reporting equipment).

Further review of the areas that additional business class airports would support notes the following:

- The counties in Northern Virginia are the most densely populated in the state and the addition of business class airports at **Warrenton-Fauquier, Culpeper Regional and Stafford Regional** would help to serve this major population center.
- The Norfolk and Hampton Roads/Newport News area is another densely populated and growing area of Virginia and developing **Hampton Roads Executive** to meet the business class characteristics would serve business demand in this part of the state.

- Counties in the Richmond area, as shown in Table 4-8, are projected to have some of the highest rates of population growth in the state. Developing **Hanover County Municipal** to meet business class airport characteristics would serve the growing areas north of Richmond along the I-95 corridor.
- If demand warrants and improvements are feasible, developing **Farmville Municipal, Blue Ridge Regional, and Lonesome Pine** airports would increase access to business class facilities in parts of the Commonwealth that currently do not have ready access to a business class airport facility. To serve the I-81 corridor, further consideration may be given to improve Virginia Highland airport.
- Counties west of Richmond (Goochland, Fluvanna, and Louisa) are expected to have some of the highest rates of population growth in Virginia. Developing the **Louisa County Airport** consistent with business class characteristics would serve this growing I-64 corridor west of Richmond. Much of the development in this area is south of I-64, the Louisa County Airport is located north of I-64 and does not reach any significant parts south of the Interstate within a 30-minute drive time, leaving a void in this developing area. The sensitivity analysis in Chapter 6 of this plan update will further analyze a potential new airport in the western Richmond vicinity.
- Montgomery County, with a resident population base of over 100,000, is one of the most densely populated counties in this part of the Commonwealth and is home to Virginia Tech. The university serves as a magnet for many technology-based and entrepreneurial business activities. Developing **Virginia Tech-Montgomery Executive Airport** would serve and support growth of emerging business activities in this part of Virginia.

Table 4 - 8: Virginia Counties above the State Average Population Growth Rate

	Forecast CAGR
State	2010-2030
Virginia	1.34%
County	2010-2030
Caroline	1.55%
Culpeper	1.46%
Fauquier	2.09%
Fluvanna	1.94%
Franklin	1.72%
Goochland	2.19%
Greene	1.83%
Henrico	1.89%
King George	1.49%
Loudoun	3.61%
Louisa	1.87%
New Kent	3.06%
Stafford	2.55%
Warren	1.73%
Chesapeake (Independent City)	1.93%
Bedford + Bedford City	1.71%
Fairfax + Fairfax City + Falls Church	1.93%
Frederick + Winchester	1.34%
Prince William + Manassas + Manassas Park	2.93%
Rockingham + Harrisonburg	1.53%
Spotsylvania + Fredericksburg	2.57%
York + Poquoson	1.53%

Source: 2013 Woods & Poole

There are three new general aviation airports that have been identified for the Commonwealth as well as Breaks Regional developed as a replacement for Grundy Municipal. These airports, when developed, should ideally meet the facility and service objectives for a General Aviation-Regional Airport, which will include the characteristics of a business class airport.

- The location of **Breaks Regional** as a business class airport would fill the void in this area of Virginia and adjacent areas of West Virginia and Kentucky.
- Another of the new airport facilities is proposed for the **Franklin County-Rocky Mount** area in south-central Virginia. As shown in Table 4-8, Franklin County is one of the counties in Virginia expected to experience growth in population that exceeds the state average.

- A new airport in the **Lexington-Rockbridge County** area would serve the business class needs of the I-81/I-64 West corridor between Roanoke and Staunton.
- The fourth new airport that could be developed with business class characteristics would be located in the **Northern Neck** area near Northumberland County. This would fill a gap in this part of the Commonwealth where there is currently no airport that meets the characteristics of a business class airport.

The recommendations to improve business class airports throughout the system will address the current deficiencies and provide valuable economic growth support in those business/employment centers where needed. Additional demand analysis, financial feasibility and environmental reviews would be required prior to implementing these recommendations.

In summary, **Table 4-9** provides a list of all airports in Virginia that would make up the business class component of the system including the Commercial Service, Reliever and General Aviation-Regional airports that currently meet the characteristics, and those proposed to develop to meet business class standards as presented above. These improvements would result in more than half of the system airports serving business class aviation.

4.5 Recommended Changes to Existing Airport Roles

Based on the roles that the following airports are currently playing in the Virginia airport system, or that they are expected to play in the future, it is recommended that the following airport role changes be adopted:

- Virginia Tech-Montgomery Executive – Change from GA-Community to GA-Regional
- Louisa County – Change from GA-Community to GA-Regional
- Grundy Municipal – Develop replacement Breaks Regional Airport as GA-Regional
- Lexington-Rockbridge County – Develop new airport as GA-Regional
- Franklin County-Rocky Mount – Develop new airport as GA-Regional
- Northern Neck – Develop new airport as GA-Regional

Additional role changes for existing airports may be identified as part of the forthcoming Sensitivity Analysis of Chapter 6. The development costs for the projects needed to meet individual FS&E Objectives, and recommended facility improvements as part of system wide improvements, are presented in the following chapter.

Table 4 - 9: Virginia Business Class Airports - Existing and Recommended

Airport	Airport Code	Business Class
Commercial Service		
Charlottesville-Albemarle	CHO	Existing
Lynchburg Regional	LYH	Existing
Newport News-Williamsburg International	PHF	Existing
Norfolk International	ORF	Existing
Richmond International	RIC	Existing
Roanoke-Blacksburg Regional	ROA	Existing
Ronald Reagan Washington National	DCA	Existing
Shenandoah Valley Regional	SHD	Existing
Washington Dulles International	IAD	Existing
Reliever		
Chesapeake Regional	CPK	Existing
Hampton Roads Executive	PVG	Recommended
Hanover County Municipal	OFP	Recommended
Leesburg Executive	JYO	Existing
Manassas Regional	HEF	Existing
Richmond Executive-Chesterfield County	FCI	Existing
Stafford Regional	RMN	Recommended
Warrenton-Fauquier	HWY	Recommended
GA Regional		
Blue Ridge Regional	MTV	Recommended
Breaks Regional (Grundy Replacement)	Proposed	Recommended
Culpeper Regional	CJR	Recommended
Danville Regional	DAN	Existing
Farmville Municipal	FVX	Recommended
Ingalls Field	HSP	Existing
Lonesome Pine	LNP	Recommended
New River Valley	PSK	Existing
Northern Neck	Proposed	Recommended
Lexington-Rockbridge County	Proposed	Recommended
Franklin County-Rocky Mount	Proposed	Recommended
Winchester Regional	OKV	Existing
Virginia Tech-Montgomery Executive	BCB	Recommended
Louisa County	LKU	Recommended

Source: AECOM, 2015

