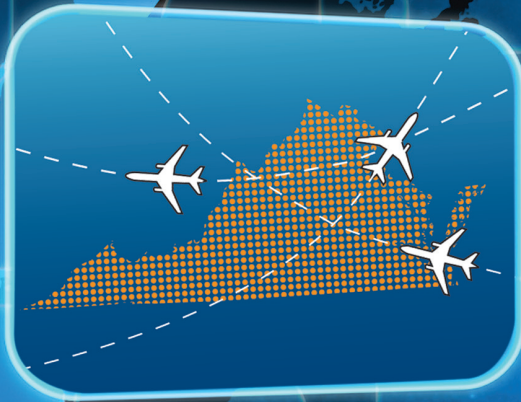




Virginia Air Transportation System Plan Update Executive Summary





Introduction

Businesses, residents, and visitors depend on Virginia's airports. The Virginia Air Transportation System Plan (VATSP) Update blends the strategic development and enhancement of the facilities at current airports, with the preservation and maintenance of existing airports, guiding development of new system airports and examining the future needs of Virginia's communities. The VATSP helps Virginia keep pace with new aviation technologies such as NextGen. The plan provides direction to meet transportation needs, to serve aviation demand, and to provide economic support through the planning period. Collaboration between the Virginia Department of Aviation (DOAV), the Federal Aviation Administration (FAA), and all public-use airport sponsors in Virginia is needed for the successful implementation of this plan.

Our Mission

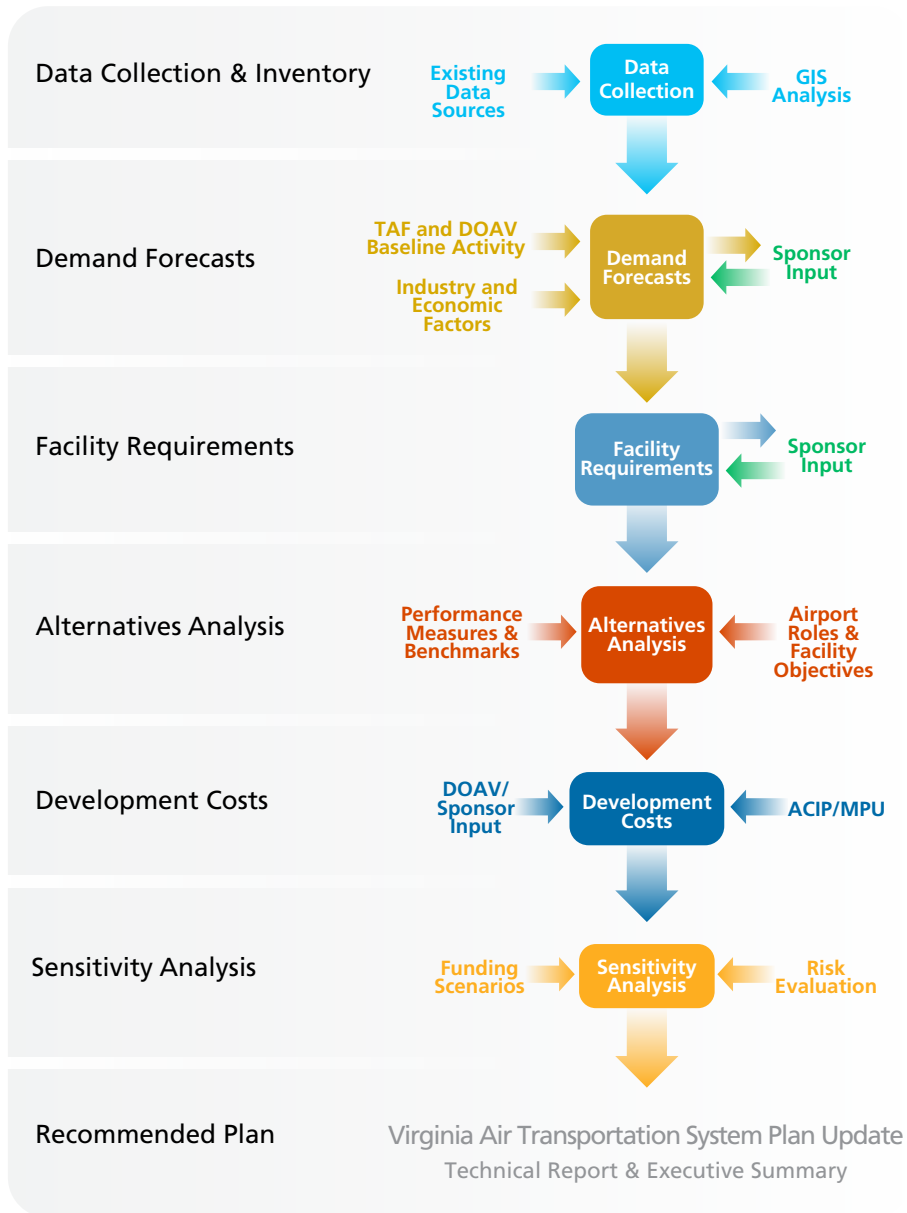
Cultivate an advanced aviation system that is safe, secure and provides for economic development.

Promote aviation awareness and education.

Provide the safest and most efficient flight services for the Commonwealth leadership and state agencies.

Study Overview

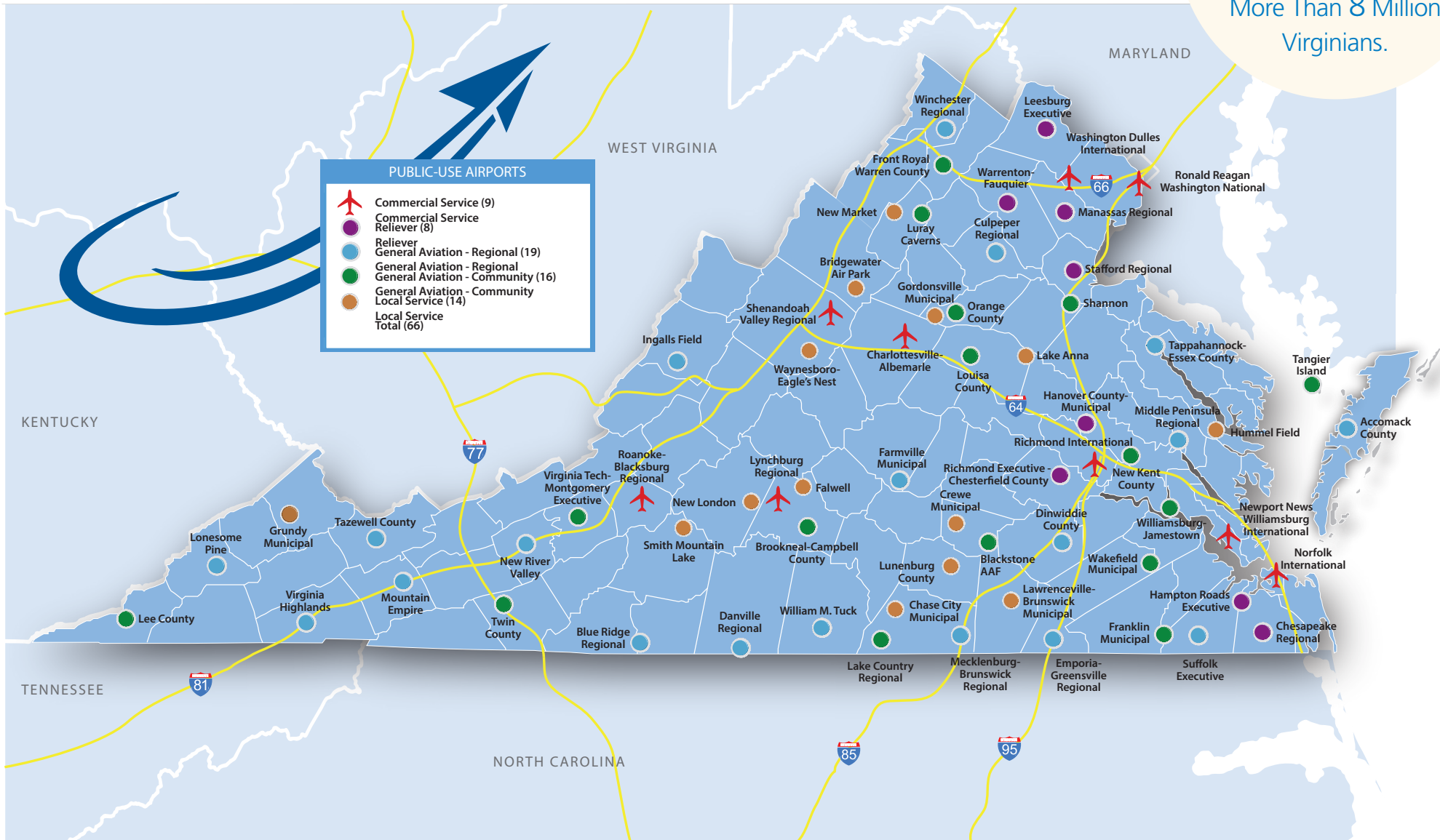
To complete this VATSP Update, the following tasks were undertaken:



Our Vision
 The Virginia Department of Aviation will be the standard of excellence amongst state aviation agencies.
 We will make the Virginia aviation system the model air transportation system, providing Virginia communities economic development opportunities and convenient access to the national air transportation system.

Current Virginia Air Transportation System

A Robust System Of
66 Public-Use
Airports Serving
More Than 8 Million
Virginians.



Forecast—projecting future aviation activity

Developing statewide aviation activity projections is an important step in determining the need for future system improvements. VATSP analysis revealed that for many aviation demand components, historic average annual rates of growth for Virginia have been more robust than rates of growth for all airports in the U.S.

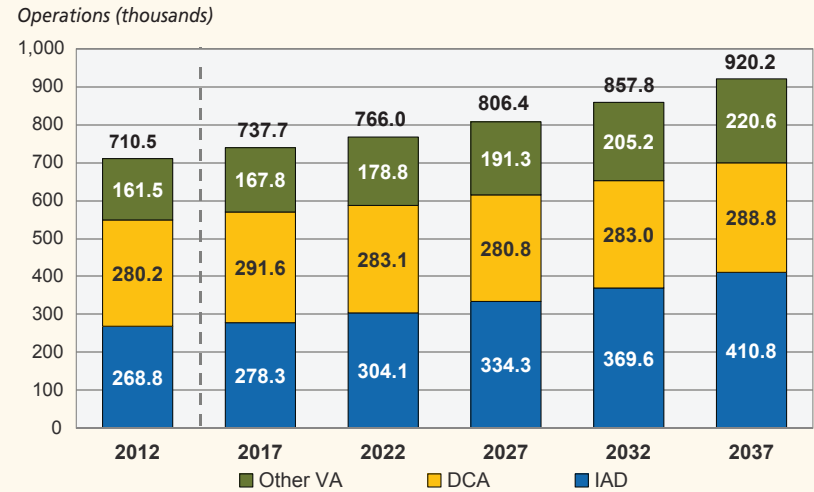
Airports	Average Annual Growth of Total Based Aircraft 2000-2012
Virginia Commercial Service Airports	-0.9%
Virginia General Aviation Airports	2.3%
All Virginia Airports	1.6%
All U.S. Airports	0.2%

Source: 2003 VATSP; DOAV Aircraft Surveys; FAA Aerospace Forecast FY12-FY32
 *Based aircraft are those aircraft that are "permanently stored" at one of the study airports.

Almost 210 Million Passengers Will Be Added To The System Over The Next 25 Years.

Virginia General Aviation Growth Has Outpaced National Growth. This Trend Is Expected To Continue.

Commercial Service Passenger Aircraft Operations at Virginia Airports



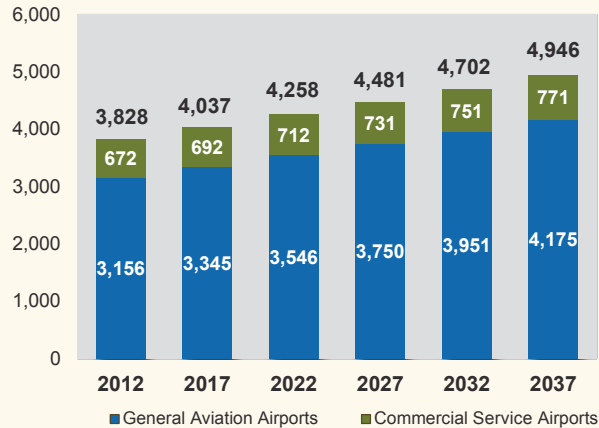
Source: DCA-MWAA Airport Records; Leigh Fisher Dulles Forecast (September 2012); TAF FY2012-FY2040 forecast growth rates for 2017-2037; IAD-FAA TAF FY12-FY40; Other VA-ICF SH&E.



Ronald Reagan Washington National Airport

“Based aircraft” are those aircraft that are permanently stored at one of the study airports. Projections of demand from the VATSP Update indicate that based aircraft in Virginia are expected to continue to grow at a rate above the national average.

Forecast of Based Aircraft at Virginia Commercial Service and General Aviation Airports

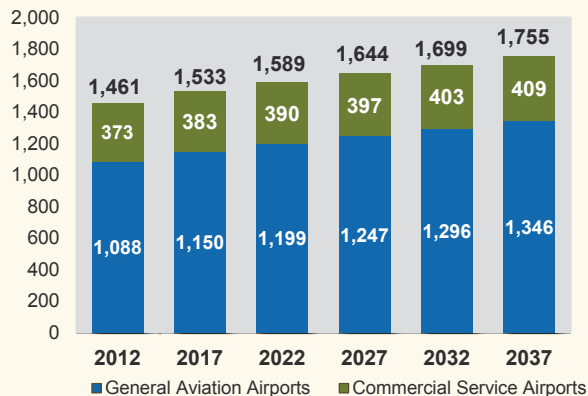


Source: ICF SH&E; FAA Aerospace Forecast FY12-FY32, DOAV Annual Based Aircraft Reports

Total annual general aviation operations (defined as either a takeoff or landing of an aircraft) for all system airports are expected to increase. The projections include general aviation aircraft annual take-offs and landings that will be accommodated at both general aviation and commercial service airports in Virginia.

Forecast of Statewide General Aviation Operations

GA Operations (thousands)



Note: Totals have been rounded.

Source: FAA ATADS; FAA TAF FY12-FY40; Form 5010; U.S. DOT, T100 (YENov12); and ICF SH&E

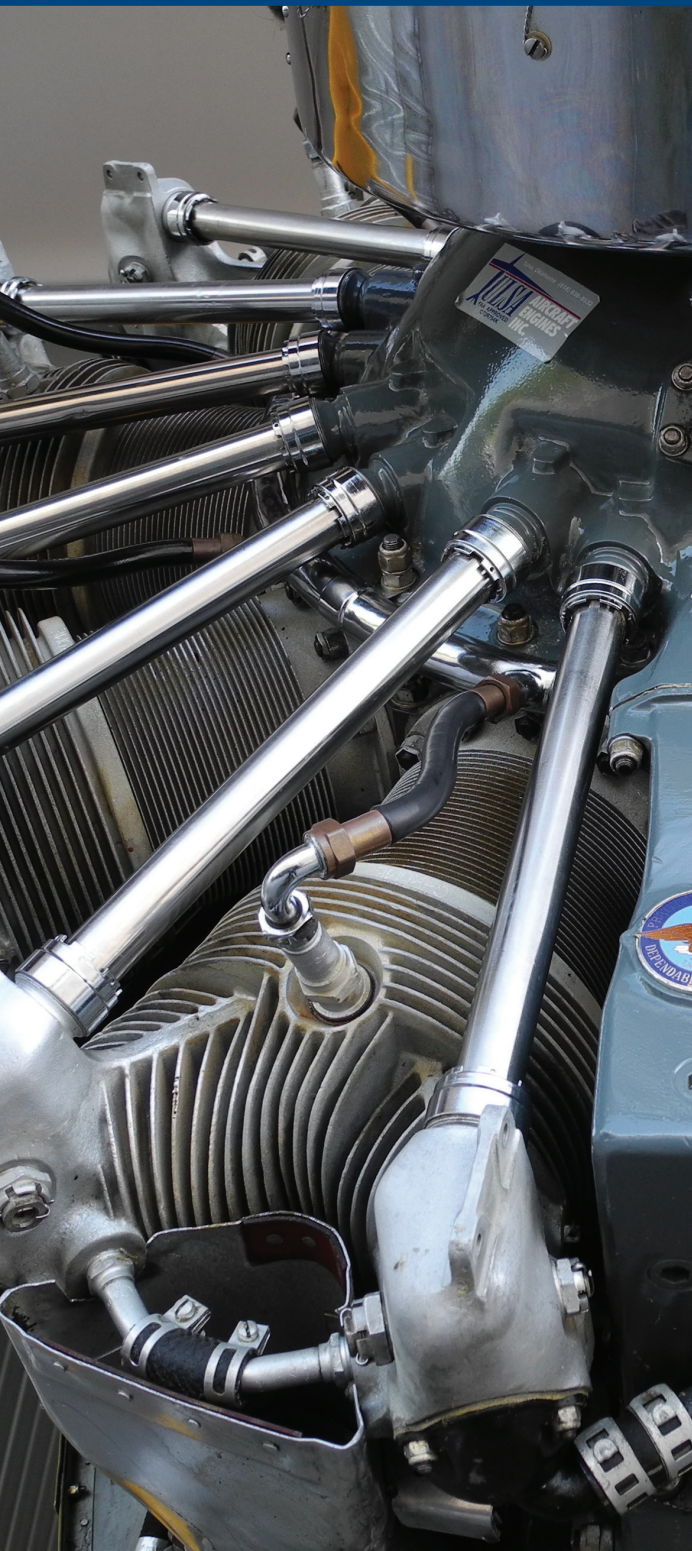
Facility Requirements – determining system wide needs

As part of the VATSP Update, Facility, Service, and Equipment (FS&E) Objectives were established for each airport role in the Virginia state system. A variety of sources were considered to establish the FS&E objectives. These sources included the 2003 VATSP, FAA documents, and prior and existing DOAV initiatives and programs.

The FS&E Objectives provide directives ranging from runway lengths, to hangar needs, to suggested runway approaches. Based on data collected as part of the inventory, each study airport was reviewed to determine its ability to meet its associated objectives. For each facility, service, or equipment objective, a system performance chart was prepared to identify airport improvement needs that meet specific objectives. The findings were incorporated into each airport’s development plan.



Orange County Airport



Alternatives and System Performance— evaluating current performance

An important part of the VATSP analysis was to determine how well the current system is performing relative to several accessibility performance measures. To make this determination, analyses were completed to establish drive time service areas for each of the system airports. Depending on the performance measure that was being analyzed, these service areas were based on either 30- or 45-minute drive times for Virginians to public-use airports.

GIS analysis was used to determine the population accessibility to the 66 public-use airports. Based on FAA guidelines, the analysis also considered the contribution that airports in neighboring states provide in meeting Virginia’s aviation needs. Results of the analysis for the existing system’s performance are shown in the table below.

Accessibility to Virginia System

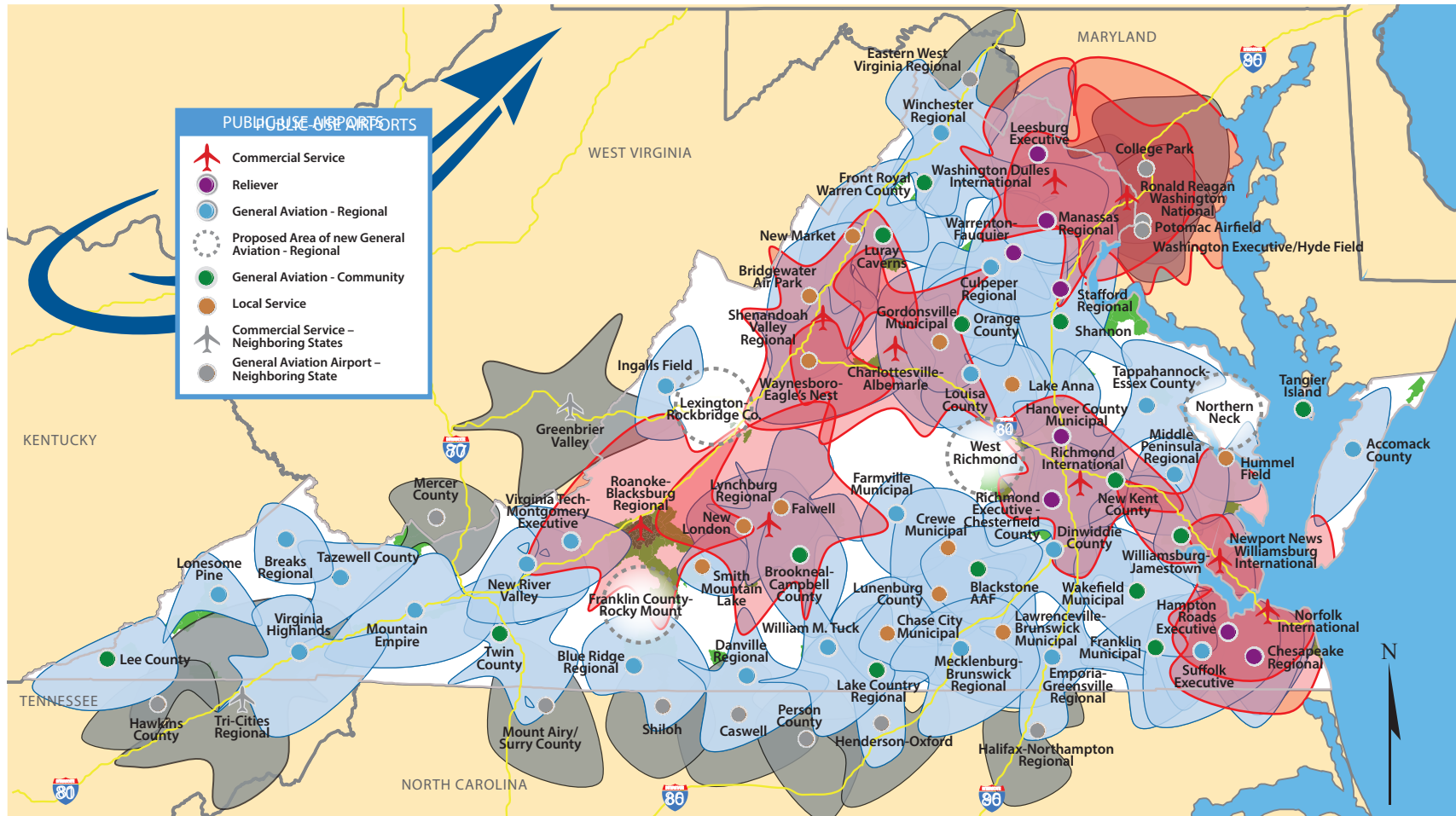
	Virginia Airports		Out of State Airports		Total Coverage	
	Population	% of State	Population	% of State	Population	% of State
Accessibility to Any Airport	7,576,797	94.7%	33,421	0.4%	7,610,218	95.1%
Accessibility to Commercial Service Airport	6,182,237	77.3%	91,844	1.1%	6,274,081	78.4%
Accessibility to 5,500 foot Runway	5,895,696	73.7%	39,147	0.5%	5,934,844	74.2%
Accessibility to Precision Approach	6,977,288	87.2%	52,620	0.7%	7,030,606	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%

Source: Results based on VATSP GIS analysis using 2010 Census data
 *Minimum facilities required to be identified as a Virginia Business Class Airport:
 1) Runway length of 5,500 feet
 2) Precision Approach or RNAV LPV Approach (with vertical guidance)
 3) Weather observation system

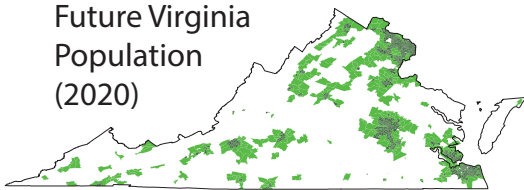
In addition, the study considered if and how current system performance could be optimized. Optimization of the system’s performance assumed that there would be no constraint on funds to improve and expand the system and that all projects would be feasible to implement. The alternatives analysis looked at changes and improvements for the system that included factors such as:

- Extending runways at select airports
- Adding additional new general aviation airports to the system
- Replacing Grundy Municipal Airport with Breaks Regional Airport.
- Improving all airports to meet their FS&E Objectives

Optimized System Accessibility

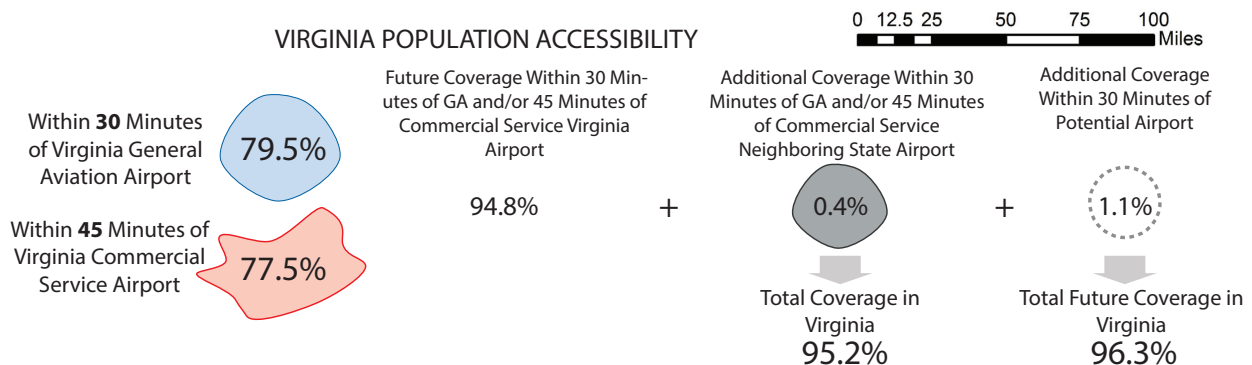


Future Virginia Population (2020)



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

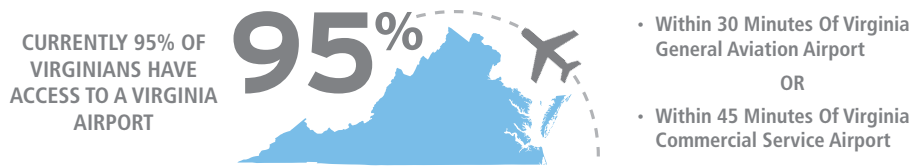


Sensitivity Analysis – improving the system

The prior system performance and alternatives analysis considered how Virginia’s airport system could be optimized to improve its performance. The Sensitivity Analysis considered a number of “what if” scenarios that could be encountered as they relate to optimizing system performance. Consideration was given to potential changes regarding various costs and accessibility factors. The results of the sensitivity analysis, along with the findings from the FS&E analysis, the cost scenarios, and the alternative analyses, formed the basis for the final recommended plan.

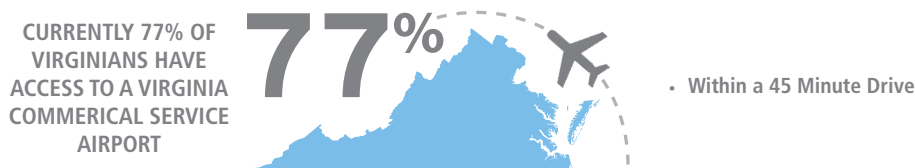
Key findings from the sensitivity analysis are summarized within three categories: 1) Accessibility to any airport, 2) Accessibility to a Commercial Service Airport, and 3) Accessibility to 5,500 foot runways or Business Class Airports.

Accessibility to any Airport



The good news is that 95% of Virginians currently enjoy access to one of the Commonwealth’s airports. Should improvement to that accessibility number be desired, the only means to substantially increase the level of accessibility would be to introduce new airports into the system. The VATSP Update contains a recommendation for four new general aviation airports to serve the areas of Lexington-Rockbridge County, Franklin County-Rocky Mount, the Northern Neck, and West Richmond. Local support would be essential for any of these airports to be developed.

Accessibility to a Commercial Service Airport



Similarly, Virginians enjoy easy access to the Commonwealths nine commercial service airports that are within a 45-minutes driving radius. Based on conditions in the

commercial airline industry that drive the development of new commercial service airports, it is not considered likely that additional airports in Virginia will be developed for commercial airline service. While the VATSP analysis first examined accessibility to Commercial Service airports using 45-minute drive times, in reality commercial airline passengers often drive much longer than 45 minutes to reach their departure airport. Based on individual needs and circumstances, passengers will drive up to 120 minutes to reach a departure airport. When drive times to all Commercial Service airports in Virginia and neighboring states are increased to 120 minutes, almost 100 percent of Virginia’s residents are within the service area of one or more Commercial Service airports.

Accessibility to 5,500-foot runways or Business Class Airports

A primary objective of the VATSP Update was to identify areas of the Commonwealth that are or that should be served by an airport that is capable of serving virtually all general aviation business aircraft. This is a system characteristic that is essential for economic support, growth, and diversification. Business Class Airport characteristics considered in the VATSP include:

1. Runway length of 5,500 feet
2. Precision Approach or RNAV/LPV Approach (Vertical Guidance)
3. Weather observation system

There are currently 17 airports in Virginia that have all three of these characteristics; 9 of these 17 airports also serve commercial airline activity as shown below.

Business Class Airports Serving Virginia

Commercial Service	General Aviation
Charlottesville-Albemarle	Chesapeake Regional (RL)
Lynchburg Regional	Leesburg Executive (RL)
Newport News-Williamsburg International	Manassas Regional (RL)
Norfolk International	Richmond Executive-Chesterfield County (RL)
Richmond International	Danville Regional (GR)
Roanoke-Blacksburg Regional	Ingalls Field (GR)
Ronald Reagan Washington National	New River Valley (GR)
Shenandoah Valley Regional	Winchester Regional (GR)
Washington Dulles International	

Recommended Business Class Airports

The study identified areas of the Commonwealth that are beyond service areas of the existing Business Class airports. These “gap” areas were reviewed in conjunction with anticipated growth corridors. This gap analysis identified 12 additional General Aviation airports that should be developed to meet all characteristics for a business class airport.

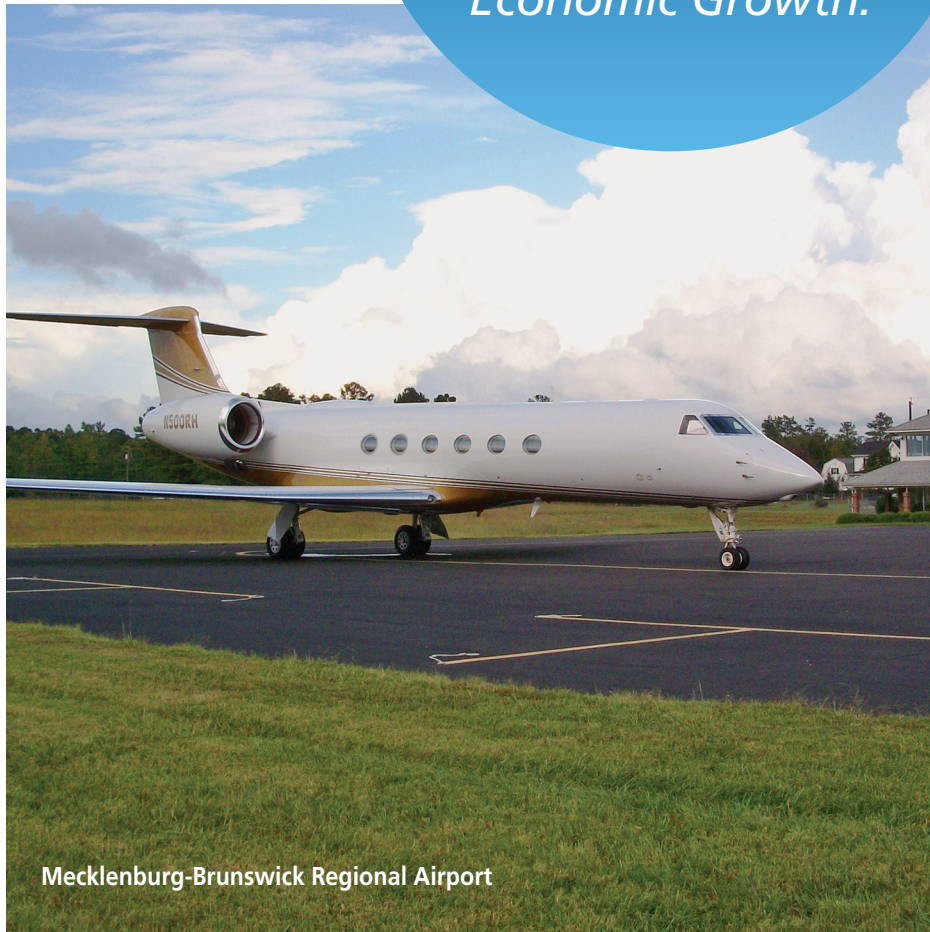
Recommended Business Class airports:

- Hampton Roads Executive*
- Hanover County Municipal*
- Stafford Regional
- Warrenton-Fauquier
- Blue Ridge Regional
- Culpeper Regional
- Farmville Municipal
- Lonesome Pine*
- Virginia Highlands
- Louisa County
- Virginia Tech-Montgomery Executive
- Breaks Regional
(Grundy Municipal Replacement)

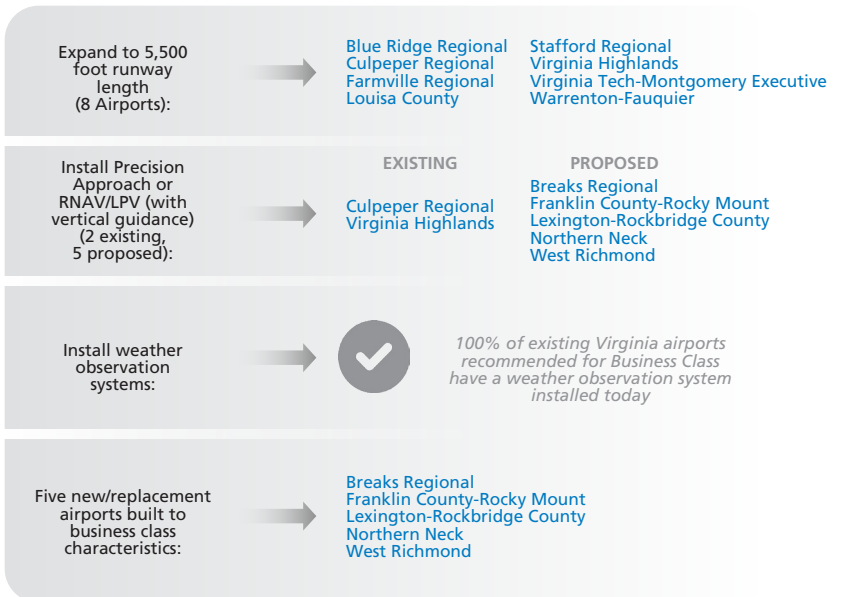
*Current runways considered adequate

If the remaining additional airports are upgraded as recommended, 30-minute drive time accessibility to a business class airport for all Virginia residents will increase from 74.2 percent to 85.8 percent. The VATSP includes recommendations for one replacement airport for the former Grundy Municipal, to be renamed Breaks Regional Airport, and four new general aviation airports. If these airports are developed, it is DOAV’s objective to have them included under the Virginia system role classification of General Aviation-Regional Airport and to be built to meet business class airport characteristics.

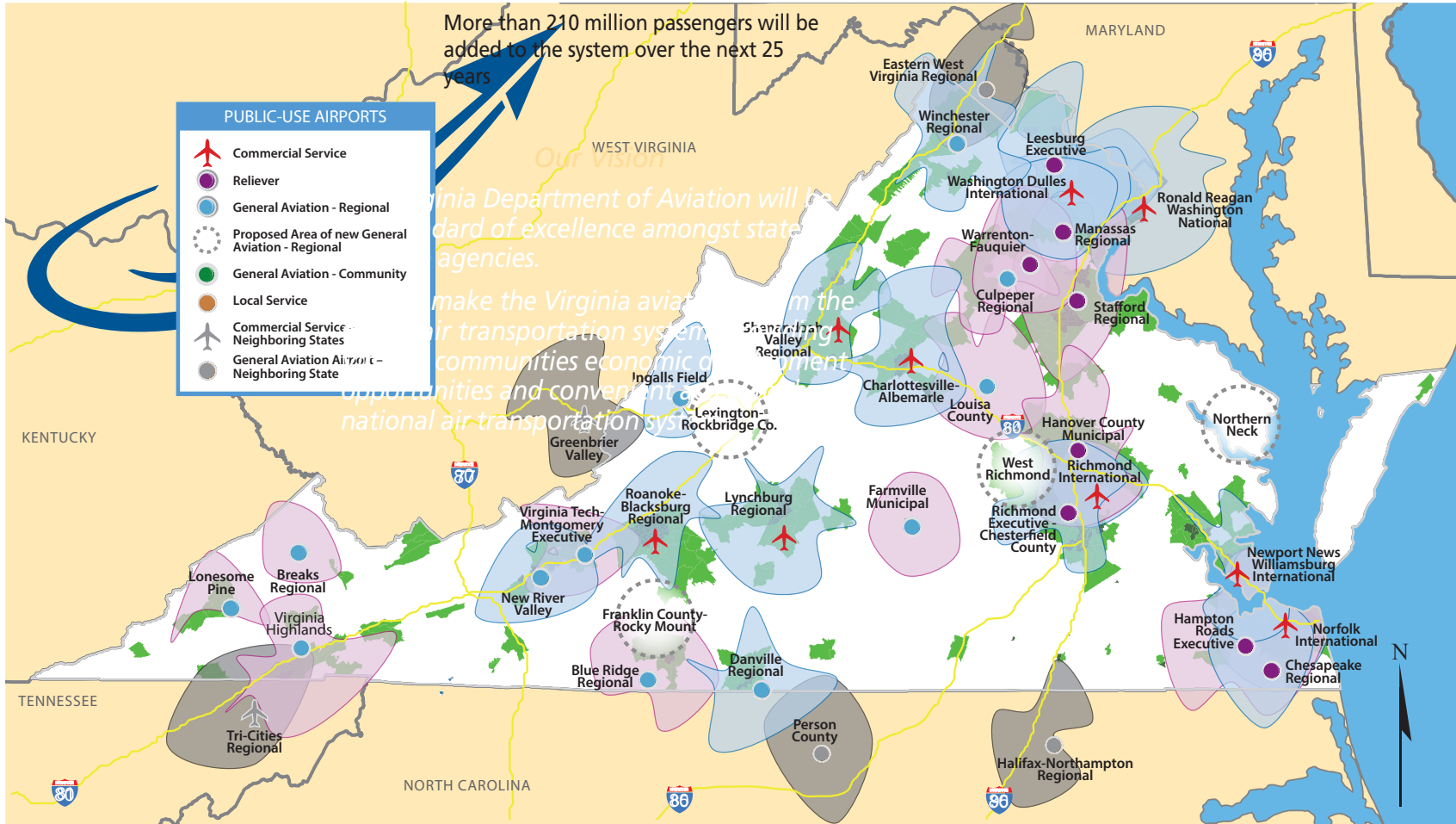
Providing Additional Business Aircraft Accessibility To More Virginians Is The Key To Spurring Further Economic Growth.



Mecklenburg-Brunswick Regional Airport



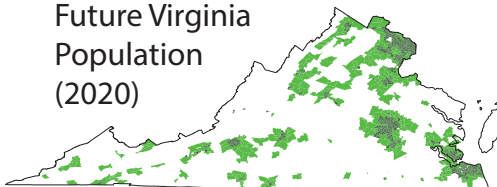
Recommended Business Class Airport Accessibility



Our vision is to make the Virginia aviation transportation system the most efficient and convenient in the nation, providing economic opportunities and convenient national air transportation systems.

Virginia Department of Aviation will set a standard of excellence amongst state agencies.

Future Virginia Population (2020)



- 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)

Future Coverage by 17 Virginia Business Class Airports

73.6%

+

Additional Coverage by 5 Neighboring State Business Class Airports

0.4%

+

Additional Coverage by 12 Airports with Recommended Improvements

12%

+

Additional Coverage by 4 Potential Airports

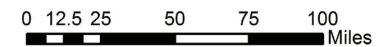
1.7%

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

Total Future Coverage in Virginia
74%

Recommended Coverage
86%

Potential Coverage
87.7%



Projected System – costs

The VATSP included research and analysis to develop a comprehensive estimate of costs to maintain, improve, and expand Virginia's airport system. Initially, cost estimates were developed for all system airports to be improved to fully meet all of their respective FS&E Objectives from the VATSP. Individual airport master plans and airport capital improvement plans (ACIPs) also were collected and reviewed to avoid cost duplications and to identify other projects and associated costs included in these documents. In total, the VATSP Update shows that between now and the end of the planning period, more than \$4 billion dollars will need to be invested in Virginia's airport system to improve existing airports and to build new airports. The total investment for the planning period was divided between various airport roles in Virginia's system and

the final projected investment for all future airports was identified. Costs to develop new airports were included as a single-phase, full-build development. More detail regarding total system development costs can be found in the Virginia Air Transportation System Plan Technical Report available on the agency website at: www.doav.virginia.gov.

Nearly 80 percent of all cost estimates in the VATSP Update came from sponsor's individual ACIPs. The ACIPs are submitted by the airport sponsor and focus on short term (1-5 year) development needs. As a result, the total cost to respond to all airport development and maintenance needs between now and the end of the planning period could exceed the estimated \$4.337 billion.

*Total VATSP
Development Costs
Are Estimated At
Over \$4.3 Billion.*

*Nearly 80 Percent of
All Costs Come From
Individual Airport
ACIPs.*



Twin County Airport

Project Costs For VATSP Planning Periods

VATSP 0-5 Year Planning Period (in thousands of dollars)

VATSP Service Role	Federal	State	Local	Total
Commercial Service	\$858,684	\$80,654	\$108,693	\$1,048,031
Reliever	179,313	18,711	23,540	221,564
GA-Regional	347,465	39,487	68,517	455,469
GA-Community	117,139	46,885	32,914	196,938
Local Service	18,279	18,997	19,571	56,848
Total Costs for Period	\$1,520,880	\$204,734	\$253,235	\$1,978,850
Project Type	Federal	State	Local	Total
Runway Extension	\$122,205	\$10,863	\$3,245	\$136,312
Terminal Building Needs	75,341	22,178	59,620	157,139
Licensing Standards Needs	47	562	179	788
Airport Basic Unit Needs	257	190	500	947
Total for Project Types Only	\$197,850	\$33,793	\$63,544	\$295,186

VATSP 5-10 Year Planning Period (in thousands of dollars)

VATSP Service Role	Federal	State	Local	Total
Commercial Service	\$209,176	\$18,593	\$86,640	\$314,410
Reliever	120,749	11,077	21,348	153,174
GA-Regional	340,188	44,001	191,114	575,304
GA-Community	95,906	38,167	34,124	168,197
Local Service	3,615	19,941	23,975	47,532
Total Costs for Period	\$769,634	\$131,779	\$357,201	\$1,258,617
Project Type	Federal	State	Local	Total
Runway Extension	\$20,435	\$1,816	\$983	\$23,234
Terminal Building Needs	24,170	4,852	37,456	66,478
Licensing Standards Needs	326	587	186	1,098
Airport Basic Unit Needs	381	201	503	1,085
Total for Project Types Only	\$45,312	\$7,456	\$39,128	\$91,895

VATSP 10+ Year Planning Period (in thousands of dollars)

VATSP Service Role	Federal	State	Local	Total
Commercial Service	\$231,226	\$20,553	\$27,161	\$278,941
Reliever	75,594	7,408	15,625	98,626
GA-Regional	276,784	41,903	103,338	422,025
GA-Community	98,295	73,203	51,416	222,915
Local Service	18,859	26,195	31,739	76,793
Total Costs for Period	\$700,758	\$169,262	\$229,279	\$1,099,300
Project Type	Federal	State	Local	Total
Runway Extension	\$10,926	\$971	\$1,301	\$13,199
Terminal Building Needs	24,207	21,530	35,039	80,776
Licensing Standards Needs	93	1,125	359	1,577
Airport Basic Unit Needs	513	380	1,001	1,894
Total for Project Types Only	\$35,739	\$24,006	\$37,700	\$97,446

Total VATSP Project Costs across the Planning Period (in thousands of dollars)

VATSP Service Role	Federal	State	Local	Total
Commercial Service	\$1,299,086	\$119,801	\$222,494	\$1,641,382
Reliever	375,657	37,196	60,513	473,365
GA-Regional	964,437	125,390	362,969	1,452,797
GA-Community	311,340	158,255	118,454	588,049
Local Service	40,753	65,133	75,286	181,172
Grand Total for All Costs	\$2,991,273	\$505,775	\$839,716	\$4,336,765
Project Type	Federal	State	Local	Total
Runway Extension	\$153,566	\$13,650	\$5,529	\$172,745
Terminal Building Needs	123,719	48,559	132,115	304,393
Licensing Standards Needs	465	2,274	724	3,463
Airport Basic Unit Needs	1,150	770	2,004	3,925
Grand Total for Project Types Only	\$278,900	\$65,253	\$140,372	\$484,526

Source: VATSP Update Development Costs database

Notes: Totals have been rounded. All project costs escalated based on project year.

Capital costs for the Metropolitan Washington Airports Authority (MWAA) airports are excluded from this analysis.

Funding Level Gap Analysis

The gap analysis estimates costs of the total airport system development needs identified in this VATSP Update versus the estimated funding available from the Commonwealth and the FAA for the planning periods of 0-5 years, 5-10 years and 10-25 years. The estimated costs of these recommended improvements were compiled from individual ACIPs and airport master plans, and by costing the necessary airport upgrades and improvements to meet the FS&E Objectives developed in this plan. Comparing the annual cost of the recommended system development needs to the available funding resulted in the following.

0-5 Year Planning Period. Annual system needs are \$345 million while the total projected annual funding available from the Commonwealth and the FAA will average about \$75 million for an annual funding gap in years 0-5 of approximately \$270 million.

5-10 Year Planning Period. The identified system needs are \$180 million per year, compared to an average funding level of \$74 million for an annual funding gap in years 5-10 of approximately \$106 million.

10-25 Year Planning Period. The identified system needs are \$58 million per year versus the same average annual funding level of \$74 million. However, since unfunded needs from the 0-5 year and 5-10 year periods will be carried over into the 5-10 and 10-25 year periods, actual system needs for years 10-25 could approach six times the \$58 million amount as identified in the analysis. Thus, the annual funding gap could range from \$329 million to \$360 million in this period.

All unfunded needs are carried over into the next year throughout each planning period and into the next planning period as well, accumulating to levels well above the estimated costs of the annual system needs.

The VATSP recommendations include projects programmed in specific years that cannot be funded when needed because of the funding gap. To meet these unfunded system needs, federal, state and local leaders must work together to advance the development of the airport system.



To Meet These Unfunded System Needs, Federal, State And Local Leaders Must Work Together To Advance The Development Of The Airport System.

Conclusion

Limits in state, federal, and local funding for maintenance and development of Virginia's public-use airports make it imperative that the Commonwealth have a plan in place to meet both near-term and longer-term aviation demand. This update to the VATSP provides important guidance needed to insure that the Commonwealth is focused on key initiatives, strategies, and actions to meet Virginia's aviation needs now and in the future. For the Virginia airport system to continue to be a national leader and a key contributor to Virginia's economy, it is important that current DOAV funding levels be, at a minimum, maintained. When one considers that DOAV's annual investment in its airports historically has been approximately \$28 million and that the existing 66 public-use airports are in turn supporting almost \$29 billion in annual economic activity, it is without a doubt that Virginia airports are well worth the investment.



The preparation of this document was financed in part through a planning grant from the Federal Aviation Administration (FAA) as provided under Section 505 of the Airport and Airway Improvement Act as amended. The contents of this document do not necessarily reflect the official views of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein, nor does it indicate that the proposed development is environmentally acceptable in accordance with applicable public laws.



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