Overview of Airport Specific Recommendations

Airport Name	VATSP Service Role	New Procedures	Aero-nautical Survey	Lower Visibility Minimums	Upgrade Approach Lighting System
Accomack County (MFV)	Regional: 3/4 mile	3		•	•
Blackstone Municipal (BKT)	GA - Community	2	•		
Blue Ridge (MTV)	Regional: 3/4 mile	1	•		•
Bridgewater Air Park (VBW)	Local Service	4	•		
Brookneal-Campbell County (0V4)	GA - Community	2	•		
Charlottesville-Albemarle (CHO)	CS: >200,000 enp	3	•	•	•
Chase City Municipal (CXE)	Local Service				
Chesapeake Regional (CPK)	Reliever	3	•	•	•
Chesterfield County (FCI)	Reliever	2	•	•	•
Crewe Municipal (W81)	Local Service				
Culpeper Regional (CJR)	Regional: 3/4 mile	4	•	•	•
Danville Regional (DAN)	Regional: 1/2 mile	5	•	•	
Dinwiddie County (PTB)	Regional: 3/4 mile	2	•		•
Eagle's Nest (W13)	Local Service				
Emporia-Greensville Regional (EMV)	Regional: 1 mile	3	•		
Falwell (W24)	Local Service				
Farmville Regional (FVX)	Regional: 1 mile	4	•		
Franklin Municipal (FKN)	GA - Community	1	•		
Front Royal-Warren County (FRR)	GA - Community	1	•	•	
Gordonsville Municipal (GVE)	Local Service				
Grundy Municipal (GDY)	Local Service				
Hampton Roads Executive (PVG)	Reliever	6	•	•	•
Hanover County Municipal (OFP)	Reliever	5		•	•
Hummel Field (W75)	Local Service				
Ingalls Field (HSP)	Regional: 3/4 mile	2	•	•	
Lake Anna (7W4)	Local Service				
Lawrenceville-Brunswick (LVL)	Local Service				
Lee County (0VG)	GA - Community	3	•		
Leesburg Executive (JYO)	Reliever	4	•	•	•
Lonesome Pine (LNP)	Regional: 1/2 mile	2		•	•
Louisa County (LKU)	GA - Community	3	•		
Lunenburg County (W31)	Local Service				
Luray Caverns (W45)	GA - Community	3	•	•	
Lynchburg Regional (LYH)	CS: <200,000 enp	6	•	•	•
Manassas Regional (HEF)	Reliever	5	•	•	•
Marks Municipal (W63)	GA - Community	2	•		
Mecklenburg-Brunswick Regional (AVC)	Regional: 1 mile	2	•		•
Middle Peninsula Regional (FYJ)	Regional: 3/4 mile	5	•	•	•
Mountain Empire (MKJ)	Regional: 1 mile	3	•		
New Kent County (W96)	GA - Community	2	•		
New London (W90)	Local Service				
New Market (8W2)	Local Service				
New River Valley (PSK)	Regional: 1/2 mile	3	•	•	
Newport News-Williamsburg Int'l (PHF)	CS: >200,000 enp	5	•	•	•
Norfolk International (ORF)	CS: >1 million enp	5	•	•	•
Orange County (OMH)	GA - Community	3	•		
Richmond International (RIC)	CS: >1 million enp	5	•	•	•
Roanoke Regional (ROA)	CS: >200,000 enp	6	•	•	•
Ronald Reagan Washington National (DCA)*	CS: >1 million enp				
Shannon (EZF)	GA - Community	3	•		
Shenandoah Valley Regional (SHD)	CS: <200,000 enp	6	•	•	•
Smith Mountain Lake (W91)	Local Service	1	•		
Stafford Regional (RMN)	Reliever	5	•	•	•

continued

Overview of Airport Specific Recommendations *(continued)*

Airport Name	VATSP Service Role	New Procedures	Aero-nautical Survey	Lower Visibility Minimums	Upgrade Approach Lighting System
Suffolk Executive (SFQ)	Regional: 3/4 mile	4	•	•	•
Tangier Island (TGI)	GA - Community	3	•		
Tappahannock-Essex County (XSA)	Regional: 1 mile	3			
Tazewell County (6V3)	Regional: 1 mile	4	•		
Twin County (HLX)	GA - Community	2	•		
Virginia Highlands (VJI)	Regional: 1 mile	5	•		•
Virginia Tech (BCB)	GA - Community	2	•		•
Wakefield Municipal (AKQ)	GA - Community	3	•		
Warrenton-Fauquier (HWY)	Reliever	5	•	•	•
Washington Dulles International (IAD)*	CS: >1 million enp				
William M. Tuck (W78)	Regional: 1 mile	4	•		
Williamsburg-Jamestown (JGG)	GA - Community	3	•		
Winchester Regional (OKV)	Regional: 1/2 mile	3	•		

**Due to the robust nature of the existing instrument approach procedures at DCA and IAD, these airports were excluded from this portion of the Study.*

The Study recommendations presented are intended to serve as an independent study prepared for the Department of Aviation's review and consideration. These recommendations are not intended to take the place of individual airport master plans, environmental or capital improvement planning processes. The contents of this Study do not reflect the official views of the FAA for recommended improvements and timelines for programming and funding nor constitute a financial commitment from the Department of Aviation.

If an airport sponsor would like to pursue improvements contained in this Study, they should work with their representatives at the FAA Airports District Office and the Department of Aviation to develop a mutually acceptable development program.

The Study was funded by the FAA's Airport Improvement Program and the Virginia Department of Aviation.
The consultant team for the Study consisted of Delta Airport Consultants, Inc. (prime consultant) and Virginia Tech.

5702 Gulfstream Road
Richmond, VA 23250-2422
(804) 236-3624
www.doav.virginia.gov

Facilities and Equipment (Navigational Aid) Study 2010

Leveraging Satellite-Based Technologies and Preparing for NextGen

The Commonwealth of Virginia Department of Aviation

The Virginia Department of Aviation Facility and Equipment Navigational Aid (NAVAID) Study was conducted to help both the Commonwealth's flying public and airport sponsors improve the air transportation system in Virginia. Specifically focusing on instrument operations and airport accessibility, the Study took a system-wide view as well as an individual airport view to identify and prioritize potential improvements to the system and the Facilities and Equipment program. Specifically, the Study identified ways that the Commonwealth could better leverage satellite navigation and developing NextGen technologies.

EXISTING SYSTEM

Effective with the July 5, 2007 U.S. Terminal Procedures publication, there were 200 standard instrument approach procedures to 58 of Virginia's airports. The study found the existing system of airports to be well served with a network of Federally and State maintained NAVAID, visual guidance, communications and weather facilities. In addition, it found the existing instrument approach procedures, as prepared by the Federal Aviation Administration (FAA), to be well written and accurately presented.

RECOMMENDATIONS FOR IMPROVEMENT

Despite the fact that Virginia already had a robust system, a range of recommendations were made for the 66 system airports and the existing 200 instrument approach procedures. In total, over $75 million of NAVAID facility improvements were identified for State, FAA and local sponsors' consideration.

SYSTEM RECOMMENDATIONS

The Study recommended many system-wide improvements, including:

- 48 aeronautical surveys (for development of and improvement to satellite-based procedures) - four of which were undertaken as part of the project,
- Proposed modifications to existing instrument approach procedures to simplify the procedure on ground-based navigational facilities,
- Locations for local area augmentation systems (LAAS) when this technology becomes readily available, and
- Performance recommendations for the Automatic Dependent Surveillance Broadcasting (ADS-B) system.

The Study also recommended three new weather stations (located to provide system-wide benefit) at Luray Caverns Airport, Tangier Island Airport and William M. Tuck Airport. Improved radar coverage is also needed and can be achieved by commissioning the radar at Wallops Island and improving radar coverage in the Roanoke and Shenandoah Valley regions.

Finally, the Study highlighted the need to continue to educate sponsors about the importance of airspace coordination, zoning and obstruction clearance, as they are integral to the success of the satellite-based system.

AIRPORT-SPECIFIC RECOMMENDATIONS

In total, over 900 airport-specific recommendations were developed as part of the Study. The recommendations total over $170 million worth of improvements to the Commonwealth's airport system. This represents improvements to both NAVAID facilities as well as Capital improvements to infrastructure such as pavements and safety areas.

Over 175 new procedures were recommended, and a preliminary evaluation was completed for 22 procedures. On average, a 194 foot reduction in landing minimums may be achieved through the development of the new procedures.

The process of developing airport-specific recommendations included establishing benchmarks for each airport by their Virginia Air Transportation System Plan (VATSP) service role. The existing capabilities of each airport were reviewed relative to its system benchmark. Areas where the existing capabilities did not meet the benchmarks were translated into recommendations. The review also included items such as clarity of the landing procedure, alignment of approach course, availability of methods to establish the final approach fix, descent gradient, length of final approach course, and clarity of the missed approach procedure. The Study also sought to identify methods for elimination of required special equipment.

A priority system was developed to help Department staff reconcile the benefits and costs of recommended improvements. Depending upon the recommendation, funding for the improvements may be available through the FAA in addition to the Department's Airport Capital and Facilities and Equipment programs.

BENCHMARKS FOR THE FUTURE

The Study developed benchmarks for each airport by VATSP service role. The resulting recommendations are designed to represent 'reach' goals for each of the service level categories. Very few facilities currently meet the majority of the goals for their category; however, the goals are believed to be obtainable for the vast majority of the airports during the 20 year planning horizon. The benchmarks for each of the categories are presented below as System Benchmarks.

System Benchmarks: Instrument Approach Types and Minima

VATSP Service Role	Best Approach (primary runway end)		Secondary Approach (different runway end)		ALL Ends of Instrument Runways***	
	Type	Minimums	Type	Minimums	Type	Minimums
Commercial Service *(>= 1 million enplanements)*	ILS CAT III	100' – 1200 '	ILS CAT I	200' – 1800'	Ground-based	400' – 1 mi
	LPV and LAAS	200' – 1800'	LPV and LAAS	200' – 1800'	LPV and LAAS	400' – 1 mi
Commercial Service *(<1 million, >= 200,000 enplanements)*	ILS CAT I	200' – 1800'	ILS CAT I	200' – 2400' *	Ground-based	400' – 1 mi
	LPV and LAAS	200' – 1800'	LPV and LAAS	200' – 2400' *	LPV and LAAS	400' – 1 mi
Commercial Service *(< 200,000 enplanements)*	ILS CAT I	200' – 2400' *	Ground-based	400' – 3/4 mi		
	LPV and LAAS	200' – 2400' *	LPV and LAAS	250' – 3/4 mi	LPV and LAAS	400' – 1 mi
G.A. Reliever	ILS CAT I	200' – 1/2 mi	Ground-based	400' – 3/4 mi		
	LPV and LAAS	200' – 1/2 mi	LPV and LAAS	250' – 3/4 mi	LNAV	400' – 1 mi
G.A. Regional *(1/2 mile visibility)*	ILS CAT I	200' – 1/2 mi	Ground-based	400' – 1 mi		
	LPV and LAAS	200' – 1/2 mi	LPV and LAAS	250' – 1 mi	LNAV	400' – 1 mi
G.A. Regional *(3/4 mile visibility)*	Ground-based	400' – 3/4 mi	Ground-based	400' – 1 mi		
	LPV and LAAS	250' – 3/4 mi	LPV and LAAS	250' – 1 mi	LNAV	400' – 1 mi
G.A. Regional *(1 mile visibility)***	Ground-based	400' – 1 mi				
	LPV	250' – 1 mi	LNAV	400'-1 mi	LNAV	400' – 1 mi
G.A. Community**	Ground-based	500' – 1 mi				
	LNAV	400' – 1 mi	LNAV	500' - 1 mi		
Local Service	case-by-case					

Source: Consultant Recommendation

* *1,800 RVR for aircraft equipped with approved flight director, HUD or coupled autopilot systems.*

** *For Regional (1 mile visibility) and Community airports, the best ground-based approach may not be on the same runway end as the best GPS approach.*

*** *Instrument runways must be paved and in a condition appropriate to support instrument operations.*