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VIRGINIA AIRPORT SYSTEM ECONOMIC IMPACT STUDY

TECHNICAL REPORT

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Virginia Department of Aviation

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1 Introduction and Executive Summary

1.1 Introduction

The Virginia Department of Aviation (DOAV) is responsible for the planning, maintenance and development of the Commonwealth's airport system. Its core mission is to: ***"Cultivate an advanced aviation system that is safe, secure and provides for economic development; Promote aviation awareness and education; and Provide flight services for the Commonwealth Leadership and State agencies."*** The Federal Aviation Administration also provides financial assistance for the development of the Commonwealth's airport system and works as a partner with DOAV. To assist decision makers when allocating scarce resources for airport infrastructure development, DOAV commissioned this study to quantify the economic contribution of airports to Virginia's economy using the industry recognized IMPLAN Model.

In conducting this study, the technical team coordinated with the authors of a similar study, *Virginia's Aerospace Industry – An Economic Impact Analysis*, November 2010 and followed the economic impact analysis procedures established by the Economic Impact Research Consortium (EIRC)[1].

This Technical Report presents the economic contributions of Virginia's airports and describes the methodology used to quantify those impacts. This chapter summarizes the statewide economic and qualitative benefits of Virginia's airports and provides an overview of the methodology. Chapters 2 to 5 provide a more detailed description of the economic impacts and the economic impact methodology.

1.2 The Economic Importance of Virginia's Airports

The Commonwealth of Virginia's diverse system of airports plays a vital role in the state and regional economies by creating jobs and contributing to economic development. Airports are essential components of the state's infrastructure for moving people and goods, facilitating commerce and maintaining a high quality-of-life for Virginia's residents.

Businesses and Residents Depend on Air Transportation

Companies of all sizes, from major employers to small businesses, depend on Virginia's airports for the fast and efficient transportation of personnel, supplies and products. Residents and visitors rely on Virginia's airports for comfortable and convenient travel to and from cities across the U.S. and the world.

[1] The EIRC was developed by the Performance Management Group at Virginia Commonwealth University in collaboration with the College of William & Mary, George Mason University, Old Dominion University, University of Virginia, Virginia Department of Planning and Budget, Virginia Economic Development Partnership, Virginia Employment Commission, and Virginia Tech.

Airports Support Virginia's Growing Tourism Industry

Tourism, another important contributor to Virginia's economy, relies on commercial and general aviation (GA) to transport millions of visitors annually to the state's tourist attractions and convention venues including Colonial Williamsburg, Skyline Drive along the Blue Ridge and Allegheny Mountains, Civil War historical sites, NASCAR events, Virginia Beach and Virginia's Eastern Shore. Virginia's wealth of historical sites, cultural heritage, National and State Parks, museums and theme parks attract visitors from across the world.

Airports Create Economic Benefits for All Virginians

The economic benefits of airports extend well beyond the boundaries of airports. Even residents who may never fly benefit from airports through the ancillary creation of businesses, jobs, income and tax revenues.

Airports Enrich the Quality-of-Life for Virginia Residents

Airports also produce value and intangible benefits that are difficult to quantify. Communities throughout Virginia rely on airports for essential services such as overnight delivery services, air ambulance services, aerial applications, traffic monitoring and law enforcement. Airports also enhance quality-of-life by providing educational and recreational opportunities, such as pilot training, air shows, ballooning, sightseeing and other types of recreational flying.

1.3 Airport Sources of Economic Impact

This study focuses on the economic benefits created by the businesses and tenants located at Virginia's commercial service and general aviation airports, the visitors who travel through those airports and the in-state companies that rely on the airports to support and conduct their business.

1.3.1 Airports

Virginia has a diverse network of nine commercial service airports, including Washington Dulles International Airport in Chantilly, Virginia and Ronald Reagan Washington National in Alexandria, Virginia and 57 general aviation airports. These airports help to sustain the Virginia economy as well as the economies of the local communities they serve. On-airport tenants and businesses create jobs and purchase goods and supplies from other Virginia businesses, which creates and supports additional jobs in other sectors of the state's economy. The types of on-airport tenants and businesses considered in the study include: airlines, air-taxi operators, air ambulance operators, air charter companies, aircraft sales and management companies, airport management, corporate flight departments, the Federal Aviation Administration (FAA), fixed based operators (FBOs), flight schools, freight forwarders, ground transportation operators, local and state government agencies, rental car agencies, retail concessions, the Transportation Security Administration (TSA) and others. The economic benefits generated by the activities that occur at the Commonwealth's public-use airports were based on data collected from surveys of airport sponsors and tenants. (See Section 2.2)

1.3.2 Visitors

Millions of visitors use air transportation to travel to Virginia each year to conduct business; attend conferences, universities, sporting events and other venues; vacation; and visit with friends and families. In 2010, approximately 8.5 million visitors arrived in Virginia through one of the Commonwealth's 66 public-use airports. Approximately 6.0 million Virginia visitors traveled to Virginia by way of Washington Dulles International or Ronald Reagan Washington National Airports.[2] Based on airport enplanement records and airline passenger data from the U.S. Department of Transportation, 1.9 million visitors traveled to Virginia on commercial airline flights at one of the Commonwealth's other commercial service airports. (See Section 3.2.3) Through surveys of general aviation passengers, this study estimates that 600,000 visitors arrived on private general aviation aircraft. (See Section 3.2.4) After arriving in Virginia, air visitors spend money for lodging, food, local transportation, entertainment, retail and other goods and services. Visitor spending in turn supports jobs and produces additional economic activity throughout the state. Visitor spending was estimated through surveys of commercial airline and general aviation passengers. (See Sections 3.2.3 and 3.2.4)

1.3.3 Airport Dependent Businesses

Airports also contribute to the productivity and efficiency of businesses in Virginia that may or may not be directly involved in aviation. Large and small companies alike rely on commercial and general aviation services to meet their business travel needs and to ship and receive goods and materials. In addition to on-airport activity and visitor spending, this study estimated the amount of economic activity created by off-airport businesses that are dependent on airport services in Virginia. The contribution of the airports to the productivity of Virginia's businesses was estimated based on data collected from a survey of off-airport businesses and based aircraft owners in which respondents identified the portion of their business activity that would be lost if the airports were not available. (See Section 5.2)

1.4 Types of Economic Impacts Measured

The contribution of airports to the Virginia economy was calculated from data collected through surveys and the use of IMPLAN, an economic modeling system created by the Minnesota IMPLAN Group (MIG) that is widely accepted and frequently used for economic impact assessments. The study reflects the FAA's recommended methods and guidelines for estimating the economic impacts of airports. The methodology also reflects and conforms to the EIRC Model.

[2] *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010. The MWAA study estimated 12.2 million total visitors for the Washington Airports. Approximately 49% of the total visitors that arrived at the Metropolitan Washington Airports are estimated to have stayed in Virginia based on the estimated Virginia share of visitor expenditures.

All economic impacts in this report are described using three measures:

- **Jobs** represent the total number of individuals employed, including both part- and full-time positions.
- **Payroll** is the annual salary, wages and benefits for employees, including all taxes.
- **Economic Activity** includes annual gross sales for commercial firms and budget expenditures for government or nonprofit entities.

The study includes three distinct types of economic benefits that result from airport-related activities: direct, indirect and induced impacts. The total economic impact of airports is the combined total of the direct, indirect and induced impacts.

1.4.1 Direct Impacts

Direct impacts stem from the activity that is directly related to the provision of aviation services, visitor spending, or the activity of airport dependent businesses. For example, the direct impacts of on-airport tenants include their annual sales or budget expenditures (i.e., economic activity), the number of persons they employ on the airport and the wages and benefits paid to those workers. Similarly, the direct impacts of visitors include the money they spend on services while visiting Virginia and the jobs and payroll supported by those expenditures. Most of the direct impacts measured in this study occur at the airports, but some, such as visitor spending and the benefits produced by airport dependent businesses occur off-airport. The realization of these off-airport impacts depends on the air services provided at Virginia's airports. For this study the direct impacts were based on data collected from surveys of airport managers, on-airport tenants, visitors and off-airport businesses in Virginia, as well as data from U.S. government agencies contained in the IMPLAN modeling system.

1.4.2 Indirect and Induced Impacts

Indirect and induced impacts measure the secondary benefits of the airports on the Virginia economy. This study specifically measured the indirect and induced impacts on the statewide economy as well as the indirect and induced impacts on the local communities served by each airport.

Indirect impacts are business-to-business transactions and are generated when the direct beneficiaries of Virginia's airports purchase goods and services from other Virginia companies. For example, an on-airport restaurant creates indirect benefits for the Virginia economy when it purchases provisions from Virginia-based vendors. These purchases represent income (i.e., new economic activity) to the restaurant supply vendors, which, in turn, use a portion of that income to buy additional goods and services from other businesses in the Commonwealth. This cycle continues and these successive rounds of business-to-business spending are the indirect impacts.

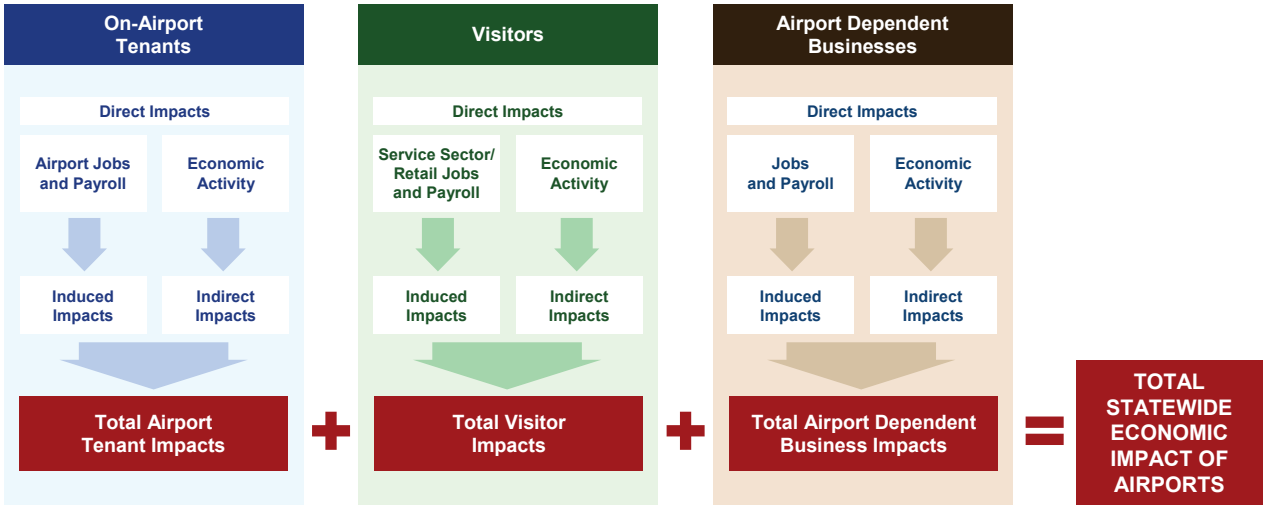
Induced impacts are created when workers, who are employed on the airports and whose jobs are directly supported by the airports, spend their wages in their local communities. Worker re-spending benefits the

housing, retail and service sectors in the broader Virginia economy. The re-spending of direct worker income in turn supports jobs in those industries, whose workers then spend their salaries and the cycle continues. These successive rounds of spending and job creation are the induced impacts.

Indirect and induced effects are fundamentally similar in that both capture the flow of economic impacts from a direct transaction through the overall Virginia economy. Although these two effects trace different types of transactions, in many cases the same economic sectors benefit from both. For example a business and its employees may each purchase restaurant meals, computers or legal services. Together, indirect and induced impacts are also known as the "multiplier effect." Since the indirect and induced impacts both represent the secondary economic impacts of airports, they have been combined in this study.

The multiplier effect was estimated using the IMPLAN input-output model. For example, the combined indirect and induced multiplier for economic activity for restaurants in Virginia is 0.76. This means that for every $100 of restaurant sales at one of Virginia's airports, an additional $76 of economic activity is generated in other industries throughout Virginia as a result of additional business to business sales and workers who spend their wages locally on goods and services.

Figure 1-1: Types of Economic Benefits Measured



As shown in Figure 1-1, the sum of direct and indirect/induced impacts for each of the airport-related activities (on-airport tenants, air visitor spending and airport dependent businesses) produces the total economic benefits of airports in Virginia.

1.5 Statewide Economic Impact Findings

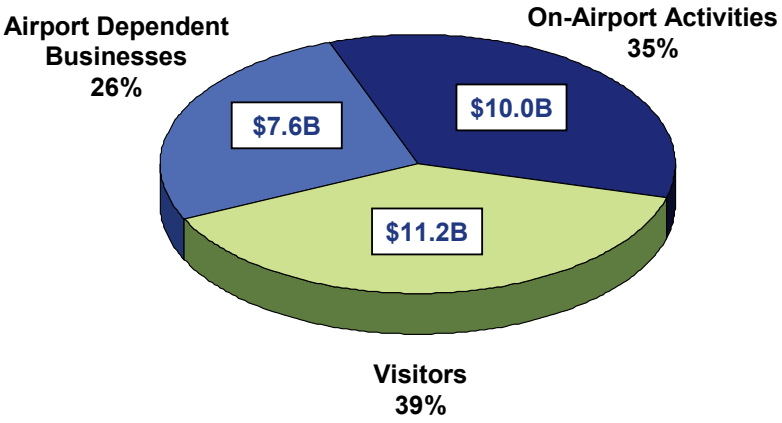
1.5.1 Total Economic Impacts of Airports in Virginia

Airports are a significant generator of economic activity in the Commonwealth. In 2010, airports in Virginia contributed:

- 259,000 jobs (5.5% of total jobs in Virginia[3])
- $11.1 billion in payroll (4.1% of total state employee compensation and proprietor income[4])
- $28.8 billion in economic activity (4.4% of Virginia's total economic output[5])

All of the economic benefits presented in this chapter represent the sum of direct and indirect/induced impacts. On-airport tenants and businesses contributed $10.0 billion in sales to the Virginia economy. Spending by visitors created an additional $11.2 billion in economic activity and in-state business activities that depend on airports represented $7.6 billion.

Figure 1-2: Virginia's Airports Contribute $28.8 Billion in Economic Activity to the Virginia Economy



Note: Includes impacts of Washington Dulles International and Ronald Reagan Washington National Airports.

Table 1-1 summarizes the total statewide impacts of airports for all economic impact measures. Overall, Virginia airports generated $28.8 billion in economic activity, which represents 4.4% of the state's total economic output. Washington Dulles International (IAD) and Ronald Reagan Washington National (DCA) Airports are the major contributors of economic benefits and together they created $17.5 billion in economic activity in Virginia. The other commercial service and general aviation airports in Virginia were the source of $3.7 billion of economic activity. Off-airport companies that utilize airports to conduct

[3] U.S. Department of Labor.
[4] U.S. Department of Labor.
[5] U.S. Department of Commerce.

business and increase their productivity contributed $7.6 billion in sales benefitting the Virginia economy. This estimate conservatively reflects only the companies that responded to the surveys conducted for this study and only includes the portion of their sales that depends on airport services. If the survey results are expanded to the state level, it is estimated that airports in Virginia facilitate the creation of $91.1 billion in off-airport economic activity, 570,000 jobs and $32.9 billion in labor income. (See Section 5.3.2)

Results for the two Washington Airports were calculated in a separate study conducted for the Metropolitan Washington Airports Authority (MWAA). In Table 1-1 and throughout this report, results shown for the Washington Airports represent the "Virginia share" of the multi-state economic impacts of these airports. The MWAA study measured economic benefits in terms of jobs and payroll, but not economic activity. To maintain consistency with the findings in the DOAV study, economic activity and related indirect and induced impacts for the Washington Airports were estimated from the statewide findings reported in the MWAA study.

Table 1-1: Total Economic Impacts of Airports on the Virginia Economy

	Jobs	Payroll (millions)	Economic Activity (millions)
Commercial Airports (Large & Medium Hub) \1	179,655	$7,362	$17,448
Commercial Airports (Small & Non-Hub) \2	29,181	$951	$3,012
General Aviation Airports	5,154	$213	$728
Airport Dependent Businesses \3	45,006	$2,605	$7,613
Total Virginia Airports	**258,996**	**$11,132**	**$28,801**

Note: Airport impacts include the impacts of airport tenants and air visitor spending.

\1 Includes Washington Dulles International and Ronald Reagan Washington National Airports. Economic impacts for the Washington Airports are based on the *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010

\2 Includes Charlottesville-Albemarle, Lynchburg Regional, Newport News-Williamsburg International, Norfolk International, Richmond International, Roanoke Regional and Shenandoah Valley Regional Airports.

\3 Includes impacts of airport dependent businesses that responded to the study surveys. Excludes impacts of airport dependent industries that were estimated in the MWAA study, because of definitional and methodological differences and potential duplication. (See Section 5.1)

The FAA classifies commercial service airports based on their percentage of total U.S. passenger enplanements. Large hub airports enplane at least 1% of total U.S. passengers; medium hubs enplane at least 0.25% but less than 1%; small-hub airports enplane 0.05% to 0.25%; and non-hubs enplane at least 10,000 passengers annually but less than 0.05% of total U.S. enplanements. In Virginia, the Metropolitan Washington airports are large hubs, Norfolk and Richmond airports are small hubs and all other commercial service airports are non-hubs.

1.5.2 Economic Impacts of On-Airport Tenants and Businesses

Airports and airport tenants created $10.0 billion in economic activity, which represents approximately 1.5% of the total economic output of the Virginia economy. Virginia's public-use airports are also major generators of jobs. In 2010, the airports and their tenants created 56,900 jobs, including on-airport direct, indirect and induced employment, with an annual payroll of $2.9 billion. (See Chapter 2 for a discussion of how the economic impacts of on-airport tenants were calculated.)

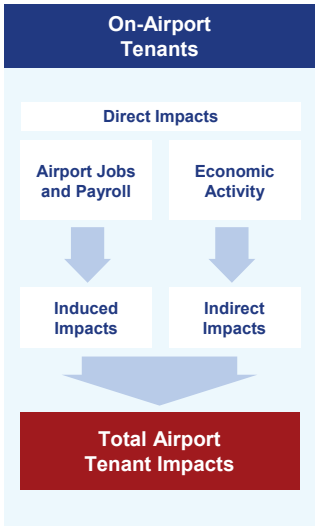


Table 1-2: Annual Economic Impacts of On-Airport Tenants and Businesses

	Jobs	Payroll (millions)	Economic Activity (millions)
Commercial Airports (Large & Medium Hub) \1	45,336	$2,418	$8,319
Commercial Airports (Small & Non-Hub) \2	8,044	$314	$1,109
General Aviation Airports	3,559	$168	$593
Total Impacts of On-Airport Tenants and Businesses	**56,939**	**$2,901**	**$10,021**

\1 Includes Washington Dulles International and Ronald Reagan Washington National Airports. Economic impacts for the Washington Airports are based on the *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010

\2 Includes Charlottesville-Albemarle, Lynchburg Regional, Newport News-Williamsburg International, Norfolk International, Richmond International, Roanoke Regional and Shenandoah Valley Regional Airports.

The FAA classifies commercial service airports based on their percentage of total U.S. passenger enplanements. Large hub airports enplane at least 1% of total U.S. passengers; medium hubs enplane at least 0.25% but less than 1%; small-hub airports enplane 0.05% to 0.25%; and non-hubs enplane at least 10,000 passengers annually but less than 0.05% of total U.S. enplanements. In Virginia, the Metropolitan Washington airports are large hubs, Norfolk and Richmond airports are small hubs and all other commercial service airports are non-hubs.

1.5.3 Economic Impacts of Visitor Spending

Besides the economic activity associated with on-airport tenants, the airports provide access for millions of business and leisure visitors to the state each year. Whether arriving by commercial air services or private general aviation aircraft, visitors spend money on lodging, food, entertainment, retail merchandise and other services, which supports jobs throughout the Virginia economy. In 2010, visitors to Virginia were responsible for $11.2 billion in economic activity and they supported 157,100 jobs with an annual payroll of $5.6 billion. Total visitor spending represents about 1.7% of the state's total economic activity. (See Chapter 3 for a discussion of how the economic impacts of visitors were calculated.)

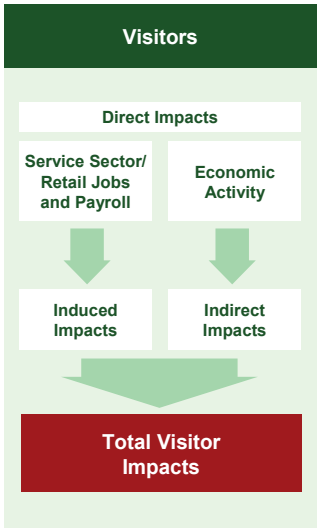


Table 1-3: Annual Economic Impacts of Visitors

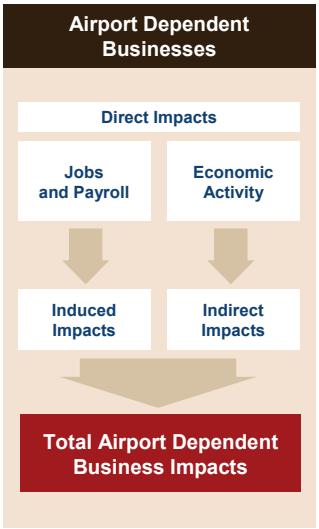
	Jobs	Payroll (millions)	Economic Activity (millions)
Commercial Airports (Large & Medium Hub) \1	134,319	$4,944	$9,130
Commercial Airports (Small & Non-Hub) \2	21,137	$637	$1,902
General Aviation Airports	1,595	$45	$135
Total Impacts of Visitors	**157,051**	**$5,626**	**$11,167**

\1 Includes Washington Dulles International and Ronald Reagan Washington National Airports. Economic impacts for the Washington Airports are based on the *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010

\2 Includes Charlottesville-Albemarle, Lynchburg Regional, Newport News-Williamsburg International, Norfolk International, Richmond International, Roanoke Regional and Shenandoah Valley Regional Airports.

The FAA classifies commercial service airports based on their percentage of total U.S. passenger enplanements. Large hub airports enplane at least 1% of total U.S. passengers; medium hubs enplane at least 0.25% but less than 1%; small-hub airports enplane 0.05% to 0.25%; and non-hubs enplane at least 10,000 passengers annually but less than 0.05% of total U.S. enplanements. In Virginia, the Metropolitan Washington airports are large hubs, Norfolk and Richmond airports are small hubs and all other commercial service airports are non-hubs.

1.5.4 Economic Impacts of Airport Dependent Businesses



In addition to the economic benefits created by activities at the airports and visitor spending, many companies throughout Virginia rely on airports to conduct commerce. Companies in the manufacturing, wholesale and retail trade, finance, insurance and real estate and businesses services industries use commercial airline services and general aviation for business travel and to ship and receive goods. Survey responses from nearly 500 off-airport businesses and based aircraft owners, revealed that as much as $7.6 billion in businesses sales in these industries, or 1.2% of Virginia's total economic output, stemmed from airports in Virginia. In 2010, this economic activity in turn supported as many as 45,000 jobs with a payroll of $2.6 billion. (See Chapter 5 for a discussion of how the economic impacts of airport dependent businesses were calculated.)

Table 1-4: Annual Economic Impacts of Off-Airport Airport Dependent Businesses

Total Impacts of Airport Dependent Businesses	
Jobs	**45,006**
Payroll (millions)	**$2,605**
Economic Activity (millions)	**$7,613**

Note: Includes impacts of airport dependent businesses that responded to the study surveys. Excludes impacts of airport dependent industries that were estimated in the MWAA study, because of definitional and methodological differences and potential duplication. (See Section 5.1)

1.6 Summary of Economic Impacts by Airport

1.6.1 Airport Classifications

The Virginia airport system consists of 66 airports, including the Washington Dulles and Ronald Reagan Washington National Airports. The Virginia Air Transportation System Plan (VATSP) classifies the airports into five categories based on their role in the overall system:

1. **Commercial Service:** These airports provide scheduled airline services (air carrier or regional/commuter services) and accommodate at least 10,000 annual passenger enplanements.

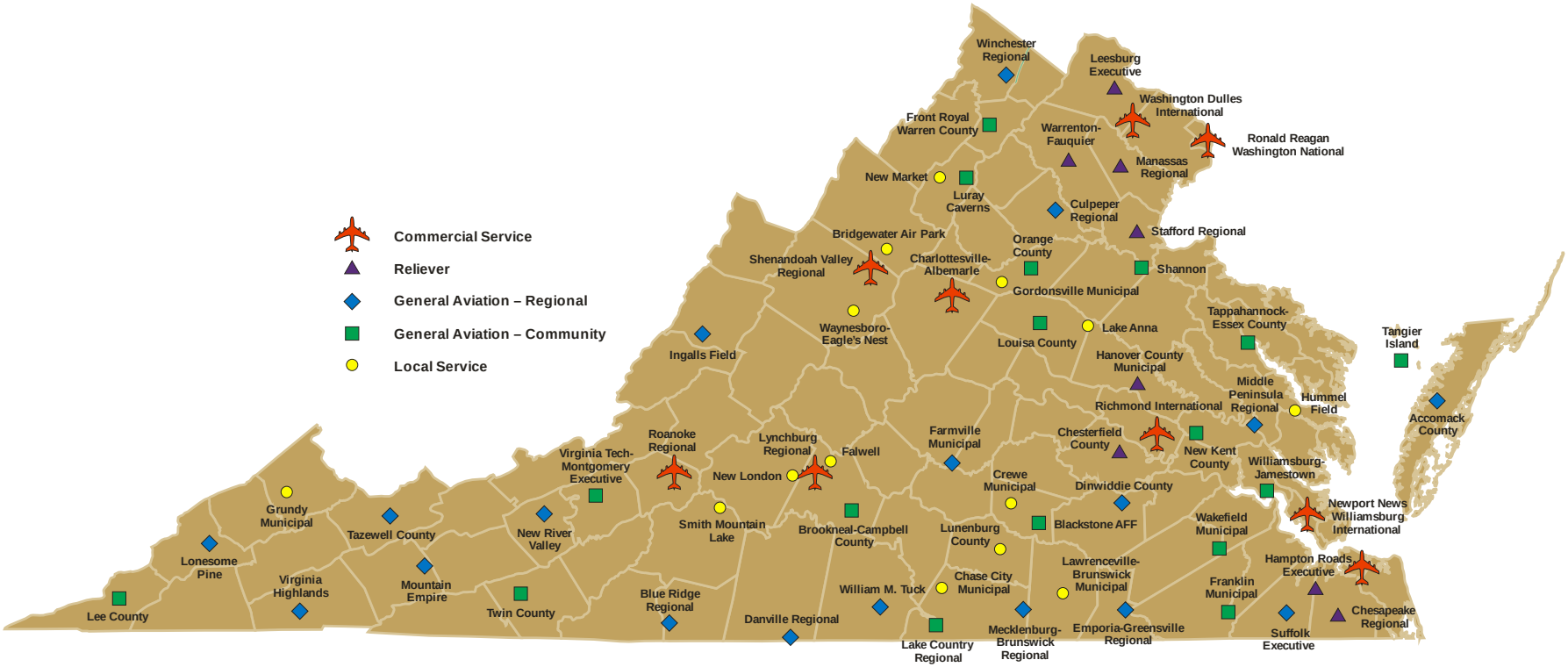
2. **Reliever:** Reliever airports are located in metropolitan areas and they serve to reduce congestion at nearby commercial service airports by providing comparable landside and airside facilities to general aviation operators.

3. **General Aviation Regional:** These airports serve large geographic areas and are often the only airport facilities in the region. General Aviation Regional airports serve the needs of businesses as well as recreational users by offering services and amenities such as jet fuel, instrument approaches, FBO services and aircraft hangars.

4. **General Aviation Community:** The General Aviation Community airports also serve the needs of businesses and recreational users but often serve a more limited market area than the regional airports. The General Aviation Community airports provide services such as aircraft rentals, flight instruction and AvGas fuel.

5. **Local Service:** The Local Service airports provide limited general aviation services and accommodate comparatively low levels of activity. Many of the Local Service airports have aeronautical, physical, environmental, or political constraints that limit their expansion.

Figure 1-3: Virginia's Public-Use Airports, 2010



Source: Virginia Air Transportation System Plan (VATSP)

Table 1-5: Virginia Airports by Classification Category, 2010

Commercial Service	Reliever	GA Regional	GA Community	Local Service
1. Charlottesville-Albemarle	1. Chesapeake Regional	1. Accomack County	1. Blackstone AAF	1. Bridgewater Air Park
2. Lynchburg Regional	2. Chesterfield County	2. Blue Ridge Regional	2. Brookneal-Campbell County	2. Chase City Municipal
3. Newport News-Williamsburg International	3. Hampton Roads Executive	3. Culpeper Regional	3. Franklin Municipal	3. Crewe Municipal
4. Norfolk International	4. Hanover County Municipal	4. Danville Regional	4. Front Royal-Warren County	4. Falwell
5. Richmond International	5. Leesburg Executive	5. Dinwiddie County	5. Lake Country Regional	5. Gordonsville Municipal
6. Roanoke Regional	6. Manassas Regional	6. Emporia-Greensville Regional	6. Lee County	6. Grundy Municipal
7. Shenandoah Valley Regional	7. Stafford Regional	7. Farmville Municipal	7. Louisa County	7. Hummel Field
8. Washington Dulles International	8. Warrenton-Fauquier	8. Ingalls Field	8. Luray Caverns	8. Lake Anna
9. Ronald Reagan Washington National		9. Lonesome Pine	9. New Kent County	9. Lawrenceville-Brunswick Municipal
		10. Mecklenburg-Brunswick Regional	10. Orange County	10. Lunenburg County
		11. Middle Peninsula Regional	11. Shannon	11. New London
		12. Mountain Empire	12. Tangier Island	12. New Market
		13. New River Valley	13. Tappahannock-Essex County	13. Smith Mountain Lake
		14. Suffolk Executive	14. Twin County	14. Waynesboro-Eagle's Nest
		15. Tazewell County	15. Virginia Tech-Montgomery Executive	
		16. Virginia Highlands	16. Wakefield Municipal	
		17. William M. Tuck	17. Williamsburg-Jamestown	
		18. Winchester Regional		

Source: Virginia Air Transportation System Plan (VATSP)

1.6.2 Total Economic Impacts by Airport

This section summarizes the total statewide economic benefits (including direct and indirect/induced impacts) associated with on-airport tenants and visitors by airport. (See Appendix D for the economic contributions of individual airports to the local communities they serve.) The Commercial Service airports, including the Washington Dulles International and Ronald Reagan Washington National Airports, account for approximately 71-81percent of the economic benefits of airports in Virginia. In 2010, they contributed $20.5 billion in economic activity, which supported 208,800 jobs with payroll in excess of $8.3 billion.

Table 1-6: Total Annual Economic Impacts of Virginia's Commercial Service Airports

Commercial Service Airports	Jobs	Payroll (millions)	Economic Activity (millions)
Charlottesville-Albemarle	1,267	$41	$129
Lynchburg Regional	911	$30	$109
Newport News-Williamsburg International	3,382	$114	$374
Norfolk International	10,269	$341	$1,075
Richmond International	10,910	$350	$1,083
Roanoke Regional	2,189	$68	$216
Shenandoah Valley Regional	252	$7	$26
Washington Dulles International \1	96,980	$3,991	$10,123
Ronald Reagan Washington National \1	82,675	$3,371	$7,325
Total Economic Impacts - Commercial Service Airports	**208,836**	**$8,313**	**$20,460**

\1 *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010

General aviation airports also make important contributions to economic development in the state and in the local communities they serve. In 2010, Virginia's public–use general aviation airports contributed $728 million in economic activity to the state economy and they were directly or indirectly responsible for 5,200 jobs with annual payroll of $213 million, as shown in Table 1-7.

Table 1-7: Total Annual Economic Impacts of Virginia's General Aviation Airports

General Aviation Airports	Jobs	Payroll (millions)	Economic Activity (millions)
Accomack County	32	$0.70	$2.38
Blackstone AAF	15	$0.20	$0.67
Blue Ridge Regional	59	$1.31	$5.20
Bridgewater Air Park	565	$18.43	$85.14
Brookneal-Campbell County	4	$0.16	$0.64
Chase City Municipal	3	$0.08	$0.45
Chesapeake Regional	182	$6.31	$21.67
Chesterfield County	239	$7.90	$27.80
Crewe Municipal	4	$0.14	$0.44
Culpeper Regional	108	$3.10	$9.74
Danville Regional	72	$1.91	$6.83
Dinwiddie County	75	$3.00	$10.34
Emporia-Greensville Regional	16	$0.38	$1.29
Falwell	53	$2.06	$9.11
Farmville Municipal	44	$1.16	$3.60
Franklin Municipal	19	$0.60	$2.47
Front Royal-Warren County	45	$1.16	$4.59
Gordonsville Municipal	11	$0.35	$1.12
Grundy Municipal	4	$0.13	$0.53
Hampton Roads Executive	237	$8.81	$29.40
Hanover County Municipal	191	$8.38	$29.36
Hummel Field	23	$1.69	$5.65
Ingalls Field	10	$0.29	$0.93
Lake Anna	2	$0.08	$0.25
Lake Country Regional	4	$0.11	$0.55
Lawrenceville-Brunswick Municipal	5	$0.05	$0.23
Lee County	7	$0.18	$0.72
Leesburg Executive	634	$32.74	$78.06
Lonesome Pine	26	$0.69	$2.24
Louisa County	50	$1.49	$4.76
Lunenburg County	2	$0.08	$0.47
Luray Caverns	23	$0.39	$1.42

– continued –

General Aviation Airports	Jobs	Payroll (millions)	Economic Activity (millions)
Manassas Regional	1,056	$69.87	$234.61
Mecklenburg-Brunswick Regional	34	$0.63	$2.72
Middle Peninsula Regional	93	$2.09	$7.03
Mountain Empire	31	$0.65	$2.88
New Kent County	36	$1.14	$3.88
New London	15	$0.48	$1.79
New Market	17	$0.65	$2.62
New River Valley	67	$1.69	$5.93
Orange County	104	$1.85	$5.71
Shannon	83	$3.04	$11.83
Smith Mountain Lake	5	$0.15	$0.60
Stafford Regional	107	$4.44	$18.41
Suffolk Executive	136	$4.41	$15.30
Tangier Island	11	$0.22	$0.65
Tappahannock-Essex County	17	$0.45	$1.52
Tazewell County	12	$0.26	$1.03
Twin County	14	$0.40	$1.35
Virginia Highlands	70	$2.22	$7.57
Virginia Tech-Montgomery Executive	70	$1.98	$9.40
Wakefield Municipal	17	$0.38	$1.53
Warrenton-Fauquier	131	$4.34	$14.36
Waynesboro/Eagle's Nest	13	$0.33	$1.12
William M. Tuck	22	$0.46	$1.58
Williamsburg-Jamestown	62	$1.29	$4.08
Winchester Regional	168	$5.88	$22.54
Total Economic Impact – General Aviation Airports	**5,154**	**$213**	**$728**

1.7 Qualitative Benefits

Virginia's airports not only contribute jobs, income and economic activity to the local and state economies, but they also provide tangible benefits to the citizens of the Commonwealth that cannot be easily quantified. These qualitative benefits include real and vital contributions in terms of safety, security, health, recreational opportunities and the general quality-of-life in local communities throughout the state.

A survey of airport managers and sponsors revealed the services provided by Virginia's public-use airports that enhance the well being of residents. In addition to the services summarized in Table 1-8, the managers at several of the airports reported unique qualitative benefits:

- Leesburg Airport serves as the East Coast Headquarters for Angel Flight, an organization which arranges free air transportation for patients who require long-distance transportation to medical services.
- New Market Airport hosts several balloon festivals.
- Richmond International Airport is the base of operations for the Virginia Department of Aviation flight department and the site of the Virginia Aviation Museum.
- Warrenton-Fauquier Airport serves as the base for the International Aerobatics Club.

Table 1-8: Qualitative Benefits Provided by Virginia's Public-Use Airports

Airport	Aerial Advertising	Aerial Firefighting	Aerial Inspections	Aerial Photography / Surveying	Agricultural Spraying	Ballooning	Career Training / Education	Community Facilities	Corporate / Business Activity	Emergency Medical Aviation	Environmental Patrol	Flight Training	Freight / Cargo Activity	Gateway for VIPs	Law Enforcement	Preservation of Open Space	Promotional Activities	Public Charters	Recreational Flying/Parachuting	Search & Rescue	Shipping Perishable Goods	Staging Area - Community Events	Traffic / News Reporting
Accomack County				◆	◆		◆		◆			◆		◆	◆			◆	◆	◆	◆	◆	
Blackstone AFF		◆	◆	◆	◆		◆	◆		◆		◆	◆	◆	◆				◆	◆			◆
Blue Ridge Regional			◆	◆	◆				◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆		◆	
Bridgewater Air Park		◆		◆	◆		◆		◆	◆		◆			◆		◆						
Brookneal-Campbell County			◆	◆	◆		◆	◆	◆			◆							◆				
Charlottesville-Albermarle			◆	◆	◆			◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
Chase City Municipal					◆														◆				
Chesapeake Regional	◆				◆		◆		◆	◆		◆	◆	◆		◆	◆	◆	◆	◆			
Chesterfield County					◆		◆	◆	◆			◆		◆	◆		◆	◆	◆			◆	
Crewe Municipal								◆	◆										◆				
Culpeper Regional			◆	◆	◆				◆			◆	◆	◆	◆	◆	◆		◆	◆		◆	◆
Danville Regional	◆				◆	◆	◆		◆	◆		◆					◆	◆		◆			
Dinwiddie County					◆				◆	◆		◆		◆		◆			◆			◆	
Emporia-Greensville Regional			◆		◆			◆	◆					◆	◆				◆				
Falwell									◆			◆		◆			◆		◆				
Farmville Municipal			◆	◆	◆		◆		◆	◆	◆	◆			◆		◆		◆	◆		◆	
Franklin Municipal			◆	◆	◆	◆		◆	◆	◆		◆	◆	◆	◆		◆		◆	◆	◆	◆	◆
Front Royal/Warren County	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆		◆	◆		◆	◆	◆	◆		◆	
Gordonsville Municipal								◆	◆					◆			◆		◆				
Grundy Municipal																			◆				
Hampton Roads Executive			◆	◆	◆		◆		◆			◆	◆	◆			◆	◆	◆			◆	
Hanover County Municipal	◆	◆	◆	◆	◆	◆	◆		◆	◆		◆	◆	◆	◆		◆	◆	◆		◆	◆	
Hummel Field				◆	◆					◆	◆	◆		◆	◆				◆	◆		◆	◆
Ingalls Field	◆	◆		◆					◆	◆				◆	◆	◆	◆			◆		◆	
Lake Anna			◆	◆	◆		◆		◆	◆		◆	◆	◆					◆				

Source: Airport Managers Survey

Table 1-8: Qualitative Benefits Provided by Virginia's Public-Use Airports, *cont'd*

Airport	Aerial Advertising	Aerial Firefighting	Aerial Inspections	Aerial Photography / Surveying	Agricultural Spraying	Ballooning	Career Training / Education	Community Facilities	Corporate / Business Activity	Emergency Medical Aviation	Environmental Patrol	Flight Training	Freight / Cargo Activity	Gateway for VIPs	Law Enforcement	Preservation of Open Space	Promotional Activities	Public Charters	Recreational Flying/Parachuting	Search & Rescue	Shipping Perishable Goods	Staging Area - Community Events	Traffic / News Reporting
Lake Country Regional			◆	◆	◆				◆	◆	◆	◆		◆	◆				◆	◆			
Lawrenceville-Brunswick Municipal		◆	◆						◆	◆					◆				◆	◆			
Lee County									◆			◆		◆	◆				◆				
Leesburg Executive			◆	◆			◆		◆	◆		◆	◆	◆	◆		◆	◆	◆	◆		◆	◆
Lonesome Pine																							
Louisa County			◆	◆	◆				◆	◆				◆			◆		◆				
Lunenburg County					◆					◆		◆			◆				◆				
Luray Caverns		◆	◆	◆	◆	◆	◆		◆	◆	◆	◆		◆	◆		◆		◆	◆		◆	
Lynchburg Regional				◆			◆		◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		
Manassas Regional			◆	◆	◆		◆	◆	◆	◆		◆	◆	◆	◆		◆	◆	◆	◆		◆	◆
Mecklenburg-Brunswick Regional			◆	◆	◆		◆		◆	◆	◆	◆		◆	◆	◆		◆		◆		◆	◆
Middle Peninsula Regional				◆	◆	◆		◆	◆	◆					◆				◆	◆		◆	
Mountain Empire		◆		◆	◆				◆	◆		◆	◆	◆	◆		◆		◆	◆			
New Kent	◆		◆	◆	◆		◆		◆	◆	◆	◆			◆		◆		◆	◆		◆	
New London				◆		◆						◆			◆		◆		◆	◆		◆	
New Market	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆		◆	◆	◆	◆	◆	◆	◆		◆	
New River Valley					◆				◆	◆		◆	◆	◆	◆		◆		◆				
Newport News/Williamsburg International							◆		◆			◆		◆	◆			◆			◆	◆	
Norfolk International				◆			◆		◆	◆	◆	◆	◆	◆	◆	◆		◆	◆		◆		◆
Orange County	◆				◆				◆			◆		◆	◆				◆	◆			
Richmond International			◆	◆			◆	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Roanoke Regional							◆		◆			◆		◆	◆			◆	◆	◆	◆		
Shannon												◆		◆					◆				
Shenandoah Valley Regional		◆		◆			◆		◆	◆		◆		◆	◆			◆	◆			◆	
Smith Mountain Lake																			◆				

Source: Airport Managers Survey

Table 1-8: Qualitative Benefits Provided by Virginia's Public-Use Airports, *cont'd*

Airport	Aerial Advertising	Aerial Firefighting	Aerial Inspections	Aerial Photography / Surveying	Agricultural Spraying	Ballooning	Career Training / Education	Community Facilities	Corporate / Business Activity	Emergency Medical Aviation	Environmental Patrol	Flight Training	Freight / Cargo Activity	Gateway for VIPs	Law Enforcement	Preservation of Open Space	Promotional Activities	Public Charters	Recreational Flying/Parachuting	Search & Rescue	Shipping Perishable Goods	Staging Area - Community Events	Traffic / News Reporting
Stafford Regional					◆			◆	◆	◆		◆	◆	◆	◆		◆	◆	◆			◆	
Suffolk Executive									◆						◆		◆		◆				
Tangier Island																							
Tappahannock-Essex County								◆						◆					◆				
Tazewell County			◆	◆				◆	◆	◆	◆	◆	◆	◆			◆		◆	◆			
Twin County			◆	◆	◆		◆	◆	◆	◆			◆		◆		◆		◆	◆			
Virginia Highlands		◆	◆	◆				◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆		◆	
Virginia Tech-Montgomery Executive			◆	◆	◆		◆		◆	◆		◆		◆	◆			◆	◆	◆			
Wakefield Municipal					◆			◆	◆	◆					◆				◆				
Warrenton-Fauquier			◆						◆			◆		◆			◆		◆	◆			
Waynesboro-Eagle's Nest				◆								◆											
William M. Tuck			◆	◆	◆		◆		◆	◆	◆	◆		◆	◆		◆		◆	◆	◆		
Williamsburg-Jamestown	◆		◆	◆	◆		◆	◆	◆	◆	◆	◆		◆	◆				◆	◆		◆	◆
Winchester Regional							◆		◆	◆		◆		◆			◆	◆	◆	◆		◆	

Source: Airport Managers Survey

2 Economic Impacts of On-Airport Tenants

2.1 Introduction

This section presents the economic benefits that stem from commercial service and general aviation airport operators and on-airport tenants. While the primary mission of airports is to provide facilities for arriving and departing aircraft, airports in fact provide a myriad of diverse services. In addition to the activities of the airport operator and airlines, many support businesses such as local ground transportation companies, rental car agencies, retail and food concessions, aircraft fuel providers, parking facilities, FBOs, aircraft maintenance providers, aircraft rental and charter businesses and flight instructors also operate at the airports. Government agencies such as the FAA, the TSA, the U.S. Customs and Border Protection, local and state government agencies and military units also operate at the airports.

All of these private and government entities create economic benefits for Virginia through the jobs they create, the salaries that they pay and the purchase of goods and services from other off-airport businesses in Virginia. The economic transactions of these on-airport entities create additional rounds of spending and job creation in the Virginia economy that contribute to the total economic benefits of on-airport activities.

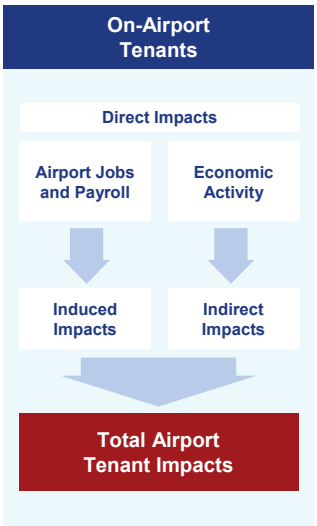
In 2010, more than 56,000 Virginians were employed at the Commonwealth's public use airports. These workers generated nearly $10.0 billion in economic activity, of which almost $2.9 billion is payroll.

2.2 Approach for Estimating On-Airport Economic Impacts

The total economic benefits generated by the Commonwealth's public-use airports were calculated through an extensive data collection effort and the use of the IMPLAN Model. IMPLAN is an economic modeling system created by the Minnesota IMPLAN Group that is widely accepted and frequently used for economic impact assessments. In this study it was used to measure purchases and sales between the various sectors of Virginia's economy.[6]

Impacts for Washington Dulles International and Ronald Reagan Washington National Airports were estimated in a separate study conducted by MWAA (see *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010).

[6] The study used the IMPLAN System, Version 3, 2009. Data was adjusted using deflators from the U.S. Bureau of Labor Statistics to reflect the 2010 economy.



2.2.1 Types of Economic Impacts

This study considers three types of economic benefits produced by the Commonwealth's public-use airports: direct, indirect and induced impacts.

Direct Impacts

On-Airport Direct Impacts account for economic activities that would not occur if the airports did not exist. These include the jobs, payroll and operating expenditures associated with airport management, airlines, FBOs, maintenance facilities, ground transportation providers, terminal concessions, car rental agencies and other businesses that service passengers, airlines and general aviation pilots and aircraft owners.

Indirect and Induced Impacts

Indirect and induced impacts are generated in two ways. First indirect impacts are created when on-airport businesses use part of their revenues from business sales (or budget expenditures in the case of a public agency or non-profit entity) to purchase goods and services from other businesses in Virginia. For example, an FBO buys cleaning supplies for servicing based aircraft, or a car rental agency retains legal and accounting services from local firms. These purchases represent business income to the respective supplier companies, which in turn supports additional jobs and payroll at those companies. Secondly, induced impacts are created when workers based at the airports spend their earnings on consumer purchases in Virginia. This re-spending of income supports additional jobs within the Commonwealth at retail, service and other local establishments. Together, indirect and induced impacts are the multiplier effects. Since indirect and induced impacts represent the secondary economic benefits of Virginia's on-airport tenants and businesses they are combined in this study.

The sum of direct, indirect and induced impacts equals the total economic benefits attributable to airport management and on-airport tenants.

The IMPLAN Model measures economic impact in three ways:

- **Jobs** represent the total number of individuals employed, including both part- and full-time positions. Consequently, an airport with 10 jobs may have 2 full-time and 8 part-time employees.
- **Payroll** is the annual salary, wages and benefits for employees, including all taxes.
- **Economic Activity** for on-airport entities includes annual gross sales for commercial firms and budget expenditures for government or nonprofit entities. This type of economic activity is sometimes referred to as "output."

2.2.2 The Economic Impact Modeling Process

Calculating total on-airport economic impacts was accomplished by surveying airport managers and airport tenants to identify direct impacts and by applying multipliers from the IMPLAN Model to quantify the indirect/induced impacts.

Direct Impacts of On-Airport Tenants and Businesses

A survey of all airport managers and tenants was conducted to identify the on-airport impacts of the Virginia airport system. DOAV sponsored the survey which collected information on the number of workers employed at the airports by management and other business and the total payroll for those workers. (See Section 2.2.3 for a description of the survey.)

The number of jobs associated with on-airport tenants for each airport was calculated directly from the airport manager and tenant surveys. The on-airport jobs data collected from the survey was then aggregated into 14 industry categories covering on-airport businesses based on sector definitions that are used in the IMPLAN data system.[7] In order to match the industries included in the survey with the industries in IMPLAN, several industry/commodity sectors were aggregated together as shown in table 2-1.

Direct jobs from the surveys and measures using county-based data from the IMPLAN system were used to calculate on-airport payroll and economic activity impacts. Ratios of "jobs to economic activity" and "payroll to economic activity" were developed at an industry level for each airport's catchment region, which consisted of one or more Virginia counties. A list of the airports and the associated counties within the catchment areas can be found in Appendix A. These ratios were applied to the survey results to derive total payroll and economic activity for each on-airport industry sector. These industry estimates were then summed by airport to estimate the local and statewide direct impacts of each airport.

In calculating payroll and economic activity, payroll data received from the surveys were used whenever provided. For airports where all tenants of a specific on-airport sector (e.g., retail or car rental) provided payroll, the survey data were used and economic activity was calculated using the ratio of economic activity to payroll for the catchment areas of those airports. For tenant categories with missing payroll information, the weighted averages of survey data and the IMPLAN-provided default ratios were calculated based on the reported level of jobs to derive a composite direct payroll impact. The catchment area defaults of payroll per job were used when surveys from an on-airport sector did not include any payroll data.

Ratios of economic activity to payroll from IMPLAN were used to estimate the impact of Economic Activity by on-airport tenants. The ratios were calculated at the regional airport catchment area level using county data provided by IMPLAN. For the retail sector, a margin was applied to correctly count only the revenue attributable to the Virginia economy. Often the producers of goods sold through retailers are located outside the regional or state economies and therefore is not included in the economic impact calculation.

[7] IMPLAN utilizes U.S. Department of Commerce data on inter-industry economic relationships, countywide employment and income data from the Bureau of Economic Analysis (BEA) and Bureau of Labor Statistics (BLS), and its own industry and county-specific estimates of local purchasing rates. The model and data system includes 440 industries based on the 2-, 3- or 4-digit classification levels in the North American Industrial Classification System (NAICS).

Table 2-1: On-Airport Sectors and Associated IMPLAN Categories

On-Airport Sectors	Code	IMPLAN Industry
Aircraft Manufacturing	284	Aircraft manufacturing
	285	Aircraft engine and engine parts manufacturing
	286	Other aircraft parts and auxiliary equipment manufacturing
Agricultural Spraying	19	Support activities for agriculture and forestry
Wholesale & Distribution	319	Wholesale trade
	335	Truck transportation
	339	Couriers and messengers
	340	Warehousing and storage
	427	Postal service
Air Transportation	332	Air transportation
Security	387	Investigation and security services
Other Services	385	Facilities support services
	388	Services to buildings and dwellings
	389	Other support services
	390	Waste management and remediation services
Retail	322	Retail - Electronics and appliances
	324	Retail - Food and beverage
	327	Retail - Clothing and clothing accessories
	328	Retail - Sporting goods, hobby, book and music
	329	Retail - General merchandise
	330	Retail – Miscellaneous
Car Rental	362	Automotive equipment rental and leasing
Restaurant	413	Food services and drinking places
Federal Government	439	Jobs and payroll for Federal Non-Military
	429	Other Federal Government enterprises
Local/Regional Government	437	Jobs and payroll for State/Local Government Non-Education
	432	Other state and local government enterprises
Military	440	Jobs and payroll for Federal Military
Construction	34	Construction of new non-residential, commercial. And health care structures
	36	Constr. of other new non-residential structures
	39	Maintenance and repair construction of nonresidential maintenance and repair.
Flight Training	393	Other educational services

Indirect/Induced Impacts of On-Airport Tenants and Businesses

After estimating direct impacts, multipliers were applied to each industry sector to calculate the indirect/induced impacts. There were two applications of the multipliers: (1) to measure the total affects of each airport across the Commonwealth (i.e., statewide impacts) and (2) to measure the total economic contribution of each airport to its local catchment area (i.e., regional impacts). State multipliers are larger than local multipliers because regional affects do not capture the impacts associated with supplier sales and worker income spending outside of the designated airport catchment areas, while the state multipliers capture resultant economic activity throughout Virginia.[8]

Statewide multipliers for the industries that represent on-airport tenants and businesses are listed in Table 2-2. The multipliers measure the economic interdependencies between industries in the Virginia economy. For example, multipliers for the distribution sector (logistics industries) are 0.743 for economic activity, 0.649 for payroll and 0.893 for jobs. The sales multiplier indicates that every $100 spent by businesses on airport based courier services and other logistics industries generates an additional $74 of economic activity in industry sectors across the Commonwealth. These sales could be for such diverse items as tires, packaging materials, accounting services, insurance and cleaning solvents. Total economic activity ($174, including direct, supplier sales and worker re-spending) supports $65 in payroll in Virginia industries in addition to direct earnings realized in the distribution sector due to services provided at airports. Finally, the result of the supplier sales and all worker re-spending is that eighty-nine additional jobs are added to the Commonwealth's economy for every hundred distribution jobs that are based on-airport.

Table 2-2: Virginia Statewide Multipliers by Economic Sector

	Multipliers		
Industry	Jobs	Payroll	Economic Activity
Agricultural Spraying	0.1449	0.3188	0.7964
Aviation Services	1.0495	0.6469	0.5448
Car Rental	0.7968	1.1397	0.6948
Construction	0.6498	0.6722	0.7864
Distribution	0.8931	0.6487	0.7426
Entertainment	0.3085	0.6541	0.8470
Federal Government	0.8187	0.2767	0.7185
Flight Training	0.4954	0.5216	0.7819
Hotels and Lodging	0.6073	0.9263	0.8144
Local Government	0.5683	0.4489	0.8041
Manufacturing, Aerospace	0.7132	0.3947	0.2740

– continued –

[8] State multipliers do not capture economic activity that occurs outside the Commonwealth. For example, if an FBO at one of Virginia's airports buys equipment from a California company, those indirect business sales are lost to the Virginia economy and not included in the estimates of statewide economic impacts.

Industry	Multipliers		
	Jobs	Payroll	Economic Activity
Manufacturing, Other	1.4532	1.1600	0.5497
Military	0.6907	0.2619	0.5397
Off-site Retail	0.2190	0.3881	0.5933
On-site Retail	0.2283	0.3835	0.6060
Restaurant	0.3113	0.6779	0.7612
Security	0.4048	0.4222	0.8257
Services	0.4529	0.6874	0.7292
Transportation	0.3801	0.5005	0.7039
Travel Agents	0.7270	0.7287	0.8174

Source: IMPLAN

Industries with the highest multipliers generally are those that purchase high priced supplies, services and labor from within Virginia. For local multipliers, the higher multipliers relate to sectors that purchase a large share of goods and services from inside the local catchment region. Since statewide multipliers cover a broader geographic area than regional multipliers, the statewide multipliers are larger than the corresponding regional multipliers. On the regional level dollars that are spent in a neighboring region, but still in the Commonwealth, are lost in terms of local economic impact (this is called "leakage"), but are still included in the statewide impact estimates. (See Appendix B for a listing of multipliers by airport catchment areas.)

2.2.3 On-Airport Tenant Survey and Data Collection Process

A comprehensive and rigorous survey effort was undertaken to gather information on the economic activities that occur on-site at 64 of the Commonwealth's 66 public-use airports. Since the economic impacts of the Washington Dulles and Ronald Reagan Washington National Airports were estimated in a separate study as described previously, these airports were not included in the survey effort. The study team collected data through a combination of on-site visits and interviews as well as direct and on-line surveys of Airport Managers and Airport Tenants. The survey effort took place over five months, beginning in July and ending in early December of 2010.

The Airport Manager Survey was the first step in the surveying process. The study team visited and conducted in-person interviews with managers at 37 of the airports over an 8-week period from July 19th through September 10th. Managers at the remaining 27 airports were surveyed by telephone during the end of August and early September. The study team was successful in achieving a 100% completion rate for the Airport Managers Survey as a result of the cooperation of all 64 Airport Managers/Sponsors included in the survey.

The information collected through the Airport Manager Survey included:

- Airport management jobs and payroll
- A list of on-airport tenants and their contact information
- A list of based aircraft owners that use their aircraft for business purposes and their contact information
- Airport-dependent businesses
- Traffic statistics including passenger enplanements, aircraft operations and the percent of general aviation operations that is transient
- Types of activities conducted at the airports and any special airport attributes

Many Airport Managers and Sponsors also offered qualitative comments that highlighted the value of the airport to the local community and businesses.

Once the on-airport tenants and businesses and their contact information was identified from the Airport Manager Surveys, Airport Tenant Surveys were distributed at the airports with the cooperation and assistance of the Airport Managers. The objective of the Airport Tenant Survey was to attain complete profiles of jobs and business activities occurring at the airport. A total of 274 tenants were identified and surveyed, with completed information collected for 269 tenants for a response rate of 98%. Questions on the airport tenant survey were directed at obtaining information on the type of business, number of employees, total payroll and types of activities conducted at the airports. (See Appendix C for copies of the Airport Manager and Airport Tenant Surveys.)

2.3 Statewide On-Airport Economic Impacts

Economic activity generated by airport-related services and products sustains jobs and represents revenue that is reinvested in local communities throughout the Commonwealth. Jobs and the wages supported by this economic activity contribute to the personal income of state residents. Statewide on-airport economic impacts of the Virginia airports are summarized in the table below. Virginia airports currently generate over 56,000 jobs, approximately $2.9 billion in payroll and approximately $10.0 billion in total economic activity.

Table 2-3: Summary of Statewide On-Airport Economic Impacts

	Direct	Indirect & Induced	Total
Jobs			
Commercial Airports (Large & Medium Hub) \1	24,954	19,921	44,875
Commercial Airports (Small & Non-Hub) \2	4,370	3,674	8,044
General Aviation Airports	1,926	1,633	3,559
Total Jobs	**31,250**	**25,228**	**56,478**
Payroll *(millions)*			
Commercial Airports (Large & Medium Hub) \1	$1,434	$953	$2,386
Commercial Airports (Small & Non-Hub) \2	$192	$122	$314
General Aviation Airports	$110	$58	$168
Total Payroll	**$1,736**	**$1,133**	**$2,869**
Economic Activity *(millions)*			
Commercial Airports (Large & Medium Hub) \1	$5,287	$2,964	$8,250
Commercial Airports (Small & Non-Hub) \2	$699	$411	$1,109
General Aviation Airports	$391	$201	$593
Total Economic Activity	**$6,377**	**$3,576**	**$9,953**

\1 Includes Washington Dulles International and Ronald Reagan Washington National Airports. Economic impacts for the Washington Airports are based on the *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010

\2 Includes Charlottesville-Albemarle, Lynchburg Regional, Newport News-Williamsburg International, Norfolk International, Richmond International, Roanoke Regional and Shenandoah Valley Regional Airports.

The FAA classifies commercial service airports based on their percentage of total U.S. passenger enplanements. Large hub airports enplane at least 1% of total U.S. passengers; medium hubs enplane at least 0.25% but less than 1%; small-hub airports enplane 0.05% to 0.25%; and non-hubs enplane at least 10,000 passengers annually but less than 0.05% of total U.S. enplanements. In Virginia, the Metropolitan Washington airports are large hubs, Norfolk and Richmond airports are small hubs and all other commercial service airports are non-hubs.

2.3.1 Job Impacts

As shown in Table 2-4, tenants and businesses at Virginia's airports generate approximately 31,000 direct jobs and 25,000 indirect and induced job opportunities. The direct jobs associated with on-airport tenants are located at the airports and include employment in airline support services, airport operations, airport retail, freight transportation and other construction/consulting services. Indirect and induced jobs are further generated as on-airport businesses and airport employees purchase goods and services from other businesses located in the area.

Table 2-4: On-Airport Job Impacts by Airport

Airport	Direct	Indirect & Induced	Total
Commercial Service			
Charlottesville-Albemarle	187	176	363
Lynchburg Regional	207	182	389
Newport News-Williamsburg International	519	465	984
Norfolk International	1,581	1,271	2,852
Richmond International	1,258	1,046	2,304
Roanoke Regional	535	460	995
Shenandoah Valley Regional	83	74	157
Washington Dulles International \1	17,948	8,064	26,012
Ronald Reagan Washington National \1	7,006	11,857	18,863
Total Jobs - Commercial Service	**29,324**	**23,595**	**52,919**
General Aviation			
Accomack County	8	7	15
Blackstone AAF	4	4	8
Blue Ridge Regional	14	11	25
Bridgewater Air Park	262	274	536
Brookneal-Campbell County	1	1	2
Chase City Municipal	1	1	2
Chesapeake Regional	55	47	102
Chesterfield County	78	71	149
Crewe Municipal	1	1	2
Culpeper Regional	13	12	25
Danville Regional	23	20	43
Dinwiddie County	19	20	39
Emporia-Greensville Regional	6	6	12
Falwell	27	24	51
Farmville Municipal	14	11	25
Franklin Municipal	4	4	8
Front Royal-Warren County	10	10	20
Gordonsville Municipal	4	3	7
Grundy Municipal	1	1	2
Hampton Roads Executive	65	56	121

– continued –

Airport	Direct	Indirect & Induced	Total
Hanover County Municipal	57	55	112
Hummel Field	9	8	17
Ingalls Field	3	3	6
Lake Anna	1	1	2
Lake Country Regional	1	1	2
Lawrenceville-Brunswick Municipal	2	2	4
Lee County	1	1	2
Leesburg Executive	287	241	528
Lonesome Pine	3	3	6
Louisa County	14	14	28
Lunenburg County	1	1	2
Luray Caverns	6	6	12
Manassas Regional	530	384	914
Mecklenburg-Brunswick Regional	8	8	16
Middle Peninsula Regional	41	32	73
Mountain Empire	6	6	12
New Kent County	8	8	16
New London	2	2	4
New Market	6	6	12
New River Valley	19	18	37
Orange County	59	32	91
Shannon	20	21	41
Smith Mountain Lake	1	1	2
Stafford Regional	36	38	74
Suffolk Executive	54	31	85
Tangier Island	1	1	2
Tappahannock-Essex County	3	3	6
Tazewell County	3	3	6
Twin County	4	4	8
Virginia Highlands	13	12	25
Virginia Tech-Montgomery Executive	27	23	50
Wakefield Municipal	1	1	2
Warrenton-Fauquier	20	20	40
Waynesboro-Eagle's Nest	1	1	2
William M. Tuck	3	3	6
Williamsburg-Jamestown	20	16	36
Winchester Regional	45	39	84
Total Jobs - General Aviation	**1,926**	**1,633**	**3,559**
Total Job Impacts of On-Airport Tenants	**31,250**	**25,228**	**56,478**

\1 *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010

2.3.2 Payroll Impacts

The economic activity of tenants located at Virginia's commercial service and general aviation airports generate approximately $2.9 billion annually in payroll. These salaries and benefits are paid to employees either directly employed at the airports or employed in positions supported by airport-related multiplier effects. These wages are re-invested in the local communities and help to stimulate the state's economy. As shown in table 2-5, the Virginia airports generate approximately $1.7 billion in direct payroll and $1.1 billion in indirect and induced payroll per year.

Table 2-5: On-Airport Payroll Impacts by Airport, *(in millions)*

Airport	Direct	Indirect & Induced	Total
Commercial Service			
Charlottesville-Albemarle	$9.03	$5.88	$14.91
Lynchburg Regional	$9.91	$6.24	$16.15
Newport News-Williamsburg International	$24.78	$15.82	$40.60
Norfolk International	$65.89	$43.53	$109.42
Richmond International	$61.48	$37.39	$98.87
Roanoke Regional	$18.57	$11.47	$30.03
Shenandoah Valley Regional	$2.62	$1.76	$4.38
Washington Dulles International \1	$993.70	$409.30	$1,403.00
Ronald Reagan Washington National \1	$440.20	$543.20	$983.40
Total Payroll - Commercial Service	**$1,626.18**	**$1,074.58**	**$2,700.76**
General Aviation			
Accomack County	$0.19	$0.11	$0.31
Blackstone AAF	$0.04	$0.02	$0.06
Blue Ridge Regional	$0.29	$0.19	$0.48
Bridgewater Air Park	$10.77	$6.97	$17.74
Brookneal-Campbell County	$0.06	$0.04	$0.10
Chase City Municipal	$0.04	$0.02	$0.06
Chesapeake Regional	$2.39	$1.49	$3.89
Chesterfield County	$3.21	$2.08	$5.30
Crewe Municipal	$0.05	$0.03	$0.08
Culpeper Regional	$0.67	$0.41	$1.08
Danville Regional	$0.80	$0.48	$1.28
Dinwiddie County	$1.29	$0.80	$2.08
Emporia-Greensville Regional	$0.18	$0.12	$0.30
Falwell	$1.22	$0.78	$2.00
Farmville Municipal	$0.41	$0.26	$0.67
Franklin Municipal	$0.24	$0.11	$0.35
Front Royal-Warren County	$0.32	$0.21	$0.53
Gordonsville Municipal	$0.16	$0.09	$0.25

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Airport	Direct	Indirect & Induced	Total
Grundy Municipal	$0.05	$0.03	$0.07
Hampton Roads Executive	$3.37	$1.96	$5.32
Hanover County Municipal	$3.83	$2.29	$6.12
Hummel Field	$0.97	$0.53	$1.50
Ingalls Field	$0.11	$0.07	$0.18
Lake Anna	$0.05	$0.03	$0.07
Lake Country Regional	$0.04	$0.02	$0.06
Lawrenceville-Brunswick Municipal	$0.01	$0.01	$0.02
Lee County	$0.05	$0.03	$0.09
Leesburg Executive	$20.49	$8.05	$28.54
Lonesome Pine	$0.14	$0.08	$0.22
Louisa County	$0.57	$0.38	$0.95
Lunenburg County	$0.04	$0.03	$0.07
Luray Caverns	$0.08	$0.05	$0.13
Manassas Regional	$43.11	$21.65	$64.77
Mecklenburg-Brunswick Regional	$0.13	$0.08	$0.21
Middle Peninsula Regional	$1.00	$0.61	$1.61
Mountain Empire	$0.14	$0.09	$0.23
New Kent County	$0.33	$0.22	$0.55
New London	$0.12	$0.08	$0.20
New Market	$0.35	$0.19	$0.54
New River Valley	$0.62	$0.39	$1.00
Orange County	$1.01	$0.51	$1.52
Shannon	$1.13	$0.73	$1.85
Smith Mountain Lake	$0.05	$0.03	$0.09
Stafford Regional	$2.13	$1.38	$3.51
Suffolk Executive	$1.90	$1.09	$2.99
Tangier Island	$0.00	$0.00	$0.00
Tappahannock-Essex County	$0.12	$0.08	$0.19
Tazewell County	$0.06	$0.04	$0.10
Twin County	$0.16	$0.11	$0.27
Virginia Highlands	$0.48	$0.25	$0.73
Virginia Tech-Montgomery Executive	$0.92	$0.60	$1.52
Wakefield Municipal	$0.05	$0.03	$0.08
Warrenton-Fauquier	$1.04	$0.65	$1.69
Waynesboro-Eagle's Nest	$0.03	$0.02	$0.06
William M. Tuck	$0.09	$0.06	$0.15
Williamsburg-Jamestown	$0.31	$0.20	$0.51
Winchester Regional	$2.32	$1.30	$3.63
Total Payroll - General Aviation	**$109.71**	**$58.16**	**$167.87**
Total Payroll Impacts of On-Airport Tenants	**$1,735.89**	**$1,132.74**	**$2,868.63**

\1 *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010

2.3.3 Economic Activity Impacts

The tenants and businesses at Virginia's commercial service and general aviation airports contribute $10.0 billion in economic activity to Virginia's economy each year. Airport operators and tenants generate revenue directly from activities such as fueling, aircraft storage, freight handling, ground transportation and merchandise retail. Other businesses and firms in the state benefit from additional sales revenue due to services and goods sold to airport employees and airport businesses. As shown in the following table, the Virginia airports generate a total of $6.4 billion in direct economic activity and $3.6 billion in indirect and induced economic activity annually.

Table 2-6: On-Airport Economic Activity Impacts by Airport, *(in millions)*

Airport	Direct	Indirect & Induced	Total
Commercial Service			
Charlottesville-Albemarle	$32.75	$18.50	$51.25
Lynchburg Regional	$42.66	$24.20	$66.86
Newport News-Williamsburg International	$96.68	$55.35	$152.03
Norfolk International	$248.61	$145.52	$394.13
Richmond International	$201.13	$121.39	$322.51
Roanoke Regional	$65.01	$38.95	$103.96
Shenandoah Valley Regional	$11.82	$6.92	$18.74
Washington Dulles International \1	$3,663.89	$2,053.72	$5,717.61
Ronald Reagan Washington National \1	$1,623.07	$909.78	$2,532.85
Total Economic Activity - Commercial Service	**$5,985.61**	**$3,374.33**	**$9,359.94**
General Aviation			
Accomack County	$0.76	$0.42	$1.18
Blackstone AAF	$0.13	$0.07	$0.20
Blue Ridge Regional	$1.62	$0.94	$2.56
Bridgewater Air Park	$53.68	$29.27	$82.95
Brookneal-Campbell County	$0.30	$0.16	$0.46
Chase City Municipal	$0.25	$0.14	$0.39
Chesapeake Regional	$9.31	$5.27	$14.58
Chesterfield County	$12.87	$7.14	$20.01
Crewe Municipal	$0.17	$0.09	$0.26
Culpeper Regional	$2.40	$1.26	$3.66
Danville Regional	$3.04	$1.79	$4.83
Dinwiddie County	$4.96	$2.53	$7.49
Emporia-Greensville Regional	$0.68	$0.37	$1.05
Falwell	$5.75	$3.19	$8.94
Farmville Municipal	$1.34	$0.82	$2.16
Franklin Municipal	$1.20	$0.47	$1.67
Front Royal-Warren County	$1.70	$0.93	$2.62
Gordonsville Municipal	$0.50	$0.30	$0.80
Grundy Municipal	$0.23	$0.13	$0.36

– *continued* –

Airport	Direct	Indirect & Induced	Total
Hampton Roads Executive	$12.60	$6.52	$19.12
Hanover County Municipal	$15.01	$7.57	$22.58
Hummel Field	$3.40	$1.69	$5.10
Ingalls Field	$0.40	$0.22	$0.61
Lake Anna	$0.15	$0.08	$0.23
Lake Country Regional	$0.26	$0.14	$0.39
Lawrenceville-Brunswick Municipal	$0.10	$0.05	$0.15
Lee County	$0.27	$0.15	$0.41
Leesburg Executive	$41.24	$25.46	$66.70
Lonesome Pine	$0.49	$0.30	$0.79
Louisa County	$1.86	$1.09	$2.95
Lunenburg County	$0.28	$0.16	$0.44
Luray Caverns	$0.39	$0.21	$0.61
Manassas Regional	$151.67	$68.66	$220.33
Mecklenburg-Brunswick Regional	$0.92	$0.50	$1.43
Middle Peninsula Regional	$3.54	$2.06	$5.60
Mountain Empire	$0.98	$0.54	$1.52
New Kent County	$1.38	$0.75	$2.13
New London	$0.59	$0.32	$0.91
New Market	$1.59	$0.68	$2.27
New River Valley	$2.30	$1.47	$3.77
Orange County	$2.95	$1.73	$4.68
Shannon	$5.33	$2.90	$8.23
Smith Mountain Lake	$0.26	$0.14	$0.40
Stafford Regional	$10.10	$5.50	$15.60
Suffolk Executive	$7.02	$4.01	$11.04
Tangier Island	$0.01	$0.01	$0.01
Tappahannock-Essex County	$0.44	$0.24	$0.68
Tazewell County	$0.36	$0.20	$0.56
Twin County	$0.61	$0.33	$0.93
Virginia Highlands	$2.14	$1.23	$3.36
Virginia Tech-Montgomery Executive	$5.05	$2.90	$7.95
Wakefield Municipal	$0.33	$0.18	$0.50
Warrenton-Fauquier	$4.23	$2.22	$6.45
Waynesboro-Eagle's Nest	$0.17	$0.10	$0.27
William M. Tuck	$0.34	$0.19	$0.53
Williamsburg-Jamestown	$1.11	$0.64	$1.75
Winchester Regional	$10.50	$5.10	$15.60
Total Economic Activity - General Aviation	**$391.22**	**$201.48**	**$592.71**
Total Economic Activity Impacts of On-Airport Tenants	**$6,376.83**	**$3,575.81**	**$9,952.65**

\1 *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010

The regional on-airport economic impacts of the Virginia airports can be found in Appendix D.

3 Economic Impacts of Visitors

3.1 Introduction

The aviation services at DOAV airports transport more than 8 million visitors to Virginia each year. Visitors travel to Virginia by air for a number of reasons: to attend business meetings and conventions, to visit with family and friends and to vacation. They arrive in Virginia on scheduled commercial airline services, charter flights and private general aviation aircraft. This section describes the impacts of visitors on the Virginia economy.

In 2010, approximately 8.5 million visitors traveled to Virginia through one of the Commonwealth's 66 public-use airports. Approximately 7.9 million visitors traveled to Virginia on commercial airline services at one of the state's nine commercial service airports. (See Section 3.2.3) An estimated 610,000 additional visitors arrived on a general aviation aircraft at Virginia's public–use airports (See Section 3.2.4) While in the state, visitors typically spend money on lodging, food, retail purchases, entertainment and local ground transportation. The injection of visitor spending into the state economy supports jobs in these industry sectors, as well as other sectors in Virginia through the multiplier effect. All visitor spending impacts that are described in this section occur off-airport.

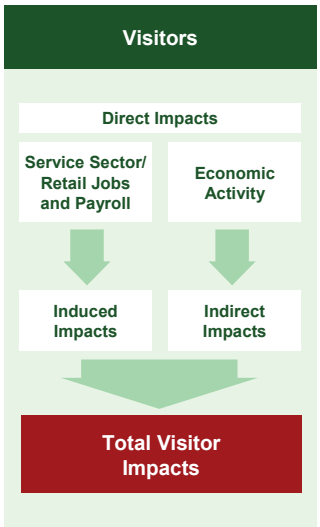
The visitors who traveled to Virginia through the state's airports directly and indirectly generated $11.2 billion in sales for Virginia companies, which in turn supported 157,100 jobs with an annual payroll of $5.6 billion. Visitors, as well as residents, also spend money on food, retail, taxis and other items while traveling through Virginia's airports; these purchases are included in the on-airport impacts described in Chapter 2.

3.2 Approach for Estimating Economic Impacts of Visitors

The total contributions of visitors to Virginia's state and local economies were estimated through a survey of visitors at the airports to determine visitor spending and application of the IMPLAN Model to quantify the impact of that spending on other industry sectors in Virginia. IMPLAN is an economic modeling system created by the Minnesota IMPLAN Group that is widely accepted and frequently used for economic impact assessments. In this study it was used to measure purchases and sales between the various sectors of Virginia's economy. [9]

Impacts for Washington Dulles International and Ronald Reagan Washington National Airports were estimated in a separate study conducted by MWAA (see *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010).

[9] The study used the IMPLAN System, Version 3, 2009. Data was adjusted using deflators from the U.S. Bureau of Labor Statistics to reflect the 2010 economy.



3.2.1 Types of Economic Impacts

The types of economic benefits produced by visitors that arrive by air transportation include the benefits directly associated with the expenditures made by those visitors while in the state and the benefits associated with the recirculation of that spending throughout the Virginia economy.

Direct Impacts of Visitors

Visitor Spending Impacts occur entirely off-airport and include the economic activities directly associated with visitors who arrive in Virginia via air transportation. Off-airport expenditures typically made by visitors include lodging, food, entertainment, transportation and retail purchases. In addition to in-state purchases, visitor spending impacts include the jobs and payroll supported by those purchases. Visitor spending impacts were calculated for visitors who travel on commercial airline services through one of the Commonwealth's commercial airports, as well as visitors who arrive on general aviation services that occur at any of the commercial service and general aviation airports.

Indirect and Induced Impacts of Visitors

Indirect and induced impacts associated with visitor spending result from the recirculation of visitor spending within the Virginia economy. Indirect impacts are created when hospitality and tourism-related businesses that derive sales from visitors use part of those revenues to purchase goods and services from other businesses in Virginia. For example, a restaurant that serves visitors orders food supplies from other Virginia businesses or a hotel retains marketing services from a local firm. These purchases constitute income to the supplier businesses, which in turn supports additional jobs and income at the supplier firms. Induced impacts are generated when workers employed by businesses that directly serve the needs of visitors and the workers employed by the businesses that supply goods and services to the hospitality sector earn income that is then spent on consumer purchases in Virginia. This re-spending of worker incomes supports additional jobs in the Commonwealth.

The sum of the direct visitor spending impacts and the indirect and induced impacts yields the total economic benefits associated with visitors. As with the activities of on-airport tenants, direct visitor spending and its multiplier effects are measured in three ways – jobs, payroll and economic activity. Jobs represent the total number of individuals employed, including both part- and full-time positions. For example, a restaurant with 30 jobs may have 8 full-time and 22 part-time employees.

3.2.2 The Economic Impact Modeling Process

The economic contributions of visitors to the state and local economies were estimated from surveys of visitors at the commercial service and general aviation airports, airport activity data, publicly available aviation data sources and the IMPLAN Model.

Air Visitor Spending Impacts (Direct)

The economic activity generated by visitors was determined based on an estimated number of visitors per airport and an estimate of average spending per visitor. The number of visitors was estimated separately for visitors arriving on commercial airline services and visitors utilizing general aviation. (See Section 3.2.3 for the specific methodologies.) Estimates of visitor spending were based on spending data collected from the visitor surveys. (See Section 3.2.3 for average spending estimates for commercial service and general aviation visitors.) These average spending estimates were applied to the estimated number of visitors for each airport to determine the in-state economic activity attributed to visitors.

The direct spending calculated for commercial service and general aviation visitors served as the basis for estimating the direct jobs and payroll generated by visitors. From the visitor surveys, spending estimates were available for five categories: lodging, food and beverage, entertainment, ground transportation and retail. The five visitor spending categories are associated with eighteen industry sectors in the IMPLAN model as shown in Table 3-1.

Table 3-1: Visitor Spending Categories

Visitor Spending Categories	2009 IMPLAN Sectors	
Lodging	411	Hotels and motels, including casino hotels
	412	Other accommodations
Restaurant	413	Food services and drinking places
Entertainment	402	Performing arts companies
	403	Spectator sports
	406	Museums, historical sites, zoos and parks
	407	Fitness and recreational sports centers
	409	Amusement parks, arcades and gambling industries
	410	Other amusement and recreation industries
Retail	324	Retail - Food and beverage
	327	Retail - Clothing and clothing accessories
	328	Retail - Sporting goods, hobby, book and music
	329	Retail - General merchandise
	330	Retail – Miscellaneous
Ground Transportation	336	Transit and ground passenger transportation
	338	Scenic and sightseeing trans and support activities for transportation
	362	Automotive equipment rental and leasing
	326	Retail - Gasoline stations

Direct jobs and payroll were calculated from the visitor spending estimates using IMPLAN's county-based data from the U.S. Departments of Commerce and Labor, which provided ratios of "jobs to economic activity" and "payroll to economic activity" for each spending category and each airport catchment area. These ratios were applied to the economic activity attributable to visitors to derive direct jobs and payroll for each of the five spending categories. Totals for the spending categories were then summed for each airport to arrive at the direct jobs and payroll impacts of visitors.

Indirect and Induced Impacts of Visitor Spending

The direct jobs, payroll and economic activity that stem from air visitor activities in Virginia create secondary economic benefits through the recirculation of income and businesses sales throughout the state and local economies. These indirect and induced impacts were calculated by applying multipliers from the IMPLAN Model that measure the economic interdependencies between industries in the Virginia economy. (See Table 3-2)

As with the estimation of the indirect and induced impacts of on-airport tenants, the IMPLAN modeling system was calibrated by airport to reflect impacts to each airport's regional catchment area as well as the state economy. Statewide multipliers for each of the five spending categories were used to measure the total economic contribution of visitors to the Commonwealth and regional multipliers were used to measure the contribution of visitors to each airport's local catchment area. The indirect and induced impacts reflect: (1) the economic benefits that stem from the purchases of goods and services by the businesses that visitors patronize; and (2) the re-spending of wages by workers in businesses patronized by visitors and workers employed in supplier industries.

Total economic impacts are the sum of direct spending by commercial airline service and general aviation visitors and the indirect/induced effects. The IMPLAN multipliers trace economic activities and indirect/induced effects by airport and differentiate local spending impacts from wider impacts across the Commonwealth. The multipliers shown in Table 3-2 were used to estimate the statewide indirect/induced effects of air visitor activity. For example, the multipliers for lodging are 0.695 for economic activity, 0.926 for payroll and 0.607 for jobs. These indicate that every $100 spent by visitors on lodging generates an additional $70 of economic activity in industries throughout Virginia. Total economic activity ($170, including direct, supplier sales and worker re-spending) generates more than $90 in payroll among Virginia industries in addition to direct earnings realized in the lodging sector. Lastly, the result of the supplier sales and all worker spending is that sixty jobs are added to the economy for every one hundred jobs that are directly part of the lodging industry. (See Appendix B for the regional multipliers by airport catchment area.)

Industries with the highest multipliers are generally those that buy high priced supplies, services and labor from within Virginia. For regional multipliers, larger values indicate sectors that purchase a greater share of goods and services from inside that particular region. Since statewide multipliers cover a broader geographic area, they are higher than the corresponding regional multipliers. On the regional level, dollars that are spent in a neighboring region, but still in the Commonwealth, are lost in terms of local economic impact (this is called "leakage"), but are still counted as a statewide impact.

Table 3-2: Virginia Statewide Multipliers for Visitor Spending by Economic Sector

Types of Impacts	Visitor Spending Categories'	Virginia - Wide Multipliers
Sales	Lodging	0.695
	Restaurant	0.761
	Entertainment	0.814
	Transportation	0.704
	Retail	0.606
Payroll	Lodging	0.926
	Restaurant	0.678
	Entertainment	0.654
	Transportation	0.501
	Retail	0.388
Jobs	Lodging	0.607
	Restaurant	0.311
	Entertainment	0.308
	Transportation	0.380
	Retail	0.219

Source: IMPLAN

3.2.3 Survey and Data Collection Process for Commercial Service Airports

The millions of business and leisure visitors that travel to Virginia each year on commercial airline services contribute to the economy through their spending and related secondary impacts. The estimation of commercial airline visitor impacts was based on available data and airline passenger surveys conducted at seven of Virginia's nine commercial service airports. As noted previously, the economic impacts of visitors arriving at Washington Dulles and Ronald Reagan Washington National Airports were estimated in a separate study; therefore these airports were not included in the airline passenger survey effort.

Commercial Airline Passenger Survey

A Commercial Airline Passenger Survey was conducted during September 2010 at each of the commercial service airports, except the Metropolitan Washington Airports. Members of the Study Team traveled to each airport and surveyed departing passengers in the post-security gate areas for one to two weekdays in September. The team coordinated with the airport managers to determine an average day to survey and to gain access to the gate areas. Passengers interviewed were first asked whether they were a resident of the area, a connecting passenger or a visitor. Passengers that identified themselves as visitors were then asked a series of questions to determine:

- Trip purpose (i.e., business or leisure);

- Origin (i.e., domestic U.S. or international);
- The duration of their stay;
- Their off-airport expenditures during their stay on lodging, meals, retail purchases, local transportation and entertainment; and
- The number of people in their party that accounted for the expenditures reported.

The survey team collected 1,255 completed passenger surveys at the commercial airports, representing a visitor response rate that achieved a 90% confidence level. (See Appendix C for a copy of the Commercial Passenger Survey instrument.)

Estimated Commercial Service Visitors

The number of visitors that traveled to Virginia on commercial airline services was based on airline enplanements for each of the airports and an estimated percentage of visiting passengers at each airport. Passenger enplanement data for 2010 was obtained directly from the study airports through the survey process. Reported passengers enplanements were adjusted using the U.S. DOT, Passenger Origin-Destination Survey ("O&D Survey"), to exclude passengers that may have connected at the airport and therefore did not spend any money in the local economy. The O&D Survey also provided an estimate of the percentage of passengers at each airport that were visitors. The number of Virginia visitors traveling through one of the Metropolitan Washington Airports was estimated from total visitor estimates for Washington Dulles International and Ronald Reagan Washington National Airports and Virginia's share of visitor spending impacts as provided in the MWAA study. As shown in Table 3-3, an estimated 7.9 million visitors traveled to Virginia by commercial airline services to one of the state's commercial airports.

Table 3-3: Commercial Service Visitors to Virginia by Airport

Airport	2010 Enplaned Passengers \2	Estimated Connecting Passengers \3	2010 Non-Connecting Enplanements	Percent Visiting \4	Est. 2010 Commercial Service Visitors
Charlottesville-Albemarle	196,060	600	195,460	39.4%	77,021
Lynchburg Regional	93,617	0	93,617	38.7%	36,191
Newport News	531,503	3,730	527,773	43.1%	227,427
Norfolk International	1,664,735	13,880	1,650,855	45.6%	752,378
Richmond International	1,660,876	11,020	1,649,856	40.5%	667,546
Roanoke Regional	315,516	1,450	314,066	40.8%	128,273
Shenandoah Valley	10,262	0	10,262	36.4%	3,733
Washington Dulles International and Ronald Reagan Washington National \1					**6,000,000**
Total Commercial Service					**7,892,569**

Note: Excludes visitors arriving on general aviation services at one of the commercial service airports, which are estimated separately in Table 3-6.
\1 *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010. Estimated based on Virginia's share of total visitor spending impacts for the Metropolitan Washington Airports.

\2 Airport Records
\3 US DOT, O&D Survey, 12 Months Ended September 2010; includes 2 coupon domestic itineraries representing passengers making a single connection between origin and destination
\4 US DOT, O&D Survey, 12 Months Ended September 2010; includes domestic and international traffic carried on U.S. airlines

Estimated Average Spending by Commercial Service Visitors

The average spending by commercial service visitors was determined directly from airline passengers surveyed at the airports. The average spending estimates vary from $640 for Richmond International Airport to $317 for the Shenandoah Valley Regional Airport. As described previously, these average spending estimates were applied to the number of commercial service visitors for each airport to determine spending by Virginia visitors that arrived on commercial airline services. Total spending for visitors that arrived at Washington Dulles International and Ronald Reagan Washington National Airports was estimated in the MWAA study.

Table 3-4: Visitor Spending by Commercial Airport and Spending Category

Airport	Lodging	Food & Beverage	Entertain-ment	Ground Transportation \1	Retail	Total
Charlottesville-Albemarle	$146	$133	$48	$90	$49	$466
Lynchburg Regional	$196	$95	$5	$76	$36	$409
Newport News-Williamsburg International	$165	$135	$66	$67	$78	$512
Norfolk International	$187	$114	$56	$91	$61	$509
Richmond International	$215	$186	$59	$102	$78	$640
Roanoke Regional	$201	$108	$55	$85	$22	$470
Shenandoah Valley Regional	$40	$169	$18	$20	$70	$317

\1 Net of on-airport spending.

Source: Commercial Airline Passenger Survey.

3.2.4 Survey and Data Collection Process for General Aviation Airports

People traveling to Virginia for business and leisure reasons also travel on general aviation aircraft. All of Virginia's airports, even the commercial service airports, accommodate general aviation visitors. General aviation visitor impacts were based on available data and surveys of transient general aviation pilots and their passengers at Virginia's commercial service and general aviation airports.

General Aviation Passenger Survey

General Aviation Passenger Surveys were designed as pre-paid mailers and were distributed through the airport managers and FBOs at each of the airports. A total of 2,500 surveys were distributed across 64 of the Commonwealth's 66 public-use airports (excluding Washington Dulles International and Ronald Reagan Washington National Airports). Surveys were placed in a survey holder in appropriate areas at each airport so they would be visible to arriving general aviation pilots and their passengers. The surveys asked for the following information:

- Whether the pilot/passenger was a resident or visitor to the area;
- Number of travelers in the aircraft;
- Trip purpose (i.e., business or leisure);
- The duration of their stay;
- Off-airport expenditures during their stay on lodging, meals, retail purchases, local transportation and entertainment; and
- The number of people in their party that accounted for the expenditures reported.

A total of 150 surveys were completed and returned, which equates to a 90% confidence level with a margin of error of less than 7%. This statistical confidence and accuracy is consistent with generally accepted standards for this type of survey and exceeds the study goal of a 90% confidence level with a 10% margin of error (which required a minimum response rate of 68 surveys). (See Appendix C for a copy of the General Aviation Passenger Survey.)

Estimated General Aviation Visitors

General aviation visitors include the pilots, as well as passengers and other flight crew, if any, for transient general aviation operations at any of the state's airports. Transient operations are the portion of itinerant operations[10] that are performed by aircraft that are not locally based at the airport (i.e., visiting aircraft).

General aviation itinerant operations for towered airports were based on actual counts from the FAA[11]. For the non-towered airports, changes in the actual number of based aircraft and fleet mix based on annual DOAV surveys and historic (2000-2010) changes in operations per based aircraft observed at the nine towered airports[12] were used to estimate 2010 general aviation operations at the non-towered airports. (See Appendix G for a complete description of how operations were estimated at the non-towered airports.)

The Airport Manager Survey provided an estimate of the percentage of itinerant operations that are transient in nature. These data were reviewed and conservatively adjusted to be consistent with estimates used in the *2003 Virginia Air Transportation System Plan Update*[13]. Data collected through the General Aviation Passenger Survey provided information on the average numbers of visitors per aircraft by type of facility. (See Table 3-5) The number of general aviation visitors for each airport was calculated by multiplying the estimated transient flight arrivals by the average number of visitors per aircraft.

Table 3-5: Passengers per Transient GA Operation by Airport Type

Airport Classification	Passengers per Operation
Air Carrier Airports	4
GA Reliever and GA Regional Airports	3
GA Local and GA Community Airports	2

Source: General Aviation Passenger Survey.

[10] Itinerant operations include all aircraft operations that arrive from or depart to areas outside the local traffic pattern or outside the sight of the airport tower.
[11] The estimated air-taxi portion of reported commuter operations was added to reported general aviation itinerant operations to fully reflect itinerant operations in business GA aircraft.
[12] The nine towered airports are Charlottesville-Albemarle, Lynchburg Regional, Newport News-Williamsburg International, Norfolk International, Richmond International, Roanoke Regional, Shenandoah Valley Regional, Washington Dulles International and Ronald Reagan Washington National.
[13] At airports with runway lengths less than 4,000 feet, 31% of itinerant operations were assumed to be transient and at airports with runway lengths greater than 4,000 feet, 29% of operations were assumed to be transient.

Table 3-6: General Aviation Visitors to Virginia by Airport

Airport	Classification	Estimated 2010 GA Ops [2]	Estimated Percent Transient [3]	Transient Operations	Transient Arrivals	Estimated Passengers per Flight	Estimated GA Visitors
Charlottesville-Albemarle	Air Carrier	69,556	29.0%	20,171	10,086	4	40,342
Lynchburg Regional	Air Carrier	78,833	29.0%	22,862	11,431	4	45,723
Newport News	Air Carrier	83,546	29.0%	24,228	12,114	4	48,457
Norfolk International	Air Carrier	32,973	29.0%	9,562	4,781	4	19,124
Richmond International	Air Carrier	43,650	29.0%	12,659	6,329	4	25,317
Roanoke Regional	Air Carrier	24,896	29.0%	7,220	3,610	4	14,440
Shenandoah Valley	Air Carrier	26,244	29.0%	7,611	3,805	4	15,222
Total Commercial Service							**208,625**
Accomack County	Regional	7,724	29.0%	2,240	1,120	3	3,360
Blackstone AAF	Community	4,560	29.0%	1,322	661	2	1,322
Blue Ridge Regional	Regional	17,074	29.0%	4,951	2,476	3	7,427
Bridgewater Air Park	Local	43,611	31.0%	13,519	6,760	2	13,519
Brookneal-Campbell County [1]	Community	1,260	40.0%	504	252	2	504
Chase City Municipal	Local	1,236	31.0%	383	192	2	383
Chesapeake Regional	Reliever	45,881	29.0%	13,305	6,653	3	19,958
Chesterfield County	Reliever	50,440	29.0%	14,628	7,314	3	21,942
Crewe Municipal	Local	3,594	31.0%	1,114	557	2	1,114
Culpeper Regional	Regional	39,319	29.0%	11,402	5,701	3	17,104
Danville Regional	Regional	12,981	29.0%	3,764	1,882	3	5,647
Dinwiddie County	Regional	18,446	29.0%	5,349	2,675	3	8,024
Emporia-Greensville Regional	Regional	1,541	29.0%	447	224	3	671
Falwell	Local	3,400	31.0%	1,054	527	2	1,054

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Airport	Classification	Estimated 2010 GA Ops [2]	Estimated Percent Transient [3]	Transient Operations	Transient Arrivals	Estimated Passengers per Flight	Estimated GA Visitors
Farmville Municipal	Regional	9,357	29.0%	2,713	1,357	3	4,070
Franklin Municipal	Community	7,715	29.0%	2,237	1,119	2	2,237
Front Royal-Warren County	Community	17,882	31.0%	5,543	2,772	2	5,543
Gordonsville Municipal	Local	6,371	31.0%	1,975	988	2	1,975
Grundy Municipal	Local	3,392	31.0%	1,051	526	2	1,051
Hampton Roads Executive	Reliever	66,513	29.0%	19,289	9,644	3	28,933
Hanover County Municipal	Reliever	43,912	29.0%	12,734	6,367	3	19,102
Hummel Field	Local	11,008	31.0%	3,413	1,706	2	3,413
Ingalls Field	Regional	2,053	29.0%	595	298	3	893
Lake Anna	Local	309	31.0%	96	48	2	96
Lake Country Regional	Community	1,546	29.0%	448	224	2	448
Lawrenceville-Brunswick Municipal	Local	1,546	31.0%	479	240	2	479
Lee County	Community	2,971	29.0%	862	431	2	862
Leesburg Executive	Reliever	73,524	29.0%	21,322	10,661	3	31,983
Lonesome Pine	Regional	9,386	29.0%	2,722	1,361	3	4,083
Louisa County	Community	17,492	29.0%	5,073	2,536	2	5,073
Lunenburg County	Local	618	31.0%	192	96	2	192
Luray Caverns	Community	7,398	31.0%	2,293	1,147	2	2,293
Manassas Regional	Reliever	92,394	29.0%	26,794	13,397	3	40,191
Mecklenburg-Brunswick Regional	Regional	8,351	29.0%	2,422	1,211	3	3,633
Middle Peninsula Regional	Regional	9,274	29.0%	2,689	1,345	3	4,034
Mountain Empire	Regional	8,844	29.0%	2,565	1,282	3	3,847
New Kent County	Community	15,954	31.0%	4,946	2,473	2	4,946
New London	Local	17,607	31.0%	5,458	2,729	2	5,458

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Airport	Classification	Estimated 2010 GA Ops \2	Estimated Percent Transient \3	Transient Operations	Transient Arrivals	Estimated Passengers per Flight	Estimated GA Visitors
New Market	Local	6,990	31.0%	2,167	1,083	2	2,167
New River Valley	Regional	13,955	29.0%	4,047	2,023	3	6,070
Orange County	Community	9,357	31.0%	2,901	1,450	2	2,901
Shannon	Community	32,699	31.0%	10,137	5,068	2	10,137
Smith Mountain Lake	Local	4,014	31.0%	1,244	622	2	1,244
Stafford Regional	Reliever	18,204	29.0%	5,279	2,640	3	7,919
Suffolk Executive	Regional	27,605	29.0%	8,005	4,003	3	12,008
Tangier Island \1	Community	1,800	100.0%	1,800	900	2	1,800
Tappahannock-Essex County	Community	8,214	29.0%	2,382	1,191	2	2,382
Tazewell County	Regional	3,087	29.0%	895	448	3	1,343
Twin County	Community	4,024	29.0%	1,167	583	2	1,167
Virginia Highlands	Regional	27,236	29.0%	7,898	3,949	3	11,848
Virginia Tech-Montgomery Executive	Community	14,106	29.0%	4,091	2,045	2	4,091
Wakefield Municipal	Community	9,969	29.0%	2,891	1,446	2	2,891
Warrenton-Fauquier	Reliever	51,201	29.0%	14,848	7,424	3	22,273
Waynesboro-Eagle's Nest	Local	16,873	31.0%	5,231	2,615	2	5,231
William M. Tuck	Regional	6,801	29.0%	1,972	986	3	2,958
Williamsburg-Jamestown	Community	21,197	31.0%	6,571	3,285	2	6,571
Winchester Regional	Regional	44,924	29.0%	13,028	6,514	3	19,542
Total General Aviation		**1,008,739**		**298,452**	**149,226**		**401,406**
Total All Airports		**1,368,437**		**402,764**	**201,382**		**610,031**

Note: Excludes visitors arriving on general aviation services at one of the commercial service airports.
\1 Brookneal and Tangier Island have no based aircraft. 2010 GA operation estimates and percent transient operations are based on airport manager estimates.
\2 SH&E Estimates (See Appendix G)
\3 2003 Virginia Air Transportation System Plan Update, except where noted.

Estimated Average Spending by General Aviation Visitors

The average spending per general aviation visitor was primarily estimated based on the expenditures reported in the General Aviation Passenger Survey. Survey results indicate that general aviation visitors spent an average of $202 over the five categories of spending. The average spending estimates from the survey were used to estimate total general aviation visitor spending for the Reliever, General Aviation Regional and General Aviation Community airports. However, average visitor spending for the Local Service airports was assumed to be less than the average spending reported in the survey because of the nature of services at these airports and their underrepresentation in the survey responses. Visitors arriving at the Local Service airports are assumed to be making shorter trips and their spending generally occurs near the airport. This is consistent with how average visitor spending for Local Service airports was treated in the *2004 Virginia Airport System Economic Impact Study.* For these airports average visitor spending was assumed to be $92, which is equal to the assumption used in the 2004 Study ($75.00) plus inflation. The average general aviation visitor spending assumptions by expenditure category and airport type are summarized in Table 3-7.

Table 3-7: Average Spending by General Aviation Visitors

Spending Category	Local Service Airports	All Other GA Airports
Lodging	$26.23	$57.50
Food & Beverage	$27.76	$60.84
Entertainment	$10.94	$23.97
Ground Transportation \1	$15.77	$34.57
Retail	$11.64	$25.50
Total	**$92.34**	**$202.38**

\1 Average spending per passenger is net of on-airport spending for ground transportation.

Source: General Aviation Passenger Survey

Direct visitor spending by general aviation visitors was calculated by multiplying the average visitor spending amounts by the estimated general aviation visitors for each airport and each spending category. The sum of these expenditures is equal to the direct economic activity generated by general aviation visitors.

3.3 Statewide Economic Impacts of Visitors

Visitors arriving at Virginia airports on commercial airlines and general aviation aircraft represent another major economic impact generator for the Commonwealth. Upon leaving the airport, visitors purchase lodging, food, entertainment and other services. This creates jobs in local retail and service industries and generates additional economic activity across the state. The statewide economic impacts of Virginia visitors are summarized in the table below. Virginia visitors currently generate over 157,000 jobs, approximately $5.6 billion in payroll and approximately $11.2 billion in total economic activity.

Table 3-8: Summary of Statewide Economic Impacts of Visitors

	Direct	Indirect & Induced	Total
Jobs			
Commercial Airports (Large & Medium Hub) \1	101,158	33,161	134,319
Commercial Airports (Small & Non-Hub) \2	15,140	5,997	21,137
General Aviation Airports	1,158	437	1,595
Total Jobs	**117,455**	**39,595**	**157,051**
Payroll (millions)			
Commercial Airports (Large & Medium Hub) \1	$3,197	$1,747	$4,944
Commercial Airports (Small & Non-Hub) \2	$376	$260	$637
General Aviation Airports	$27	$18	$45
Total Payroll	**$3,600**	**$2,026**	**$5,626**
Economic Activity (millions)			
Commercial Airports (Large & Medium Hub) \1	$5,190	$3,939	$9,130
Commercial Airports (Small & Non-Hub) \2	$1,081	$821	$1,902
General Aviation Airports	$77	$58	$135
Total Economic Activity	**$6,349**	**$4,818**	**$11,167**

\1 Includes Washington Dulles International and Ronald Reagan Washington National Airports. Economic impacts for the Washington Airports are based on the *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010

\2 Includes Charlottesville-Albemarle, Lynchburg Regional, Newport News-Williamsburg International, Norfolk International, Richmond International, Roanoke Regional and Shenandoah Valley Regional Airports.

The FAA classifies commercial service airports based on their percentage of total U.S. passenger enplanements. Large hub airports enplane at least 1% of total U.S. passengers; medium hubs enplane at least 0.25% but less than 1%; small-hub airports enplane 0.05% to 0.25%; and non-hubs enplane at least 10,000 passengers annually but less than 0.05% of total U.S. enplanements. In Virginia, the Metropolitan Washington airports are large hubs, Norfolk and Richmond airports are small hubs and all other commercial service airports are non-hubs.

3.3.1 Job Impacts

Visitors to Virginia currently help sustain approximately 157,100 jobs across the state. Visitors contribute directly to job opportunities in the retail and service industries, such as jobs at hotels, restaurants, gift shops, sightseeing attractions and local travel agencies. Indirect and induced jobs are also created as businesses that serve visitors and individuals employed by these businesses purchase goods and services that sustain other types of jobs in the region. As shown in the following table, Virginia visitors generate approximately 117,500 direct jobs and 39.600 indirect and induced job opportunities.

Table 3-9: Job Impacts of Visitors by Airport

Airport	Direct	Indirect & Induced	Total
Commercial Service			
Charlottesville-Albemarle	653	251	904
Lynchburg Regional	370	153	522
Newport News-Williamsburg International	1,731	667	2,398
Norfolk International	5,283	2,134	7,417
Richmond International	6,192	2,414	8,606
Roanoke Regional	842	352	1,194
Shenandoah Valley Regional	70	26	95
Washington Dulles International \1	53,625	17,343	70,968
Ronald Reagan Washington National \1	47,533	15,818	63,351
Total Jobs - Commercial Service	**116,298**	**39,158**	**155,456**
General Aviation			
Accomack County	12	5	17
Blackstone AAF	5	2	7
Blue Ridge Regional	25	9	34
Bridgewater Air Park	21	8	29
Brookneal-Campbell County	2	1	2
Chase City Municipal	1	0	1
Chesapeake Regional	58	22	80
Chesterfield County	65	25	90
Crewe Municipal	2	1	2
Culpeper Regional	60	23	83
Danville Regional	21	8	29
Dinwiddie County	26	10	36
Emporia-Greensville Regional	3	1	4
Falwell	2	1	2
Farmville Municipal	14	5	19
Franklin Municipal	8	3	11
Front Royal-Warren County	18	7	25
Gordonsville Municipal	3	1	4
Grundy Municipal	2	1	2

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Airport	Direct	Indirect & Induced	Total
Hampton Roads Executive	84	32	116
Hanover County Municipal	57	22	79
Hummel Field	5	2	6
Ingalls Field	3	1	4
Lake Anna	0	0	0
Lake Country Regional	2	1	2
Lawrenceville-Brunswick Municipal	1	0	1
Lee County	3	1	5
Leesburg Executive	77	29	106
Lonesome Pine	14	5	20
Louisa County	16	6	22
Lunenburg County	0	0	0
Luray Caverns	8	3	11
Manassas Regional	104	38	142
Mecklenburg-Brunswick Regional	13	5	18
Middle Peninsula Regional	15	6	20
Mountain Empire	14	5	19
New Kent County	14	5	20
New London	8	3	11
New Market	3	1	5
New River Valley	22	8	30
Orange County	10	4	13
Shannon	30	12	42
Smith Mountain Lake	2	1	3
Stafford Regional	24	9	33
Suffolk Executive	37	14	51
Tangier Island	7	3	9
Tappahannock-Essex County	8	3	11
Tazewell County	4	2	6
Twin County	4	2	6
Virginia Highlands	33	12	45
Virginia Tech-Montgomery Executive	15	5	20
Wakefield Municipal	11	4	15
Warrenton-Fauquier	66	25	91
Waynesboro-Eagle's Nest	8	3	11
William M. Tuck	12	4	16
Williamsburg-Jamestown	19	7	26
Winchester Regional	61	23	84
Total Jobs - General Aviation	**1,158**	**437**	**1,595**
Total Job Impacts of Visitors	**117,455**	**39,595**	**157,051**

\1 *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010

3.3.2 Payroll Impacts

Visitors to Virginia account for approximately $5.6 billion annually in payroll impacts. These salaries and benefits are associated with job opportunities created either directly by Virginia visitors or by the multiplier effect. This payroll contributes to the personal income of Virginia residents and helps stimulate the local and statewide economies. As shown in Table 3-10, Virginia visitors generate a total of $3.6 billion in direct payroll and $2.0 billion in indirect/induced payroll per year.

Table 3-10: Payroll Impacts of Visitors by Airport, *(in millions)*

Airport	Direct	Indirect & Induced	Total
Commercial Service			
Charlottesville-Albemarle	$15.33	$10.43	$25.75
Lynchburg Regional	$7.96	$5.69	$13.66
Newport News-Williamsburg International	$43.57	$29.91	$73.48
Norfolk International	$137.45	$94.58	$232.03
Richmond International	$148.44	$102.96	$251.41
Roanoke Regional	$22.16	$15.90	$38.06
Shenandoah Valley Regional	$1.40	$0.94	$2.35
Washington Dulles International \1	$1,672.40	$915.60	$2,588.00
Ronald Reagan Washington National \1	$1,524.60	$831.40	$2,356.00
Total Payroll - Commercial Aviation	**$3,573.32**	**$2,007.42**	**$5,580.74**
General Aviation			
Accomack County	$0.24	$0.16	$0.40
Blackstone AAF	$0.09	$0.06	$0.14
Blue Ridge Regional	$0.50	$0.33	$0.83
Bridgewater Air Park	$0.41	$0.28	$0.69
Brookneal-Campbell County	$0.03	$0.02	$0.06
Chase City Municipal	$0.01	$0.01	$0.02
Chesapeake Regional	$1.45	$0.97	$2.42
Chesterfield County	$1.55	$1.05	$2.61
Crewe Municipal	$0.04	$0.02	$0.06
Culpeper Regional	$1.20	$0.82	$2.02
Danville Regional	$0.38	$0.25	$0.63
Dinwiddie County	$0.55	$0.37	$0.91
Emporia-Greensville Regional	$0.05	$0.03	$0.08
Falwell	$0.03	$0.02	$0.06
Farmville Municipal	$0.29	$0.20	$0.49
Franklin Municipal	$0.15	$0.10	$0.24
Front Royal-Warren County	$0.38	$0.26	$0.63
Gordonsville Municipal	$0.06	$0.04	$0.11
Grundy Municipal	$0.04	$0.02	$0.06

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Airport	Direct	Indirect & Induced	Total
Hampton Roads Executive	$2.09	$1.40	$3.49
Hanover County Municipal	$1.35	$0.91	$2.26
Hummel Field	$0.11	$0.08	$0.19
Ingalls Field	$0.07	$0.04	$0.11
Lake Anna	$0.00	$0.00	$0.01
Lake Country Regional	$0.03	$0.02	$0.05
Lawrenceville-Brunswick Municipal	$0.02	$0.01	$0.03
Lee County	$0.06	$0.04	$0.10
Leesburg Executive	$2.51	$1.69	$4.20
Lonesome Pine	$0.29	$0.19	$0.48
Louisa County	$0.32	$0.22	$0.54
Lunenburg County	$0.01	$0.00	$0.01
Luray Caverns	$0.16	$0.11	$0.26
Manassas Regional	$3.05	$2.06	$5.11
Mecklenburg-Brunswick Regional	$0.25	$0.17	$0.42
Middle Peninsula Regional	$0.28	$0.19	$0.47
Mountain Empire	$0.26	$0.17	$0.42
New Kent County	$0.35	$0.24	$0.59
New London	$0.17	$0.12	$0.28
New Market	$0.07	$0.05	$0.11
New River Valley	$0.41	$0.28	$0.69
Orange County	$0.19	$0.13	$0.33
Shannon	$0.71	$0.48	$1.19
Smith Mountain Lake	$0.04	$0.03	$0.07
Stafford Regional	$0.56	$0.38	$0.93
Suffolk Executive	$0.85	$0.57	$1.42
Tangier Island	$0.13	$0.09	$0.21
Tappahannock-Essex County	$0.16	$0.10	$0.26
Tazewell County	$0.10	$0.07	$0.16
Twin County	$0.08	$0.05	$0.13
Virginia Highlands	$0.88	$0.60	$1.48
Virginia Tech-Montgomery Executive	$0.28	$0.19	$0.46
Wakefield Municipal	$0.18	$0.12	$0.31
Warrenton-Fauquier	$1.58	$1.08	$2.65
Waynesboro-Eagle's Nest	$0.16	$0.11	$0.27
William M. Tuck	$0.19	$0.13	$0.31
Williamsburg-Jamestown	$0.47	$0.32	$0.78
Winchester Regional	$1.35	$0.91	$2.26
Total Payroll - General Aviation	**$27.15**	**$18.33**	**$45.48**
Total Payroll Impacts of Visitors	**$3,600.47**	**$2,025.75**	**$5,626.22**

\1 *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010

3.3.3 Economic Activity Impacts

Visitors to Virginia produce a total of $11.2 billion in economic activity each year. Direct economic activity results from visitor expenditures on accommodations, food, local transportation, entertainment and retail sales. Through the multiplier effect, this spending generates additional economic activity in other industries across the state. As shown in Table 3-11, Virginia's visitors generate more than $6.3 billion in direct economic activity and approximately $4.8 billion in indirect/induced economic activity annually.

Table 3-11: Economic Activity Impacts of Visitors by Airport, *(in millions)*

Airport	Direct	Indirect & Induced	Total
Commercial Service			
Charlottesville-Albemarle	$44.06	$33.38	$77.44
Lynchburg Regional	$24.06	$18.27	$42.33
Newport News-Williamsburg International	$126.14	$95.39	$221.53
Norfolk International	$387.03	$294.09	$681.11
Richmond International	$432.51	$327.60	$760.10
Roanoke Regional	$63.21	$48.98	$112.19
Shenandoah Valley Regional	$4.26	$3.19	$7.46
Washington Dulles International \1	$2,504.72	$1,900.93	$4,405.65
Ronald Reagan Washington National \1	$2,685.68	$2,038.27	$4,723.95
Total Economic Activity - Commercial Service	**$6,271.66**	**$4,760.09**	**$11,031.75**
General Aviation			
Accomack County	$0.68	$0.51	$1.19
Blackstone AAF	$0.27	$0.20	$0.47
Blue Ridge Regional	$1.50	$1.14	$2.64
Bridgewater Air Park	$1.25	$0.94	$2.19
Brookneal-Campbell County	$0.10	$0.08	$0.18
Chase City Municipal	$0.04	$0.03	$0.06
Chesapeake Regional	$4.04	$3.05	$7.09
Chesterfield County	$4.44	$3.36	$7.80
Crewe Municipal	$0.10	$0.08	$0.18
Culpeper Regional	$3.46	$2.62	$6.08
Danville Regional	$1.14	$0.86	$2.01
Dinwiddie County	$1.62	$1.23	$2.85
Emporia-Greensville Regional	$0.14	$0.10	$0.24
Falwell	$0.10	$0.07	$0.17
Farmville Municipal	$0.82	$0.62	$1.45
Franklin Municipal	$0.45	$0.34	$0.80
Front Royal-Warren County	$1.12	$0.85	$1.97
Gordonsville Municipal	$0.18	$0.14	$0.32
Grundy Municipal	$0.10	$0.07	$0.17
Hampton Roads Executive	$5.86	$4.42	$10.28

– *continued* –

Airport	Direct	Indirect & Induced	Total
Hanover County Municipal	$3.87	$2.92	$6.79
Hummel Field	$0.32	$0.24	$0.55
Ingalls Field	$0.18	$0.14	$0.32
Lake Anna	$0.01	$0.01	$0.02
Lake Country Regional	$0.09	$0.07	$0.16
Lawrenceville-Brunswick Municipal	$0.04	$0.03	$0.08
Lee County	$0.17	$0.13	$0.31
Leesburg Executive	$6.47	$4.89	$11.36
Lonesome Pine	$0.83	$0.62	$1.45
Louisa County	$1.03	$0.78	$1.80
Lunenburg County	$0.02	$0.01	$0.03
Luray Caverns	$0.46	$0.35	$0.82
Manassas Regional	$8.13	$6.15	$14.28
Mecklenburg-Brunswick Regional	$0.74	$0.56	$1.29
Middle Peninsula Regional	$0.82	$0.62	$1.43
Mountain Empire	$0.78	$0.59	$1.37
New Kent County	$1.00	$0.76	$1.76
New London	$0.50	$0.38	$0.89
New Market	$0.20	$0.15	$0.35
New River Valley	$1.23	$0.93	$2.16
Orange County	$0.59	$0.44	$1.03
Shannon	$2.05	$1.55	$3.60
Smith Mountain Lake	$0.12	$0.09	$0.20
Stafford Regional	$1.60	$1.21	$2.81
Suffolk Executive	$2.43	$1.84	$4.27
Tangier Island	$0.36	$0.28	$0.64
Tappahannock-Essex County	$0.48	$0.36	$0.85
Tazewell County	$0.27	$0.21	$0.48
Twin County	$0.24	$0.18	$0.42
Virginia Highlands	$2.40	$1.81	$4.21
Virginia Tech-Montgomery Executive	$0.83	$0.63	$1.45
Wakefield Municipal	$0.59	$0.44	$1.03
Warrenton-Fauquier	$4.51	$3.41	$7.91
Waynesboro-Eagle's Nest	$0.48	$0.37	$0.85
William M. Tuck	$0.60	$0.45	$1.05
Williamsburg-Jamestown	$1.33	$1.01	$2.34
Winchester Regional	$3.96	$2.99	$6.94
Total Economic Activity - General Aviation	**$77.13**	**$58.27**	**$135.39**
Total Economic Activity Impacts of Visitors	**$6,348.78**	**$4,818.36**	**$11,167.14**

\1 *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010

The regional economic impacts of Virginia visitors can be found in Appendix D.

4 Economic Impacts of Virginia's Airports

4.1 Introduction

Previous sections described and presented the economic benefits associated with the activities of on-airport tenants and businesses and off-airport spending by visitors in Virginia. This section presents the combined economic benefits of on-airport and visitor spending for each of the public-use airports in the DOAV system (excluding the Metropolitan Washington Airports). Impacts of off-airport airport dependent businesses in the state are not included here, but addressed separately in Chapter 5.

Statewide economic benefits are presented in this Chapter. Regional economic benefits describe the impacts that airports have on the local communities they serve and are presented in Appendix D. (See Appendix E for individual summaries of aviation activity and state and regional economic impacts for each airport.)

4.2 Total Statewide Economic Impacts of Virginia's Airports

In total, Virginia's commercial service and general aviation airports generate close to 214,000 jobs, $8.5 billion in payroll and $21.2 billion in economic activity. Total statewide economic benefits are summarized in the table below. Impacts of both on-airport tenants and businesses in Virginia and off-airport visitor spending are included, with all direct and indirect/induced impacts aggregated.

Table 4-1: Summary of Statewide Airport Economic Impacts

	Jobs	Payroll (millions)	Economic Activity (millions)
Commercial Airports (Large & Medium Hub) \1	179,655	$7,362	$17,448
Commercial Airports (Small & Non-Hub) \2	29,181	$951	$3,012
General Aviation Airports	5,154	$213	$728
Total Virginia Airports	**213,990**	**$8,527**	**$21,188**

Note: Includes impacts of on-airport tenants and business and off-airport visitor spending. Excludes impacts of off-airport airport dependent businesses.

\1 Includes Washington Dulles International and Ronald Reagan Washington National Airports. Economic impacts for the Washington Airports are based on the *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010

\2 Includes Charlottesville-Albemarle, Lynchburg Regional, Newport News-Williamsburg International, Norfolk International, Richmond International, Roanoke Regional and Shenandoah Valley Regional Airports.

The FAA classifies commercial service airports based on their percentage of total U.S. passenger enplanements. Large hub airports enplane at least 1% of total U.S. passengers; medium hubs enplane at least 0.25% but less than 1%; small-hub airports enplane 0.05% to 0.25%; and non-hubs enplane at least 10,000 passengers annually but less than 0.05% of total U.S. enplanements. In Virginia, the Metropolitan Washington airports are large hubs, Norfolk and Richmond airports are small hubs and all other commercial service airports are non-hubs.

4.2.1 Economic Impacts by Airport

Virginia's commercial service and general aviation airports make an extremely important contribution to jobs, payroll and economic activity across the state. The commercial service airports account for approximately 97% to 98% of the economic impacts of Virginia's airports. Table 4-2 presents the total statewide on-airport and visitor spending impacts for each of the Commonwealth's 66 public-use airports.

Table 4-2: Statewide Economic Impacts by Airport

Airport	Jobs	Payroll (millions)	Economic Activity (millions)
Commercial Service Airports			
Charlottesville-Albemarle	1,267	$40.67	$128.68
Lynchburg Regional	911	$29.80	$109.19
Newport News-Williamsburg International	3,382	$114.08	$373.56
Norfolk International	10,269	$341.44	$1,075.24
Richmond International	10,910	$350.28	$1,082.61
Roanoke Regional	2,189	$68.09	$216.15
Shenandoah Valley Regional	252	$6.73	$26.20
Washington Dulles International \1	96,980	$3,991.00	$10,123.25
Ronald Reagan Washington National \1	82,675	$3,371.40	$7,324.92
Total Economic Impacts - Commercial Service	**208,836**	**$8,313.50**	**$20,459.81**
General Aviation Airports			
Accomack County	32	$0.70	$2.38
Blackstone AAF	15	$0.20	$0.67
Blue Ridge Regional	59	$1.31	$5.20
Bridgewater Air Park	565	$18.43	$85.14
Brookneal-Campbell County	4	$0.16	$0.64
Chase City Municipal	3	$0.08	$0.45
Chesapeake Regional	182	$6.31	$21.67
Chesterfield County	239	$7.90	$27.80
Crewe Municipal	4	$0.14	$0.44
Culpeper Regional	108	$3.10	$9.74
Danville Regional	72	$1.91	$6.83
Dinwiddie County	75	$3.00	$10.34
Emporia-Greensville Regional	16	$0.38	$1.29
Falwell	53	$2.06	$9.11
Farmville Municipal	44	$1.16	$3.60
Franklin Municipal	19	$0.60	$2.47

– continued –

Airport	Jobs	Payroll (millions)	Economic Activity (millions)
Front Royal-Warren County	45	$1.16	$4.59
Gordonsville Municipal	11	$0.35	$1.12
Grundy Municipal	4	$0.13	$0.53
Hampton Roads Executive	237	$8.81	$29.40
Hanover County Municipal	191	$8.38	$29.36
Hummel Field	23	$1.69	$5.65
Ingalls Field	10	$0.29	$0.93
Lake Anna	2	$0.08	$0.25
Lake Country Regional	4	$0.11	$0.55
Lawrenceville-Brunswick Municipal	5	$0.05	$0.23
Lee County	7	$0.18	$0.72
Leesburg Executive	634	$32.74	$78.06
Lonesome Pine	26	$0.69	$2.24
Louisa County	50	$1.49	$4.76
Lunenburg County	2	$0.08	$0.47
Luray Caverns	23	$0.39	$1.42
Manassas Regional	1,056	$69.87	$234.61
Mecklenburg-Brunswick Regional	34	$0.63	$2.72
Middle Peninsula Regional	93	$2.09	$7.03
Mountain Empire	31	$0.65	$2.88
New Kent County	36	$1.14	$3.88
New London	15	$0.48	$1.79
New Market	17	$0.65	$2.62
New River Valley	67	$1.69	$5.93
Orange County	104	$1.85	$5.71
Shannon	83	$3.04	$11.83
Smith Mountain Lake	5	$0.15	$0.60
Stafford Regional	107	$4.44	$18.41
Suffolk Executive	136	$4.41	$15.30
Tangier Island	11	$0.22	$0.65
Tappahannock-Essex County	17	$0.45	$1.52
Tazewell County	12	$0.26	$1.03
Twin County	14	$0.40	$1.35
Virginia Highlands	70	$2.22	$7.57
Virginia Tech-Montgomery Executive	70	$1.98	$9.40
Wakefield Municipal	17	$0.38	$1.53
Warrenton-Fauquier	131	$4.34	$14.36

– continued –

Airport	Jobs	Payroll (millions)	Economic Activity (millions)
Waynesboro-Eagle's Nest	13	$0.33	$1.12
William M. Tuck	22	$0.46	$1.58
Williamsburg-Jamestown	62	$1.29	$4.08
Winchester Regional	168	$5.88	$22.54
Total Economic Impacts - General Aviation	**5,154**	**$213.35**	**$728.10**
Total Economic Impacts of On-Airport Tenants and Visitors	**213,990**	**$8,526.85**	**$21,187.91**

Note: Includes impacts of on-airport tenants and business and off-airport visitor spending.

\1 *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010

Appendix F shows the ratios of total economic impact to various activity measures (i.e., passenger enplanements, aircraft operations and based aircraft) for each airport. These measures are useful for comparing economic the impacts of airports in a similar class and catchment area.

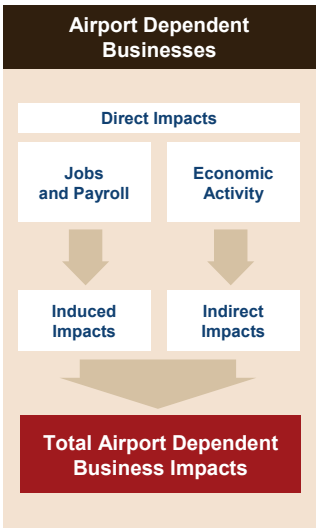
5 Economic Impacts of Airport Dependent Businesses

5.1 Introduction

Airport dependent business impacts represent the contribution of the Commonwealth's public use airports to economic development in Virginia. Businesses across the Commonwealth depend on airports for shipping freight to customers, just-in-time receiving as well as shipping, a high degree of business travel, or specialized airport facilities and services such as free trade zones, U.S. Customs and U.S. Immigration and Naturalization Services. These businesses would relocate or suffer substantial losses if the airports were not available. This type of economic benefit is not included in traditional economic impact assessments but is provided in this study as an indicator of the importance of airports to area businesses.

In 2010, Virginia's public-use airports, excluding the MWAA airports[14], contributed $7.6 billion in increased productivity for businesses and industries throughout Virginia. This additional economic activity was supported by 45,000 workers, who collectively earned $2.6 billion in income. This section describes how airport dependent business impacts were calculated.

5.2 Approach for Estimating Economic Impacts of Airport Dependent Businesses



The total contribution of the airports to the productivity of Virginia's airport dependent businesses was estimated based on: (1) data collected from a survey of off-airport businesses and based aircraft owners to identify economic activity that would be lost if the airports were not available and (2) application of the IMPLAN Model[15] to estimate the impact of that economic activity on other industry sectors in Virginia.

5.2.1 Types of Economic Impacts

Direct Impacts of Airport Dependent Businesses

Direct impacts of airport dependent businesses equal the portion of economic activities of off-airport businesses that depends on Virginia's public use airports,

[14] The MWAA study included the economic impacts of "airport dependent industries" based solely on air exports and domestic cargo shipments. However, the MWAA study did not consider businesses that were heavily dependent on air travel or specialized airport facilities. Because of definitional and methodological difference and potential duplication, the estimated "airport dependent industries" impacts from the MWAA study are not included here. The MWAA study estimated that "airport dependent industries" contributed 15,994 jobs and $1.0 billion in payroll to the Virginia economy. See *Metropolitan Washington Airports Authority, Technical Report: Economic Impact Study – 2009*, prepared by the Louis Berger Group, October, 2010.

[15] The study used the IMPLAN System, Version 3, 2009. Data was adjusted using deflators from the U.S. Bureau of Labor Statistics to reflect the 2010 economy.

National Airports. The direct impacts include the contribution of airports to the jobs, payroll and economic activity of these companies. Examples of airport dependent businesses include retailers that ship freight to airports or retrieve freight from airports, a consulting firm that sends staff to national or international locations, a technology manufacturer that ships high value goods worldwide and sends professionals on sales calls or to troubleshoot problems with customers, financial firms that require senior staff to inspect potential investments as part of its evaluation process and traditional manufacturers that receive production inputs "just-in-time".

Indirect and Induced Impacts of Airport Dependent Businesses

Indirect impacts of airport dependent businesses are generated when off-airport businesses that rely on airport services use a portion of their revenues to purchase goods and services from other businesses in Virginia. For example, a wholesaler may buy trucking services to transport its products to the airport for shipment and other companies may use their airport-related revenues to buy office furniture, retain legal services or obtain office cleaning services. Such purchases are business income to these suppliers, which in turn supports additional jobs and payroll at the supplier firms.

Induced impacts are created when workers employed at the airport dependent businesses or their suppliers earn income that is spent on consumer purchases in Virginia. This re-spending of income supports additional jobs within the Commonwealth at grocery stores, dry cleaners and other local and state establishments.

The sum of the direct airport dependent business impacts and the indirect/induced impacts produces the total economic benefits associated with airport dependent businesses in Virginia. As previously described, direct and indirect/induced benefits are measured in terms of jobs, payroll and economic activity. Jobs represent the total number of individuals employed, including both part- and full-time positions. For example, a manufacturing firm with 90 jobs associated with airport dependent output, may have 78 full-time and 12 part-time employees.

5.2.2 Background on the Virginia Economy

The purpose of looking at airport dependency is to estimate the extent to which Virginia's public use airports contribute to the overall vitality of the Commonwealth's economy. More than 4.7 million people work in the Commonwealth of Virginia. These workers generate more than $650 billion in economic activity, of which $267 billion is employee compensation and proprietor income. (See Table 5-1)

Table 5-1: Overview of the Virginia Economy, 2010

Economic Sector	Jobs	Employee Compensation & Proprietor Income (millions)	Economic Activity (millions)
Agriculture, Forestry, Fish. & Hunting	58,000	$581.8	$3,571.3
Mining	13,000	$969.1	$4,259.1
Utilities	12,000	$1,673.0	$9,517.5
Construction	295,000	$13,874.0	$35,313.2
Manufacturing	241,000	$15,850.9	$93,586.7

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Economic Sector	Jobs	Employee Compensation & Proprietor Income (millions)	Economic Activity (millions)
Wholesale Trade	119,000	$9,073.5	$23,751.3
Retail Trade	471,000	$13,823.3	$26,312.0
Transportation & Warehousing	132,000	$6,377.6	$17,662.8
Information	95,000	$8,696.7	$35,872.8
Finance & Insurance	180,000	$13,373.3	$49,192.5
Real Estate & Rental	214,000	$4,012.5	$71,908.2
Professional- Scientific & Tech Services	504,000	$44,533.2	$68,031.5
Management of Companies	73,000	$8,721.7	$16,138.7
Administrative & Waste Services	256,000	$8,848.9	$17,512.4
Educational Services	86,000	$3,253.0	$5,910.0
Health & Social Services	415,000	$21,423.6	$39,678.6
Arts, Entertainment & Recreation	89,000	$1,709.9	$4,091.7
Accommodation & Food Services	308,000	$6,755.3	$18,948.5
Other Services	267,000	$10,457.2	$18,739.8
Government & Non NAICs	911,000	$73,675.8	$96,127.3
Total	**4,738,000**	**$267,684.4**	**$656,126.0**

Sources: U.S. Department of Commerce and U.S. Department of Labor.

5.2.3 The Economic Impact Modeling Process

To develop an estimate of off-airport business activities that rely extensively on airports, data was collected from two surveys to determine airport dependency and direct impacts. Indirect/induced impacts were then estimated by applying multipliers from the IMPLAN Model.

Direct Impacts of Airport Dependent Businesses

The identification of airport dependent businesses was based on the output from two surveys specifically conducted for this study: (1) the Airport Dependent Business Survey and (2) the Aircraft Owner Survey. (See Section 5.2.3 for a description of the surveys and survey methodology.) Companies that responded to the surveys and identified as airport dependent were then organized into 20 industry categories, generally at the two-digit NAICS level (North American Industrial Classification System). (See Table 5-1) However, to be consistent with other studies in the Commonwealth, aerospace industries were separated and treated as a single sector. Several sectors were not represented in survey responses, including agriculture, utilities, management of companies and administrative and waste services and therefore were not counted, which means that the survey results are a conservative estimate of airport dependence. Also, responses of companies in the accommodations and food services sector and air service sector were discarded because they overlapped too greatly with on-airport impacts and off-airport visitor spending.

services sector and air service sector were discarded because they overlapped too greatly with on-airport impacts and off-airport visitor spending.

Direct jobs impacts were based on survey responses indicating the portion of each firm's employment that depends on the state's airports. Direct payroll impacts and business economic activity were calculated using county-based U.S. Bureau of Economic Analysis (BEA) data, provided through IMPLAN. Using these BEA data, ratios of "economic activity to jobs" and "payroll to jobs" were developed and applied to the direct airport dependent jobs to estimate direct payroll and economic activity impacts.

Indirect and Induced Impacts of Airport Dependent Businesses

To quantify the multiplier effects, the IMPLAN modeling system was calibrated for the Commonwealth of Virginia for the major industry sectors at the two-digit NAICS classification level, with a breakout of the aerospace sector. (See Table 5-2) Separate multipliers for each industry sector that represents off-airport dependant industries were used to quantify the effect of continued re-investment of the direct economic activity. These indirect and induced impacts include (1) the purchases of goods and services by the identified airport dependent businesses from local and other Virginia based suppliers; and (2) the re-spending of income by workers employed at airport dependent businesses and their suppliers.

Table 5-2: Virginia Statewide Multipliers by Economic Sector for Airport Dependent Businesses

Sectors	Jobs	Personal Income	Economic Activity
Mining	1.204618	0.846840	0.557799
Construction	0.645008	0.667338	0.704597
Manufacturing	1.431001	1.165396	0.551676
Aerospace	0.832297	0.477013	0.326507
Wholesale Trade	1.031830	0.684592	0.699765
Retail Trade	0.248013	0.390813	0.586474
Transportation and Warehousing	0.700481	0.694188	0.699844
Information	1.854702	1.055790	0.725047
Finance and Insurance	1.399120	0.984832	0.768161
Real Estate and Rental	0.873326	2.342273	0.404148
Professional, Scientific and Technical Services	0.902479	0.479919	0.874314
Educational Services	0.402322	0.505543	0.831415
Health Care and Social Assistance	0.604163	0.554742	0.869314
Arts, Entertainment and Recreation	0.313277	0.767139	0.858374
Other Services (except Public Administration)	0.436256	0.527807	0.848551
Government & Non NAICs	0.541795	0.298775	0.647928

Sources: IMPLAN

5.2.4 Survey and Data Collection Process

The identification of airport dependent businesses and direct impacts was based on data collected from two surveys, specially undertaken for this study: (1) the Airport Dependent Business Survey and (2) the Aircraft Owner Survey.

Airport Dependent Business Survey

A data list was purchased to identify the largest companies in the Commonwealth in terms of jobs and contact information for the companies' Chief Executive Officers. No effort was made to screen these companies, or the industries that they represent, to determine if it is likely that airports play an important role in their businesses. Thus the survey sample was reasonably representative of the breadth of industries in the Virginia economy.

The Airport Dependent Business Survey was distributed to companies as an online survey, which allowed respondents to complete the questionnaire electronically and results were automatically tabulated. In total, the survey was distributed to nearly 5,900 companies in Virginia, excluding companies within 15 mile radii of Washington Dulles International and Ronald Reagan Washington National Airports, since companies located near those airports would tend to overwhelmingly use those airports.[16] Of the distributed surveys, 182 were completed, which is approximately equal to a 90% confidence level with an error rate of plus or minus 6%.

Aircraft Owner Survey

The study effort also included a survey of on-airport based aircraft owners. The Aircraft Owner Survey was mailed to a comprehensive list of 4,450 registered owners of aircraft based at the Commonwealth's public-use airports. The list was obtained through information gathered from Airport Managers as well as from DOAV. Surveys were mailed in October 2010 with a pre-paid return mailer to encourage completion. A total of 380 surveys were completed, representing a 95% confidence interval. Of the completed surveys, 271 aircraft owners indicated that their aircraft was used for business purposes.

Overall, responses were obtained from 453 businesses that indicated reliance on airport services. Both surveys asked for number of workers in the company and the percent of economic activity that is reliant on one or more of Virginia's airports. Multiplying workers times the percent of airport reliance, yielded an estimate of the number of jobs at each company that relies on airports.[17] (See Appendix C for the survey instruments.)

[16] Survey responses of companies that also responded to the Aircraft Owner Survey were not double counted.
[17] To encourage survey responses, ranges were provided for the percent of aviation dependence, and the midpoint of each range was used to estimate airport dependent employment.

5.3 Statewide Economic Impacts of Airport Dependent Businesses

5.3.1 Impacts of Survey Respondents

The total economic benefits for this impact category are the sum of the direct contribution of airports to the off-airport-businesses in the Commonwealth and related secondary impacts. The responses of the two surveys alone indicated that 27,500 workers in the Commonwealth are employed at off-airport companies that rely on airports to increase their productivity. Total impacts (including direct and spinoff effects) are calculated at 45,000 jobs, $2.6 billion in payroll and $7.6 billion in economic activity. (See Table 5-3)

Table 5-3: Statewide Economic Impacts of Airport Dependent Businesses by Industry

NAICS Category	Jobs			Payroll			Economic Activity		
	Direct	Spinoff	Total Jobs	Direct	Spinoff	Total Personal Income	Direct	Spinoff	Total Economic Activity
Mining	45	33	78	$3,510,000	$2,610,000	$6,120,000	$14,851,000	$11,049,000	$25,900,000
Construction	97	172	269	$4,750,000	$8,430,000	$13,180,000	$12,641,000	$22,420,000	$35,061,000
Manufacturing	3,250	429	3,679	$221,690,000	$29,280,000	$250,970,000	$1,289,701,000	$170,352,000	$1,460,053,000
Aerospace Manufacturing	350	250	600	$31,460,000	$11,605,000	$43,065,000	$125,170,000	$33,175,000	$158,345,000
Wholesale Trade	6,275	973	7,248	$499,740,000	$77,470,000	$577,210,000	$1,217,029,000	$188,665,000	$1,405,694,000
Retail Trade	9,985	2,921	12,906	$304,850,000	$89,190,000	$394,040,000	$566,701,000	$165,799,000	$732,500,000
Transportation and Warehousing	166	858	1,024	$8,350,000	$43,170,000	$51,520,000	$23,589,000	$121,909,000	$145,498,000
Finance and Insurance	3,407	1,843	5,250	$263,530,000	$142,550,000	$406,080,000	$969,766,000	$524,583,000	$1,494,349,000
Real Estate, Rental and Leasing	426	1,593	2,019	$8,310,000	$31,060,000	$39,370,000	$144,884,000	$541,747,000	$686,631,000
Professional, Scientific and Technical Services	2,658	2,289	4,947	$244,690,000	$210,750,000	$455,440,000	$385,659,000	$332,168,000	$717,827,000
Educational Services	786	424	1,210	$30,880,000	$16,660,000	$47,540,000	$58,403,000	$31,513,000	$89,916,000
Arts, Entertainment and Recreation	22	574	596	$440,000	$11,450,000	$11,890,000	$1,080,000	$28,165,000	$29,245,000
Other Services (except Public Administration)	49	4,229	4,278	$2,210,000	$230,400,000	$232,610,000	$4,666,000	$524,808,000	$529,474,000
Public Administration	32	870	902	$2,690,000	$73,300,000	$75,990,000	$3,621,000	$98,498,000	$102,119,000
Total	**27,548**	**17,458**	**45,006**	**$1,627,100,000**	**$977,925,000**	**$2,605,025,000**	**$4,817,761,000**	**$2,794,851,000**	**$7,612,612,000**

Source: Airport Dependent Business Survey, Aircraft Owner Survey and IMPLAN modeling system.

5.3.2 Expansion of Survey Results to the Virginia Economy

To estimate the effect of airport dependent businesses on the general economy of Virginia, a two-step process was followed to expand the survey results to the total Virginia economy. First, the survey results were expanded to account for all businesses surveyed and then these results were expanded to account for all industry sectors in the Virginia economy.

In the first step, the direct results of the airport dependent businesses were applied by industry sector to the total jobs by sector of the businesses that were invited to participate in the survey. For each industry sector, the percentage of airport dependence estimated from the survey responses was reduced by 50% to adjust for bias and then applied to total industry sector jobs.[18] An additional conservative aspect of this application was that sectors which were not included in responses to the survey were not counted when the results were expanded to the total survey sample (including respondents and non-respondents). These results were then added to the corporate based aircraft survey results for an estimate of the direct economic contribution of all firms invited to participate in the survey and the based aircraft survey respondents. These expanded results were then extrapolated to the full Virginia economy.

Using the ESRI Business Analyst that combines a geographic information system with the InfoUSA business establishment database, the intermediate expansion to the full survey sample was further extrapolated by sector to the Virginia economy (excluding businesses within the fifteen mile radii from DCA and IAD). The estimates of direct jobs in airport dependent industries was 75,200 based on the businesses included in the survey (respondents and non-respondents) and 316,400 for the overall Virginia economy, which is less than 7% of the Commonwealth's total employment base and about 9% of the employment base outside the 15 mile radii around the Metropolitan Washington airports.

Table 5-4: Economic Impacts of Airport Dependent Businesses Extrapolated to Virginia Economy

	Jobs	Payroll (millions)	Economic Activity (millions)
Survey Respondents	45,006	$2,605	$7,613
Survey Sample	125,995	$5,583	$18,649
Virginia Economy	569,984	$32,917	$91,057

[18] It was assumed that businesses that are dependent on airports were more likely to answer the survey than businesses that are not dependent on airports.

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VIRGINIA AIRPORT SYSTEM ECONOMIC IMPACT STUDY

Appendix A:
AIRPORT CATCHMENT AREAS

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Airport Catchment Areas

Airport Name	Counties/Cities in Region
Accomack County	Accomack
Blackstone AAF	Dinwiddie Lunenburg Nottoway
Blue Ridge Regional	Henry Martinsville City
Bridgewater Air Park	Augusta Harrisonburg City Rockingham
Brookneal-Campbell County	Campbell Lynchburg City
Charlottesville-Albemarle	Albemarle Charlottesville City
Chase City Municipal	Charlotte Mecklenburg
Chesapeake Regional	Chesapeake City Norfolk City Portsmouth City Virginia Beach City
Chesterfield County	Chesterfield Henrico Richmond City
Crewe Municipal	Amelia Lunenburg Nottoway Prince Edward
Culpeper County	Culpeper Fauquier
Danville Regional	Danville City Pittsylvania
Dinwiddie County Airport	Chesterfield Petersburg City Dinwiddie Colonial Heights City
Emporia-Greensville Regional	Brunswick Greensville Southampton
Falwell	Amherst Campbell Lynchburg City
Farmville Regional	Buckingham Cumberland Prince Edward
Franklin Municipal	Southampton Suffolk City Isle of Wight
Front Royal-Warren County	Frederick Shenandoah Warren
Gordonsville Municipal	Albemarle Charlottesville City Orange

Source: DOAV

Airport Catchment Areas

Airport Name	Counties/Cities in Region
Grundy Municipal	Buchanan Dickenson
Hampton Roads Executive	Chesapeake City Norfolk City Virginia Beach City Suffolk City
Hanover County Municipal	Chesterfield Henrico Richmond City Hanover
Hummel Field	Gloucester Middlesex Lancaster
Ingalls Field	Bath
Lake Anna	Louisa
Lake Country Regional	Mecklenburg
Lawrenceville-Brunswick Municipal	Brunswick Greensville Mecklenburg
Lee County	Lee Wise
Leesburg Executive	Fairfax Loudoun
Lonesome Pine	Dickenson Wise
Louisa County	Louisa Orange
Lunenburg County	Lunenburg Mecklenburg Nottoway
Luray Caverns	Page Rockingham Shenandoah
Lynchburg Regional	Bedford Campbell Lynchburg City
Manassas Regional	Fairfax Prince William Manassas City Manassas Park City
Mecklenburg-Brunswick Regional	Brunswick Mecklenburg
Middle Peninsula Regional	Gloucester King and Queen New Kent King William
Mountain Empire	Smyth Wythe
New Kent County	Henrico Richmond City New Kent

Source: DOAV

Airport Catchment Areas

Airport Name	Counties/Cities in Region
New London	Bedford Campbell Lynchburg City
Newport News-Williamsburg	Norfolk City Virginia Beach City Newport News City Hampton City James City York
New Market	Harrisonburg City Rockingham Shenandoah
New River Valley	Montgomery Pulaski
Norfolk International	Chesapeake City Hampton City Newport News City Norfolk City Virginia Beach City
Orange County	Culpeper Orange
Richmond International	Richmond City Henrico Chesterfield Hanover
Roanoke Regional	Roanoke City
Shannon	Prince William Spotsylvania Stafford
Shenandoah Valley Regional	Augusta Rockingham Staunton City Waynesboro City
Smith Mountain Lake	Bedford Bedford City Franklin
Stafford Regional	Prince William Spotsylvania Stafford
Suffolk Executive	Chesapeake City Portsmouth City Suffolk City
Tangier Island	Accomack
Tappahannock-Essex County	Essex Richmond Westmoreland
Tazewell County	Russell Tazewell
Twin County	Carroll Wythe
Virginia Highlands	Bristol City Washington

Source: DOAV

Airport Catchment Areas

Airport Name	Counties/Cities in Region
Virginia Tech	Montgomery Radford City Pulaski
Wakefield Municipal	Isle Of Wight Prince George Southampton Sussex
Warrenton-Fauquier	Fauquier Manassas City Prince William
Waynesboro/Eagle's Nest	Augusta Staunton City Waynesboro City
William M. Tuck	Halifax
Williamsburg-Jamestown	James City Newport News City York
Winchester Regional	Frederick Warren Winchester City

Source: DOAV

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VIRGINIA AIRPORT SYSTEM ECONOMIC IMPACT STUDY

Appendix B:
AIRPORT CATCHMENT AREA (REGIONAL) MULTIPLIERS

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Airport Catchment Area Multipliers for On-Airport Industry Sectors

Jobs

AirportName	Distribution	Aviation Services	Restaurant	Federal Government	Services	Mfg Other	Local Government	Transportation	Mfg Aerospace	Military	Car Rental	Construction	Security	Travel Agents	Flight Training	Onsite retail	Crop Spraying
Accomack County	0.4735	0.8728	0.2003	0.4571	0.4230	0.7458	0.4342	0.1576	0.2676	0.2788	0.5976	0.5039	0.3036	0.5145	0.1567	0.1155	0.0876
Blackstone AAF	0.4781	0.7871	0.1823	0.2190	0.1494	1.4168	0.2258	0.1795	0.5349	0.1222	0.5976	0.3582	0.1960	0.4938	0.2110	0.1104	0.0522
Blue Ridge Regional	0.5866	0.8340	0.2065	0.2487	0.3009	0.7918	0.4508	0.3208	0.5349	0.1572	0.7254	0.4287	0.1519	0.5739	0.2073	0.1524	0.0566
Bridgewater Air Park	0.7799	1.0232	0.2897	0.4359	0.3612	1.3339	0.4703	0.2765	0.5349	0.2265	0.7769	0.5593	0.3100	0.6245	0.2360	0.2279	0.1419
Brookneal-Campbell County	0.8708	0.9301	0.2795	0.3624	0.3417	1.4168	0.4839	0.3278	0.5349	0.1847	0.6902	0.6314	0.2318	0.5935	0.2236	0.1658	0.0959
Charlottesville-Albemarle	0.8708	1.0232	0.3035	0.5505	0.4416	1.4168	0.5541	0.3747	0.6180	0.4835	0.7769	0.6335	0.3571	0.7088	0.4409	0.2276	0.1186
Chase City Municipal	0.6338	0.8056	0.2706	0.4538	0.3627	1.0242	0.4700	0.2685	0.5349	0.2556	0.7769	0.5428	0.2761	0.5452	0.3633	0.1952	0.0875
Chesapeake Regional	0.8708	1.0232	0.3035	0.6728	0.4416	1.4412	0.5541	0.3706	0.6954	0.5983	0.7769	0.6335	0.3248	0.7088	0.4830	0.2225	0.1122
Chesterfield County	0.8708	1.0232	0.3035	0.6476	0.4416	1.4168	0.5027	0.3706	0.6954	0.3648	0.7769	0.6335	0.3923	0.7088	0.4830	0.2225	0.1413
Crewe Municipal	0.6877	0.7871	0.2962	0.4134	0.2667	1.3494	0.3207	0.2141	0.5349	0.2322	0.7950	0.5001	0.3036	0.5452	0.3561	0.1850	0.0876
Culpeper County	0.8708	1.0232	0.3035	0.7472	0.4416	1.4168	0.5541	0.2239	0.6852	0.2323	0.7769	0.6332	0.3983	0.7088	0.4830	0.2148	0.1413
Danville Regional	0.7827	0.9681	0.2808	0.3684	0.3679	1.2970	0.5356	0.2318	0.6954	0.2246	0.4918	0.5288	0.2742	0.7016	0.4586	0.1649	0.1102
Dinwiddie County	0.8708	1.0232	0.3035	0.6608	0.4416	1.4168	0.5541	0.3706	0.6954	0.3000	0.7769	0.6335	0.3636	0.7088	0.4506	0.2225	0.1413
Emporia-Greensville Regional	0.5621	0.7871	0.1825	0.1908	0.3505	1.2965	0.1599	0.1546	0.5349	0.1500	0.7769	0.2804	0.1636	0.5528	0.1987	0.0945	0.0786
Falwell	0.8708	0.9756	0.2892	0.4117	0.3504	1.4168	0.5226	0.3415	0.5349	0.2098	0.7343	0.6335	0.2436	0.6041	0.2307	0.1775	0.0912
Farmville Regional	0.6996	1.0232	0.3035	0.4838	0.3619	1.1630	0.4883	0.2262	0.5349	0.2585	0.7679	0.5483	0.2289	0.5452	0.4463	0.1947	0.1413
Franklin Municipal	0.6493	0.7323	0.2165	0.5847	0.3142	1.4168	0.3983	0.2344	0.5349	0.4074	0.7769	0.4573	0.2166	0.5452	0.3364	0.1557	0.1271
Front Royal-Warren County	0.8045	1.0232	0.2975	0.5895	0.4225	1.2918	0.5476	0.2984	0.5349	0.2424	0.7769	0.5345	0.3563	0.6891	0.3463	0.2225	0.0875
Gordonsville Municipal	0.8748	1.0232	0.3035	0.5731	0.4528	1.4168	0.5541	0.3486	0.6299	0.4661	0.7769	0.6335	0.3362	0.7088	0.4343	0.2225	0.1239
Grundy Municipal	0.6075	0.6165	0.1658	0.2734	0.1649	0.9216	0.2986	0.2334	0.5349	0.1218	0.5976	0.3476	0.1521	0.3747	0.0831	0.0932	0.0630
Hampton Roads	0.8708	1.0232	0.3035	0.7075	0.4416	1.4168	0.5541	0.3706	0.6954	0.6221	0.7769	0.6335	0.3400	0.7088	0.4830	0.2225	0.1189
Hanover County Municipal	0.8708	1.0232	0.3035	0.7188	0.4416	1.4168	0.5647	0.3706	0.6954	0.3963	0.7769	0.6335	0.3947	0.7088	0.4830	0.2225	0.1413
Hummel Field	0.7489	1.0232	0.3035	0.4984	0.4514	1.4326	0.5541	0.3519	0.5349	0.2444	0.7769	0.5750	0.2380	0.6316	0.4830	0.2035	0.0918
Ingalls Field	0.4579	0.7871	0.2117	0.1720	0.3549	0.4305	0.2162	0.1635	0.5349	0.1146	0.5976	0.2774	0.3036	0.5452	0.2527	0.0845	0.0494
Lake Anna	0.7258	0.9940	0.2544	0.2216	0.2947	0.8119	0.4694	0.3706	0.5349	0.1657	0.7769	0.4556	0.3120	0.6124	0.2359	0.1159	0.1228
Lake Country Regional	0.6644	0.8569	0.2898	0.4804	0.4434	0.9285	0.4427	0.2540	0.5349	0.2781	0.7769	0.6054	0.3059	0.5452	0.3824	0.2127	0.0929
Lawrenceville-Brunswick Municipal	0.6418	0.7953	0.2357	0.3291	0.4416	1.1734	0.2820	0.2161	0.5349	0.2388	0.7769	0.4672	0.2941	0.7088	0.2869	0.1609	0.0762
Lee County	0.5793	0.7833	0.1726	0.2814	0.2761	1.4453	0.2810	0.1726	0.5349	0.1339	0.5976	0.4905	0.1675	0.4087	0.1706	0.1005	0.0652
Leesburg Executive	0.8708	1.0232	0.3035	0.4648	0.4480	1.4168	0.5541	0.3706	0.6143	0.3583	0.7769	0.6113	0.3754	0.7088	0.4576	0.2085	0.0839
Lonesome Pine	0.5743	0.7477	0.1503	0.2247	0.2423	0.9264	0.2493	0.1639	0.5349	0.1055	0.5976	0.4646	0.1482	0.3683	0.1532	0.0861	0.0799
Louisa County	0.6920	1.0232	0.2477	0.1869	0.2852	0.9035	0.4384	0.3659	0.5349	0.1593	0.7769	0.4438	0.2755	0.6553	0.2216	0.1358	0.1284
Lunenburg County	0.6554	0.7921	0.2729	0.4327	0.3188	1.0343	0.3359	0.2213	0.5349	0.2442	0.7769	0.5658	0.2667	0.5452	0.3251	0.1883	0.0837
Luray Caverns	0.7336	1.0232	0.2645	0.3645	0.3208	1.2781	0.4748	0.2382	0.5349	0.1961	0.7228	0.4956	0.2618	0.5472	0.3260	0.2225	0.1209
Lynchburg Regional	0.8708	0.9904	0.3035	0.4192	0.3676	1.4168	0.5423	0.3298	0.5449	0.2184	0.7409	0.6335	0.2588	0.6516	0.2561	0.1878	0.0722
Manassas Regional	0.8708	0.9821	0.3035	0.4920	0.4416	1.4168	0.5541	0.3706	0.5550	0.3898	0.7769	0.6199	0.3824	0.7088	0.4630	0.2112	0.0858
Mecklenburg-Brunswick Regional	0.6904	0.8320	0.2654	0.4076	0.4416	1.0590	0.3846	0.2472	0.5349	0.2504	0.7769	0.5275	0.3502	0.7088	0.3428	0.1923	0.0867
Middle Peninsula Regional	0.6211	1.0199	0.2681	0.4066	0.3361	1.4168	0.5555	0.2237	0.5349	0.2786	0.7769	0.4964	0.2143	0.6508	0.3349	0.1867	0.1029
Mountain Empire	0.6574	0.8034	0.2172	0.3569	0.4405	0.8738	0.3540	0.2539	0.6373	0.2101	0.7769	0.4409	0.2243	0.5452	0.2545	0.1454	0.0952
New Kent County	0.8708	1.0232	0.3035	0.5062	0.4416	1.4168	0.3608	0.3706	0.6954	0.2990	0.7769	0.6335	0.3448	0.7088	0.4717	0.2225	0.1323
New London	0.8708	0.9904	0.3035	0.4192	0.3676	1.4168	0.5423	0.3298	0.5449	0.2184	0.7409	0.6335	0.2588	0.6516	0.2561	0.1878	0.0722
New Market	0.7549	1.0232	0.2799	0.4042	0.3772	1.3149	0.5091	0.2367	0.5349	0.2126	0.7769	0.5505	0.3141	0.6309	0.2186	0.2194	0.1285
New River Valley	0.8673	1.0226	0.3087	0.4814	0.4416	1.1780	0.5541	0.3149	0.5349	0.2891	0.7031	0.6335	0.3022	0.7088	0.3341	0.1935	0.1303
Newport News-Williamsburg International	0.8708	1.0232	0.3035	0.6224	0.4416	1.4168	0.5541	0.3706	0.6954	0.5690	0.7769	0.6335	0.3346	0.7088	0.4830	0.2225	0.1033
Norfolk International	0.8708	1.0232	0.3035	0.6465	0.4416	1.4126	0.5541	0.3706	0.6954	0.5873	0.7769	0.6335	0.3420	0.7088	0.4830	0.2225	0.1075
Orange County	0.8722	1.0232	0.3035	0.4746	0.4416	1.3760	0.5171	0.2845	0.6954	0.2436	0.7769	0.6211	0.2886	0.7088	0.3709	0.2053	0.1413
Richmond International	0.8708	1.0232	0.3035	0.7188	0.4416	1.4168	0.5647	0.3706	0.6954	0.3963	0.7769	0.6335	0.3947	0.7088	0.4830	0.2225	0.1413
Roanoke Regional	0.8708	1.0232	0.3035	0.4154	0.4416	1.4168	0.5541	0.3706	0.5349	0.2181	0.7769	0.6335	0.2810	0.7088	0.4414	0.1986	0.1207
Shannon	0.8708	1.0217	0.3035	0.6228	0.4497	1.2691	0.5541	0.3599	0.5349	0.5248	0.7769	0.6335	0.3340	0.6865	0.4830	0.2203	0.1413
Shenandoah Valley Regional	0.7912	1.0232	0.2889	0.3990	0.3455	1.3319	0.4532	0.2802	0.5349	0.2155	0.7769	0.5206	0.2630	0.6744	0.3850	0.2230	0.1386
Smith Mountain Lake	0.8708	1.0377	0.3035	0.2489	0.3820	1.4168	0.5513	0.2807	0.5408	0.2233	0.7769	0.6048	0.2488	0.7000	0.4174	0.1925	0.1319
Stafford Regional	0.8708	1.0217	0.3035	0.6228	0.4497	1.2691	0.5541	0.3599	0.5349	0.5248	0.7769	0.6335	0.3340	0.6865	0.4830	0.2203	0.1413
Suffolk Executive	0.8708	1.0232	0.3035	0.6572	0.4416	1.4168	0.5561	0.3706	0.5349	0.5721	0.7769	0.6335	0.2600	0.7088	0.3570	0.2165	0.1218
Tangier Island	0.4735	0.8728	0.2003	0.4571	0.4230	0.7458	0.4342	0.1576	0.2676	0.2788	0.5976	0.5039	0.3036	0.5145	0.1567	0.1155	0.0876

Source: IMPLAN

Airport Catchment Area Multipliers for On-Airport Industry Sectors

Jobs

AirportName	Distribution	Aviation Services	Restaurant	Federal Government	Services	Mfg Other	Local Government	Transportation	Mfg Aerospace	Military	Car Rental	Construction	Security	Travel Agents	Flight Training	Onsite retail	Crop Spraying
Tappahannock-Essex County	0.5654	0.7871	0.2400	0.2911	0.3489	0.8818	0.4301	0.2341	0.5349	0.1993	0.7673	0.4680	0.3036	0.5452	0.2962	0.1706	0.1071
Tazewell County	0.7387	1.0232	0.2841	0.3899	0.4194	1.4374	0.4953	0.2770	0.5349	0.2373	0.5750	0.6335	0.1992	0.5517	0.4093	0.1985	0.1090
Twin County	0.6188	0.7871	0.2019	0.3053	0.2705	0.7518	0.3823	0.2189	0.5349	0.1873	0.7769	0.4545	0.1723	0.5452	0.2242	0.1381	0.0874
Virginia Highlands	0.8708	0.9782	0.3035	0.6374	0.3528	1.4475	0.4986	0.3430	0.5349	0.2645	0.6672	0.6134	0.3947	0.7088	0.4946	0.2167	0.1112
Virginia Tech-Montgomery Executive	0.8867	0.9883	0.2953	0.4639	0.4416	1.1374	0.5541	0.2968	0.5349	0.2738	0.6706	0.6335	0.3796	0.7088	0.3217	0.1808	0.1244
Wakefield Municipal	0.4306	0.6952	0.1529	0.3450	0.3264	1.4168	0.1768	0.1943	0.5349	0.2150	0.5307	0.2855	0.1231	0.3782	0.2196	0.0800	0.0767
Warrenton-Fauquier	0.8638	1.0443	0.3035	0.5621	0.4416	1.4168	0.5541	0.3129	0.5203	0.4413	0.7769	0.6197	0.3565	0.6931	0.3621	0.2155	0.1413
Waynesboro/Eagle's Nest	0.7876	0.9378	0.2741	0.3979	0.3148	1.1023	0.4354	0.2873	0.5349	0.2263	0.7769	0.4552	0.2444	0.6526	0.3957	0.1796	0.1327
William M. Tuck	0.7050	0.7871	0.2333	0.3811	0.4416	1.0730	0.3982	0.3041	0.5349	0.2245	0.7769	0.4534	0.2053	0.4807	0.3289	0.1802	0.0855
Williamsburg-Jamestown	0.8708	1.0232	0.3070	0.4779	0.4303	1.3666	0.5418	0.3706	0.6954	0.5098	0.7769	0.6016	0.3489	0.5875	0.4412	0.1945	0.1050
Winchester Regional	0.8823	1.0232	0.3035	0.6847	0.4416	1.2980	0.5541	0.3742	0.5349	0.2772	0.7769	0.6340	0.3947	0.7088	0.3708	0.2225	0.1081

Source: IMPLAN

Airport Catchment Area Multipliers for On-Airport Industry Sectors

Payroll

AirportName	Distribution	Aviation Services	Restaurant	Federal Government	Services	Mfg Other	Local Government	Transportation	Mfg Aerospace	Military	Car Rental	Construction	Security	Travel Agents	Flight Training	Onsite retail	Crop Spraying	Distribution
Accomack County	0.3296	0.5920	0.4053	0.1033	0.3959	0.6347	0.3238	0.2055	0.1463	0.0993	0.8548	0.5674	0.3166	0.4009	0.3896	0.1704	0.1522	0.3906
Blackstone AAF	0.3537	0.4852	0.3970	0.0777	0.3880	1.1310	0.1626	0.2238	0.2960	0.0777	0.8548	0.2764	0.1567	0.3157	0.2265	0.1555	0.1228	0.4173
Blue Ridge Regional	0.4779	0.6307	0.4426	0.1010	0.5197	0.6388	0.3193	0.2772	0.2960	0.1010	0.8543	0.4236	0.2781	0.4743	0.3554	0.2035	0.1816	0.5086
Bridgewater Air Park	0.6083	0.6307	0.5824	0.1692	0.5349	0.8780	0.3614	0.4580	0.2960	0.1692	1.1293	0.4656	0.3295	0.7105	0.5085	0.3041	0.2092	0.6820
Brookneal-Campbell County	0.5958	0.6307	0.6363	0.1381	0.6131	1.0626	0.4394	0.4800	0.2960	0.1381	1.1086	0.6554	0.3657	0.7105	0.5085	0.2722	0.2501	0.6516
Charlottesville-Albemarle	0.6325	0.6307	0.6609	0.1857	0.6702	1.1310	0.4376	0.4880	0.3848	0.1838	1.1112	0.6502	0.4116	0.7105	0.5085	0.3561	0.2780	0.7240
Chase City Municipal	0.5845	0.6307	0.6035	0.1685	0.4985	0.9911	0.3452	0.3891	0.2960	0.1685	1.1112	0.5332	0.3255	0.5465	0.4534	0.2837	0.2235	0.6734
Chesapeake Regional	0.6325	0.6307	0.6609	0.2650	0.6702	1.0967	0.4376	0.4880	0.3848	0.2114	1.1112	0.6554	0.4116	0.7105	0.5085	0.3739	0.3108	0.7240
Chesterfield County	0.6325	0.6307	0.6609	0.2550	0.6702	1.1310	0.3856	0.4880	0.3848	0.2498	1.1112	0.6554	0.4116	0.7105	0.5085	0.3739	0.3108	0.7240
Crewe Municipal	0.5203	0.4852	0.4554	0.1596	0.5354	1.1310	0.2449	0.3224	0.2960	0.1596	1.0067	0.4345	0.3166	0.5465	0.3251	0.2451	0.2192	0.5524
Culpeper County	0.5831	0.6456	0.6609	0.1895	0.6702	1.0263	0.4306	0.4880	0.3792	0.1812	1.1112	0.5841	0.3801	0.7105	0.5006	0.3287	0.2190	0.7157
Danville Regional	0.6128	0.6307	0.5414	0.1474	0.5545	0.8139	0.3888	0.3361	0.2031	0.1474	0.9025	0.5427	0.3058	0.6109	0.3546	0.2550	0.1972	0.6259
Dinwiddie County	0.6325	0.6307	0.6609	0.2321	0.6702	1.1310	0.4376	0.4880	0.3820	0.2320	1.1112	0.6554	0.4116	0.7105	0.5085	0.3739	0.2939	0.7240
Emporia-Greensville Regional	0.4631	0.4852	0.3251	0.0753	0.2926	0.9712	0.1141	0.2161	0.2960	0.0753	0.9825	0.3043	0.1484	0.3390	0.2115	0.1472	0.0979	0.4433
Falwell	0.6303	0.6307	0.6512	0.1565	0.6394	1.0904	0.4376	0.4792	0.2960	0.1565	1.1112	0.6554	0.3856	0.7105	0.5085	0.2892	0.2987	0.6826
Farmville Regional	0.5339	0.5251	0.4270	0.1695	0.6137	1.0635	0.3338	0.3359	0.2960	0.1695	0.9156	0.5460	0.3100	0.5465	0.3430	0.2621	0.2036	0.5642
Franklin Municipal	0.4638	0.6307	0.4919	0.1432	0.4401	1.1310	0.2923	0.3690	0.2960	0.1432	0.8651	0.4629	0.2816	0.5465	0.3408	0.2308	0.1707	0.5141
Front Royal-Warren County	0.5891	0.6307	0.5787	0.1651	0.5650	0.9418	0.3921	0.4163	0.2960	0.1651	1.1337	0.5129	0.2987	0.6774	0.4675	0.2888	0.2221	0.6454
Gordonsville Municipal	0.6325	0.6307	0.6609	0.1924	0.6702	1.1310	0.4376	0.4880	0.3848	0.1906	1.1112	0.6625	0.4116	0.7105	0.5085	0.3622	0.2752	0.7240
Grundy Municipal	0.4428	0.6237	0.3686	0.0837	0.3724	0.4896	0.2452	0.1958	0.2960	0.0837	0.8548	0.2880	0.1709	0.3650	0.2807	0.1601	0.1295	0.4390
Hampton Roads	0.6325	0.6307	0.6609	0.2698	0.6702	1.1310	0.4376	0.4880	0.3848	0.2191	1.1112	0.6554	0.4116	0.7105	0.5085	0.3739	0.3108	0.7240
Hanover County Municipal	0.6325	0.6307	0.6609	0.2698	0.6702	1.1310	0.4323	0.4880	0.3848	0.2553	1.1112	0.6554	0.4116	0.7105	0.5085	0.3739	0.3108	0.7240
Hummel Field	0.5911	0.6307	0.6392	0.1702	0.6702	1.1310	0.4324	0.3763	0.2960	0.1702	1.1112	0.5540	0.3708	0.7105	0.3884	0.2871	0.2241	0.6472
Ingalls Field	0.4657	0.4852	0.3520	0.0905	0.6702	0.6771	0.2641	0.2173	0.2960	0.0905	0.8548	0.3501	0.3166	0.5465	0.2627	0.1803	0.1322	0.5154
Lake Anna	0.5189	0.4225	0.4169	0.0976	0.5123	0.4455	0.3298	0.4284	0.2960	0.0976	1.1112	0.3762	0.2187	0.3674	0.4597	0.1866	0.1177	0.5205
Lake Country Regional	0.5911	0.6307	0.6506	0.1824	0.4477	0.8980	0.3129	0.3825	0.2960	0.1824	0.9233	0.5833	0.3596	0.5465	0.5043	0.3033	0.2482	0.7199
Lawrenceville-Brunswick Municipal	0.5543	0.6307	0.5136	0.1376	0.4467	1.0649	0.2142	0.3184	0.2960	0.1376	1.1112	0.4793	0.2516	0.4898	0.3844	0.2393	0.2059	0.5890
Lee County	0.4358	0.6307	0.3994	0.0927	0.3355	1.1310	0.2316	0.2180	0.2960	0.0927	0.8548	0.3989	0.1964	0.3707	0.2586	0.1631	0.1506	0.4518
Leesburg Executive	0.6325	0.6307	0.6609	0.1687	0.6702	1.1310	0.4376	0.4880	0.3848	0.1585	1.1112	0.6554	0.4052	0.7105	0.5085	0.3518	0.2531	0.7240
Lonesome Pine	0.4264	0.6307	0.3825	0.0766	0.3265	0.9378	0.2275	0.2111	0.2960	0.0766	0.8548	0.3549	0.1841	0.3841	0.2464	0.1501	0.1121	0.4407
Louisa County	0.5047	0.4763	0.4919	0.1066	0.4530	0.5817	0.3308	0.4307	0.2960	0.1066	1.1112	0.4207	0.2281	0.4159	0.4886	0.2171	0.1360	0.5838
Lunenburg County	0.5437	0.6307	0.6145	0.1613	0.4171	1.0074	0.2480	0.3317	0.2960	0.1613	0.8685	0.4772	0.3076	0.5465	0.4258	0.2661	0.2201	0.6246
Luray Caverns	0.5148	0.6307	0.5097	0.1275	0.5070	0.8131	0.3449	0.3676	0.2960	0.1275	0.8156	0.3938	0.2822	0.7105	0.3970	0.2495	0.1557	0.6148
Lynchburg Regional	0.6252	0.6307	0.6665	0.1602	0.6408	1.1374	0.4376	0.4848	0.3196	0.1602	1.1293	0.6554	0.3853	0.7105	0.5085	0.2961	0.2781	0.6892
Manassas Regional	0.6325	0.6307	0.6609	0.1784	0.6702	1.1310	0.4376	0.4626	0.3349	0.1631	1.1112	0.6554	0.4097	0.7105	0.5085	0.3547	0.2533	0.7240
Mecklenburg-Brunswick Regional	0.5965	0.6307	0.5891	0.1713	0.5258	1.0246	0.2892	0.3658	0.2960	0.1713	1.1112	0.5284	0.2988	0.5583	0.4475	0.2845	0.2321	0.6612
Middle Peninsula Regional	0.4430	0.5842	0.4833	0.1323	0.5635	0.8158	0.3720	0.2895	0.2960	0.1323	1.1112	0.4527	0.2562	0.4694	0.3072	0.2153	0.1849	0.4961
Mountain Empire	0.4646	0.6307	0.4245	0.1435	0.5712	0.5614	0.2719	0.2756	0.3118	0.1435	0.7014	0.3822	0.2727	0.5465	0.3391	0.2199	0.1827	0.4780
New Kent County	0.6325	0.6307	0.6609	0.2030	0.6702	1.1310	0.2817	0.4880	0.3848	0.1947	1.1112	0.6554	0.4116	0.7105	0.5085	0.3739	0.2954	0.7240
New London	0.6252	0.6307	0.6665	0.1602	0.6408	1.1374	0.4376	0.4848	0.3196	0.1602	1.1293	0.6554	0.3853	0.7105	0.5085	0.2961	0.2781	0.6892
New Market	0.5748	0.6307	0.5719	0.1504	0.5415	0.9127	0.3869	0.3843	0.2960	0.1504	0.9072	0.4468	0.3134	0.7105	0.5085	0.2836	0.1889	0.6447
New River Valley	0.6325	0.6307	0.5961	0.1665	0.6197	0.7451	0.4357	0.3643	0.2960	0.1665	1.0051	0.6554	0.3760	0.6514	0.5184	0.2928	0.2203	0.6929
Newport News-Williamsburg International	0.6325	0.6307	0.6609	0.2401	0.6702	0.9496	0.4376	0.4880	0.3853	0.1971	1.1112	0.6554	0.4116	0.7105	0.5085	0.3760	0.3108	0.7240
Norfolk International	0.6325	0.6307	0.6609	0.2501	0.6702	0.9142	0.4376	0.4880	0.3848	0.2043	1.1112	0.6554	0.4116	0.7105	0.5085	0.3739	0.3108	0.7240
Orange County	0.6474	0.6307	0.6609	0.2169	0.6377	1.0566	0.3833	0.4880	0.3848	0.1818	1.1112	0.5552	0.3856	0.7105	0.5085	0.3271	0.2275	0.7260
Richmond International	0.6325	0.6307	0.6609	0.2698	0.6702	1.1310	0.4323	0.4880	0.3848	0.2553	1.1112	0.6554	0.4116	0.7105	0.5085	0.3739	0.3108	0.7240
Roanoke Regional	0.6325	0.6307	0.6609	0.1730	0.6702	1.1310	0.4376	0.4880	0.2960	0.1730	1.1112	0.6554	0.4116	0.7105	0.4825	0.3592	0.2474	0.7240
Shannon	0.6325	0.6307	0.6658	0.1888	0.6471	1.0078	0.4220	0.4316	0.2960	0.1685	1.1112	0.6533	0.3667	0.7105	0.4712	0.3163	0.2115	0.7272
Shenandoah Valley Regional	0.5930	0.6307	0.5757	0.1539	0.5168	0.8196	0.3298	0.4533	0.2960	0.1539	1.1112	0.4296	0.3307	0.7105	0.4236	0.2918	0.1905	0.6684
Smith Mountain Lake	0.5949	0.6307	0.5978	0.1541	0.5838	1.0351	0.3990	0.3944	0.2712	0.1541	1.0155	0.6116	0.3806	0.7105	0.4385	0.2764	0.2021	0.6369
Stafford Regional	0.6325	0.6307	0.6658	0.1888	0.6471	1.0078	0.4220	0.4316	0.2960	0.1685	1.1112	0.6533	0.3667	0.7105	0.4712	0.3163	0.2115	0.7272
Suffolk Executive	0.6325	0.6307	0.6609	0.2317	0.6702	1.1310	0.4280	0.4921	0.2960	0.1995	1.1112	0.6642	0.4116	0.6771	0.5085	0.3487	0.2637	0.7240
Tangier Island	0.3296	0.5920	0.4053	0.1033	0.3959	0.6347	0.3238	0.2055	0.1463	0.0993	0.8548	0.5674	0.3166	0.4009	0.3896	0.1704	0.1522	0.3906

Source: IMPLAN

Airport Catchment Area Multipliers for On-Airport Industry Sectors

Payroll

AirportName	Distribution	Aviation Services	Restaurant	Federal Government	Services	Mfg Other	Local Government	Transportation	Mfg Aerospace	Military	Car Rental	Construction	Security	Travel Agents	Flight Training	Onsite retail	Crop Spraying	Distribution
Tappahannock-Essex County	0.4269	0.4852	0.4194	0.1263	0.4921	0.7654	0.3053	0.2584	0.2960	0.1263	0.7223	0.4963	0.3166	0.5465	0.3228	0.2006	0.1542	0.4819
Tazewell County	0.6455	0.6307	0.5856	0.1817	0.5633	1.0783	0.4193	0.3805	0.2960	0.1817	0.9212	0.5400	0.3946	0.7105	0.3796	0.2900	0.2417	0.6775
Twin County	0.4374	0.4852	0.3641	0.1211	0.4394	0.4936	0.2742	0.2179	0.2960	0.1211	0.6568	0.3706	0.2658	0.5465	0.2916	0.1911	0.1542	0.4452
Virginia Highlands	0.6325	0.6307	0.6534	0.1828	0.5628	1.0794	0.3893	0.4028	0.2960	0.1828	1.1112	0.6554	0.3351	0.7114	0.4198	0.3305	0.2851	0.6855
Virginia Tech-Montgomery Executive	0.6147	0.6307	0.5840	0.1567	0.6010	0.7650	0.4273	0.3462	0.2960	0.1567	0.9795	0.6554	0.3138	0.6218	0.4921	0.2794	0.2140	0.6440
Wakefield Municipal	0.3442	0.6307	0.3527	0.1248	0.3609	1.0778	0.1354	0.3140	0.2960	0.0632	0.7433	0.2827	0.1560	0.3045	0.1963	0.1427	0.0919	0.3999
Warrenton-Fauquier	0.5804	0.6307	0.6157	0.1888	0.6702	1.1358	0.3946	0.4288	0.2294	0.1574	1.1112	0.6031	0.3535	0.7105	0.5085	0.3018	0.1926	0.6719
Waynesboro/Eagle's Nest	0.5856	0.6307	0.5521	0.1662	0.5083	0.6997	0.3105	0.4282	0.2960	0.1662	1.1112	0.4342	0.3352	0.7105	0.4006	0.2946	0.2013	0.6244
William M. Tuck	0.5121	0.4852	0.4527	0.1556	0.6823	0.6835	0.2808	0.3645	0.2960	0.1556	0.6390	0.4107	0.3057	0.6818	0.3431	0.2434	0.2026	0.5630
Williamsburg-Jamestown	0.6037	0.6307	0.6431	0.1932	0.6361	0.7814	0.3907	0.4608	0.3848	0.1678	1.1176	0.5541	0.3552	0.7105	0.4925	0.3034	0.2192	0.7413
Winchester Regional	0.6325	0.6307	0.6319	0.1955	0.6184	0.9040	0.4367	0.4587	0.2960	0.1955	1.1112	0.6045	0.3429	0.7140	0.5085	0.3298	0.2590	0.7137

Source: IMPLAN

Airport Catchment Area Multipliers for On-Airport Industry Sectors

Economic Activity

AirportName	Aviation Services	Restaurant	Federal Government	Services	Mfg Other	Local Government	Transportation	Mfg Aerospace	Military	Car Rental	Construction	Security	Travel Agents	Flight Training	Onsite retail	Crop Spraying
Accomack County	0.3912	0.4614	0.3191	0.4354	0.4303	0.5602	0.3525	0.0696	0.2425	0.5211	0.5371	0.6193	0.4808	0.4940	0.3095	0.5346
Blackstone AAF	0.4086	0.3869	0.2561	0.3133	0.5360	0.3706	0.3523	0.2055	0.2005	0.5211	0.3643	0.3501	0.3747	0.3562	0.2680	0.3271
Blue Ridge Regional	0.4642	0.4344	0.2933	0.4541	0.3378	0.5165	0.3969	0.2055	0.2296	0.4664	0.4365	0.4609	0.5378	0.4796	0.3205	0.4024
Bridgewater Air Park	0.5312	0.6672	0.4643	0.5856	0.5435	0.6685	0.6116	0.2055	0.3635	0.5985	0.5617	0.6641	0.7969	0.7624	0.4890	0.5633
Brookneal-Campbell County	0.4963	0.6499	0.3702	0.5897	0.5360	0.6968	0.5875	0.2055	0.2898	0.6774	0.7293	0.6474	0.7902	0.6837	0.4271	0.5650
Charlottesville-Albemarle	0.5312	0.7422	0.4861	0.7109	0.5360	0.7814	0.6863	0.1474	0.3768	0.6774	0.7364	0.8051	0.7969	0.7624	0.5765	0.6380
Chase City Municipal	0.4313	0.6001	0.4778	0.5502	0.5360	0.6533	0.5337	0.2055	0.3741	0.5100	0.5523	0.6277	0.6130	0.6505	0.4666	0.5216
Chesapeake Regional	0.5312	0.7422	0.6725	0.7109	0.5360	0.7840	0.6863	0.2672	0.4405	0.6774	0.7667	0.8051	0.7969	0.7624	0.5908	0.7765
Chesterfield County	0.5312	0.7422	0.6648	0.7109	0.5360	0.7840	0.6863	0.2672	0.5108	0.6774	0.7667	0.8051	0.7969	0.7624	0.5908	0.7765
Crewe Municipal	0.4086	0.5120	0.4497	0.4763	0.5360	0.5312	0.4584	0.2055	0.3521	0.5044	0.4953	0.6193	0.6130	0.5056	0.4017	0.5147
Culpeper County	0.5347	0.7585	0.5178	0.7109	0.5360	0.7853	0.6391	0.2249	0.3904	0.6774	0.6527	0.7340	0.7969	0.7645	0.5456	0.5967
Danville Regional	0.4630	0.5711	0.4251	0.5463	0.4399	0.6479	0.4909	0.1373	0.3328	0.5990	0.5579	0.5931	0.6860	0.5599	0.4229	0.5069
Dinwiddie County	0.5312	0.7422	0.6431	0.7109	0.5360	0.7840	0.6863	0.2388	0.5034	0.6774	0.7667	0.8051	0.7969	0.7624	0.5908	0.7765
Emporia-Greensville Regional	0.4086	0.3680	0.2470	0.3417	0.4793	0.3020	0.3188	0.2055	0.1934	0.2966	0.3344	0.3245	0.4096	0.3325	0.2554	0.3280
Falwell	0.5294	0.6657	0.4182	0.6151	0.5360	0.7349	0.5991	0.2055	0.3274	0.6774	0.7639	0.6866	0.8131	0.7068	0.4533	0.6332
Farmville Regional	0.4265	0.4930	0.4661	0.5254	0.5360	0.6172	0.4672	0.2055	0.3649	0.5060	0.5385	0.5682	0.6130	0.5449	0.4230	0.5312
Franklin Municipal	0.4269	0.5271	0.4149	0.4570	0.5360	0.5607	0.4717	0.2055	0.3248	0.4748	0.4944	0.5274	0.6130	0.5280	0.3859	0.4835
Front Royal-Warren County	0.5312	0.6220	0.4677	0.5758	0.4773	0.6950	0.5689	0.2055	0.3662	0.6103	0.5607	0.6052	0.7319	0.6660	0.4649	0.5186
Gordonsville Municipal	0.5312	0.7422	0.5094	0.7109	0.5360	0.7948	0.6863	0.1500	0.3952	0.6774	0.7431	0.8051	0.7969	0.7624	0.5890	0.6530
Grundy Municipal	0.3442	0.3687	0.2604	0.3297	0.3213	0.4450	0.3212	0.2055	0.2039	0.5211	0.3441	0.3444	0.3946	0.3696	0.2732	0.3356
Hampton Roads	0.5312	0.7422	0.7090	0.7109	0.5360	0.7840	0.6863	0.2672	0.4579	0.6774	0.7667	0.8051	0.7969	0.7624	0.5908	0.7671
Hanover County Municipal	0.5312	0.7422	0.7005	0.7109	0.5360	0.7840	0.6863	0.2672	0.5262	0.6774	0.7667	0.8051	0.7969	0.7624	0.5908	0.7765
Hummel Field	0.5046	0.6798	0.4849	0.6822	0.5360	0.7514	0.5628	0.2055	0.3797	0.6205	0.6019	0.6835	0.8094	0.6387	0.4810	0.5376
Ingalls Field	0.4086	0.4912	0.2924	0.6348	0.4522	0.5177	0.4000	0.2055	0.2289	0.5211	0.3805	0.6193	0.6130	0.4842	0.3437	0.3497
Lake Anna	0.3431	0.5135	0.3367	0.4690	0.3064	0.6259	0.4393	0.2055	0.2636	0.4521	0.4659	0.4682	0.4804	0.5923	0.3608	0.3895
Lake Country Regional	0.4415	0.6400	0.5067	0.5563	0.5232	0.6447	0.5557	0.2055	0.3967	0.6018	0.5991	0.6857	0.6130	0.7077	0.4933	0.5628
Lawrenceville-Brunswick Municipal	0.4339	0.5229	0.3851	0.4990	0.5333	0.4772	0.4511	0.2055	0.3015	0.4297	0.4898	0.5110	0.5848	0.5379	0.3852	0.4694
Lee County	0.3773	0.3923	0.2804	0.3776	0.3228	0.4400	0.3430	0.2055	0.2195	0.5211	0.4627	0.4066	0.4507	0.3868	0.2730	0.3725
Leesburg Executive	0.5312	0.7422	0.4499	0.7109	0.5360	0.7839	0.6863	0.2634	0.3323	0.6774	0.7667	0.7688	0.7969	0.7624	0.5483	0.5759
Lonesome Pine	0.3733	0.3749	0.2386	0.3547	0.4812	0.4183	0.3316	0.2055	0.1868	0.5211	0.4285	0.3863	0.4639	0.3688	0.2518	0.3139
Louisa County	0.3920	0.5941	0.3619	0.4772	0.3990	0.6427	0.4862	0.2055	0.2833	0.4744	0.4970	0.5002	0.5445	0.6530	0.4119	0.4435
Lunenburg County	0.4414	0.5972	0.4614	0.4821	0.5430	0.5542	0.4934	0.2055	0.3612	0.5633	0.5401	0.5947	0.6130	0.6053	0.4384	0.5131
Luray Caverns	0.5312	0.6077	0.3937	0.5496	0.5360	0.6364	0.5369	0.2055	0.3083	0.5591	0.4909	0.5996	0.7969	0.6407	0.4406	0.4607
Lynchburg Regional	0.5126	0.6925	0.4498	0.6230	0.5360	0.7592	0.6123	0.1154	0.3521	0.6774	0.7547	0.6961	0.7969	0.7465	0.4816	0.5632
Manassas Regional	0.5312	0.7422	0.4763	0.7109	0.5360	0.7840	0.6723	0.2127	0.3431	0.6774	0.7667	0.7777	0.7969	0.7624	0.5540	0.5825
Mecklenburg-Brunswick Regional	0.4402	0.5757	0.4742	0.5799	0.5221	0.5989	0.5134	0.2055	0.3713	0.4860	0.5345	0.5963	0.6573	0.6241	0.4551	0.5241
Middle Peninsula Regional	0.4317	0.5376	0.4029	0.5390	0.4855	0.6582	0.4472	0.2055	0.3154	0.4548	0.5155	0.5186	0.5681	0.5181	0.3906	0.6543
Mountain Empire	0.4325	0.4216	0.3898	0.5060	0.2572	0.5013	0.3934	0.2269	0.3052	0.4517	0.4163	0.5025	0.6130	0.4713	0.3437	0.4429
New Kent County	0.5312	0.7422	0.5184	0.7109	0.5360	0.6287	0.6863	0.2672	0.3899	0.6774	0.7667	0.8051	0.7969	0.7624	0.5908	0.7289
New London	0.5126	0.6925	0.4498	0.6230	0.5360	0.7592	0.6123	0.1154	0.3521	0.6774	0.7547	0.6961	0.7969	0.7465	0.4816	0.5632
New Market	0.5381	0.6544	0.4243	0.5906	0.5360	0.6676	0.5570	0.2055	0.3322	0.6190	0.5411	0.6515	0.7969	0.7624	0.4667	0.5141
New River Valley	0.5387	0.6214	0.4499	0.6308	0.2908	0.7358	0.5403	0.2055	0.3522	0.6092	0.6904	0.6772	0.7458	0.7231	0.4723	0.5467
Newport News-Williamsburg International	0.5312	0.7422	0.6305	0.7109	0.5360	0.7840	0.6863	0.2672	0.4179	0.6774	0.7667	0.8051	0.7969	0.7624	0.5908	0.7243
Norfolk International	0.5312	0.7422	0.6482	0.7109	0.5360	0.7840	0.6863	0.2672	0.4280	0.6774	0.7667	0.8051	0.7969	0.7624	0.5908	0.7885
Orange County	0.5312	0.7433	0.6059	0.6578	0.5360	0.7449	0.6636	0.2672	0.4061	0.6355	0.6362	0.7340	0.7969	0.7785	0.5433	0.6197
Richmond International	0.5312	0.7422	0.7005	0.7109	0.5360	0.7840	0.6863	0.2672	0.5262	0.6774	0.7667	0.8051	0.7969	0.7624	0.5908	0.7765
Roanoke Regional	0.5352	0.7422	0.4293	0.7109	0.5360	0.7840	0.6863	0.2055	0.3361	0.6774	0.7577	0.7780	0.7969	0.6977	0.5347	0.5656
Shannon	0.5312	0.7422	0.5310	0.6964	0.5360	0.7828	0.6144	0.2055	0.3794	0.6774	0.7694	0.7249	0.7969	0.7438	0.5297	0.5811
Shenandoah Valley Regional	0.5312	0.6409	0.4400	0.5579	0.5143	0.6315	0.5957	0.2055	0.3445	0.5896	0.5199	0.6462	0.8148	0.6505	0.4704	0.5296
Smith Mountain Lake	0.4893	0.6210	0.4481	0.5794	0.5360	0.6991	0.5432	0.1015	0.3508	0.6254	0.6223	0.6696	0.7922	0.6594	0.4627	0.5372
Stafford Regional	0.5312	0.7422	0.5310	0.6964	0.5360	0.7828	0.6144	0.2055	0.3794	0.6774	0.7694	0.7249	0.7969	0.7438	0.5297	0.5811
Suffolk Executive	0.5312	0.7422	0.6102	0.7289	0.5360	0.7831	0.6863	0.2055	0.4257	0.6774	0.7706	0.7819	0.8009	0.7624	0.5518	0.6468
Tangier Island	0.3912	0.4614	0.3191	0.4354	0.4303	0.5602	0.3525	0.0696	0.2425	0.5211	0.5371	0.6193	0.4808	0.4940	0.3095	0.5346

Source: IMPLAN

Airport Catchment Area Multipliers for On-Airport Industry Sectors

Economic Activity

AirportName	Aviation Services	Restaurant	Federal Government	Services	Mfg Other	Local Government	Transportation	Mfg Aerospace	Military	Car Rental	Construction	Security	Travel Agents	Flight Training	Onsite retail	Crop Spraying
Tappahannock-Essex County	0.4086	0.4566	0.3845	0.4984	0.3711	0.5756	0.4092	0.2055	0.3010	0.4959	0.4982	0.6193	0.6130	0.5148	0.3608	0.4262
Tazewell County	0.5312	0.6250	0.5050	0.6039	0.5347	0.7259	0.5786	0.2055	0.3954	0.6172	0.6604	0.6970	0.7661	0.5958	0.4696	0.5772
Twin County	0.4086	0.3791	0.3499	0.4027	0.2155	0.4930	0.3361	0.2055	0.2739	0.3765	0.4118	0.4685	0.6130	0.4153	0.3089	0.3962
Virginia Highlands	0.5382	0.6737	0.4870	0.5510	0.4708	0.6618	0.5751	0.2055	0.3813	0.6416	0.6624	0.6427	0.7539	0.6276	0.5052	0.6229
Virginia Tech-Montgomery Executive	0.5312	0.6163	0.4273	0.6135	0.3076	0.7209	0.5244	0.2055	0.3345	0.5982	0.6837	0.6166	0.7174	0.6977	0.4551	0.5337
Wakefield Municipal	0.4028	0.3827	0.3308	0.3865	0.5360	0.3206	0.3545	0.2055	0.1661	0.3716	0.3450	0.3157	0.3488	0.3218	0.2474	0.3959
Warrenton-Fauquier	0.5312	0.7213	0.5140	0.7131	0.5360	0.7310	0.5799	0.1494	0.3453	0.6928	0.6867	0.6963	0.7969	0.7624	0.5009	0.5316
Waynesboro/Eagle's Nest	0.4689	0.5522	0.4532	0.5150	0.3497	0.5890	0.5395	0.2055	0.3548	0.5614	0.4666	0.6135	0.7119	0.5876	0.4457	0.5228
William M. Tuck	0.4086	0.4654	0.4181	0.5859	0.2280	0.5328	0.4621	0.2055	0.3274	0.4472	0.4344	0.5448	0.6056	0.5037	0.3882	0.4696
Williamsburg-Jamestown	0.5312	0.7575	0.5493	0.7109	0.5360	0.7674	0.6879	0.2672	0.3813	0.6774	0.7091	0.7277	0.7969	0.7624	0.5160	0.5698
Winchester Regional	0.5312	0.6640	0.5218	0.6180	0.4782	0.7511	0.6059	0.2055	0.4085	0.6800	0.6515	0.6653	0.7653	0.7219	0.5095	0.5946

Source: IMPLAN

Airport Catchment Area Multipliers for Air Visitor Industry Sectors

	Jobs				
Airport	Lodging	Restaurant	Entertainment	Transportation	Retail
Accomack County	0.474	0.200	0.197	0.158	0.115
Blackstone AAF	0.414	0.182	0.234	0.179	0.110
Blue Ridge Regional	0.475	0.207	0.240	0.321	0.153
Bridgewater Air Park	0.5917	0.2897	0.2662	0.2765	0.214
Brookneal-Campbell County	0.592	0.280	0.289	0.328	0.163
Charlottesville-Albemarle	0.592	0.304	0.301	0.375	0.214
Chase City Municipal	0.592	0.271	0.301	0.269	0.195
Chesapeake Regional	0.592	0.304	0.301	0.371	0.214
Chesterfield County	0.592	0.304	0.301	0.371	0.214
Crewe Municipal	0.556	0.296	0.191	0.214	0.184
Culpeper County	0.592	0.304	0.301	0.224	0.208
Danville Regional	0.596	0.281	0.278	0.232	0.162
Dinwiddie County	0.592	0.304	0.301	0.371	0.214
Emporia-Greensville Regional	0.371	0.182	0.184	0.155	0.095
Falwell	0.592	0.289	0.294	0.341	0.175
Farmville Regional	0.568	0.304	0.266	0.226	0.194
Franklin Municipal	0.456	0.217	0.171	0.234	0.152
Front Royal-Warren County	0.592	0.298	0.282	0.298	0.214
Gordonsville Municipal	0.592	0.304	0.301	0.349	0.214
Grundy Municipal	0.364	0.166	0.140	0.233	0.091
Hampton Roads	0.592	0.304	0.301	0.371	0.214
Hanover County Municipal	0.592	0.304	0.301	0.371	0.214
Hummel Field	0.592	0.304	0.301	0.352	0.202
Ingalls Field	0.384	0.212	0.181	0.164	0.085
Lake Anna	0.475	0.254	0.257	0.371	0.116
Lake Country Regional	0.592	0.290	0.301	0.254	0.213
Lawrenceville-Brunswick Municipal	0.558	0.236	0.271	0.216	0.161
Lee County	0.350	0.173	0.112	0.173	0.100
Leesburg Executive	0.592	0.304	0.301	0.371	0.194
Lonesome Pine	0.306	0.150	0.138	0.164	0.086
Louisa County	0.493	0.248	0.301	0.366	0.136
Lunenburg County	0.592	0.273	0.209	0.221	0.188

Source: IMPLAN

Airport Catchment Area Multipliers for Air Visitor Industry Sectors

	Jobs				
Airport	Lodging	Restaurant	Entertainment	Transportation	Retail
Luray Caverns	0.592	0.264	0.301	0.238	0.214
Lynchburg Regional	0.592	0.304	0.301	0.330	0.185
Manassas Regional	0.592	0.304	0.288	0.371	0.198
Mecklenburg-Brunswick Regional	0.592	0.265	0.287	0.247	0.192
Middle Peninsula Regional	0.538	0.268	0.301	0.224	0.184
Mountain Empire	0.416	0.217	0.191	0.254	0.145
New Kent County	0.592	0.304	0.301	0.371	0.214
New London	0.592	0.304	0.301	0.330	0.185
New Market	0.594	0.280	0.275	0.237	0.219
New River Valley	0.592	0.309	0.277	0.315	0.192
Newport News-Williamsburg International	0.592	0.304	0.301	0.371	0.214
Norfolk International	0.592	0.304	0.301	0.371	0.214
Orange County	0.592	0.304	0.301	0.284	0.205
Richmond International	0.592	0.304	0.301	0.371	0.214
Roanoke Regional	0.592	0.304	0.301	0.371	0.194
Shannon	0.592	0.304	0.301	0.360	0.216
Shenandoah Valley Regional	0.592	0.289	0.274	0.280	0.214
Smith Mountain Lake	0.592	0.304	0.301	0.281	0.193
Stafford Regional	0.592	0.304	0.301	0.360	0.216
Suffolk Executive	0.592	0.304	0.301	0.371	0.211
Tangier Island	0.474	0.200	0.197	0.158	0.115
Tappahannock-Essex County	0.453	0.240	0.300	0.234	0.170
Tazewell County	0.583	0.284	0.301	0.277	0.199
Twin County	0.409	0.202	0.187	0.219	0.137
Virginia Highlands	0.592	0.304	0.301	0.343	0.216
Virginia Tech-Montgomery Executive	0.592	0.295	0.260	0.297	0.179
Wakefield Municipal	0.336	0.153	0.107	0.194	0.079
Warrenton-Fauquier	0.592	0.304	0.301	0.313	0.211
Waynesboro/Eagle's Nest	0.581	0.274	0.251	0.287	0.179
William M. Tuck	0.501	0.233	0.301	0.304	0.180
Williamsburg-Jamestown	0.592	0.307	0.301	0.371	0.192
Winchester Regional	0.592	0.304	0.301	0.374	0.214

Source: IMPLAN

Airport Catchment Area Multipliers for Air Visitor Industry Sectors

	Payroll				
Airport	Lodging	Restaurant	Entertainment	Transportation	Retail
Accomack County	0.598	0.405	0.378	0.206	0.171
Blackstone AAF	0.646	0.397	0.529	0.224	0.156
Blue Ridge Regional	0.745	0.443	0.440	0.277	0.204
Bridgewater Air Park	0.903	0.5824	0.6524	0.4580	0.3050
Brookneal-Campbell County	0.881	0.636	0.561	0.480	0.274
Charlottesville-Albemarle	0.903	0.661	0.638	0.488	0.359
Chase City Municipal	0.903	0.604	0.536	0.389	0.284
Chesapeake Regional	0.903	0.661	0.638	0.488	0.378
Chesterfield County	0.903	0.661	0.638	0.488	0.378
Crewe Municipal	0.688	0.455	0.544	0.322	0.245
Culpeper County	0.903	0.661	0.638	0.488	0.331
Danville Regional	0.855	0.541	0.606	0.336	0.256
Dinwiddie County	0.903	0.661	0.638	0.488	0.378
Emporia-Greensville Regional	0.456	0.325	0.579	0.216	0.147
Falwell	0.875	0.651	0.576	0.479	0.291
Farmville Regional	0.708	0.427	0.551	0.336	0.263
Franklin Municipal	0.690	0.492	0.501	0.369	0.232
Front Royal-Warren County	0.903	0.579	0.603	0.416	0.289
Gordonsville Municipal	0.903	0.661	0.638	0.488	0.365
Grundy Municipal	0.385	0.369	0.297	0.196	0.162
Hampton Roads	0.903	0.661	0.638	0.488	0.378
Hanover County Municipal	0.903	0.661	0.638	0.488	0.378
Hummel Field	0.903	0.639	0.438	0.376	0.288
Ingalls Field	0.651	0.352	0.376	0.217	0.180
Lake Anna	0.826	0.417	0.364	0.428	0.187
Lake Country Regional	0.903	0.651	0.555	0.383	0.304
Lawrenceville-Brunswick Municipal	0.800	0.514	0.526	0.318	0.240
Lee County	0.576	0.399	0.470	0.218	0.163
Leesburg Executive	0.903	0.661	0.638	0.488	0.358
Lonesome Pine	0.567	0.382	0.296	0.211	0.150
Louisa County	0.867	0.492	0.501	0.431	0.218
Lunenburg County	0.903	0.614	0.600	0.332	0.267

Source: IMPLAN

Airport Catchment Area Multipliers for Air Visitor Industry Sectors

	Payroll				
Airport	Lodging	Restaurant	Entertainment	Transportation	Retail
Luray Caverns	0.855	0.510	0.555	0.368	0.250
Lynchburg Regional	0.905	0.667	0.600	0.485	0.298
Manassas Regional	0.903	0.661	0.638	0.463	0.361
Mecklenburg-Brunswick Regional	0.919	0.589	0.512	0.366	0.285
Middle Peninsula Regional	0.754	0.483	0.433	0.290	0.216
Mountain Empire	0.705	0.424	0.425	0.276	0.220
New Kent County	0.903	0.661	0.638	0.488	0.378
New London	0.905	0.667	0.600	0.485	0.298
New Market	0.903	0.572	0.653	0.384	0.285
New River Valley	0.903	0.596	0.638	0.364	0.294
Newport News-Williamsburg International	0.903	0.661	0.638	0.488	0.379
Norfolk International	0.903	0.661	0.638	0.488	0.378
Orange County	0.903	0.661	0.638	0.488	0.328
Richmond International	0.903	0.661	0.638	0.488	0.378
Roanoke Regional	0.903	0.661	0.644	0.488	0.364
Shannon	0.903	0.666	0.644	0.432	0.319
Shenandoah Valley Regional	0.920	0.576	0.633	0.453	0.292
Smith Mountain Lake	0.823	0.598	0.541	0.394	0.277
Stafford Regional	0.903	0.666	0.644	0.432	0.319
Suffolk Executive	0.903	0.661	0.653	0.492	0.351
Tangier Island	0.598	0.405	0.378	0.206	0.171
Tappahannock-Essex County	0.748	0.419	0.425	0.258	0.201
Tazewell County	0.853	0.586	0.474	0.381	0.290
Twin County	0.682	0.364	0.390	0.218	0.191
Virginia Highlands	0.710	0.653	0.542	0.403	0.331
Virginia Tech-Montgomery Executive	0.903	0.584	0.638	0.346	0.281
Wakefield Municipal	0.565	0.353	0.385	0.314	0.143
Warrenton-Fauquier	0.903	0.616	0.638	0.429	0.304
Waynesboro/Eagle's Nest	0.913	0.552	0.638	0.428	0.295
William M. Tuck	0.733	0.453	0.638	0.365	0.244
Williamsburg-Jamestown	0.903	0.643	0.586	0.461	0.305
Winchester Regional	0.903	0.632	0.638	0.459	0.331

Source: IMPLAN

Airport Catchment Area Multipliers for Air Visitor Industry Sectors

	Economic Activity				
Airport	Lodging	Restaurant	Entertainment	Transportation	Retail
Accomack County	0.521	0.461	0.576	0.353	0.310
Blackstone AAF	0.521	0.387	0.509	0.352	0.268
Blue Ridge Regional	0.466	0.434	0.587	0.397	0.321
Bridgewater Air Park	0.599	0.6672	0.7942	0.6116	0.489
Brookneal-Campbell County	0.677	0.650	0.784	0.587	0.427
Charlottesville-Albemarle	0.677	0.742	0.794	0.686	0.576
Chase City Municipal	0.510	0.600	0.798	0.534	0.467
Chesapeake Regional	0.677	0.742	0.794	0.686	0.591
Chesterfield County	0.677	0.742	0.794	0.686	0.591
Crewe Municipal	0.504	0.512	0.632	0.458	0.402
Culpeper County	0.677	0.759	0.794	0.639	0.546
Danville Regional	0.599	0.571	0.719	0.491	0.423
Dinwiddie County	0.677	0.742	0.794	0.686	0.591
Emporia-Greensville Regional	0.297	0.368	0.447	0.319	0.255
Falwell	0.677	0.666	0.797	0.599	0.453
Farmville Regional	0.506	0.493	0.640	0.467	0.423
Franklin Municipal	0.475	0.527	0.560	0.472	0.386
Front Royal-Warren County	0.610	0.622	0.771	0.569	0.465
Gordonsville Municipal	0.677	0.742	0.794	0.686	0.589
Grundy Municipal	0.521	0.369	0.406	0.321	0.273
Hampton Roads	0.677	0.742	0.794	0.686	0.591
Hanover County Municipal	0.677	0.742	0.794	0.686	0.591
Hummel Field	0.621	0.680	0.794	0.563	0.481
Ingalls Field	0.521	0.491	0.608	0.400	0.344
Lake Anna	0.452	0.514	0.773	0.439	0.361
Lake Country Regional	0.602	0.640	0.794	0.556	0.493
Lawrenceville-Brunswick Municipal	0.430	0.523	0.705	0.451	0.385
Lee County	0.521	0.392	0.467	0.343	0.273
Leesburg Executive	0.677	0.742	0.794	0.686	0.548
Lonesome Pine	0.521	0.375	0.456	0.332	0.252
Louisa County	0.474	0.594	0.788	0.486	0.412
Lunenburg County	0.563	0.597	0.760		0.438

Source: IMPLAN

Airport Catchment Area Multipliers for Air Visitor Industry Sectors

	Economic Activity				
Airport	Lodging	Restaurant	Entertainment	Transportation	Retail
Luray Caverns	0.559	0.608	0.753	0.537	0.441
Lynchburg Regional	0.677	0.693	0.808	0.612	0.482
Manassas Regional	0.677	0.742	0.794	0.672	0.554
Mecklenburg-Brunswick Regional	0.486	0.576	0.796	0.513	0.455
Middle Peninsula Regional	0.455	0.538	0.683	0.447	0.391
Mountain Empire	0.452	0.422	0.515	0.393	0.344
New Kent County	0.677	0.742	0.794	0.686	0.591
New London	0.677	0.693	0.808	0.612	0.482
New Market	0.619	0.654	0.792	0.557	0.467
New River Valley	0.609	0.621	0.775	0.540	0.472
Newport News-Williamsburg International	0.677	0.742	0.794	0.686	0.591
Norfolk International	0.677	0.742	0.794	0.686	0.591
Orange County	0.635	0.743	0.794	0.664	0.543
Richmond International	0.677	0.742	0.794	0.686	0.591
Roanoke Regional	0.677	0.742	0.794	0.686	0.535
Shannon	0.677	0.742	0.794	0.614	0.530
Shenandoah Valley Regional	0.590	0.641	0.767	0.596	0.470
Smith Mountain Lake	0.625	0.621	0.722	0.543	0.463
Stafford Regional	0.677	0.742	0.794	0.614	0.530
Suffolk Executive	0.677	0.742	0.794	0.686	0.552
Tangier Island	0.521	0.461	0.576	0.353	0.310
Tappahannock-Essex County	0.496	0.457	0.579	0.409	0.361
Tazewell County	0.617	0.625	0.752	0.579	0.470
Twin County	0.377	0.379	0.505	0.336	0.309
Virginia Highlands	0.642	0.674	0.684	0.575	0.505
Virginia Tech-Montgomery Executive	0.598	0.616	0.753	0.524	0.455
Wakefield Municipal	0.372	0.383	0.444	0.355	0.247
Warrenton-Fauquier	0.693	0.721	0.794	0.580	0.501
Waynesboro/Eagle's Nest	0.561	0.552	0.719	0.540	0.446
William M. Tuck	0.447	0.465	0.608	0.462	0.388
Williamsburg-Jamestown	0.677	0.758	0.794	0.688	0.516
Winchester Regional	0.680	0.664	0.794	0.606	0.510

Source: IMPLAN

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VIRGINIA AIRPORT SYSTEM ECONOMIC IMPACT STUDY

Appendix C:
SURVEYS

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AIRPORT MANAGERS SURVEY

VIRGINIA AIR TRANSPORTATION SYSTEM
2010 ECONOMIC IMPACT STUDY

Thank you for your participation in this important study. Please provide the information requested below. If available, also include a copy of your most recent annual report and copies of any past studies conducted concerning the economic impact of your airport.

1. Airport Information

Airport Name: _____

Manager: _____ **Phone:** _____

2. How many people were employed to administer or manage this airport in 2009?

Full Time: _____ Part-Time: _____ Do these numbers include the FBO? _____

3. Please report the total 2009 payroll paid to all employees employed by the airport: $ _____

Questions 4 thru 7: Please complete the attached spreadsheet with the information requested below. Your responses can be emailed to **Jeff Tarkington, Talbert & Bright**, via email at *JTarkington@tbiric.com*. If you prefer to submit hard copies, please mail them to his attention at 10105 Krause Road, Suite 100, Chesterfield, VA, 23832.

4. Please include a list of all **FBOs, tenants, government agencies and other businesses located at your airport**. The list should include the following information:

- Company Name, Type of Firm, and Contact Person
- Complete Mailing Address and Phone Number
- Number of Full-Time Employees, if known
- Number of Part-Time Employees, if known

5. Other than those listed above in **Question 4**, please include a list of all **businesses that base aircraft at your airport**. The list should include the following information:

- Company Name, Type of Firm, and Contact Person
- Complete Mailing Address and Phone Number
- Number of Full-Time Employees, if known
- Number of Part-Time Employees, if known

6. Please include a list of all **non-local businesses that make frequent use of your airport** to access the surrounding area. The list should include the following information:

- Company Name, Type of Firm, and Contact Person
- Complete Mailing Address and Phone Number

7. Please include a list of all **local businesses** of which you are aware that **rely on your airport**, especially those that do not own aircraft. The list should include the following information:

- Company Name, Type of Firm, and Contact Person
- Complete Mailing Address and Phone Number

8. Please report the number of operations (takeoff or landing) at your airport in 2009:

GA: _____ Commercial (Scheduled Svc): _____

9. Please estimate the percentage of 2009 transient (i.e.: non-local visitor) general aviation traffic at your airport: _____ %

10. What is the average number of passengers (including pilot) per GA operation at your airport? _____

11. Please report your total capital expenditures regardless of source (federal, state, local) over the last 3 years:

$ _____ In 2008 $ _____ In 2009 $ _____ In 2010 (expected)

12. If this is a privately owned airport, what were the total 2009 real estate taxes (local & state) paid to your locality and to the Commonwealth of Virginia? $ _____

13. This study is also concerned with the many quality-of-life benefits that airports provide, which are often not measurable in monetary terms. As an airport manager, you have a unique perspective on the ways in which your airport supports the local quality of life by contributing to the health, safety, recreation, and economic well-being of your community. Please check all applicable activities/attributes at your airport.

_____ Recreational flying and/or parachuting
_____ Ballooning
_____ Agricultural spraying
_____ Freight / Cargo activity
_____ Traffic / News reporting
_____ Corporate / Business activity
_____ Environmental patrol
_____ Aerial photography / Surveying
_____ Aerial inspections
_____ Aerial advertising / Banner towing
_____ Promotional activities (open houses, air shows, etc.)
_____ Aerial Firefighting
_____ Other: _____

_____ Shipping of perishable goods
_____ Career training / Education
_____ Search & Rescue
_____ Flight training
_____ Emergency medical aviation
_____ Gateway for VIPs / High profile visitors
_____ Staging area for community events
_____ Police / Law enforcement
_____ Location for community facilities/utilities
_____ Public charters
_____ Preservation of open space/wetlands/ woodlands

14. Please provide very brief descriptions (ex., “Channel 8 news helicopter” or “Annual June Air Show”) regarding the above checked activities. Also, please use the space below to discuss any special attributes of this airport or ways in which it is special or important to the community it serves. If in-house or other

promotional descriptions have been written about your airport, please attach those as well. The box will expand as necessary.

15 Please provide or attach any available anecdotes, testimonials, or quotes that highlight the value of your airport to the community or local businesses. The box will expand as necessary.

16. Does your airport have a co-located business/office park? _____
If yes, please describe:

17. Please check all surface modes of transportation offered at your airport terminal.

___ Courtesy Car ___ Rental Car ___ Limousine Service ___ Taxi Cab
___ Bus ___ Rail ___ None
___ Other: _____

In your opinion, is your airport adequately served by surface transportation modes? _____

Please explain below. The box will expand as necessary.

18. In your opinion, is there adequate access to major highways (primary or interstate) to and from your airport? _____

Please explain below. The box will expand as necessary.

Once again, thank you for your time and assistance.
Should you have questions about the study, please contact:

R.N. (Rusty) Harrington
Manager, Planning and Environmental Section
Airport Services Division
Virginia Department of Aviation
5702 Gulfstream Road
Richmond, Virginia 23250
(804) 236-3632
Rusty.Harrington@doav.virginia.gov

AIRPORT TENANT SURVEY

Thank you for your participation in this important study.
Please provide the information requested below.

VIRGINIA AIR TRANSPORTATION SYSTEM
2010 ECONOMIC IMPACT STUDY

1. Business Information

Company Name: _____

Contact Name: _____

Telephone Number: _____

2. Type of Business (Check 1)

- ☐ Air Transportation
- ☐ FBO
- ☐ Aviation-Related Manufacturing
- ☐ Aviation-Related Repair
- ☐ General Manufacturing
- ☐ Other Federal Government/Not Military or TSA
- ☐ FAA
- ☐ Military
- ☐ Facility Maintenance (buildings)
- ☐ Grounds Maintenance
- ☐ Security
- ☐ Aviation-Related Specialized Services
- ☐ Construction
- ☐ Courier/Overnight Delivery Services
- ☐ Wholesale & Distribution
- ☐ Crop Spraying
- ☐ Flight Training
- ☐ Retail
- ☐ Restaurant and/or Bar
- ☐ Car Rental
- ☐ Local/Regional Government
- ☐ Hotel (on airport)
- ☐ Ground Transportation (other than car rental)
- ☐ Other Services

☐ Other (please specify type of business)_____

3. How many people does your business employ?

Full-time employees _____

Part-time employees _____

4. Please report the total payroll paid to all employees at this airport: $_____

5. Is your business located in the passenger terminal? _____Yes _____No

If no, would your business be in operation if this airport did not exist? _____Yes ____No

6. If you pay real estates taxes directly to your locality and to the Commonwealth of Virginia, please provide the total real estate taxes (local & state) **paid by your business** in 2009: $_____

7. Please indicate how and how often your business uses Virginia airports. Please check as many as apply:

- ☐ To ship in supplies, raw materials, and/or intermediate goods

  Frequency: _____

- ☐ To ship (out) your products

  Frequency: _____

- ☐ To transport company personnel

  Frequency: _____

- ☐ To transport customers and business associates

  Frequency: _____

- ☐ Other (please specify): _____

  _____

Thank you for your time and assistance. Your participation is crucial to the success of this study. Should you have questions about the study, please contact:

R.N. (Rusty) Harrington
Manager, Planning and Environmental Section
Airport Services Division
Virginia Department of Aviation
5702 Gulfstream Road
Richmond, Virginia 23250
(804) 236-3632
Rusty.Harrington@doav.virginia.gov

VIRGINIA AIRPORT SYSTEM

COMMERCIAL SERVICE AIR PASSENGER SURVEY

Conducted on behalf of the Virginia Department of Aviation

The Commonwealth of Virginia recently launched a study to measure the economic impact and value of Virginia airports to their communities and to the Commonwealth. An important part of this study involves surveying airport users.

This Airport Survey is intended to gain an understanding of how visitors use the airports of the Commonwealth, and the economic benefit that visitors contribute to Virginia.

Please take a few minutes to complete this survey. Your participation is highly appreciated and crucial to the success of this study. *Your answers to these questions will be held in strict confidence.*

Complete only one survey per traveling party.

1. Identify the airport where you received this survey:

_____

2. How many people are travelling in your party?

_____

3. What is the purpose of your trip (circle one)?

Business Convention

Vacation Other/Personal

4. With respect to Virginia, are you a (circle one):

Visitor Resident

Only visitors to Virginia should complete Questions 5 & 6. Otherwise, skip to Question 7

6. How many nights did you spend in Virginia during this trip? _____

If you stayed one or more nights, please indicate the type of lodging:

___ Commercial lodging (Hotel/motel, B&B, short-term condo rental)

___ Private residence

6. Approximately how much money did you spend during this trip?

Please list only expenditures made in Virginia.

If traveling as a family or group, please estimate the total expenditures made by everyone.

Lodging: $ _____

Food & beverage: $ _____

Local transportation: $ _____
(rental car, taxis, etc.)

Entertainment: $ _____

Retail: $ _____

Other (please specify): $ _____

_____

7. How would your trip today have been affected if this airport was not available to you?

___ I would have flown to another airport.

Name of airport: _____

_____

___ I would have traveled by another mode (automobile, train, etc.)

_____

___ I would have visited a destination elsewhere in Virginia.

___ I would not have visited Virginia

If your trip is business related, please complete questions 8 through 10.

8. Check the categories of your business, as well as that of any business you are visiting in Virginia:

Your Business	Business Visiting	
❑	❑	Agriculture., Forestry, Fishing
❑	❑	Mining
❑	❑	Construction
❑	❑	Transp./Comm./Pub. Utilities
❑	❑	Manufacturing
❑	❑	Professional Services
❑	❑	Wholesale Trade
❑	❑	Retail Trade
❑	❑	Business Services
❑	❑	Financial/Insurance/Real Estate
❑	❑	Government

9. What is the major product or service provided by your company?

_____

_____

10. What is the major product or service provided by the company you are visiting?

_____

_____

If you are using a surface mode of transportation to or from this airport, please complete the following questions.

11. What is the drive time and mileage to or from your point of origin or destination to this airport?

Drive Time:_____

Mileage:_____

12. Please identify the surface mode of transportation you will use:

- ❑ Courtesy Car
- ❑ Rental Car
- ❑ Taxi Cab
- ❑ Private Vehicle
- ❑ Limousine
- ❑ Shuttle Bus
- ❑ Public Transportation

13. Please use this space to include any additional comments or recommendations you may wish to bring to our attention.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Thank you for your participation!

Should you have questions about the study, or concerns regarding this survey, please contact:

R.N. (Rusty) Harrington
Manager, Planning and Environmental Section
Airport Services Division
Virginia Department of Aviation
5702 Gulfstream Road
Richmond, Virginia 23250
(804) 236-3632
Rusty.Harrington@doav.virginia.gov

200 DOAVAS 20100701 Economic Impact Study
Commercial Service Air Passenger Survey

– *Seal closed with tape before mailing* –

VIRGINIA AIR TRANSPORTATION SYSTEM
2010 ECONOMIC IMPACT STUDY

VIRGINIA AIRPORT SYSTEM
COMMERCIAL SERVICE AIR PASSENGER SURVEY

Conducted on behalf of the Virginia Department of Aviation

Your Participation in this Important Study is Greatly Appreciated.

Please complete this short survey and drop it in the mail back to VDOA. Postage is pre-paid.

– *Seal closed with tape before mailing* –

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VIRGINIA AIRPORT SYSTEM

GENERAL AVIATION USER SURVEY

Conducted on behalf of the Virginia Department of Aviation

VIRGINIA AIR TRANSPORTATION SYSTEM
2010 ECONOMIC IMPACT STUDY

The Commonwealth of Virginia is conducting a study to measure the economic impact and value of Virginia airports to their communities and to the state. An important part of this study involves surveying airport users.

This General Aviation User Survey is intended to gain an understanding of how visiting general aviation pilots and passengers contribute to Virginia.

Please take a few minutes to complete this survey. Your participation is deeply appreciated and crucial to the success of this study. *Your answers to these questions will be held in strict confidence.*

200 DOAVAS 20100701 Economic Impact Study
GA User Survey

1. Please identify the airport where you received this survey:

_____

2. Are you (circle): Arriving Departing

3. How many people, including the pilot, were or will be traveling on your plane? _____

4. What is the purpose of your trip (circle one)?

Business Leisure Flight Training

5. With respect to the Commonwealth of Virginia, are you a (circle one): Visitor Resident

Only visitors to Virginia should complete the remaining questions.

6. How many nights did you, or will you, spend in Virginia during this trip? _____

If staying one or more nights, please indicate the type of lodging:

___ Commercial lodging (Hotel/motel, B&B, short-term condo rental)

___ Private residence

7. Approximately how much money did you, or will you, spend during this trip?

Please list only those expenditures made in Virginia. If traveling as a family or group, please estimate the total expenditures made by everyone.

Lodging: $ _____

Food & beverage: $ _____

Local transportation: $ _____
(rental car, taxis, etc.)

Entertainment: $ _____

Retail: $ _____

Other (please specify): $ _____

_____

8. How would your trip today have been affected if this airport was not available to you?

___ I would have flown to another airport.

Name of airport: _____

_____

___ I would have traveled by another mode (automobile, train, etc.)

_____

___ I would have visited a destination elsewhere in Virginia.

___ I would not have visited Virginia

9. ***If your trip is business related,*** please complete the following questions.

Check the categories of your business, as well as that of any business you are visiting in Virginia:

Your Business	Business Visiting	
❑	❑	Agri., Forestry, Fishing
❑	❑	Mining
❑	❑	Construction
❑	❑	Trans./Comm./Public Utilities
❑	❑	Manufacturing
❑	❑	Professional services
❑	❑	Wholesale Trade
❑	❑	Retail Trade
❑	❑	Business Services
❑	❑	Financial/Insur./Real Estate
❑	❑	Government

What is the major product or service provided by your company?

_____

_____

What is the major product or service provided by the company you are visiting?

_____

_____

If you are using a surface mode of transportation to or from this airport, please complete the following questions.

10. What is the drive time and mileage to or from your point of origin or destination to this airport?

Drive Time_____
Mileage _____

11. Please identify the surface mode of transportation you will use:

- ❑ Courtesy Car
- ❑ Rental Car
- ❑ Taxi Cab
- ❑ Private Vehicle
- ❑ Limousine
- ❑ Shuttle Bus
- ❑ Public Transportation

12. Please use this space to include any additional comments or recommendations you may wish to bring to our attention.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Thank you for your participation!

Should you have questions about the study,
or concerns regarding this survey,
please contact:

R.N (Rusty) Harrington
Manager, Planning and Environmental Section
Airport Services Division
Virginia Department of Aviation
5702 Gulfstream Road
Richmond, Virginia 23250
(804) 236-3632
Rusty.Harrington@doav.virginia.gov

AIRPORT-DEPENDENT BUSINESS SURVEY

Thank you for your participation in this important study.
Please provide the information requested below.

1. Company Name: _____

Address: _____

Telephone Number: _____

Contact Name: _____

2. What is your firm's primary product or service? _____

3. How many people does your business employ in Virginia? Full-time employees _____

Part-time employees _____

4. How does your company use Virginia airports? Please check as many as apply:

- ☐ To ship in supplies, raw materials, and/or intermediate goods
- ☐ To ship (out) your products
- ☐ To transport company personnel
- ☐ To transport customers and business associates
- ☐ Other (please specify): _____

_____

5. What percentage of your Virginia business activity depends on Virginia airports:

_____ %

6. Please identify the Virginia airport(s) on which your business depends

	Airport Name	Please Check Estimated Usage Rate as Appropriate 100% means it is the only airport in Virginia that your business uses				
		80% to 100%	**50% to 80%**	**25% to 50%**	**10% to 25%**	**Less than 10%**
1						
2						
3						
4						
5						

For the primary Virginia airport on which your business depends, please answer the following:

7. What is the drive time and mileage from your local place of business to the airport?

Drive Time: _____ Mileage: _____

8. If available, does your business use airport conference room facilities?

_____Yes _____No _____Facility Not Available

9. In your opinion, is the airport adequately served by surface transportation modes? _____Yes _____No

What other airport or surface transportation facilities could help in conducting your business operations?

_____

10. In your opinion, is there adequate access to major highways (primary or interstate) to and from your airport?

_____Yes _____No Please explain below.

_____

Once again, thank you for your assistance.
Should you have questions about the study, please contact:

R.N. (Rusty) Harrington
Manager, Planning and Environmental Section
Airport Services Division
Virginia Department of Aviation
5702 Gulfstream Road
Richmond, Virginia 23250
(804) 236-3632
Rusty.Harrington@doav.virginia.gov

BASED AIRCRAFT OWNERS SURVEY

Thank you for your participation in this important study.
Please provide the information requested below.

VIRGINIA AIR TRANSPORTATION SYSTEM
2010 ECONOMIC IMPACT STUDY

1. Name of Airport where your aircraft is based: _____

2. Is your aircraft (check as many as apply)

- ☐ Business-owned
- ☐ Owned by an individual
- ☐ Leased
- ☐ Chartered

3. Please indicate the percentage of total utilization time that you operate your aircraft for business purposes: _____%

If your answer to **Question 3 is more than 0%:** Please complete the following questions:

4. Company Name: _____

Address: _____

Telephone Number/email address: _____

Contact Name: _____

5. What is your firm's primary product or service? _____

6. How many people does your business employ?

Full-time employees _____

Part-time employees _____

7. How does your company use Virginia's airports? Please check as many as apply:

- ☐ To ship in supplies, raw materials, and/or intermediate goods
- ☐ To ship out your products
- ☐ To transport revenue-paying passengers
- ☐ To transport company personnel
- ☐ To transport business customers and associates
- ☐ To perform aerial services other than passenger transport
- ☐ Other (please specify): _____

8. Please estimate the percentage of your business activity that depends on the availability of air transportation _____%

9. Please list all of the Virginia-based aircraft *operated* by your business and the airport where each is based. Please attach a list if more convenient:

Airport	Number of Based Aircraft
1. ***This Airport***	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

10. What would be your reaction if home base airport were no longer available for your aircraft? (Check as many as apply)

- ☐ Relocate aircraft elsewhere in Virginia
- ☐ Relocate aircraft in same general region
- ☐ Relocate business out of state
- ☐ Sell aircraft
- ☐ Substitute other modes such as bus, truck, rail
- ☐ Other (please specify) _____

For the Airport designated in Question 1, please answer the following:

11. What is the drive time and mileage from your local place of business to the airport?

Drive Time _____ Mileage _____

12. If available, do you use airport conference room facilities to conduct business?

_____Yes _____No _____Facility Not Available

13. In your opinion, is the airport adequately served by surface transportation modes? ____Yes ____No

What other airport or surface transportation facilities could help in conducting your business operations?

_____

14. In your opinion, is there adequate access to major highways (primary or interstate) to and from your airport? _____Yes _____No

Please explain below.

_____

Once again, thank you for your assistance.
Should you have questions about the study, please contact:

R.N. (Rusty) Harrington
Manager, Planning and Environmental Section
Airport Services Division
Virginia Department of Aviation
5702 Gulfstream Road
Richmond, Virginia 23250
(804) 236-3632
Rusty.Harrington@doav.virginia.gov

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VIRGINIA AIRPORT SYSTEM ECONOMIC IMPACT STUDY

Appendix D:
REGIONAL ECONOMIC IMPACTS OF VIRGINIA'S PUBLIC-USE AIRPORTS

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1. On-Airport Regional Jobs Impacts by Airport

On-Airport Regional Jobs			
Airport	**Direct**	**Indirect & Induced**	**Total**
Commercial Service			
Charlottesville-Albemarle	187	170	357
Lynchburg Regional	207	168	375
Newport News-Williamsburg International	519	449	968
Norfolk International	1,581	1,225	2,806
Richmond International	1,258	1,016	2,274
Roanoke Regional	535	428	963
Shenandoah Valley Regional	83	70	153
General Aviation			
Accomack County	8	5	13
Blackstone AAF	4	3	7
Blue Ridge Regional	14	9	23
Bridgewater Air Park	262	267	529
Brookneal-Campbell County	1	1	2
Chase City Municipal	1	1	2
Chesapeake Regional	55	45	100
Chesterfield County	78	69	147
Crewe Municipal	1	1	2
Culpeper Regional	13	11	24
Danville Regional	23	18	41
Dinwiddie County	19	19	38
Emporia-Greensville Regional	6	5	11
Falwell	27	20	47
Farmville Municipal	14	11	25
Franklin Municipal	4	3	7
Front Royal-Warren County	10	10	20
Gordonsville Municipal	4	3	7

On-Airport Regional Jobs			
Airport	Direct	Indirect & Induced	Total
Grundy Municipal	1	1	2
Hampton Roads Executive	65	55	120
Hanover County Municipal	57	54	111
Hummel Field	9	7	16
Ingalls Field	3	2	5
Lake Anna	1	1	2
Lake Country Regional	1	1	2
Lawrenceville-Brunswick Municipal	2	2	4
Lee County	1	1	2
Leesburg Executive	287	200	487
Lonesome Pine	3	2	5
Louisa County	14	14	28
Lunenburg County	1	1	2
Luray Caverns	6	6	12
Manassas Regional	530	344	874
Mecklenburg-Brunswick Regional	8	7	15
Middle Peninsula Regional	41	28	69
Mountain Empire	6	5	11
New Kent County	8	8	16
New London	2	2	4
New Market	6	5	11
New River Valley	19	18	37
Orange County	59	25	84
Shannon	20	20	40
Smith Mountain Lake	1	1	2
Stafford Regional	36	37	73
Suffolk Executive	54	26	80
Tangier Island	1	1	2
Tappahannock-Essex County	3	2	5

On-Airport Regional Jobs			
Airport	Direct	Indirect & Induced	Total
Tazewell County	3	3	6
Twin County	4	3	7
Virginia Highlands	13	11	24
Virginia Tech-Montgomery Executive	27	22	49
Wakefield Municipal	1	1	2
Warrenton-Fauquier	20	20	40
Waynesboro-Eagle's Nest	1	1	2
William M. Tuck	3	2	5
Williamsburg-Jamestown	20	15	35
Winchester Regional	45	36	81

2. On-Airport Regional Payroll Impacts by Airport, (in millions)

On-Airport Regional Payroll (millions)			
Airport	**Direct**	**Indirect & Induced**	**Total**
Commercial Service			
Charlottesville-Albemarle	$41.78	$23.77	$65.55
Lynchburg Regional	$52.57	$28.61	$81.18
Newport News-Williamsburg International	$121.47	$69.11	$190.57
Norfolk International	$314.50	$184.14	$498.64
Richmond International	$262.61	$154.79	$417.40
Roanoke Regional	$83.58	$48.10	$131.68
Shenandoah Valley Regional	$14.44	$8.14	$22.58
General Aviation			
Accomack County	$0.95	$0.40	$1.35
Blackstone AAF	$0.17	$0.07	$0.24
Blue Ridge Regional	$1.91	$0.92	$2.83
Bridgewater Air Park	$64.45	$35.31	$99.76
Brookneal-Campbell County	$0.36	$0.19	$0.55
Chase City Municipal	$0.29	$0.13	$0.42
Chesapeake Regional	$11.70	$6.60	$18.30
Chesterfield County	$16.08	$8.99	$25.07
Crewe Municipal	$0.21	$0.09	$0.30
Culpeper Regional	$3.07	$1.63	$4.70
Danville Regional	$3.84	$1.88	$5.72
Dinwiddie County	$6.24	$3.23	$9.47
Emporia-Greensville Regional	$0.86	$0.37	$1.23
Falwell	$6.97	$3.85	$10.82
Farmville Municipal	$1.75	$0.82	$2.57
Franklin Municipal	$1.44	$0.46	$1.90
Front Royal-Warren County	$2.02	$1.10	$3.12
Gordonsville Municipal	$0.65	$0.38	$1.04
Grundy Municipal	$0.28	$0.11	$0.39

On-Airport Regional Payroll (millions)			
Airport	Direct	Indirect & Induced	Total
Hampton Roads Executive	$15.96	$8.27	$24.23
Hanover County Municipal	$18.84	$9.61	$28.45
Hummel Field	$4.37	$1.92	$6.29
Ingalls Field	$0.50	$0.21	$0.72
Lake Anna	$0.19	$0.07	$0.26
Lake Country Regional	$0.29	$0.14	$0.43
Lawrenceville-Brunswick Municipal	$0.11	$0.05	$0.16
Lee County	$0.32	$0.13	$0.45
Leesburg Executive	$61.72	$27.59	$89.31
Lonesome Pine	$0.63	$0.24	$0.87
Louisa County	$2.44	$1.04	$3.47
Lunenburg County	$0.32	$0.15	$0.48
Luray Caverns	$0.47	$0.26	$0.73
Manassas Regional	$194.79	$83.34	$278.13
Mecklenburg-Brunswick Regional	$1.05	$0.49	$1.54
Middle Peninsula Regional	$4.54	$2.09	$6.63
Mountain Empire	$1.12	$0.51	$1.63
New Kent County	$1.71	$0.94	$2.65
New London	$0.71	$0.38	$1.09
New Market	$1.94	$0.79	$2.74
New River Valley	$2.92	$1.79	$4.70
Orange County	$3.96	$2.21	$6.17
Shannon	$6.45	$3.54	$9.99
Smith Mountain Lake	$0.31	$0.16	$0.47
Stafford Regional	$12.23	$6.71	$18.93
Suffolk Executive	$8.92	$4.88	$13.80
Tangier Island	$0.01	$0.01	$0.02
Tappahannock-Essex County	$0.56	$0.24	$0.79
Tazewell County	$0.42	$0.23	$0.65

On-Airport Regional Payroll (millions)			
Airport	Direct	Indirect & Induced	Total
Tazewell County	$0.42	$0.23	$0.65
Twin County	$0.77	$0.33	$1.09
Virginia Highlands	$2.62	$1.39	$4.01
Virginia Tech-Montgomery Executive	$5.97	$3.32	$9.28
Wakefield Municipal	$0.37	$0.16	$0.53
Warrenton-Fauquier	$5.27	$2.72	$7.99
Waynesboro-Eagle's Nest	$0.21	$0.10	$0.31
William M. Tuck	$0.44	$0.19	$0.62
Williamsburg-Jamestown	$1.41	$0.82	$2.24
Winchester Regional	$12.82	$5.99	$18.81

3. On-Airport Regional Economic Activity Impacts by Airport, (in millions)

On-Airport Regional Economic Activity (millions)			
Airport	**Direct**	**Indirect & Induced**	**Total**
Commercial Service			
Charlottesville-Albemarle	$32.75	$18.04	$50.79
Lynchburg Regional	$42.66	$22.60	$65.25
Newport News-Williamsburg International	$96.68	$53.76	$150.44
Norfolk International	$248.61	$141.75	$390.36
Richmond International	$201.13	$118.35	$319.48
Roanoke Regional	$65.01	$37.19	$102.20
Shenandoah Valley Regional	$11.82	$6.47	$18.29
General Aviation			
Accomack County	$0.76	$0.30	$1.06
Blackstone AAF	$0.13	$0.05	$0.18
Blue Ridge Regional	$1.62	$0.75	$2.37
Bridgewater Air Park	$53.68	$28.52	$82.20
Brookneal-Campbell County	$0.30	$0.15	$0.45
Chase City Municipal	$0.25	$0.11	$0.36
Chesapeake Regional	$9.31	$5.14	$14.45
Chesterfield County	$12.87	$6.96	$19.83
Crewe Municipal	$0.17	$0.07	$0.24
Culpeper Regional	$2.40	$1.22	$3.62
Danville Regional	$3.04	$1.46	$4.50
Dinwiddie County	$4.96	$2.45	$7.41
Emporia-Greensville Regional	$0.68	$0.28	$0.96
Falwell	$5.75	$3.09	$8.84
Farmville Municipal	$1.34	$0.62	$1.95
Franklin Municipal	$1.20	$0.36	$1.56
Front Royal-Warren County	$1.70	$0.90	$2.60
Gordonsville Municipal	$0.50	$0.29	$0.79
Grundy Municipal	$0.23	$0.08	$0.31

On-Airport Regional Economic Activity (millions)			
Airport	Direct	Indirect & Induced	Total
Hampton Roads Executive	$12.60	$6.36	$18.96
Hanover County Municipal	$15.01	$7.38	$22.39
Hummel Field	$3.40	$1.45	$4.85
Ingalls Field	$0.40	$0.16	$0.56
Lake Anna	$0.15	$0.05	$0.20
Lake Country Regional	$0.26	$0.11	$0.37
Lawrenceville-Brunswick Municipal	$0.10	$0.04	$0.14
Lee County	$0.27	$0.10	$0.37
Leesburg Executive	$41.24	$21.07	$62.30
Lonesome Pine	$0.49	$0.18	$0.67
Louisa County	$1.86	$0.77	$2.63
Lunenburg County	$0.28	$0.13	$0.41
Luray Caverns	$0.39	$0.21	$0.60
Manassas Regional	$151.67	$63.07	$214.75
Mecklenburg-Brunswick Regional	$0.92	$0.41	$1.33
Middle Peninsula Regional	$3.54	$1.58	$5.12
Mountain Empire	$0.98	$0.43	$1.41
New Kent County	$1.38	$0.73	$2.11
New London	$0.59	$0.30	$0.89
New Market	$1.59	$0.63	$2.22
New River Valley	$2.30	$1.41	$3.71
Orange County	$2.95	$1.71	$4.66
Shannon	$5.33	$2.83	$8.16
Smith Mountain Lake	$0.26	$0.13	$0.38
Stafford Regional	$10.10	$5.36	$15.46
Suffolk Executive	$7.02	$3.85	$10.87
Tangier Island	$0.01	$0.00	$0.01
Tappahannock-Essex County	$0.44	$0.18	$0.62
Tazewell County	$0.36	$0.19	$0.55

On-Airport Regional Economic Activity (millions)			
Airport	Direct	Indirect & Induced	Total
Twin County	$0.61	$0.25	$0.85
Virginia Highlands	$2.14	$1.16	$3.30
Virginia Tech-Montgomery Executive	$5.05	$2.75	$7.80
Wakefield Municipal	$0.33	$0.13	$0.46
Warrenton-Fauquier	$4.23	$2.10	$6.33
Waynesboro-Eagle's Nest	$0.17	$0.08	$0.26
William M. Tuck	$0.34	$0.14	$0.48
Williamsburg-Jamestown	$1.11	$0.63	$1.74
Winchester Regional	$10.50	$4.78	$15.28

4. Regional Jobs Impacts of Visitors by Airport

Regional Jobs Impacts of Visitors			
Airport	**Direct**	**Indirect & Induced**	**Total**
Commercial Service			
Charlottesville-Albemarle	653	245	898
Lynchburg Regional	370	145	515
Newport News-Williamsburg International	1,731	650	2,381
Norfolk International	5,283	2,081	7,364
Richmond International	6,192	2,354	8,546
Roanoke Regional	842	343	1,185
Shenandoah Valley Regional	70	23	93
General Aviation			
Accomack County	12	3	15
Blackstone AAF	5	1	6
Blue Ridge Regional	25	7	32
Bridgewater Air Park	21	7	28
Brookneal-Campbell County	2	1	2
Chase City Municipal	1	0	1
Chesapeake Regional	58	21	79
Chesterfield County	65	24	90
Crewe Municipal	2	1	2
Culpeper Regional	60	19	80
Danville Regional	21	7	28
Dinwiddie County	26	10	36
Emporia-Greensville Regional	3	1	3
Falwell	2	1	2
Farmville Municipal	14	5	18
Franklin Municipal	8	2	10
Front Royal-Warren County	18	6	25
Gordonsville Municipal	3	1	4

Regional Jobs Impacts of Visitors			
Airport	Direct	Indirect & Induced	Total
Hampton Roads Executive	84	31	115
Hanover County Municipal	57	21	78
Hummel Field	5	2	6
Ingalls Field	3	1	3
Lake Anna	0	0	0
Lake Country Regional	2	1	2
Lawrenceville-Brunswick Municipal	1	0	1
Lee County	3	1	4
Leesburg Executive	77	28	105
Lonesome Pine	14	3	17
Louisa County	16	5	21
Lunenburg County	0	0	0
Luray Caverns	8	3	10
Manassas Regional	104	37	141
Mecklenburg-Brunswick Regional	13	4	17
Middle Peninsula Regional	15	5	19
Mountain Empire	14	4	17
New Kent County	14	5	20
New London	8	3	11
New Market	3	1	5
New River Valley	22	8	29
Orange County	10	3	13
Shannon	30	11	42
Smith Mountain Lake	2	1	3
Stafford Regional	24	9	33
Suffolk Executive	37	14	50
Tangier Island	7	2	8
Tappahannock-Essex County	8	2	10
Tazewell County	4	1	6

Regional Jobs Impacts of Visitors			
Airport	Direct	Indirect & Induced	Total
Twin County	4	1	5
Virginia Highlands	33	11	44
Virginia Tech-Montgomery Executive	15	5	20
Wakefield Municipal	11	2	13
Warrenton-Fauquier	66	24	89
Waynesboro-Eagle's Nest	8	3	11
William M. Tuck	12	4	15
Williamsburg-Jamestown	19	7	26
Winchester Regional	61	23	83

5. Regional Payroll Impacts of Visitors by Airport, (in millions)

Regional Payroll Impacts of Visitors (millions)			
Airport	**Direct**	**Indirect & Induced**	**Total**
Commercial Service			
Charlottesville-Albemarle	$59.39	$42.65	$102.04
Lynchburg Regional	$32.02	$22.50	$54.52
Newport News-Williamsburg International	$169.72	$122.17	$291.88
Norfolk International	$524.48	$378.96	$903.43
Richmond International	$580.96	$419.80	$1,000.75
Roanoke Regional	$85.37	$63.24	$148.61
Shenandoah Valley Regional	$5.67	$3.62	$9.29
General Aviation			
Accomack County	$0.92	$0.41	$1.32
Blackstone AAF	$0.36	$0.15	$0.50
Blue Ridge Regional	$2.00	$0.94	$2.94
Bridgewater Air Park	$1.66	$1.11	$2.77
Brookneal-Campbell County	$0.14	$0.09	$0.23
Chase City Municipal	$0.05	$0.03	$0.08
Chesapeake Regional	$5.49	$3.92	$9.41
Chesterfield County	$5.99	$4.30	$10.29
Crewe Municipal	$0.14	$0.07	$0.21
Culpeper Regional	$4.66	$3.32	$7.98
Danville Regional	$1.52	$0.89	$2.41
Dinwiddie County	$2.17	$1.55	$3.72
Emporia-Greensville Regional	$0.18	$0.07	$0.25
Falwell	$0.13	$0.09	$0.22
Farmville Municipal	$1.11	$0.59	$1.70
Franklin Municipal	$0.60	$0.31	$0.90
Front Royal-Warren County	$1.50	$0.95	$2.45
Gordonsville Municipal	$0.24	$0.18	$0.42
Grundy Municipal	$0.13	$0.05	$0.18

Regional Payroll Impacts of Visitors (millions)			
Airport	Direct	Indirect & Induced	Total
Hampton Roads Executive	$7.95	$5.68	$13.63
Hanover County Municipal	$5.21	$3.74	$8.95
Hummel Field	$0.43	$0.28	$0.70
Ingalls Field	$0.25	$0.11	$0.36
Lake Anna	$0.01	$0.01	$0.02
Lake Country Regional	$0.12	$0.08	$0.20
Lawrenceville-Brunswick Municipal	$0.06	$0.03	$0.09
Lee County	$0.23	$0.09	$0.33
Leesburg Executive	$8.98	$6.38	$15.36
Lonesome Pine	$1.11	$0.41	$1.53
Louisa County	$1.35	$0.81	$2.16
Lunenburg County	$0.02	$0.01	$0.04
Luray Caverns	$0.62	$0.38	$1.00
Manassas Regional	$11.18	$7.92	$19.10
Mecklenburg-Brunswick Regional	$0.99	$0.60	$1.59
Middle Peninsula Regional	$1.10	$0.59	$1.69
Mountain Empire	$1.03	$0.45	$1.49
New Kent County	$1.36	$0.97	$2.33
New London	$0.67	$0.46	$1.13
New Market	$0.27	$0.17	$0.44
New River Valley	$1.64	$1.05	$2.69
Orange County	$0.78	$0.55	$1.34
Shannon	$2.76	$1.93	$4.69
Smith Mountain Lake	$0.15	$0.09	$0.25
Stafford Regional	$2.16	$1.51	$3.67
Suffolk Executive	$3.28	$2.33	$5.62
Tangier Island	$0.49	$0.22	$0.71
Tappahannock-Essex County	$0.64	$0.30	$0.94
Tazewell County	$0.37	$0.23	$0.60

Regional Payroll Impacts of Visitors (millions)			
Airport	Direct	Indirect & Induced	Total
Twin County	$0.31	$0.13	$0.44
Virginia Highlands	$3.28	$2.05	$5.33
Virginia Tech-Montgomery Executive	$1.11	$0.69	$1.80
Wakefield Municipal	$0.77	$0.30	$1.06
Warrenton-Fauquier	$6.09	$4.16	$10.25
Waynesboro-Eagle's Nest	$0.64	$0.39	$1.03
William M. Tuck	$0.79	$0.42	$1.20
Williamsburg-Jamestown	$1.80	$1.26	$3.06
Winchester Regional	$5.30	$3.56	$8.87

6. Regional Economic Activity Impacts of Visitors by Airport, (in millions)

Regional Economic Activity Impacts of Visitors (millions)			
Airport	**Direct**	**Indirect & Induced**	**Total**
Commercial Service			
Charlottesville-Albemarle	$44.06	$32.50	$76.56
Lynchburg Regional	$24.06	$16.99	$41.05
Newport News-Williamsburg International	$126.14	$93.00	$219.14
Norfolk International	$387.03	$286.74	$673.76
Richmond International	$432.51	$319.41	$751.91
Roanoke Regional	$63.21	$47.73	$110.94
Shenandoah Valley Regional	$4.26	$2.76	$7.02
General Aviation			
Accomack County	$0.68	$0.31	$0.99
Blackstone AAF	$0.27	$0.11	$0.38
Blue Ridge Regional	$1.50	$0.71	$2.21
Bridgewater Air Park	$1.25	$0.85	$2.10
Brookneal-Campbell County	$0.10	$0.07	$0.17
Chase City Municipal	$0.04	$0.02	$0.06
Chesapeake Regional	$4.04	$2.98	$7.01
Chesterfield County	$4.44	$3.27	$7.71
Crewe Municipal	$0.10	$0.06	$0.16
Culpeper Regional	$3.46	$2.52	$5.98
Danville Regional	$1.14	$0.68	$1.82
Dinwiddie County	$1.62	$1.20	$2.82
Emporia-Greensville Regional	$0.14	$0.05	$0.19
Falwell	$0.10	$0.07	$0.16
Farmville Municipal	$0.82	$0.45	$1.27
Franklin Municipal	$0.45	$0.23	$0.69
Front Royal-Warren County	$1.12	$0.72	$1.84
Gordonsville Municipal	$0.18	$0.13	$0.32
Grundy Municipal	$0.10	$0.04	$0.13

Regional Economic Activity Impacts of Visitors (millions)			
Airport	Direct	Indirect & Induced	Total
Hampton Roads Executive	$5.86	$4.31	$10.17
Hanover County Municipal	$3.87	$2.85	$6.71
Hummel Field	$0.32	$0.21	$0.53
Ingalls Field	$0.18	$0.09	$0.27
Lake Anna	$0.01	$0.01	$0.01
Lake Country Regional	$0.09	$0.06	$0.15
Lawrenceville-Brunswick Municipal	$0.04	$0.03	$0.07
Lee County	$0.17	$0.07	$0.25
Leesburg Executive	$6.47	$4.74	$11.21
Lonesome Pine	$0.83	$0.31	$1.14
Louisa County	$1.03	$0.63	$1.66
Lunenburg County	$0.02	$0.01	$0.03
Luray Caverns	$0.46	$0.29	$0.75
Manassas Regional	$8.13	$5.94	$14.07
Mecklenburg-Brunswick Regional	$0.74	$0.46	$1.19
Middle Peninsula Regional	$0.82	$0.45	$1.27
Mountain Empire	$0.78	$0.34	$1.12
New Kent County	$1.00	$0.74	$1.74
New London	$0.50	$0.35	$0.85
New Market	$0.20	$0.13	$0.33
New River Valley	$1.23	$0.81	$2.03
Orange County	$0.59	$0.43	$1.01
Shannon	$2.05	$1.47	$3.52
Smith Mountain Lake	$0.12	$0.07	$0.19
Stafford Regional	$1.60	$1.15	$2.75
Suffolk Executive	$2.43	$1.78	$4.21
Tangier Island	$0.36	$0.17	$0.53
Tappahannock-Essex County	$0.48	$0.23	$0.71
Tazewell County	$0.27	$0.17	$0.45

Regional Economic Activity Impacts of Visitors (millions)			
Airport	Direct	Indirect & Induced	Total
Twin County	$0.24	$0.10	$0.33
Virginia Highlands	$2.40	$1.55	$3.94
Virginia Tech-Montgomery Executive	$0.83	$0.53	$1.36
Wakefield Municipal	$0.59	$0.22	$0.81
Warrenton-Fauquier	$4.51	$3.16	$7.67
Waynesboro-Eagle's Nest	$0.48	$0.29	$0.77
William M. Tuck	$0.60	$0.32	$0.92
Williamsburg-Jamestown	$1.33	$0.97	$2.30
Winchester Regional	$3.96	$2.70	$6.66

7. Total Regional Impacts of On-Airport Tenants and Visitors, By Airport

Total Regional Impacts of On-Airport Tenants and Visitors			
Airport	**Jobs**	**Payroll (millions)**	**Economic Activity (millions)**
Commercial Service			
Charlottesville-Albemarle	1,255	$40.24	$127.35
Lynchburg Regional	890	$29.40	$106.30
Newport News-Williamsburg International	3,349	$112.87	$369.58
Norfolk International	10,170	$337.95	$1,064.12
Richmond International	10,820	$346.76	$1,071.39
Roanoke Regional	2,148	$67.15	$213.14
Shenandoah Valley Regional	246	$6.55	$25.32
General Aviation			
Accomack County	28	$0.62	$2.06
Blackstone AAF	13	$0.17	$0.56
Blue Ridge Regional	55	$1.19	$4.58
Bridgewater Air Park	557	$18.22	$84.30
Brookneal-Campbell County	4	$0.16	$0.62
Chase City Municipal	3	$0.08	$0.42
Chesapeake Regional	179	$6.25	$21.46
Chesterfield County	237	$7.82	$27.54
Crewe Municipal	4	$0.12	$0.40
Culpeper Regional	104	$3.07	$9.61
Danville Regional	69	$1.81	$6.32
Dinwiddie County	74	$2.97	$10.23
Emporia-Greensville Regional	14	$0.33	$1.15
Falwell	49	$2.04	$9.00
Farmville Municipal	43	$1.05	$3.22
Franklin Municipal	17	$0.55	$2.25
Front Royal-Warren County	45	$1.13	$4.44
Gordonsville Municipal	11	$0.35	$1.11

Total Regional Impacts of On-Airport Tenants and Visitors			
Airport	Jobs	Payroll (millions)	Economic Activity (millions)
Grundy Municipal	4	$0.12	$0.45
Hampton Roads Executive	235	$8.73	$29.12
Hanover County Municipal	189	$8.30	$29.10
Hummel Field	22	$1.62	$5.38
Ingalls Field	8	$0.25	$0.83
Lake Anna	2	$0.07	$0.21
Lake Country Regional	4	$0.11	$0.52
Lawrenceville-Brunswick Municipal	5	$0.05	$0.21
Lee County	6	$0.16	$0.61
Leesburg Executive	592	$31.17	$73.51
Lonesome Pine	22	$0.58	$1.81
Louisa County	49	$1.35	$4.29
Lunenburg County	2	$0.07	$0.44
Luray Caverns	22	$0.37	$1.36
Manassas Regional	1,015	$68.42	$228.82
Mecklenburg-Brunswick Regional	32	$0.61	$2.52
Middle Peninsula Regional	88	$1.93	$6.39
Mountain Empire	28	$0.59	$2.53
New Kent County	36	$1.13	$3.85
New London	15	$0.48	$1.74
New Market	16	$0.63	$2.55
New River Valley	66	$1.65	$5.74
Orange County	97	$1.83	$5.68
Shannon	82	$3.00	$11.68
Smith Mountain Lake	5	$0.15	$0.57
Stafford Regional	106	$4.39	$18.21
Suffolk Executive	130	$4.34	$15.08
Tangier Island	10	$0.18	$0.55
Tappahannock-Essex County	15	$0.40	$1.33

Total Regional Impacts of On-Airport Tenants and Visitors			
Airport	Jobs	Payroll (millions)	Economic Activity (millions)
Tazewell County	12	$0.25	$1.00
Twin County	12	$0.35	$1.18
Virginia Highlands	68	$2.10	$7.24
Virginia Tech-Montgomery Executive	69	$1.92	$9.16
Wakefield Municipal	15	$0.33	$1.27
Warrenton-Fauquier	129	$4.23	$14.00
Waynesboro-Eagle's Nest	13	$0.31	$1.03
William M. Tuck	20	$0.42	$1.40
Williamsburg-Jamestown	61	$1.26	$4.03
Winchester Regional	164	$5.74	$21.93

Note: Includes direct and spin-off impacts of on-airport tenants and business and off-airport visitor spending. Excludes impacts of off-airport aviation-dependent businesses

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VIRGINIA AIRPORT SYSTEM ECONOMIC IMPACT STUDY

Appendix E:
AIRPORT ECONOMIC IMPACT SUMMARIES

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Accomack County

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	8	$192,000	$759,000	8	$192,000	$759,000
Visitor Spending	12	$236,000	$680,000	12	$236,000	$680,000
Total Direct	20	$428,000	$1,439,000	20	$428,000	$1,439,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	5	$99,000	$303,000	7	$113,000	$424,000
Due to Visitor Spending	3	$91,000	$314,000	5	$159,000	$514,000
Total Spin-off	8	$190,000	$617,000	11	$272,000	$938,000
Total	**29**	**$618,000**	**$2,056,000**	**32**	**$700,000**	**$2,377,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	7,724
GA Visitors	6,720
Based Aircraft	25

Blackstone AAF

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	4	$35,000	$130,000	4	$35,000	$130,000
Visitor Spending	5	$87,000	$268,000	5	$87,000	$268,000
Total Direct	9	$122,000	$398,000	9	$122,000	$398,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	3	$17,000	$53,000	4	$23,000	$71,000
Due to Visitor Spending	1	$35,000	$112,000	2	$57,000	$202,000
Total Spin-off	4	$52,000	$165,000	6	$80,000	$273,000
Total	**14**	**$174,000**	**$563,000**	**15**	**$202,000**	**$671,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	4,560
GA Visitors	2,645
Based Aircraft	11

Blue Ridge Regional

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	14	$292,000	$1,621,000	14	$292,000	$1,621,000
Visitor Spending	25	$498,000	$1,503,000	25	$498,000	$1,503,000
Total Direct	39	$790,000	$3,124,000	39	$790,000	$3,124,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	9	$170,000	$745,000	11	$192,000	$935,000
Due to Visitor Spending	7	$227,000	$711,000	9	$333,000	$1,136,000
Total Spin-off	16	$397,000	$1,456,000	20	$525,000	$2,071,000
Total	**54**	**$1,187,000**	**$4,580,000**	**59**	**$1,315,000**	**$5,195,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	17,074
GA Visitors	14,854
Based Aircraft	50

Bridgewater Air Park

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	262	$10,768,000	$53,680,000	262	$10,768,000	$53,680,000
Visitor Spending	21	$412,000	$1,248,000	21	$412,000	$1,248,000
Total Direct	283	$11,180,000	$54,928,000	283	$11,180,000	$54,928,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	267	$6,787,000	$28,521,000	274	$6,968,000	$29,269,000
Due to Visitor Spending	7	$256,000	$852,000	8	$277,000	$943,000
Total Spin-off	274	$7,043,000	$29,373,000	282	$7,245,000	$30,212,000
Total	**557**	**$18,223,000**	**$84,301,000**	**565**	**$18,425,000**	**$85,140,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	43,611
GA Visitors	27,039
Based Aircraft	72

Brookneal-Campbell County

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	1	$61,000	$300,000	1	$61,000	$300,000
Visitor Spending	2	$34,000	$102,000	2	$34,000	$102,000
Total Direct	3	$95,000	$402,000	3	$95,000	$402,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	1	$39,000	$149,000	1	$40,000	$163,000
Due to Visitor Spending	1	$22,000	$67,000	1	$24,000	$77,000
Total Spin-off	1	$61,000	$216,000	2	$64,000	$240,000
Total	**4**	**$156,000**	**$618,000**	**4**	**$159,000**	**$642,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	1,260
GA Visitors	1,008
Based Aircraft	0

Charlottesville-Albemarle

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	187	$9,032,000	$32,746,000	187	$9,032,000	$32,746,000
Visitor Spending	653	$15,325,000	$44,062,000	653	$15,325,000	$44,062,000
Total Direct	840	$24,357,000	$76,808,000	840	$24,357,000	$76,808,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	170	$5,733,000	$18,039,000	176	$5,881,000	$18,502,000
Due to Visitor Spending	245	$10,153,000	$32,500,000	251	$10,429,000	$33,375,000
Total Spin-off	415	$15,886,000	$50,539,000	427	$16,310,000	$51,877,000
Total	**1,255**	**$40,243,000**	**$127,347,000**	**1,267**	**$40,667,000**	**$128,685,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	6,704
Airline Enplanements	196,060
Commercial Airline Visitors	77,021
GA Operations	69,556
GA Visitors	80,685
Based Aircraft	76

Chase City Municipal

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	1	$35,000	$254,000	1	$35,000	$254,000
Visitor Spending	1	$12,000	$35,000	1	$12,000	$35,000
Total Direct	2	$47,000	$289,000	2	$47,000	$289,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	1	$22,000	$109,000	1	$23,000	$138,000
Due to Visitor Spending	0	$7,000	$22,000	0	$8,000	$27,000
Total Spin-off	1	$29,000	$131,000	1	$31,000	$165,000
Total	**3**	**$76,000**	**$420,000**	**3**	**$78,000**	**$454,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	1,236
GA Visitors	767
Based Aircraft	4

Chesapeake Regional

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	55	$2,392,000	$9,308,000	55	$2,392,000	$9,308,000
Visitor Spending	58	$1,451,000	$4,039,000	58	$1,451,000	$4,039,000
Total Direct	113	$3,843,000	$13,347,000	113	$3,843,000	$13,347,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	45	$1,456,000	$5,141,000	47	$1,493,000	$5,273,000
Due to Visitor Spending	21	$949,000	$2,975,000	22	$973,000	$3,052,000
Total Spin-off	67	$2,405,000	$8,116,000	69	$2,466,000	$8,325,000
Total	**179**	**$6,248,000**	**$21,463,000**	**181**	**$6,309,000**	**$21,672,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	45,881
GA Visitors	39,916
Based Aircraft	144

Chesterfield County

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	78	$3,211,000	$12,869,000	78	$3,211,000	$12,869,000
Visitor Spending	65	$1,553,000	$4,441,000	65	$1,553,000	$4,441,000
Total Direct	143	$4,764,000	$17,310,000	143	$4,764,000	$17,310,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	69	$2,032,000	$6,959,000	71	$2,084,000	$7,137,000
Due to Visitor Spending	24	$1,026,000	$3,271,000	25	$1,052,000	$3,355,000
Total Spin-off	93	$3,058,000	$10,230,000	95	$3,136,000	$10,492,000
Total	**237**	**$7,822,000**	**$27,540,000**	**239**	**$7,900,000**	**$27,802,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	50,440
GA Visitors	43,883
Based Aircraft	142

Crewe Municipal

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	1	$45,000	$168,000	1	$45,000	$168,000
Visitor Spending	2	$36,000	$103,000	2	$36,000	$103,000
Total Direct	3	$81,000	$271,000	3	$81,000	$271,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	1	$22,000	$69,000	1	$29,000	$92,000
Due to Visitor Spending	1	$17,000	$55,000	1	$24,000	$78,000
Total Spin-off	1	$39,000	$124,000	2	$53,000	$170,000
Total	**4**	**$120,000**	**$395,000**	**5**	**$134,000**	**$441,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	3,594
GA Visitors	2,228
Based Aircraft	11

Culpeper Regional

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	13	$673,000	$2,400,000	13	$673,000	$2,400,000
Visitor Spending	60	$1,199,000	$3,461,000	60	$1,199,000	$3,461,000
Total Direct	73	$1,872,000	$5,861,000	73	$1,872,000	$5,861,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	11	$404,000	$1,221,000	12	$408,000	$1,260,000
Due to Visitor Spending	19	$793,000	$2,523,000	23	$818,000	$2,615,000
Total Spin-off	31	$1,197,000	$3,744,000	34	$1,226,000	$3,875,000
Total	**104**	**$3,069,000**	**$9,605,000**	**108**	**$3,098,000**	**$9,736,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	39,319
GA Visitors	34,207
Based Aircraft	126

Danville Regional

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	23	$799,000	$3,038,000	23	$799,000	$3,038,000
Visitor Spending	21	$378,000	$1,143,000	21	$378,000	$1,143,000
Total Direct	44	$1,177,000	$4,181,000	44	$1,177,000	$4,181,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	18	$423,000	$1,461,000	20	$480,000	$1,788,000
Due to Visitor Spending	7	$210,000	$680,000	8	$254,000	$863,000
Total Spin-off	25	$633,000	$2,141,000	28	$734,000	$2,651,000
Total	**69**	**$1,810,000**	**$6,322,000**	**71**	**$1,911,000**	**$6,832,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	12,981
GA Visitors	11,293
Based Aircraft	40

Dinwiddie County

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	19	$1,285,000	$4,957,000	19	$1,285,000	$4,957,000
Visitor Spending	26	$545,000	$1,624,000	26	$545,000	$1,624,000
Total Direct	45	$1,830,000	$6,581,000	45	$1,830,000	$6,581,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	19	$778,000	$2,448,000	20	$798,000	$2,530,000
Due to Visitor Spending	10	$358,000	$1,196,000	10	$367,000	$1,227,000
Total Spin-off	29	$1,136,000	$3,644,000	30	$1,165,000	$3,757,000
Total	**74**	**$2,966,000**	**$10,225,000**	**75**	**$2,995,000**	**$10,338,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	18,446
GA Visitors	16,048
Based Aircraft	54

Emporia-Greensville Regional

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	6	$183,000	$681,000	6	$183,000	$681,000
Visitor Spending	3	$46,000	$136,000	3	$46,000	$136,000
Total Direct	9	$229,000	$817,000	9	$229,000	$817,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	5	$89,000	$278,000	6	$119,000	$371,000
Due to Visitor Spending	1	$16,000	$53,000	1	$31,000	$103,000
Total Spin-off	5	$105,000	$331,000	7	$150,000	$474,000
Total	**14**	**$334,000**	**$1,148,000**	**16**	**$379,000**	**$1,291,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	1,541
GA Visitors	1,341
Based Aircraft	5

Falwell

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	27	$1,224,000	$5,746,000	27	$1,224,000	$5,746,000
Visitor Spending	2	$33,000	$97,000	2	$33,000	$97,000
Total Direct	29	$1,257,000	$5,843,000	29	$1,257,000	$5,843,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	20	$759,000	$3,088,000	24	$778,000	$3,192,000
Due to Visitor Spending	1	$21,000	$65,000	1	$23,000	$74,000
Total Spin-off	21	$780,000	$3,153,000	24	$801,000	$3,266,000
Total	**49**	**$2,037,000**	**$8,996,000**	**53**	**$2,058,000**	**$9,109,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	3,400
GA Visitors	2,108
Based Aircraft	11

Farmville Municipal

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	14	$414,000	$1,338,000	14	$414,000	$1,338,000
Visitor Spending	14	$290,000	$824,000	14	$290,000	$824,000
Total Direct	28	$704,000	$2,162,000	28	$704,000	$2,162,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	11	$202,000	$616,000	11	$256,000	$817,000
Due to Visitor Spending	5	$141,000	$445,000	5	$198,000	$622,000
Total Spin-off	15	$343,000	$1,061,000	17	$454,000	$1,439,000
Total	**43**	**$1,047,000**	**$3,223,000**	**44**	**$1,158,000**	**$3,601,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	9,357
GA Visitors	8,140
Based Aircraft	27

Franklin Municipal

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	4	$239,000	$1,203,000	4	$239,000	$1,203,000
Visitor Spending	8	$145,000	$453,000	8	$145,000	$453,000
Total Direct	12	$384,000	$1,656,000	12	$384,000	$1,656,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	3	$95,000	$360,000	4	$112,000	$468,000
Due to Visitor Spending	2	$72,000	$233,000	3	$98,000	$342,000
Total Spin-off	5	$167,000	$593,000	7	$210,000	$810,000
Total	**17**	**$551,000**	**$2,249,000**	**19**	**$594,000**	**$2,466,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	7,715
GA Visitors	4,475
Based Aircraft	25

Front Royal-Warren County

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	10	$321,000	$1,698,000	10	$321,000	$1,698,000
Visitor Spending	18	$378,000	$1,122,000	18	$378,000	$1,122,000
Total Direct	28	$699,000	$2,820,000	28	$699,000	$2,820,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	10	$202,000	$902,000	10	$208,000	$925,000
Due to Visitor Spending	6	$228,000	$722,000	7	$255,000	$848,000
Total Spin-off	17	$430,000	$1,624,000	17	$463,000	$1,773,000
Total	**45**	**$1,129,000**	**$4,444,000**	**46**	**$1,162,000**	**$4,593,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	17,882
GA Visitors	11,087
Based Aircraft	51

Gordonsville Municipal

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	4	$155,000	$498,000	4	$155,000	$498,000
Visitor Spending	3	$62,000	$182,000	3	$62,000	$182,000
Total Direct	7	$217,000	$680,000	7	$217,000	$680,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	3	$91,000	$291,000	3	$93,000	$298,000
Due to Visitor Spending	1	$41,000	$134,000	1	$42,000	$138,000
Total Spin-off	4	$132,000	$425,000	4	$135,000	$436,000
Total	**11**	**$349,000**	**$1,105,000**	**11**	**$352,000**	**$1,116,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	6,371
GA Visitors	3,950
Based Aircraft	20

Grundy Municipal

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	1	$45,000	$233,000	1	$45,000	$233,000
Visitor Spending	2	$35,000	$97,000	2	$35,000	$97,000
Total Direct	3	$80,000	$330,000	3	$80,000	$330,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	1	$28,000	$80,000	1	$29,000	$127,000
Due to Visitor Spending	0	$11,000	$35,000	1	$24,000	$73,000
Total Spin-off	1	$39,000	$115,000	2	$53,000	$200,000
Total	**4**	**$119,000**	**$445,000**	**4**	**$133,000**	**$530,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	3,392
GA Visitors	2,103
Based Aircraft	11

Hampton Roads Executive

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	65	$3,366,000	$12,595,000	65	$3,366,000	$12,595,000
Visitor Spending	84	$2,090,000	$5,855,000	84	$2,090,000	$5,855,000
Total Direct	149	$5,456,000	$18,450,000	149	$5,456,000	$18,450,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	55	$1,908,000	$6,360,000	56	$1,957,000	$6,523,000
Due to Visitor Spending	31	$1,368,000	$4,313,000	32	$1,403,000	$4,424,000
Total Spin-off	86	$3,276,000	$10,673,000	88	$3,360,000	$10,947,000
Total	**235**	**$8,732,000**	**$29,123,000**	**237**	**$8,816,000**	**$29,397,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	66,513
GA Visitors	57,866
Based Aircraft	207

Hanover County Municipal

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	57	$3,828,000	$15,012,000	57	$3,828,000	$15,012,000
Visitor Spending	57	$1,347,000	$3,866,000	57	$1,347,000	$3,866,000
Total Direct	114	$5,175,000	$18,878,000	114	$5,175,000	$18,878,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	54	$2,231,000	$7,376,000	55	$2,289,000	$7,565,000
Due to Visitor Spending	21	$890,000	$2,848,000	22	$913,000	$2,921,000
Total Spin-off	75	$3,121,000	$10,224,000	77	$3,202,000	$10,486,000
Total	**189**	**$8,296,000**	**$29,102,000**	**191**	**$8,377,000**	**$29,364,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	43,912
GA Visitors	38,203
Based Aircraft	138

Hummel Field

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	9	$967,000	$3,404,000	9	$967,000	$3,404,000
Visitor Spending	5	$111,000	$315,000	5	$111,000	$315,000
Total Direct	14	$1,078,000	$3,719,000	14	$1,078,000	$3,719,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	7	$473,000	$1,448,000	8	$534,000	$1,692,000
Due to Visitor Spending	2	$65,000	$210,000	2	$75,000	$238,000
Total Spin-off	8	$538,000	$1,658,000	10	$609,000	$1,930,000
Total	**22**	**$1,616,000**	**$5,377,000**	**23**	**$1,687,000**	**$5,649,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	11,008
GA Visitors	6,825
Based Aircraft	35

Ingalls Field

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	3	$106,000	$395,000	3	$106,000	$395,000
Visitor Spending	3	$66,000	$181,000	3	$66,000	$181,000
Total Direct	6	$172,000	$576,000	6	$172,000	$576,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	2	$52,000	$162,000	3	$69,000	$215,000
Due to Visitor Spending	1	$25,000	$88,000	1	$44,000	$137,000
Total Spin-off	3	$77,000	$250,000	4	$113,000	$352,000
Total	**9**	**$249,000**	**$826,000**	**10**	**$285,000**	**$928,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	2,053
GA Visitors	1,786
Based Aircraft	5

Lake Anna

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	1	$45,000	$148,000	1	$45,000	$148,000
Visitor Spending	0	$3,000	$9,000	0	$3,000	$9,000
Total Direct	1	$48,000	$157,000	1	$48,000	$157,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	1	$19,000	$51,000	1	$29,000	$81,000
Due to Visitor Spending	0	$1,000	$5,000	0	$2,000	$7,000
Total Spin-off	1	$20,000	$56,000	1	$31,000	$88,000
Total	**2**	**$68,000**	**$213,000**	**2**	**$79,000**	**$245,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	309
GA Visitors	192
Based Aircraft	1

Lake Country Regional

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	1	$36,000	$255,000	1	$36,000	$255,000
Visitor Spending	2	$30,000	$91,000	2	$30,000	$91,000
Total Direct	3	$66,000	$346,000	3	$66,000	$346,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	1	$22,000	$113,000	1	$23,000	$139,000
Due to Visitor Spending	1	$18,000	$60,000	1	$20,000	$69,000
Total Spin-off	1	$40,000	$173,000	2	$43,000	$208,000
Total	**4**	**$106,000**	**$519,000**	**4**	**$109,000**	**$554,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	1,546
GA Visitors	896
Based Aircraft	5

Lawrenceville-Brunswick Municipal

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	2	$14,000	$98,000	2	$14,000	$98,000
Visitor Spending	1	$15,000	$44,000	1	$15,000	$44,000
Total Direct	3	$29,000	$142,000	3	$29,000	$142,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	2	$9,000	$42,000	2	$9,000	$53,000
Due to Visitor Spending	0	$8,000	$25,000	0	$10,000	$33,000
Total Spin-off	2	$17,000	$67,000	2	$19,000	$86,000
Total	**5**	**$46,000**	**$209,000**	**5**	**$48,000**	**$228,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	1,546
GA Visitors	958
Based Aircraft	5

Lee County

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	1	$52,000	$266,000	1	$52,000	$266,000
Visitor Spending	3	$58,000	$174,000	3	$58,000	$174,000
Total Direct	4	$110,000	$440,000	4	$110,000	$440,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	1	$32,000	$100,000	1	$33,000	$145,000
Due to Visitor Spending	1	$22,000	$70,000	1	$38,000	$132,000
Total Spin-off	1	$54,000	$170,000	2	$71,000	$277,000
Total	**6**	**$164,000**	**$610,000**	**7**	**$181,000**	**$717,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	2,971
GA Visitors	1,723
Based Aircraft	9

Leesburg Executive

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	287	$20,489,000	$41,235,000	287	$20,489,000	$41,235,000
Visitor Spending	77	$2,508,000	$6,473,000	77	$2,508,000	$6,473,000
Total Direct	364	$22,997,000	$47,708,000	364	$22,997,000	$47,708,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	200	$6,521,000	$21,069,000	241	$8,051,000	$25,462,000
Due to Visitor Spending	28	$1,649,000	$4,735,000	29	$1,694,000	$4,890,000
Total Spin-off	228	$8,170,000	$25,804,000	270	$9,745,000	$30,352,000
Total	**593**	**$31,167,000**	**$73,512,000**	**634**	**$32,742,000**	**$78,060,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	73,524
GA Visitors	63,965
Based Aircraft	226

Lonesome Pine

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	3	$136,000	$489,000	3	$136,000	$489,000
Visitor Spending	14	$285,000	$826,000	14	$285,000	$826,000
Total Direct	17	$421,000	$1,315,000	17	$421,000	$1,315,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	2	$59,000	$182,000	3	$79,000	$301,000
Due to Visitor Spending	3	$100,000	$314,000	5	$190,000	$624,000
Total Spin-off	5	$159,000	$496,000	9	$269,000	$925,000
Total	**22**	**$580,000**	**$1,811,000**	**26**	**$690,000**	**$2,240,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	9,386
GA Visitors	8,166
Based Aircraft	25

Louisa County

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	14	$574,000	$1,864,000	14	$574,000	$1,864,000
Visitor Spending	16	$322,000	$1,027,000	16	$322,000	$1,027,000
Total Direct	30	$896,000	$2,891,000	30	$896,000	$2,891,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	14	$270,000	$765,000	14	$377,000	$1,090,000
Due to Visitor Spending	5	$180,000	$634,000	6	$220,000	$776,000
Total Spin-off	19	$450,000	$1,399,000	20	$597,000	$1,866,000
Total	**49**	**$1,346,000**	**$4,290,000**	**50**	**$1,493,000**	**$4,757,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	17,492
GA Visitors	10,145
Based Aircraft	55

Lunenburg County

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	1	$40,000	$284,000	1	$40,000	$284,000
Visitor Spending	0	$6,000	$18,000	0	$6,000	$18,000
Total Direct	1	$46,000	$302,000	1	$46,000	$302,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	1	$25,000	$125,000	1	$26,000	$155,000
Due to Visitor Spending	0	$3,000	$11,000	0	$4,000	$13,000
Total Spin-off	1	$28,000	$136,000	1	$30,000	$168,000
Total	**2**	**$74,000**	**$438,000**	**3**	**$76,000**	**$470,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	618
GA Visitors	383
Based Aircraft	2

Luray Caverns

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	6	$80,000	$393,000	6	$80,000	$393,000
Visitor Spending	8	$156,000	$464,000	8	$156,000	$464,000
Total Direct	14	$236,000	$857,000	14	$236,000	$857,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	6	$50,000	$209,000	6	$52,000	$214,000
Due to Visitor Spending	2	$85,000	$290,000	3	$105,000	$351,000
Total Spin-off	9	$135,000	$499,000	9	$157,000	$565,000
Total	**22**	**$371,000**	**$1,356,000**	**23**	**$393,000**	**$1,422,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	7,398
GA Visitors	4,587
Based Aircraft	24

Lynchburg Regional

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	207	$9,910,000	$42,656,000	207	$9,910,000	$42,656,000
Visitor Spending	370	$7,964,000	$24,057,000	370	$7,964,000	$24,057,000
Total Direct	577	$17,874,000	$66,713,000	577	$17,874,000	$66,713,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	168	$6,019,000	$22,595,000	182	$6,236,000	$24,204,000
Due to Visitor Spending	145	$5,506,000	$16,992,000	153	$5,692,000	$18,274,000
Total Spin-off	313	$11,525,000	$39,587,000	335	$11,928,000	$42,478,000
Total	**889**	**$29,399,000**	**$106,300,000**	**911**	**$29,802,000**	**$109,191,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	2,521
Airline Enplanements	93,617
Commercial Airline Visitors	36,191
GA Operations	78,833
GA Visitors	91,446
Based Aircraft	73

Manassas Regional

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	530	$43,112,000	$151,673,000	530	$43,112,000	$151,673,000
Visitor Spending	104	$3,047,000	$8,134,000	104	$3,047,000	$8,134,000
Total Direct	634	$46,159,000	$159,807,000	634	$46,159,000	$159,807,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	344	$20,270,000	$63,072,000	384	$21,653,000	$68,658,000
Due to Visitor Spending	37	$1,987,000	$5,936,000	38	$2,060,000	$6,145,000
Total Spin-off	381	$22,257,000	$69,008,000	423	$23,713,000	$74,803,000
Total	**1,014**	**$68,416,000**	**$228,815,000**	**1,056**	**$69,872,000**	**$234,610,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	92,394
GA Visitors	80,383
Based Aircraft	404

Mecklenburg-Brunswick Regional

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	8	$129,000	$923,000	8	$129,000	$923,000
Visitor Spending	13	$251,000	$735,000	13	$251,000	$735,000
Total Direct	21	$380,000	$1,658,000	21	$380,000	$1,658,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	7	$81,000	$406,000	8	$83,000	$503,000
Due to Visitor Spending	4	$148,000	$455,000	5	$170,000	$555,000
Total Spin-off	11	$229,000	$861,000	13	$253,000	$1,058,000
Total	**32**	**$609,000**	**$2,519,000**	**34**	**$633,000**	**$2,716,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	8,351
GA Visitors	7,266
Based Aircraft	26

Middle Peninsula Regional

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	41	$1,001,000	$3,541,000	41	$1,001,000	$3,541,000
Visitor Spending	15	$281,000	$816,000	15	$281,000	$816,000
Total Direct	56	$1,282,000	$4,357,000	56	$1,282,000	$4,357,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	28	$510,000	$1,575,000	32	$613,000	$2,056,000
Due to Visitor Spending	5	$134,000	$453,000	6	$189,000	$617,000
Total Spin-off	33	$644,000	$2,028,000	38	$802,000	$2,673,000
Total	**89**	**$1,926,000**	**$6,385,000**	**93**	**$2,084,000**	**$7,030,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	9,274
GA Visitors	8,068
Based Aircraft	30

Mountain Empire

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	6	$137,000	$982,000	6	$137,000	$982,000
Visitor Spending	14	$255,000	$779,000	14	$255,000	$779,000
Total Direct	20	$392,000	$1,761,000	20	$392,000	$1,761,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	5	$86,000	$425,000	6	$88,000	$535,000
Due to Visitor Spending	4	$111,000	$343,000	5	$170,000	$588,000
Total Spin-off	8	$197,000	$768,000	12	$258,000	$1,123,000
Total	**28**	**$589,000**	**$2,529,000**	**31**	**$650,000**	**$2,884,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	8,844
GA Visitors	7,695
Based Aircraft	28

New Kent County

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	8	$334,000	$1,377,000	8	$334,000	$1,377,000
Visitor Spending	14	$354,000	$1,001,000	14	$354,000	$1,001,000
Total Direct	22	$688,000	$2,378,000	22	$688,000	$2,378,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	8	$211,000	$732,000	8	$216,000	$750,000
Due to Visitor Spending	5	$234,000	$737,000	5	$240,000	$756,000
Total Spin-off	13	$445,000	$1,469,000	14	$456,000	$1,506,000
Total	**36**	**$1,133,000**	**$3,847,000**	**36**	**$1,144,000**	**$3,884,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	15,954
GA Visitors	9,892
Based Aircraft	51

New London

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	2	$121,000	$588,000	2	$121,000	$588,000
Visitor Spending	8	$169,000	$504,000	8	$169,000	$504,000
Total Direct	10	$290,000	$1,092,000	10	$290,000	$1,092,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	2	$77,000	$301,000	2	$79,000	$320,000
Due to Visitor Spending	3	$111,000	$349,000	3	$115,000	$381,000
Total Spin-off	5	$188,000	$650,000	5	$194,000	$701,000
Total	**15**	**$478,000**	**$1,742,000**	**16**	**$484,000**	**$1,793,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	17,607
GA Visitors	10,916
Based Aircraft	57

New Market

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	6	$353,000	$1,591,000	6	$353,000	$1,591,000
Visitor Spending	3	$67,000	$200,000	3	$67,000	$200,000
Total Direct	9	$420,000	$1,791,000	9	$420,000	$1,791,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	5	$167,000	$626,000	6	$186,000	$679,000
Due to Visitor Spending	1	$40,000	$133,000	1	$45,000	$151,000
Total Spin-off	6	$207,000	$759,000	7	$231,000	$830,000
Total	**16**	**$627,000**	**$2,550,000**	**16**	**$651,000**	**$2,621,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	6,990
GA Visitors	4,334
Based Aircraft	22

New River Valley

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	19	$615,000	$2,300,000	19	$615,000	$2,300,000
Visitor Spending	22	$411,000	$1,229,000	22	$411,000	$1,229,000
Total Direct	41	$1,026,000	$3,529,000	41	$1,026,000	$3,529,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	18	$379,000	$1,408,000	18	$388,000	$1,471,000
Due to Visitor Spending	8	$246,000	$805,000	8	$276,000	$928,000
Total Spin-off	25	$625,000	$2,213,000	26	$664,000	$2,399,000
Total	**66**	**$1,651,000**	**$5,742,000**	**67**	**$1,690,000**	**$5,928,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	13,955
GA Visitors	12,141
Based Aircraft	43

Newport News-Williamsburg International

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	519	$24,783,000	$96,684,000	519	$24,783,000	$96,684,000
Visitor Spending	1,731	$43,571,000	$126,143,000	1,731	$43,571,000	$126,143,000
Total Direct	2,250	$68,354,000	$222,827,000	2,250	$68,354,000	$222,827,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	449	$15,351,000	$53,756,000	465	$15,818,000	$55,346,000
Due to Visitor Spending	650	$29,166,000	$93,000,000	667	$29,912,000	$95,385,000
Total Spin-off	1,099	$44,517,000	$146,756,000	1,132	$45,730,000	$150,731,000
Total	**3,349**	**$112,871,000**	**$369,583,000**	**3,382**	**$114,084,000**	**$373,558,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	9,420
Airline Enplanements	531,503
Commercial Airline Visitors	227,427
GA Operations	83,546
GA Visitors	96,913
Based Aircraft	106

Norfolk International

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	1,581	$65,887,000	$248,612,000	1,581	$65,887,000	$248,612,000
Visitor Spending	5,283	$137,445,000	$387,025,000	5,283	$137,445,000	$387,025,000
Total Direct	6,864	$203,332,000	$635,637,000	6,864	$203,332,000	$635,637,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	1,225	$42,396,000	$141,745,000	1,271	$43,528,000	$145,518,000
Due to Visitor Spending	2,081	$92,219,000	$286,735,000	2,134	$94,584,000	$294,087,000
Total Spin-off	3,306	$134,615,000	$428,480,000	3,405	$138,112,000	$439,605,000
Total	**10,170**	**$337,947,000**	**$1,064,117,000**	**10,269**	**$341,444,000**	**$1,075,242,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	30,143
Airline Enplanements	1,664,735
Commercial Airline Visitors	752,378
GA Operations	32,973
GA Visitors	38,249
Based Aircraft	105

Orange County

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	59	$1,011,000	$2,948,000	59	$1,011,000	$2,948,000
Visitor Spending	10	$194,000	$587,000	10	$194,000	$587,000
Total Direct	69	$1,205,000	$3,535,000	69	$1,205,000	$3,535,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	25	$500,000	$1,713,000	32	$512,000	$1,732,000
Due to Visitor Spending	3	$127,000	$427,000	4	$131,000	$444,000
Total Spin-off	29	$627,000	$2,140,000	36	$643,000	$2,176,000
Total	**98**	**$1,832,000**	**$5,675,000**	**105**	**$1,848,000**	**$5,711,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	9,357
GA Visitors	5,801
Based Aircraft	27

Richmond International

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	1,258	$61,482,000	$201,126,000	1,258	$61,482,000	$201,126,000
Visitor Spending	6,192	$148,444,000	$432,506,000	6,192	$148,444,000	$432,506,000
Total Direct	7,450	$209,926,000	$633,632,000	7,450	$209,926,000	$633,632,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	1,016	$36,441,000	$118,352,000	1,046	$37,390,000	$121,387,000
Due to Visitor Spending	2,354	$100,390,000	$319,405,000	2,414	$102,964,000	$327,595,000
Total Spin-off	3,370	$136,831,000	$437,757,000	3,460	$140,354,000	$448,982,000
Total	**10,820**	**$346,757,000**	**$1,071,389,000**	**10,910**	**$350,280,000**	**$1,082,614,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	30,054
Airline Enplanements	1,660,876
Commercial Airline Visitors	667,546
GA Operations	43,650
GA Visitors	50,634
Based Aircraft	72

Roanoke Regional

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	535	$18,566,000	$65,012,000	535	$18,566,000	$65,012,000
Visitor Spending	842	$22,163,000	$63,205,000	842	$22,163,000	$63,205,000
Total Direct	1,377	$40,729,000	$128,217,000	1,377	$40,729,000	$128,217,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	428	$10,909,000	$37,192,000	460	$11,469,000	$38,952,000
Due to Visitor Spending	343	$15,514,000	$47,730,000	352	$15,897,000	$48,982,000
Total Spin-off	771	$26,423,000	$84,922,000	813	$27,366,000	$87,934,000
Total	**2,148**	**$67,152,000**	**$213,139,000**	**2,189**	**$68,095,000**	**$216,151,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	9,395
Airline Enplanements	315,516
Commercial Airline Visitors	128,273
GA Operations	24,896
GA Visitors	28,879
Based Aircraft	123

Shannon

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	20	$1,125,000	$5,328,000	20	$1,125,000	$5,328,000
Visitor Spending	30	$711,000	$2,051,000	30	$711,000	$2,051,000
Total Direct	50	$1,836,000	$7,379,000	50	$1,836,000	$7,379,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	20	$709,000	$2,830,000	21	$727,000	$2,903,000
Due to Visitor Spending	11	$458,000	$1,471,000	12	$480,000	$1,550,000
Total Spin-off	32	$1,167,000	$4,301,000	33	$1,207,000	$4,453,000
Total	**82**	**$3,003,000**	**$11,680,000**	**83**	**$3,043,000**	**$11,832,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	32,699
GA Visitors	20,273
Based Aircraft	104

Shenandoah Valley Regional

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	83	$2,623,000	$11,818,000	83	$2,623,000	$11,818,000
Visitor Spending	70	$1,404,000	$4,264,000	70	$1,404,000	$4,264,000
Total Direct	153	$4,027,000	$16,082,000	153	$4,027,000	$16,082,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	70	$1,668,000	$6,473,000	74	$1,760,000	$6,921,000
Due to Visitor Spending	23	$857,000	$2,760,000	26	$942,000	$3,194,000
Total Spin-off	93	$2,525,000	$9,233,000	99	$2,702,000	$10,115,000
Total	**246**	**$6,552,000**	**$25,315,000**	**252**	**$6,729,000**	**$26,197,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	1,223
Airline Enplanements	10,262
Commercial Airline Visitors	3,733
GA Operations	26,244
GA Visitors	30,443
Based Aircraft	72

Smith Mountain Lake

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	1	$53,000	$256,000	1	$53,000	$256,000
Visitor Spending	2	$39,000	$115,000	2	$39,000	$115,000
Total Direct	3	$92,000	$371,000	3	$92,000	$371,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	1	$34,000	$125,000	1	$34,000	$140,000
Due to Visitor Spending	1	$22,000	$72,000	1	$26,000	$87,000
Total Spin-off	2	$56,000	$197,000	2	$60,000	$227,000
Total	**5**	**$148,000**	**$568,000**	**5**	**$152,000**	**$598,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	4,014
GA Visitors	2,489
Based Aircraft	13

Stafford Regional

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	36	$2,131,000	$10,095,000	36	$2,131,000	$10,095,000
Visitor Spending	24	$556,000	$1,603,000	24	$556,000	$1,603,000
Total Direct	60	$2,687,000	$11,698,000	60	$2,687,000	$11,698,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	37	$1,344,000	$5,362,000	38	$1,378,000	$5,500,000
Due to Visitor Spending	9	$358,000	$1,150,000	9	$375,000	$1,211,000
Total Spin-off	46	$1,702,000	$6,512,000	47	$1,753,000	$6,711,000
Total	**105**	**$4,389,000**	**$18,210,000**	**107**	**$4,440,000**	**$18,409,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	18,204
GA Visitors	15,838
Based Aircraft	59

Suffolk Executive

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	54	$1,899,000	$7,023,000	54	$1,899,000	$7,023,000
Visitor Spending	37	$854,000	$2,430,000	37	$854,000	$2,430,000
Total Direct	91	$2,753,000	$9,453,000	91	$2,753,000	$9,453,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	26	$1,032,000	$3,850,000	31	$1,089,000	$4,012,000
Due to Visitor Spending	14	$557,000	$1,776,000	14	$570,000	$1,836,000
Total Spin-off	40	$1,589,000	$5,626,000	45	$1,659,000	$5,848,000
Total	**131**	**$4,342,000**	**$15,079,000**	**136**	**$4,412,000**	**$15,301,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	27,605
GA Visitors	24,016
Based Aircraft	82

Tangier Island

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	1	$2,000	$9,000	1	$2,000	$9,000
Visitor Spending	7	$126,000	$364,000	7	$126,000	$364,000
Total Direct	8	$128,000	$373,000	8	$128,000	$373,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	1	$1,000	$4,000	1	$1,000	$5,000
Due to Visitor Spending	2	$49,000	$168,000	3	$85,000	$275,000
Total Spin-off	2	$50,000	$172,000	4	$86,000	$280,000
Total	**10**	**$178,000**	**$545,000**	**11**	**$214,000**	**$653,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	1,800
GA Visitors	3,600
Based Aircraft	0

Tappahannock-Essex County

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	3	$118,000	$438,000	3	$118,000	$438,000
Visitor Spending	8	$156,000	$482,000	8	$156,000	$482,000
Total Direct	11	$274,000	$920,000	11	$274,000	$920,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	2	$57,000	$179,000	3	$76,000	$239,000
Due to Visitor Spending	2	$69,000	$232,000	3	$104,000	$364,000
Total Spin-off	5	$126,000	$411,000	6	$180,000	$603,000
Total	**16**	**$400,000**	**$1,331,000**	**17**	**$454,000**	**$1,523,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	8,214
GA Visitors	4,764
Based Aircraft	26

Tazewell County

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	3	$62,000	$360,000	3	$62,000	$360,000
Visitor Spending	4	$97,000	$272,000	4	$97,000	$272,000
Total Direct	7	$159,000	$632,000	7	$159,000	$632,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	3	$39,000	$191,000	3	$40,000	$196,000
Due to Visitor Spending	1	$54,000	$173,000	2	$65,000	$205,000
Total Spin-off	5	$93,000	$364,000	5	$105,000	$401,000
Total	**12**	**$252,000**	**$996,000**	**12**	**$264,000**	**$1,033,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	3,087
GA Visitors	2,686
Based Aircraft	10

Twin County

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	4	$163,000	$605,000	4	$163,000	$605,000
Visitor Spending	4	$77,000	$236,000	4	$77,000	$236,000
Total Direct	8	$240,000	$841,000	8	$240,000	$841,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	3	$79,000	$247,000	4	$105,000	$329,000
Due to Visitor Spending	1	$30,000	$96,000	2	$51,000	$178,000
Total Spin-off	4	$109,000	$343,000	6	$156,000	$507,000
Total	**12**	**$349,000**	**$1,184,000**	**14**	**$396,000**	**$1,348,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	4,024
GA Visitors	2,334
Based Aircraft	12

Virginia Highlands

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	13	$481,000	$2,136,000	13	$481,000	$2,136,000
Visitor Spending	33	$882,000	$2,398,000	33	$882,000	$2,398,000
Total Direct	46	$1,363,000	$4,534,000	46	$1,363,000	$4,534,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	11	$231,000	$1,163,000	12	$252,000	$1,227,000
Due to Visitor Spending	11	$506,000	$1,545,000	12	$602,000	$1,812,000
Total Spin-off	23	$737,000	$2,708,000	24	$854,000	$3,039,000
Total	**69**	**$2,100,000**	**$7,242,000**	**70**	**$2,217,000**	**$7,573,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	27,236
GA Visitors	23,695
Based Aircraft	73

Virginia Tech-Montgomery Executive

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	27	$915,000	$5,050,000	27	$915,000	$5,050,000
Visitor Spending	15	$277,000	$828,000	15	$277,000	$828,000
Total Direct	42	$1,192,000	$5,878,000	42	$1,192,000	$5,878,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	22	$569,000	$2,749,000	23	$604,000	$2,901,000
Due to Visitor Spending	5	$162,000	$530,000	5	$185,000	$625,000
Total Spin-off	27	$731,000	$3,279,000	28	$789,000	$3,526,000
Total	**68**	**$1,923,000**	**$9,157,000**	**70**	**$1,981,000**	**$9,404,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	14,106
GA Visitors	8,182
Based Aircraft	42

Wakefield Municipal

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	1	$47,000	$326,000	1	$47,000	$326,000
Visitor Spending	11	$182,000	$585,000	11	$182,000	$585,000
Total Direct	12	$229,000	$911,000	12	$229,000	$911,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	1	$29,000	$131,000	1	$30,000	$178,000
Due to Visitor Spending	2	$71,000	$224,000	4	$124,000	$442,000
Total Spin-off	3	$100,000	$355,000	5	$154,000	$620,000
Total	**14**	**$329,000**	**$1,266,000**	**17**	**$383,000**	**$1,531,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	9,969
GA Visitors	5,782
Based Aircraft	26

Warrenton-Fauquier

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	20	$1,038,000	$4,232,000	20	$1,038,000	$4,232,000
Visitor Spending	66	$1,579,000	$4,508,000	66	$1,579,000	$4,508,000
Total Direct	86	$2,617,000	$8,740,000	86	$2,617,000	$8,740,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	20	$616,000	$2,101,000	20	$649,000	$2,216,000
Due to Visitor Spending	24	$998,000	$3,163,000	25	$1,075,000	$3,405,000
Total Spin-off	43	$1,614,000	$5,264,000	45	$1,724,000	$5,621,000
Total	**129**	**$4,231,000**	**$14,004,000**	**131**	**$4,341,000**	**$14,361,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	51,201
GA Visitors	44,545
Based Aircraft	162

Waynesboro-Eagle's Nest

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	1	$34,000	$174,000	1	$34,000	$174,000
Visitor Spending	8	$161,000	$483,000	8	$161,000	$483,000
Total Direct	9	$195,000	$657,000	9	$195,000	$657,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	1	$21,000	$82,000	1	$22,000	$95,000
Due to Visitor Spending	3	$98,000	$290,000	3	$109,000	$365,000
Total Spin-off	4	$119,000	$372,000	4	$131,000	$460,000
Total	**13**	**$314,000**	**$1,029,000**	**13**	**$326,000**	**$1,117,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	16,873
GA Visitors	10,461
Based Aircraft	49

William M. Tuck

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	3	$92,000	$343,000	3	$92,000	$343,000
Visitor Spending	12	$186,000	$599,000	12	$186,000	$599,000
Total Direct	15	$278,000	$942,000	15	$278,000	$942,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	2	$45,000	$140,000	3	$60,000	$187,000
Due to Visitor Spending	4	$95,000	$322,000	4	$125,000	$452,000
Total Spin-off	6	$140,000	$462,000	8	$185,000	$639,000
Total	**21**	**$418,000**	**$1,404,000**	**22**	**$463,000**	**$1,581,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	6,801
GA Visitors	5,917
Based Aircraft	22

Williamsburg-Jamestown

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	20	$306,000	$1,107,000	20	$306,000	$1,107,000
Visitor Spending	19	$467,000	$1,330,000	19	$467,000	$1,330,000
Total Direct	39	$773,000	$2,437,000	39	$773,000	$2,437,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	15	$194,000	$628,000	16	$200,000	$642,000
Due to Visitor Spending	7	$296,000	$968,000	7	$315,000	$1,005,000
Total Spin-off	22	$490,000	$1,596,000	23	$515,000	$1,647,000
Total	**61**	**$1,263,000**	**$4,033,000**	**62**	**$1,288,000**	**$4,084,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	21,197
GA Visitors	13,142
Based Aircraft	68

Winchester Regional

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	45	$2,324,000	$10,499,000	45	$2,324,000	$10,499,000
Visitor Spending	61	$1,346,000	$3,955,000	61	$1,346,000	$3,955,000
Total Direct	106	$3,670,000	$14,454,000	106	$3,670,000	$14,454,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	36	$1,210,000	$4,776,000	39	$1,302,000	$5,096,000
Due to Visitor Spending	23	$861,000	$2,703,000	23	$910,000	$2,988,000
Total Spin-off	58	$2,071,000	$7,479,000	62	$2,212,000	$8,084,000
Total	**164**	**$5,741,000**	**$21,933,000**	**168**	**$5,882,000**	**$22,538,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	0
Airline Enplanements	0
Commercial Airline Visitors	0
GA Operations	44,924
GA Visitors	39,084
Based Aircraft	133

Aggregate of All Airports

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	Local Region			State		
	Jobs	Payroll	Economic Activity	Jobs	Payroll	Economic Activity
Direct Impacts						
On-Airport Activities	6,296	$301,988,000	$1,089,877,000	6,296	$301,988,000	$1,089,877,000
Visitor Spending	16,297	$403,468,000	$1,158,387,000	16,297	$403,468,000	$1,158,387,000
Total Direct	22,593	$705,456,000	$2,248,264,000	22,593	$705,456,000	$2,248,264,000
Indirect & Induced Impacts						
Due to On-Airport Aviation	5,017	$172,394,000	$583,764,000	5,308	$180,243,000	$612,313,000
Due to Visitor Spending	6,241	$270,562,000	$851,711,000	6,434	$278,752,000	$879,161,000
Total Spin-off	11,258	$442,956,000	$1,435,475,000	11,742	$458,995,000	$1,491,474,000
Total	**33,851**	**$1,148,412,000**	**$3,683,739,000**	**34,336**	**$1,164,451,000**	**$3,739,738,000**

Note: Totals reflect rounding and may differ slightly from totals presented in the Technical Report or Executive Summary.

2010 Activity Data	
Airline Departures	89,460
Airline Enplanements	4,472,569
Commercial Airline Visitors	1,892,569
GA Operations	1,368,437
GA Visitors	1,220,062
Based Aircraft	3,762

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VIRGINIA AIRPORT SYSTEM ECONOMIC IMPACT STUDY

Appendix F:
RATIOS OF ECONOMIC IMPACT TO AIRPORT ACTIVITY LEVELS

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VA Commercial & GA Airports: Economic Activity Per Based Aircraft

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	2010 Based Aircraft	Economic Activtiy (thousands)	Impact Per Based Aircraft
Commercial Service Airports			
Charlottesville-Albemarle	76	$128,684	$1,693,211
Lynchburg Regional	73	$109,190	$1,495,753
Newport News-Williamsburg International	106	$373,558	$3,524,132
Norfolk International	105	$1,075,242	$10,240,400
Richmond International	72	$1,082,614	$15,036,306
Roanoke Regional	123	$216,151	$1,757,325
Shenandoah Valley Regional	72	$26,198	$363,861
Commerical Service Airports Total	627	$3,011,637	$4,803,249
General Aviation Airports			
Accomack County	25	$2,378	$95,120
Blackstone AAF	11	$671	$61,000
Blue Ridge Regional	50	$5,196	$103,920
Bridgewater Air Park	72	$85,141	$1,182,514
Brookneal-Campbell County	0	$642	-
Chase City Municipal	4	$454	$113,500
Chesapeake Regional	144	$21,672	$150,500
Chesterfield County	142	$27,801	$195,782
Crewe Municipal	11	$441	$40,091
Culpeper County	126	$9,737	$77,278
Danville Regional	40	$6,832	$170,800
Dinwiddie County	54	$10,338	$191,444
Emporia-Greensville Regional	5	$1,290	$258,000
Falwell	11	$9,110	$828,182
Farmville Regional	27	$3,601	$133,370
Franklin Municipal	25	$2,466	$98,640
Front Royal-Warren County	51	$4,591	$90,020
Gordonsville Municipal	20	$1,116	$55,800
Grundy Municipal	11	$530	$48,182
Hampton Roads	207	$29,397	$142,014
Hanover County Municipal	138	$29,363	$212,775
Hummel Field	35	$5,649	$161,400
Ingalls Field	5	$928	$185,600
Lake Anna	1	$245	$245,000
Lake Country Regional	5	$553	$110,600
Lawrenceville-Brunswick	5	$229	$45,800

VA Commercial & GA Airports: Economic Activity Per Based Aircraft

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	2010 Based Aircraft	Economic Activtiy (thousands)	Impact Per Based Aircraft
Lee County	9	$717	$79,667
Leesburg Executive	226	$78,060	$345,398
Lonesome Pine	25	$2,241	$89,640
Louisa County	55	$4,756	$86,473
Lunenburg County	2	$470	$235,000
Luray Caverns	24	$1,423	$59,292
Manassas Regional	404	$234,610	$580,718
Mecklenburg-Brunswick Regional	26	$2,717	$104,500
Middle Peninsula Regional	30	$7,030	$234,333
Mountain Empire	28	$2,884	$103,000
New Kent County	51	$3,884	$76,157
New London	57	$1,794	$31,474
New Market	22	$2,621	$119,136
New River Valley	43	$5,928	$137,860
Orange County	27	$5,711	$211,519
Shannon	104	$11,832	$113,769
Smith Mountain Lake	13	$598	$46,000
Stafford Regional	59	$18,408	$312,000
Suffolk Executive	82	$15,301	$186,598
Tangier Island	0	$654	-
Tappahannock-Essex County	26	$1,522	$58,538
Tazewell County	10	$1,033	$103,300
Twin County	12	$1,349	$112,417
Virginia Highlands	73	$7,572	$103,726
Virginia Tech-Montgomery Executive	42	$9,404	$223,905
Wakefield Municipal	26	$1,531	$58,885
Warrenton-Fauquier	162	$14,362	$88,654
Waynesboro-Eagle's Nest	49	$1,117	$22,796
William M. Tuck	22	$1,580	$71,818
Williamsburg-Jamestown	68	$4,084	$60,059
Winchester Regional	133	$22,538	$169,459
General Aviation Airports Total	3,135	$728,102	$232,249
Total Virginia	**3,762**	**$3,739,739**	**$994,083**

Source: Virginia Department of Aviation, Based Aircraft Surveys

VA Commercial & GA Airports: Economic Activity Per Operation

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	2010 Operations /1	Economic Activtiy (thousands)	Impact Per Operation
Commercial Service Airports			
Charlottesville-Albemarle	82,974	$128,684	$1,551
Lynchburg Regional	83,874	$109,190	$1,302
Newport News-Williamsburg International	102,403	$373,558	$3,648
Norfolk International	93,310	$1,075,242	$11,523
Richmond International	103,829	$1,082,614	$10,427
Roanoke Regional	43,664	$216,151	$4,950
Shenandoah Valley Regional	28,690	$26,198	$913
Commerical Service Airports Total	538,744	$3,011,637	$5,590
General Aviation Airports			
Accomack County	7,724	$2,378	$308
Blackstone AAF	4,560	$671	$147
Blue Ridge Regional	17,074	$5,196	$304
Bridgewater Air Park	43,611	$85,141	$1,952
Brookneal-Campbell County	1,260	$642	$510
Chase City Municipal	1,236	$454	$367
Chesapeake Regional	45,881	$21,672	$472
Chesterfield County	50,440	$27,801	$551
Crewe Municipal	3,594	$441	$123
Culpeper County	39,319	$9,737	$248
Danville Regional	12,981	$6,832	$526
Dinwiddie County	18,446	$10,338	$560
Emporia-Greensville Regional	1,541	$1,290	$837
Falwell	3,400	$9,110	$2,679
Farmville Regional	9,357	$3,601	$385
Franklin Municipal	7,715	$2,466	$320
Front Royal-Warren County	17,882	$4,591	$257
Gordonsville Municipal	6,371	$1,116	$175
Grundy Municipal	3,392	$530	$156
Hampton Roads	66,513	$29,397	$442
Hanover County Municipal	43,912	$29,363	$669
Hummel Field	11,008	$5,649	$513
Ingalls Field	2,053	$928	$452
Lake Anna	309	$245	$793
Lake Country Regional	1,546	$553	$358
Lawrenceville-Brunswick	1,546	$229	$148

VA Commercial & GA Airports: Economic Activity Per Operation

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	2010 Operations /1	Economic Activtiy (thousands)	Impact Per Operation
Lee County	2,971	$717	$241
Leesburg Executive	73,524	$78,060	$1,062
Lonesome Pine	9,386	$2,241	$239
Louisa County	17,492	$4,756	$272
Lunenburg County	618	$470	$760
Luray Caverns	7,398	$1,423	$192
Manassas Regional	92,394	$234,610	$2,539
Mecklenburg-Brunswick Regional	8,351	$2,717	$325
Middle Peninsula Regional	9,274	$7,030	$758
Mountain Empire	8,844	$2,884	$326
New Kent County	15,954	$3,884	$243
New London	17,607	$1,794	$102
New Market	6,990	$2,621	$375
New River Valley	13,955	$5,928	$425
Orange County	9,357	$5,711	$610
Shannon	32,699	$11,832	$362
Smith Mountain Lake	4,014	$598	$149
Stafford Regional	18,204	$18,408	$1,011
Suffolk Executive	27,605	$15,301	$554
Tangier Island	1,800	$654	$363
Tappahannock-Essex County	8,214	$1,522	$185
Tazewell County	3,087	$1,033	$335
Twin County	4,024	$1,349	$335
Virginia Highlands	27,236	$7,572	$278
Virginia Tech-Montgomery Executive	14,106	$9,404	$667
Wakefield Municipal	9,969	$1,531	$154
Warrenton-Fauquier	51,201	$14,362	$281
Waynesboro-Eagle's Nest	16,873	$1,117	$66
William M. Tuck	6,801	$1,580	$232
Williamsburg-Jamestown	21,197	$4,084	$193
Winchester Regional	44,924	$22,538	$502
General Aviation Airports Total	1,008,739	$728,102	$722
Total Virginia	**1,547,483**	**$3,739,739**	**$2,417**

/1 FAA Tower Counts for towered airports; SH&E GA operation estimates for non-towered airports
Source: FAA, ATADS

Commercial Airports: Economic Activity Per Enplanement

2010 Economic Contributions of On-Airport Activities and Visitor Spending

	2010 Enplanements /1	Economic Activtiy (thousands)	Impact Per Enplanement
Commercial Service Airports			
Charlottesville-Albemarle	196,060	$128,684	$656
Lynchburg Regional	93,617	$109,190	$1,166
Newport News-Williamsburg International	531,503	$373,558	$703
Norfolk International	1,664,735	$1,075,242	$646
Richmond International	1,660,876	$1,082,614	$652
Roanoke Regional	315,516	$216,151	$685
Shenandoah Valley Regional	10,262	$26,198	$2,553
Commerical Service Airports Total	4,472,569	$3,011,637	$673

/1 Commercial Enplanements Only

Source: Airport Records

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VIRGINIA AIRPORT SYSTEM ECONOMIC IMPACT STUDY

Appendix G:
ESTIMATED GENERAL AVIATION OPERATIONS AT VIRGINIA'S NON-TOWERED AIRPORTS

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METHODOLOGY USED TO ESTIMATE GENERAL AVIATION OPERATIONS AT VIRGINIA'S NON-TOWERED AIRPORTS

Estimating the number of 2010 visitors arriving at Virginia airports who use private aircraft (as opposed to scheduled commercial airline services) requires a count of total general aviation (GA) operations for each airport, the portion of the GA operations represented by transient aircraft and the average number of visitors carried on transient GA flights. At Virginia's nine towered airports[19], the FAA maintains actual tower counts of aircraft operations that feed directly into the visitor estimates.

At Virginia's non-towered airports, there are no actual counts of aircraft operations so this activity must be estimated. In the 2003 Virginia Air Transportation System Plan (VATSP), a methodology was developed and validated that estimated GA operations at the non-towered airports based on the number and mix of based aircraft by type at each airport. Ratios of annual operations per based aircraft, by class of aircraft, were developed for the non-towered airports in CY 2000 and applied to the mix of based aircraft at each non-towered airport to estimate the number of GA operations by actual airport. The operations per based aircraft (OPBA) ratios employed in the VATSP are presented in Table 1 below.

Table 1: Estimated Operations per Based Aircraft (OPBA) at Virginia GA Airports, *2000*

Aircraft Type	Abbrv.	OPBA
Single Engine Piston	SEP	368
Multi Engine Piston	MEP	363
Multi Engine Turboprop	MET	742
Multi Engine Turbojet	MEJ	742
Helicopter/Other	OTH	598

Source: Virginia Air Transport System Plan Update, 2003

To update the CY 2000 GA operations at the non-towered airports, SH&E first examined the changes in GA operations and based aircraft at the nine towered airports. Comparing Virginia Department of Aviation CY 2010 statistics on the actual mix of based aircraft at the towered airports to the VATSP CY 2000 based aircraft data, we estimated how GA operations would have changed over the past decade based on changes in the fleet mix at each towered airport, assuming that the relative rates of operations per based aircraft by type had been stable.

Table 2 below shows the historic and current based aircraft mix at the Virginia towered airports.

[19] Includes Washington Dulles and Washington National airports

Table 2: Historic and Current Based Aircraft at Virginia Towered Airports, *2000 vs. 2010*

No.	Airport Name	Type	2000 Fleet Mix (VATSP)							2010 Fleet Mix (DOAV)						
			SEP	MEP	MET	MEJ	HEL	OTH	TOT	SEP	MEP	MET	MEJ	HEL	OTH	TOT
1	Charlottesville-Albemarle	Comm.	62	13	5	7	1	5	93	51	6	1	12	3	3	76
2	Lynchburg Regional	Comm.	37	6	3	1	0	0	47	52	10	2	6	2	1	73
3	Newport News	Comm.	85	9	3	16	1	0	114	76	1	10	19	0	0	106
4	Norfolk International	Comm.	54	15	23	12	3	0	107	54	18	12	17	4	0	105
5	Richmond International	Comm.	33	24	12	30	8	1	108	20	16	5	27	4	0	72
6	Roanoke Regional	Comm.	90	17	6	3	1	0	117	96	19	3	4	1	0	123
7	Manassas Regional	GA	247	31	14	14	5	4	315	310	38	6	29	19	2	404
	Subtotal		**608**	**115**	**66**	**83**	**19**	**10**	**901**	**659**	**108**	**39**	**114**	**33**	**6**	**959**
1	Washington Dulles	Comm.	12	11	0	28	1	0	52	6	0	0	24	3	0	33
2	Washington National	Comm.	5	4	3	6	2	0	20	0	0	0	4	4	0	8
	Subtotal		**17**	**15**	**3**	**34**	**3**	**0**	**72**	**6**	**0**	**0**	**28**	**7**	**0**	**41**
	Total Virgina Towered Airports		**625**	**130**	**69**	**117**	**22**	**10**	**973**	**665**	**108**	**39**	**142**	**40**	**6**	**1,000**

Source: Virginia Air Transport System Plan Update, 2003; Virginia Dept. of Aviation, Based Aircraft Surveys

The OPBA ratios from the 2003 VATSP were applied to the historic and current fleet mix at the towered airports to develop OPBA indices for 2000 and 2010 at each airport. As shown in Table 3, based on changes in fleet mix alone, the average OPBA in 2010 is expected to have increased from the 2000 OPBA at seven of the nine towered airports.

Table 3: Change in Fleet Mix and OPBA Index at Virginia Towered Airports, *2000 vs. 2010*

No.	Airport Name	Type	2000 Fleet Mix -- Pct. Total						2000 OBPA Index	2010 Fleet Mix -- Pct. Total						2010 OBPA Index	Expected OBPA Ratio 2010 / 2000
			SEP	MEP	MET	MEJ	HEL	OTH		SEP	MEP	MET	MEJ	HEL	OTH		
1	Charlottesville	Comm.	67%	14%	5%	8%	1%	5%	430	67%	8%	1%	16%	4%	4%	450	1.04
2	Lynchburg Regional	Comm.	79%	13%	6%	2%	0%	0%	399	71%	14%	3%	8%	3%	1%	418	1.05
3	Newport News	Comm.	75%	8%	3%	14%	1%	0%	432	72%	1%	9%	18%	0%	0%	470	1.09
4	Norfolk International	Comm.	50%	14%	21%	11%	3%	0%	496	51%	17%	11%	16%	4%	0%	479	0.97
5	Richmond International	Comm.	31%	22%	11%	28%	7%	1%	532	28%	22%	7%	38%	6%	0%	546	1.03
6	Roanoke Regional	Comm.	77%	15%	5%	3%	1%	0%	398	78%	15%	2%	3%	1%	0%	390	0.98
7	Manassas Regional	GA	78%	10%	4%	4%	2%	1%	407	77%	9%	1%	7%	5%	0%	412	1.01
	Subtotal		**67%**	**13%**	**7%**	**9%**	**2%**	**1%**		**69%**	**11%**	**4%**	**12%**	**3%**	**1%**		
1	Washington Dulles	Comm.	23%	21%	0%	54%	2%	0%	573	18%	0%	0%	73%	9%	0%	661	1.15
2	Washington National	Comm.	25%	20%	15%	30%	10%	0%	558	0%	0%	0%	50%	50%	0%	670	1.20
	Subtotal		**24%**	**21%**	**4%**	**47%**	**4%**	**0%**		**15%**	**0%**	**0%**	**68%**	**17%**	**0%**		
	Total VA Towered Airports		**64%**	**13%**	**7%**	**12%**	**2%**	**1%**		**67%**	**11%**	**4%**	**14%**	**4%**	**1%**		

Source: Virginia Air Transport System Plan Update, 2003; Virginia Dept. of Aviation, Based Aircraft Surveys

In reality, rises in fuel prices and the current weak economy reduced the number of annual operations per based aircraft. To determine the extent of this reduction, we compared the expected number of GA operations to the actual number of GA operations at these airports to calculate the percentage by which actual GA operations varied from the expected number. As shown in Table 4, the expected increase in OPBA due to fleet mix changes should have resulted in approximately 745,000 GA operations overall at the towered airports in 2010. In reality, actual GA operations totaled 524,790 at the towered airports in 2010.

Table 4: Comparison of Expected and Actual GA Operations at Virginia Towered Airports, *2010*

No.	Airport Name	Actual 2000 GA Ops	OPBA Actual 2000	OPBA Expected 2010	Expected 2010 GA Ops	Actual 2010 GA Ops /1	GA Operations Actual 2010 / Expected 2010
1	Charlottesville	56,836	611	639	48,534	69,556	1.43
2	Lynchburg Regional	44,574	948	992	72,451	78,833	1.09
3	Newport News	193,966	1,701	1,852	196,353	83,546	0.43
4	Norfolk International	50,419	471	455	47,793	32,973	0.69
5	Richmond International	68,136	631	648	46,654	43,650	0.94
6	Roanoke Regional	67,585	578	567	69,689	24,896	0.36
7	Manassas Regional	136,046	432	437	176,439	92,394	0.52
	Subtotal	**617,562**			**657,912**	**425,848**	
1	Washington Dulles	67,173	1,292	1,491	49,191	88,234	1.79
2	Washington National	79,632	3,982	4,778	38,226	10,711	0.28
	Subtotal	**146,805**			**87,416**	**98,945**	
	Total VA Towered Airports	**764,367**			**745,328**	**524,793**	**0.84 /2**

/1 FAA ATADS Tower Counts, Adjusted with U.S. DOT T100 Reported Commercial Operations
/2 Straight Average of Nine Towered Airports
Source: Virginia Air Transport System Plan Update, 2003; Virginia Dept. of Aviation, Based Aircraft Surveys; FAA Air Traffic Activity System (ATADS); U.S. DOT, T100 Database; SH&E Analysis

Actual GA operations in 2010 exceeded the expected operations at Charlottesville, Lynchburg and Washington Dulles, but were lower than the expected operations at the other towered airports. On average, GA operations at Virginia's towered airports in CY 2010 were 16 percent below the number of operations that would have been expected if the relative rates of activity for the different classes of GA aircraft had been maintained at the CY 2000 levels. A similar downward trend is expected in GA operations per based aircraft at the non-towered airports in Virginia.

SH&E estimated GA operations at non-towered airports by first calculating the expected GA operations at each airport based on the 2010 actual based aircraft mix and the VATSP OPBA ratios and then applying a factor of 0.84 derived from the analysis of activity at Virginia's nine towered airports as described above. Our estimated CY 2010 GA operations for Virginia non-towered airports are presented in Table 5 on the following page.

Table 5: Estimated GA Operations at Virginia Non-Towered Airports, *2010*

No.	Airport Name	Type	Based Aircraft 2000	Based Aircraft 2010	Historic 2000 GA Ops	Estimated 2010 GA Ops
1	Shenandoah Valley	Comm.	87	72	19,027	26,244
2	Accomack County	GA	25	25	9,429	7,724
3	Blue Ridge	GA	56	50	21,810	17,074
4	Brookneal-Campbell County	GA	2	0	737	737
5	Chesapeake Regional	GA	70	144	27,176	45,881
6	Chesterfield County	GA	112	142	45,014	50,440
7	Culpeper County	GA	111	126	42,160	39,319
8	Danville Regional	GA	41	40	15,836	12,981
9	Dinwiddie County	GA	81	54	31,846	18,446
10	Emporia-Greensville Regional	GA	3	5	1,100	1,541
11	Farmville Regional	GA	24	27	9,568	9,357
12	Franklin Municipal	GA	12	25	4,405	7,715
13	Front Royal-Warren County	GA	24	51	9,519	17,882
14	Grundy Municipal	GA	10	11	3,674	3,392
15	Hampton Roads Executive	GA	147	207	55,287	66,513
16	Hanover County	GA	69	138	26,379	43,912
17	Ingalls Field	GA	6	5	5,628	2,053
18	Lee County	GA	5	9	1,842	2,971
19	Leesburg Executive	GA	211	226	82,724	73,524
20	Lonesome Pine	GA	20	25	8,409	9,386
21	Louisa County	GA	34	55	13,257	17,492
22	Luray Caverns	GA	9	24	3,315	7,398
23	Mecklenburg-Brunswick Regional	GA	14	26	5,526	8,351
24	Middle Peninsula Regional	GA	30	30	11,395	9,274
25	Mountain Empire	GA	26	28	9,797	8,844
26	New Kent County	GA	38	51	14,457	15,954
27	New River Valley	GA	24	43	8,826	13,955
28	Orange County	GA	22	27	8,099	9,357
29	Stafford Regional	GA	0	59	0	18,204
30	Suffolk Municipal	GA	80	82	30,277	27,605
31	Tangier Island	GA	0	0	1,000	1,000
32	Tappahannock-Essex Co.	GA	14	26	5,157	8,214
33	Tazewell County	GA	10	10	4,740	3,087
34	Twin County	GA	14	12	6,074	4,024
35	Virginia Highlands	GA	55	73	22,527	27,236
36	Virginia Tech	GA	33	42	13,805	14,106
37	Warrenton-Fauquier	GA	98	162	37,421	51,201
38	William M. Tuck	GA	19	22	6,999	6,801
39	Winchester Regional	GA	79	133	29,794	44,924
40	Blackstone Municipal	GA	7	11	3,037	4,560
41	Bridgewater Air Park	GA	17	72	11,100	43,611
42	Chase City Municipal	GA	5	4	1,842	1,236
43	Crewe Municipal	GA	10	11	3,679	3,594
44	Eagle's Nest	GA	26	49	11,630	16,873
45	Falwell	GA	16	11	6,263	3,400
46	Gordonsville Municipal	GA	15	20	5,521	6,371
47	Hummel Field	GA	29	35	10,907	11,008
48	Lake Anna	GA	1	1	368	309
49	Lake Country Regional	GA	4	5	4,366	1,546
50	Lawrenceville-Brunswick	GA	5	5	1,842	1,546
51	Lunenburg County	GA	1	2	368	618
52	New London	GA	58	57	21,819	17,607
53	New Market	GA	33	22	12,834	6,990
54	Shannon	GA	141	104	28,277	32,699
55	Smith Mountain Lake	GA	13	13	4,769	4,014
56	Wakefield Municipal	GA	28	26	10,539	9,969
57	Williamsburg-Jamestown	GA	56	68	20,833	21,197
	Airports Previously Public-Use					
	Hartwood Field	GA	9	-	3,998	-
	Kellam Field	GA	5	-	2,066	-
	Whitman Strip	GA	15	-	8,963	-
	Total/Average		**2,209**	**2,803**	**829,057**	**941,266**

Source: Virginia Air Transport System Plan Update, 2003; Virginia Dept. of Aviation, Based Aircraft Surveys; SH&E Analysis

While GA operations have declined overall in Virginia over the past decade, the decrease has not been as severe as the U.S. average. Table 6 compares the change in based aircraft and GA operations between CY 2000 and CY 2010 in Virginia and the U.S. as a whole. Total GA operations in Virginia have dropped 8.0 percent, compared to a 33.4 percent decrease in GA operations for the U.S. as a whole. Total based aircraft in Virginia increased 19.5 percent, compared to a 3.1 percent increase for the U.S. The significant growth in based aircraft in Virginia has helped counterbalance the reduced number of operations per based aircraft.

Table 6: Comparison of Virginia and Total U.S. GA Operations Change, *2000-2010*

Airport Name	2000 Based Aircraft	2010 Based Aircraft	Based Aircraft ('00-'10) Difference	Based Aircraft ('00-'10) % Chg	Based Aircraft ('00-'10) CAGR	Historic 2000 GA Ops	Estimated 2010 GA Ops	GA Operations ('00-'10) Difference	GA Operations ('00-'10) % Chg	GA Operations ('00-'10) CAGR
Virginia										
Towered Airports	973	1,000	27	2.8%	0.3%	764,367	524,793	-239,574	-31.3%	-3.7%
Non-Towered Airports	2,209	2,803	594	26.9%	2.4%	829,057	941,266	112,209	13.5%	1.3%
Total Airports	**3,182**	**3,803**	**621**	**19.5%**	**1.8%**	**1,593,424**	**1,466,059**	**-127,365**	**-8.0%**	**-0.8%**
Total U.S.				**3.1%**	**0.3%**				**-33.4%**	**-4.0%**

Source: FAA Aerospace Forecast 2011-2031; Virginia Air Transport System Plan Update, 2003; Virginia Dept. of Aviation, Based Aircraft Surveys; SH&E Analysis

In estimating the number of transient operations, the same 31 and 29 percent factors that were developed in the 2003 VATSP (depending on whether the airport's primary runway length was greater or less than 4,000 feet), was applied to the overall number of estimated 2010 GA operations at each airport.

Since transient operations include both arriving and departing aircraft, the number of transient operation was scaled by 50 percent to reflect the number of transient GA flights that arrived at each airport during the year. General aviation visitors were then estimated for each Virginia airport by applying the average number of visitors per transient GA operation, as developed during the GA visitor surveys conducted at Virginia airports during the current Economic Impact Study.

The methodology used to estimate 2010 GA operations at Virginia's airports has two important advantages:

- The methodology uses the most recent actual GA operations and based aircraft fleet mix at the towered airports to understand how the ratios of operations to based aircraft changed between 2000 and 2010.
- The methodology uses the changes in the actual number of based aircraft and fleet mix, along with the changes in operations per based aircraft observed at the nine towered airports, to estimate the changes in total GA operations at the non-towered airports.

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