

Appendix A:

Economic Study

Burlington International Airport Regional Value Assessment

Prepared for:

Burlington International Airport

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Prepared by:



Burlington International Airport Regional Value Assessment

1. INTRODUCTION

IN RECENT YEARS, THE VALUE OF AIRPORTS has come under closer examination from both government officials and the public. In many communities, this has resulted in higher expectations of financial performance and economic benefits. Measuring this performance and some type of return on investment is critical to the argument for future capital improvement projects. For Burlington International, the value of the Airport to the region may be important in the decision-making process surrounding funding support of capital improvements or new initiatives. Therefore, the documentation the Airport's economic impact and contribution to the local economy is the first half of this work. The other half of the equation is the determination of the asset value of the Airport, to equip decision makers with information about the value of any capital investment at the Airport.

When examining the economic health and well-being of a business, it is customary to examine both the income statement and the balance sheet. Similarly, the Airport Regional Value (ARV) measurement examines the “income statement” (as measured by the IMPLAN economic modeling) and the “balance sheet” (as measured by the depreciated or useful life value of the Airport's assets). Previous economic impact studies have focused only on the “income” side of an airport's economic value. For a full picture, the existing value of airport facilities should also be included in the airport's economic impact. This would take the form of an estimate of replacement costs or existing facility worth (including useful life depreciated values of facilities). With a baseline value such as this, measurement of the total value of an airport is possible.

The output of this analysis involved the use of a number of economic impact assessment methods to quantify the following economic aspects of Burlington International Airport (BTV):

- **Direct Spending:** Includes on-airport spending on employment, operations, and capital projects. It also includes off-airport spending by air travelers for rental cars, hotels, restaurants, etc. Thus, direct spending is associated with both the *providers* and the *users* of airport services.
- **Induced Benefits:** Include impacts above the original direct spending created by the successive rounds of spending in the local economy until the original direct impact has been incrementally exported from the local area.
- **Jobs and Income:** This measure quantifies the income generated by aviation and the number of jobs supported by the Airport.
- **Total Output in Dollars:** Includes the combined impacts of direct and induced spending.
- **Taxes:** This measure quantifies the tax revenue contribution of the Airport to local and State units of government in Vermont.
- **Airport Regional Value:** Quantification of the asset value of the Airport in addition to its economic impact.

Given these analytical needs, this report describes the methodology and results of the following study milestones:

- Data Collection
- Regional Multipliers
- State and Local Tax Impacts
- Airport Regional Value
- Summary and Findings

It should be noted that this study is based upon data from 2017. Since that year, significant passenger and revenue growth has occurred at BTV. Thus, the numbers generated by this report are a snapshot of how things were before the strong growth in 2018 and into 2019.

2. DATA COLLECTION

THE MOST SIGNIFICANT, WORK-INTENSIVE PORTION OF THE economic impact analysis was the data collection effort. Results of the inventory and data collection formed the basis for inputs to the economic impact model. To perform the inventory and data collection process, the following steps were undertaken:

- Airport Setting
- On-Airport Employment
- Visitor Spending
- Capital Spending

2.1 Airport Setting

Burlington International Airport occupies a 942-acre location approximately 3 miles east of Burlington, Vermont. BTV is included in the National Plan of Integrated Airport Systems (NPIAS) and is classified as a Small Hub Primary Airport. The Airport has two runways, Runway 15/33, which is 8,319 feet long and 150 feet wide, and Runway 1/19, which is 4,112 feet long and 75 feet wide.

The City of Burlington owns and operates Burlington International Airport. The Airport is operated as an Enterprise Fund and employs more than 40 personnel in the management and operation of the facility. The Airport enplaned more than 578,000 passengers in 2017 and has a budget that exceeds \$19 million annually. Heritage Aviation is BTV's only full service FBO with fueling, onsite maintenance, avionics, and US Customs. The FBO operates from a large, 79,000 square foot facility, which was completed in 2009. Amenities offered to general aviation users include multiple conference options, business lounges, workout facilities, flight planning center, and much more.

Air Service

Because BTV is located on the eastern shore of Lake Champlain, it is roughly 40 miles from both north and south bridges or roads around the lake. Although there are seasonal ferries from Port

Kent, NY to Burlington, they are not sufficient to meet airline schedules at BTV. Thus, any potential airline passengers from New York must travel the extra distance around the lake. Also, because there is airline service at Plattsburgh, NY, demand from the New York side is not a significant percentage of overall passengers. In addition to the immediate Burlington and South Burlington areas, BTV airline service attracts passengers from inland Vermont because of the wide service options and convenience.

As the largest public-use airport in the Vermont aviation system, Burlington International Airport offers a full complement of infrastructure, facilities, equipment, and services to accommodate scheduled commercial passenger service and the most demanding and sophisticated general aviation aircraft types and operators. Domestic carriers American Airlines, Delta Airlines, JetBlue and United Airlines provide flights to major hubs in Atlanta, New York City, Washington D.C., Chicago, Detroit, Philadelphia, and Charlotte, and Canada-based Porter Airlines, which serves 17 Canadian destinations and eight U.S. destinations via its hub in Toronto. BTV also serves as home to 158th Fighter Wing of the Vermont Air National Guard (ANG) and the Army Aviation Support Facility of the Vermont Army National Guard (ARNG).

Economic Generators

Greater Burlington is the industrial, tourist, and financial center of the state. Burlington is home to Fletcher Allen Health Care and The University of Vermont, two of the city's largest employers. The city is known for ice cream maker Ben & Jerry's, which was founded there in 1978. Corporate headquarters located there include: Burton Snowboards, Bruegger's, Seventh Generation, and Lake Champlain Chocolates. Tourism is the area's second largest industry; several banks are also headquartered there. Forbes ranked Burlington #86 in the 2017 list of best small places for business and careers.¹

The Burlington region of Vermont supports nearly one-third of the state's manufacturing employment. The Greater Burlington region contains hundreds of small manufacturers producing a wide variety of products; many national and international manufacturing businesses have plants there that also support attendant service businesses. Manufacturing in the area produces electronics and computer parts; food products; textiles; apparel; lumber; paper and wood products; furniture and fixtures; chemicals and allied products; petroleum, coal, rubber, plastic, leather, stone, clay, and glass products; toys; jewelry; primary and fabricated metals; and machinery and electrical equipment.²

In 1981, Vermont realized the potential benefits of attracting captive insurance companies and passed legislation providing the appropriate regulatory and taxation environment. The objective of the legislation was to establish a business-friendly climate for companies forming captive insurance operations in Vermont. Captive insurance refers to a subsidiary corporation established to provide insurance to the parent company and its affiliates. A captive insurance company represents an option for many corporations and groups that want to take financial control and manage risks by underwriting their own insurance rather than paying premiums to third-party

¹ Source: <https://www.forbes.com/places/vt/burlington/>

² Source: City-Data.com:
<http://www.city-data.com/us-cities/The-Northeast/Burlington-Economy.html#ixzz539vYujKz>

insurers. Over 1,000 companies have already realized the advantages of captive insurance operations licensed in Vermont. In fact, for several years now, Vermont has ranked as the number one captive domicile in the United States and the number three-ranked domicile internationally. Many of the approved service providers needed for the formation of captive insurance companies are located in Burlington and South Burlington.³

2.2 On-Airport Employment

An inventory of all on-airport employment was taken in August 2018. The results of that inventory showed the following full-time job equivalents:

- Airport Employment: 784 Jobs
- Airport Capital Spending: 111 Jobs
- Army and Air National Guard: 622 Jobs
- Visitor Spending: 1,940 Jobs
- Total Direct Jobs 3,457 Jobs

In total, there are 3,457 direct jobs associated with Burlington International Airport. These jobs include the direct impact of aviation at the Airport, capital spending on the Airport, including all the spending that contractors pay their employees. Army and Air National Guard employment figures were included in the study. In addition to this, the air visitors that use the Airport and spend money on rental cars, hotels, and restaurants create jobs that are counted as a part of the direct impact of the Airport on the region. It should be noted that the number of jobs associated with visitor spending (shown above) were estimated by IMPLAN.

2.3 Visitor Spending

Each year, air visitors to Burlington arrive using both airline and general aviation transportation. These visitors spend money for rental cars, hotels, and restaurants during their trips and that spending can be attributed to their use of the Airport. To estimate the economic impact of air transportation visitors using Burlington International Airport, the number of annual visitors was multiplied by the average visitor spending. Vermont Department of Tourism and Marketing keeps records on visitor spending within the State. Their most recent benchmark report shows the spending patterns of visitors, broken down by type of visit. For this analysis, the most important fact involved their survey finding that the average overnight and second home Vermont visitor spending per trip in 2017 was \$471. This number involved 1.8 million overnight visitors who spent \$980 million in Vermont, combined with another 1.8 million visitors using second homes who spent \$715 million.⁴

To estimate total visitor spending, true itinerant visitor trips were multiplied times the amount spent per trip. From survey information, it can be estimated that roughly 50 percent of airline passengers and 45 percent of general aviation itinerant passengers are visitors to the Burlington

³ Source: Vermont Department of Financial Regulation: <http://www.dfr.vermont.gov/captives/advantages-captive-insurance>

⁴ Source: *Tourism in Vermont – 2017 Benchmark Report*, Vermont Department of Tourism and Marketing, 2018.

region. The other air passengers are simply returning to their local residences. Mathematically, the following equation describes the estimation of direct visitor spending at BTV in 2017:
(11,773 GA Itinerant Visitors + 289,007 Airline Visitors) times \$471 = \$141,667,400

This direct spending will input the IMPLAN model and be used to generate estimates of a portion of the Airport's overall employment, earnings, and output.

2.4 Capital Spending

A total of \$104,227,392 has been expended at the Airport from 2010 to 2017 for Airport Improvement Projects. The average expenditure per year is \$13,028,424. This average level of capital spending was used in the computation for future ACIP expenditures to be used in the IMPLAN model.

3. REGIONAL MULTIPLIERS

ECONOMIC IMPACT ANALYSIS IS THE PROCESS OF quantifying the economic contributions of any specific activity under study. End products of these analyses are described in terms of jobs, income, and total economic output in dollars. The economic impact analysis of BTV will provide stakeholders with evidence that their expenditures on the Airport are having an impact in creating and sustaining local and regional jobs.

Regional multipliers are the reason why impacts on the local economy from direct expenditures are larger than the expenditures themselves. As an example, if a new firm comes into an area and employs 50 people and also purchases some local goods and services, economic studies have shown that the impacts in the area will be attributable to the company's direct outlays plus the respending of these outlays by firms supplying inputs to the new firm. There will be two types of ripple effects: (1) those associated with firm-to-firm transactions and (2) those derived from the wages and salaries allocated to employees in these firms. The wages and salaries paid to the 50 new employees will be spent and respent several times within the community. Retail establishments that have nothing to do with the nature of the new firm's business will be affected by its presence as the new employees spend their income on clothes, automobiles, restaurant meals and so forth. Thus, for every dollar of new wages and salaries, an additional twenty-five to seventy-five cents of income might be generated elsewhere in the area. As supplier firms providing inputs to the new firm expand their production and thus allocate more resources to wages and salaries, a further consumption-generated ripple effect will be observed.

When all the effects are summed up, a new job can often generate the equivalent of another job (summed up over many partial jobs in different parts of the area's economy) if the community is large and has a sophisticated consumer retail base. In smaller communities, the effect of a new job might be to generate between one-third and two-thirds additional jobs. Ripple or multiplier effects work in both a **positive** (when a new airport enters or an existing airport expands) and in a **negative** manner (when an enterprise goes out of business or an airport closes).

3.1 IMPLAN Modeling

IMPLAN, developed originally by the U.S. Forest Service, is a comprehensive impact system that is built on the framework of input-output and social accounting methodology. The database is maintained at the county level, affording the analyst an opportunity to create regions for study that are aggregations of counties. The database includes the latest business censuses supplemented by County Business Patterns and other data derived from the Bureau of Economic Analysis.

The input-output and social accounting models are derived from national data with adjustments made to reflect regional specialization, size, and industrial composition. The procedures used to accomplish this are well known and accepted in the literature on nonsurvey techniques. Since IMPLAN provides a comprehensive system (i.e., the complete input-output table or social accounts), it is possible to trace impacts of change in one sector on other sectors in a detailed fashion. The ability to edit data makes IMPLAN a dynamic economic modeling tool. Software users have the ability to edit all underlying data, from value added, employment, and final demands to production functions, byproducts, and regional purchase coefficients - and many other components.

One advantage of the IMPLAN system is the open access philosophy instilled by the Forest Service. IMPLAN is designed to provide users with maximum access so that they can alter the underlying structure of the data, the model, or means of assessing impact. The combination of the detailed database, flexibility in application, and the open access philosophy has made IMPLAN one of the most widely used and accepted economic impact modeling systems in the U.S. IMPLAN has been accepted in the U.S. court system and in many regulatory settings.⁵ In one example, the Florida Bar Association contracted with a private company that used IMPLAN to show the economic impacts of delays in civil trials in Florida's state courts due to underfunding.⁶

3.2 Application to Burlington International Airport

The final step in the analytical process of regional economic impact analysis is the estimation of the induced or multiplied effects of Burlington International's direct and indirect aviation impacts. Using the IMPLAN software, multiplier tables were generated for the State of Vermont for all the potential impacted industries. Results and data from the estimation of direct and indirect impacts were applied to the appropriate multiplier process and the results were summed to obtain output and employment totals supported by aviation.

This section provides a summary the Airport's direct and induced economic impacts. This documentation is the culmination of work involving the survey data, the secondary source data, and the IMPLAN multipliers in determining the economic impact of Burlington International Airport.

⁵ Source: University of Wisconsin Center for Cooperatives, Research on the Economic Impact of Cooperatives. <http://reic.uwcc.wisc.edu/implan/>

⁶ Source: "The Economic Impacts of Delays in Civil Trials in Florida's State Courts Due to Under-Funding," The Washington Economics Group, Inc. for the Florida Bar Association, February 2009.

The economic impact methodology first identified the direct spending and employment at Burlington International Airport and included the direct spending of air visitors at off-airport sites such as hotels and restaurants. Armed with this information, regional responding multipliers derived from IMPLAN were applied to the data to determine the multiplied impacts of direct spending (called induced impacts). Table 1 presents a summary of Burlington International Airport’s direct and induced economic impacts.

Table 1 - Direct and Induced Economic Impacts: Burlington International Airport	
ITEM	AMOUNT
Direct Impacts	
Airport-related Income*	\$106,404,509
On-Airport Expenditures (Total including capital costs)	\$289,513,653
Estimated State/Local Taxes	\$34,527,470
Airport-related Employment (Total)	3,457 Jobs
Induced Impacts	
Induced Direct Impacts	\$191,951,228
Total Induced Employment Impacts	1,461 Jobs
Grand Total Dollar Impacts	\$481,464,881
Grand Total Income Impacts*	\$170,427,061
Grand Total Employment Impacts	4,935 Jobs

* Includes indirect incomes from visitor spending and capital development. This is a subset of the total impacts and is already included in the output number.

As shown, Burlington International Airport supports 4,935 jobs and approximately \$481.5 million in annual economic impact. The Airport generates \$34.5 million in State and local taxes and provides incomes of more than \$170.4 million to Vermont residents. Appendix A presents a detailed summary of the IMPLAN economic impact responding process, by economic sector.

3.3 State and Local Tax Impacts

When discussing economic impacts of BTV, many people are interested in the collective tax benefits to the local municipalities and the State of Vermont. In Vermont, there are a variety of taxes paid by airports and aviation users:

- Sales Tax
- Motor Vehicle License Tax
- Payroll Taxes
- Property Taxes
- Aviation Fuel Tax

- Other Miscellaneous Taxes

All these tax impacts were estimated by the IMPLAN model for expenditures at the State and local level. Estimated state and local tax impacts from aviation for BTV totaled \$34,527,500 in 2017. This tax revenue benefits all citizens of the area, not just those in aviation.

3.4 Airport Qualitative Benefits

There are a number of non-monetary benefits of aviation that have not been mentioned in this analysis. Some of these benefits include:

- **Transportation Benefits:** Defined as the time saved and cost avoided by travelers who use airports rather than the next best alternative. BTV provides access to the National Air Transportation System.
- **Stimulation of Business:** BTV is used extensively by area businesses, including manufacturing concerns, insurance, banking, and educational institutions. As such, its convenience is highly valued by aviation business travelers.
- **Aeromedical Evacuation:** Burlington International Airport serves aeromedical evacuation teams and flight services. This life-saving function has intrinsic value that often cannot be adequately quantified.
- **Access to Montpelier:** BTV is the primary airline access to Vermont's Capital, Montpelier. Both government and business interests have a stake in the quality and availability of continued airline service at BTV.
- **Tourism:** BTV serves tourism and out-of-state visitors that bring economic impact to Vermont. Many of the ski areas, summer vacation resorts, and second homes are accessed by air in at least one segment of the overall trip. A recent study indicated that tourism accounted for 10 percent of all jobs in Vermont.⁷
- **Military Readiness:** BTV serves as home to the 158th Fighter Wing of the Vermont Air National Guard (ANG) and the Army Aviation Support Facility of the Vermont Army National Guard (ARNG). The Airport plays a significant role in supporting the readiness of our military personnel.
- **Firefighting Capability:** In addition to the five fire stations throughout the City of Burlington, the Airport Rescue and Fire Fighting (ARFF) facility at BTV provides the potential to assist in firefighting needs near the Airport.

All the above factors point to a value of an airport that is not easily quantified. The impacts that were estimated in this report are only one facet of the overall picture. The economic activity generated by the Burlington International Airport along with its current asset value represent the monetary value of the facility, while these other non-monetary factors describe other features of its intrinsic worth.

⁷ Source: "1 in 10 Vermont Jobs Rely on Tourism Dollars," (Art Woolf, Burlington Free Press, July 8, 2015). Accessed 10/2/18: <https://www.burlingtonfreepress.com/story/money/2015/07/08/vermont-jobs-rely-tourism-dollars/29824719/>

4. EXISTING VALUE OF AIRPORT PROPERTY AND FACILITIES

TWO ESTIMATES OF EXISTING BTV VALUES ARE helpful in describing the overall Airport Regional Value. The first value of an existing airport is the replacement cost of the facility. While this is not the current value of the facility due to depreciation of assets, it gives an idea of the resources needed to replicate the facilities at BTV. The replacement value can be estimated by multiplying unit costs of construction times the existing quantities of facilities to derive an approximate infrastructure investment total. Land values are added to the facility development costs, yielding a total replacement value. Not included in this mix are the potential difficulties of actually replacing the Airport due to environmental issues, land use constraints, and property availability. A second important descriptor in the ARV involves the “depreciated” or “useful life” value of the existing Airport facilities. Both of these are described in the following sections.

4.1 Airport Replacement Value

When considering the value of an airport, its economic impact is usually identified, but rarely are the assets identified or valued. At BTV, a significant value of the Airport is related to its replacement value and current asset worth. The replacement value of BTV is an estimate of the construction value of the individual facilities at the Airport. This estimate uses the dimensions of the major assets, multiplied by the unit costs of construction to obtain an approximate total value for the cost of the airport. Table 2 shows the estimation of those costs, including the value of the property for industrial land in Chittenden County. Replacement of the Airport would cost about \$892 million (Table 2).

Table 2 - BTV Replacement Value

Airport Replacement Value:	Burlington International	Estimated	Estimated
	Description	Units	Amount
Land Value	Acres from 5010	942	\$ 176,154,000
Pavement			
Runway	Length x Width	308,400	\$ 23,130,000
	Length x Width	1,247,850	\$ 93,588,750
Taxiway	Length x Width	2,047,640	\$ 153,573,000
Airline & Military Apron	Estimated	1,363,300	\$ 102,247,500
GA Apron	Estimated	1,108,600	\$ 55,430,000
Hangars			
Conventional Hangars	Total Square Footage	231,000	\$ 34,650,000
T-Hangars	Total Units	12	\$ 1,200,000
Fuel System	Small, Medium, Large		\$ 5,000,000
Navigational Aids	0=None, 1=Nonprecision 2=Precision		\$ 1,500,000
Internal Roadways	Total Linear Feet	25,750	\$ 4,506,250
Parking Garage	Number of Spaces	2,678	\$ 66,950,000
Auto Parking Lots	Total Square Footage	1,273,500	\$ 19,102,500
Perimeter Fence	Total Linear Feet	32,000	\$ 2,400,000
Air Traffic Control Tower	0=No, 1=Yes		\$ 7,500,000
Airline Terminal		126,000	\$ 56,700,000
Non-Hangar Buildings	Estimated	369,800	\$ 85,054,000
Solar Farm	Total Acres	6	\$ 3,000,000
Total Replacement Value			\$ 891,686,000

* Land value above is based on Zillow and other sources, but not on an actual appraisal. It is intended for this exercise only. This value should not be referenced for any other purposes outside of the intended purpose within this document.

Thus, one method of valuing the facility would be to consider the equivalent costs of replacement. Since many of the existing facilities are aging, they have lost a portion of their value in accordance with their useful life. In this regard, a second measure of Airport value was made - Current Value of Airport Facilities.

4.2 Current Value of Airport Facilities

The current value of BTV facilities was estimated using the calculated replacement value along with the approximate age of various facilities and their estimated useful life. The ARV metric includes the following assumptions:

- **Paved Area Value Reductions:** The replacement costs of paved areas were reduced by applying the following percentages based on estimated facility age:
 - Excellent (0-5 years): -12.5%
 - Good (6-10 years): -37.5%
 - Fair (11-20 years): -60%
 - Over 20 years not included due to ongoing pavement management program.
- **Hangars and Non-Hangar Building Value Reductions:** Using a 40-year life as a reasonable benchmark, the following percentages were applied to estimated replacement values for each facility:
 - 0-5 years: -6.25%.
 - 6-10 years: -18.75%
 - 11-20 years: -37.50%
 - Over 20 years: -50.00%
- **Other Facilities:** Other facilities such as fuel systems, air traffic control tower, and instrument approaches were not reduced in value, since their replacement costs are assumed to increase at the same rate as their depreciation. The parking garage facilities more than 20 years old were only depreciated by 37.5 percent because of on-going maintenance.
- **Land Value:** The land value used for the ARV metric was taken from an average of recent listings of property near the Airport. For the ARV metric, both the existing and replacement land values are the same since land typically does not depreciate in value. Land value is based on Zillow and other sources, but not on an actual appraisal. It is intended for this exercise only. This value should not be referenced for any other purposes outside of the intended purpose within this document.

To account for the remaining useful life in terms of replacement costs, the replacement values listed in Table 3 were decreased in accordance with the age and remaining useful life of each facility. As mentioned, no depreciation was assumed for the land value or fuel system, since they hold their original replacement value by function. Table 3 presents the results of the current value estimate using the principles of remaining useful life.

Table 3 - BTV Existing Value

Depreciated/Existing Airport Value					Estimated Amount
Land Value	Age of Existing Facilities N/A				\$176,154,000
Pavement	Square Feet 0-5 years old	SF 6-10 yrs	SF 11-20 yrs	SF Over 20 yrs	
Runway		572,000	984,250		\$ 56,340,000
Taxiway	157,800	440,700	1,449,140		\$ 74,487,638
Total Pavement from PCI	186,300	247,800	2,037,800		\$ 72,272,256
Auto Parking Lots		55,000	1,218,500		\$ 7,826,625
Hangars					
Conventional Hangars	6,000		225,000		\$ 21,937,500
T-Hangars			12		\$ 750,000
Fuel System					\$ 5,000,000
Instrument Approaches					\$ 1,500,000
Parking Garage (# of spaces)		589		2,089	\$ 44,604,688
Internal Roadways	11,900		13,850		\$ 3,467,188
Linear Fence			32,000		\$ 1,500,000
Air Traffic Control Tower					\$ 7,500,000
Airline Terminal			56,300	69,700	\$ 31,516,875
Non-Hangar Buildings	21,500		348,300		\$ 54,704,063
Solar Farm (Acres)		6			\$ 2,437,500
Existing Facility Value					\$561,998,331

* Land value above is based on Zillow and other sources, but not on an actual appraisal. It is intended for this exercise only. This value should not be referenced for any other purposes outside of the intended purpose within this document.

As shown, the Airport’s existing facility value based upon useful life estimates is approximately \$562 million. This is roughly 63 percent of its replacement value as estimated with land costs. If the land is taken out of the equation (because it was not depreciated), the depreciated value of the existing Airport is about 54 percent of its construction replacement value.

4.3 Return on Assets

One measure of return on assets (ROA) is an airport's ability to use its assets to generate operating revenues. Assets include cash and cash equivalents, as well as physical items of tangible value, such as buildings, equipment, pavement, and land owned by the airport. For the most part, the ROA measurement should be used historically for the industry being analyzed. If peer airport comparisons are made, it is imperative that the airports being reviewed are similar in size and aircraft activity.

For airports, ROA is measured using operating revenues, which is an acceptable variable for ratio comparison. Information from our database indicates that reasonable ranges for general aviation airports are between 0.2 percent and 2.2 percent. For airline airports, ranges between 2 percent and 20 percent are considered normal. However, most estimates of asset value have been depreciated using a book-value method. This method ignores the useful life of the facilities and is simply an accounting formula. As such, it is difficult to compare the existing value of airports using both useful life and straight-line depreciation because it is not an “apples to apples” comparison.

Our experience has shown that depreciation based upon an accounting method is almost always greater than the useful life method because of on-going maintenance. For example, hangars may have a 27.5-year book value, but in reality, they may be used for 50 years or more. Therefore, the lower the asset value, the higher the ROA ratio for a given set of revenues.

With this in mind, Miami International (MIA), a large hub, operates at roughly 12.1 percent ROA, while Pittsburgh International (PIT) operates at about 18.4 percent ROA. For small hub airports closer in size to BTV, Lexington-Bluegrass Airport (LEX) has an ROA of 8.0 percent (with revenues of \$18.04 million), while Akron-Canton Regional Airport (CAK) has an ROA of about 5.6 percent (with revenues of \$10.59 million).

Burlington International Airport has revenues of about \$19.8 million, which translate into an ROA of nearly 4 percent, when estimated by useful life depreciation. While this is in the lower range of ROA returns for airline airports, it is higher than all but the largest general aviation airports. For LEX and CAK, revenues are less than BTV, but because their asset book value has been depreciated more quickly, they appear to have a larger ROA.

Another measure of ROA involves the use of economic output in the ratio. As such, Burlington International Airport is producing economic output equal to 85.6 percent of its current asset value each year. Unlike a school system that requires funding for salaries, maintenance, and equipment to produce jobs and economic output, the Airport provides a large economic output in addition to producing a net positive operating return on investment.

It is recognized that economic benefits are not the only reason to invest in projects. There are quality of life factors, safety, and other issues that are worthy of a community's investment. However, in comparing economic benefits, these ROA measures are very useful.

5. SUMMARY OF AIRPORT REGIONAL VALUE

THE VALUE OF BURLINGTON INTERNATIONAL AIRPORT HAS been estimated in this analysis, using two very different measures. The first was the economic activity metric, which assesses the job creation, income, and output, generated at the Airport. This value was estimated in this study as follows:

- Total Jobs: 4,935
- Total Payroll \$170,427,100
- Total Economic Output: \$481,464,900
- Total State & Local Taxes: \$34,527,500

A second measure of the value of the Airport involves the current asset value. In this regard, a method was used that first estimated the current replacement value of the facility and then reduced that value by the useful life remaining on each specific asset. This procedure resulted in a replacement value estimate of \$892 million and a current value of \$562 million. Taken as a snapshot in time, the total value of the Airport could be estimated to include its annual economic activity (\$481 million) plus its current asset value (\$562 million). Adding these two numbers, it can be shown that **the overall value of the Airport to the region is \$1.04 billion.**

**Appendix A
Burlington International Airport Economic Impact**

Employment

<i>Sector</i>	<i>Description</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>
1	Ag, Forestry, Fish & Hunting	0.0	3.3	4.9	8.1
20	Mining	0.0	2.1	0.4	2.5
41	Utilities	0.0	4.4	2.9	7.4
52	Construction	111.3	30.4	11.6	153.3
65	Manufacturing	22.0	7.9	5.2	35.1
395	Wholesale Trade	0.0	18.3	17.5	35.8
396	Retail trade	186.5	28.2	135.9	350.5
408	Transportation & Warehousing	755.9	192.5	20.1	968.5
417	Information	0.0	14.8	12.2	27.0
433	Finance & insurance	0.0	24.3	41.9	66.2
440	Real estate & rental	0.0	49.7	39.9	89.6
447	Professional- scientific & tech svcs	6.0	73.6	37.2	116.8
461	Management of companies	0.0	9.3	2.5	11.8
462	Administrative & waste services	23.0	88.8	35.9	147.7
472	Educational svcs	57.0	3.3	44.9	105.2
475	Health & social services	12.0	0.0	191.2	203.2
488	Arts- entertainment & recreation	335.4	39.7	34.4	409.5
499	Accommodation & food services	1,277.0	35.7	96.3	1,409.1
504	Other services	4.0	21.8	85.9	111.7
520	Government & non NAICs	667.0	6.2	3.0	676.2
	Total	3,457.1	654.2	823.8	4,935.1

Multiplier: 1.43

		Income			
<i>Sector</i>	<i>Description</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>
1	Ag, Forestry, Fish & Hunting	\$0	\$46,179	\$75,768	\$121,946
20	Mining	\$0	\$58,885	\$9,343	\$68,228
41	Utilities	\$0	\$611,191	\$406,151	\$1,017,342
52	Construction	\$5,388,589	\$1,469,711	\$561,788	\$7,420,089
65	Manufacturing	\$1,106,089	\$421,262	\$275,148	\$1,802,499
395	Wholesale Trade	\$0	\$1,251,040	\$1,198,991	\$2,450,031
396	Retail trade	\$5,234,113	\$919,136	\$4,475,020	\$10,628,269
408	Transportation & Warehousing	\$33,328,636	\$10,000,110	\$1,022,270	\$44,351,016
417	Information	\$0	\$845,283	\$746,666	\$1,591,949
433	Finance & insurance	\$0	\$1,646,286	\$2,523,922	\$4,170,207
440	Real estate & rental	\$0	\$894,639	\$665,229	\$1,559,869
447	Professional- scientific & tech svcs	\$390,584	\$4,314,767	\$2,119,140	\$6,824,491
461	Management of companies	\$0	\$891,309	\$234,529	\$1,125,838
462	Administrative & waste services	\$562,650	\$3,145,782	\$1,236,924	\$4,945,356
472	Educational svcs	\$1,231,180	\$79,793	\$1,693,815	\$3,004,788
475	Health & social services	\$538,242	\$1,876	\$10,722,489	\$11,262,607
488	Arts- entertainment & recreation	\$6,411,495	\$683,592	\$686,507	\$7,781,594
499	Accommodation & food services	\$29,006,814	\$899,680	\$2,226,327	\$32,132,822
504	Other services	\$194,464	\$1,055,783	\$3,045,959	\$4,296,206
520	Government & non NAICs	\$23,011,651	\$578,607	\$281,655	\$23,871,912
	Total	\$106,404,509	\$29,814,911	\$34,207,641	\$170,427,061

Multiplier: 1.60

Output

<i>Sector</i>	<i>Description</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>
1	Ag, Forestry, Fish & Hunting	\$0	\$178,993	\$317,872	\$496,865
20	Mining	\$0	\$381,120	\$79,989	\$461,109
41	Utilities	\$0	\$4,160,747	\$2,798,204	\$6,958,951
52	Construction	\$13,028,424	\$3,563,384	\$1,422,105	\$18,013,913
65	Manufacturing	\$5,301,957	\$2,435,566	\$2,131,891	\$9,869,414
395	Wholesale Trade	\$0	\$4,086,395	\$3,916,380	\$8,002,775
396	Retail trade	\$10,512,565	\$2,122,171	\$10,980,867	\$23,615,603
408	Transportation & Warehousing	\$123,740,433	\$21,815,693	\$2,247,222	\$147,803,347
417	Information	\$0	\$4,238,025	\$4,385,054	\$8,623,079
433	Finance & insurance	\$0	\$6,020,518	\$10,312,062	\$16,332,581
440	Real estate & rental	\$0	\$11,395,535	\$23,074,879	\$34,470,414
447	Professional- scientific & tech svcs	\$533,756	\$8,496,845	\$4,331,347	\$13,361,948
461	Management of companies	\$0	\$2,042,478	\$537,436	\$2,579,913
462	Administrative & waste services	\$1,002,426	\$7,363,134	\$2,688,036	\$11,053,597
472	Educational svcs	\$2,070,982	\$136,289	\$2,864,690	\$5,071,962
475	Health & social services	\$1,062,766	\$3,534	\$19,181,109	\$20,247,409
488	Arts- entertainment & recreation	\$18,844,951	\$1,866,971	\$2,640,826	\$23,352,748
499	Accommodation & food services	\$77,756,276	\$1,980,954	\$6,041,104	\$85,778,334
504	Other services	\$558,964	\$1,990,043	\$4,891,157	\$7,440,164
520	Government & non NAICs	\$35,100,152	\$1,905,998	\$924,605	\$37,930,756
	Total	\$289,513,653	\$86,184,394	\$105,766,835	\$481,464,881

Multiplier: 1.66

Tax Impact

Description	Proprietor Income	Employee Compensation	Tax On Production And Imports	Households	Corporations	Totals
Social Ins Tax- Employee Contribution	\$711,262	\$10,428,525				\$11,139,787
Social Ins Tax- Employer Contribution		\$10,027,068				\$10,027,068
TOPI: Excise Taxes			\$2,244,467			\$2,244,467
TOPI: Custom Duty			\$846,819			\$846,819
TOPI: Fed NonTaxes			\$106,800			\$106,800
Corporate Profits Tax					\$4,108,287	\$4,108,287
Personal Tax: Income Tax				\$10,652,212		\$10,652,212
Federal Government Non-Defense Total	\$711,262	\$20,455,593	\$3,198,086	\$10,652,212	\$4,108,287	\$39,125,441
Dividends					\$66,145	\$66,145
Social Ins Tax- Employee Contribution	\$0	\$0				\$0
Social Ins Tax- Employer Contribution		\$0				\$0
TOPI: Sales Tax			\$11,211,165			\$11,211,165
TOPI: Property Tax			\$16,781,773			\$16,781,773
TOPI: Motor Vehicle Lic			\$315,423			\$315,423
TOPI: Severance Tax			\$0			\$0
TOPI: Other Taxes			\$906,486			\$906,486
TOPI: S/L NonTaxes			\$35,026			\$35,026
Corporate Profits Tax					\$791,949	\$791,949
Personal Tax: Income Tax				\$3,318,971		\$3,318,971
Personal Tax: NonTaxes (Fines- Fees				\$565,700		\$565,700
Personal Tax: Motor Vehicle License				\$231,922		\$231,922
Personal Tax: Property Taxes				\$120,938		\$120,938
Personal Tax: Other Tax (Fish/Hunt)				\$181,971		\$181,971
State/Local Non-Education Total	\$0	\$0	\$29,249,874	\$4,419,502	\$858,094	\$34,527,470
Grand Total	\$711,262	\$20,455,593	\$32,447,960	\$15,071,714	\$4,966,381	\$73,652,911