

VERMONT



# The Economic Impact of Vermont's Public-Use Airports

## Final Technical Report

*Conducted under the direction of:*



*Prepared by:*

**Simat, Helliesen & Eichner, Inc (SH&E)  
Economic Development Research Group (EDRG)  
Dufresne-Henry, Inc.  
Yellow Wood Associates**

**April, 2003**

(this page left intentionally blank)

## A MESSAGE FROM VERMONT'S SECRETARY OF TRANSPORTATION

Whether you are a resident, a visitor enjoying the wonderful recreation and relaxation opportunities that the State has to offer, or a businessperson engaged with one of our fine industrial or commercial concerns, Vermont's airports are important to you.

The Vermont system of seventeen public-use airports generates an annual economic impact of more than \$600 million. Over 9,000 jobs and \$225 million in wages are attributable to public-use airports and the aviation industry in Vermont. With this Study, the State is pleased to have assessed effectively how these airports contribute to Vermont's economy. However, the Study also documents the impacts of these airports that go beyond financial measure.

As a group, these airports provide a quick, efficient, and safe method of moving people and goods into, out of, and within the Green Mountain State. These airports also improve the quality of life for every single resident and visitor, whether or not they directly use airport services.

In the aftermath of the tragic events of September 11<sup>th</sup>, the nation came to realize just how critical is the link between air transportation and the economy. For two days, the United States felt the dramatic repercussions of having its airspace completely shut down. The U.S. airline industry, already feeling the impacts of a sluggish economy prior to September 11<sup>th</sup>, was financially devastated by the fallout and is still trying to recover. The ripple effect impacted U.S. airports, and revenues dropped dramatically.



**Patricia McDonald**  
Secretary of Transportation

In Vermont, the impact of those tragic events were felt by commercial service and general aviation airports alike. The effects arrived at a time when the State was already grappling with the 'general aviation insurance crisis,' the rapid jump in price or non-availability of general aviation insurance in the last few years. This Study also analyzes the impact of these dynamics as they have affected that State economy, and as they are likely to evolve.

Aviation serves a vital national interest. A strong airport system is essential to meeting the country's transportation needs and to sustain economic well-being. For our nation to have a strong system, each state must provide the essential links that make the whole greater than the sum of its parts. The Vermont Agency of Transportation (VTrans) has invested time and resources making sure that our aviation facilities are able to accommodate the demand placed upon them by residents and visitors. Our system of airports is used and valued by people from all over the world for its ability to provide direct access to Vermont's diverse business interests and its vast cultural, leisure and agricultural resources.

Vermont deserves to be proud of its public-use airport system, and of the economic engine it represents to local communities and to the State as a whole. It is hoped that this Study will increase the recognition and appreciation among Vermonters for the vast benefits it provides.

Patricia McDonald  
Secretary of Transportation

## A MESSAGE FROM THE VTRANS AVIATION PROGRAM MANAGER

Airports, aviation and aviation-related industries have a profound impact upon the State of Vermont. They enhance the quality of life in Vermont by providing access to the rest of New England, the U.S., and the world. Proximity to airports increases business opportunities within Vermont by permitting efficient, cost-effective travel and providing Vermont businesses with access to the worldwide market. Airports also provide a gateway to out-of-state tourists and businesses. Beyond the travel-related benefits, aviation generates significant revenues in Vermont and provides high paying jobs for many residents within the State.



**Rich Turner**  
Aviation Program Manager

Currently, people not directly associated with Vermont airports may not be aware of the facilities' significant economic contribution. Except for the two at which commercial service is available (Burlington International and Rutland State) many people are unfamiliar with the Vermont's airports.

To understand and measure the impact of Vermont's public-use airports on the State economy, VTrans undertook an Economic Impact Study. This report summarizes the Study and highlights the significant economic value of the Vermont system of public-use airports.

This Study shows that many Vermonters derive economic benefits from the daily operation of the airport system. Among them, employees of firms and corporations that rely on aviation services for freight or personnel transport, and those who work in the hospitality industry serving visitors arriving in the State by way of airports.

The primary focus of this Study is on the identifiable and quantifiable impacts to the state and local economies resulting from the seventeen airports studied. However, the Study also identifies some of the non-quantifiable benefits linked with aviation, such as quality of life contributions to the health, safety, recreation, education, and overall community life of Vermonters.

The VTrans Economic Impact Study also undertook a review of two important developments in the aviation industry to measure their impact on Vermont's economy, specifically:

- The events of September 11
- The 'general aviation insurance crisis'

In addition, the Study also examines the interrelationship between the airport system and the State highway transportation network.

It is essential that the State's residents, business community and government officials understand the positive returns that emanate from investments in aviation. From the smallest general aviation facility to the major commercial service airports of Rutland and Burlington, each airport's economic contribution is far in excess of the amount spent to maintain and operate the facility. The goal of this study is to provide Vermont with a sound understanding of the benefits derived from each dollar spent on aviation.

All of these airports need to be recognized for their economic contribution so that critical airport development within the State can continue into the future, enhancing the quality of life for the whole of Vermont. Our job at VTrans is to promote aviation while establishing and maintaining a safe, efficient airport system to meet the current and future air transportation and economic needs of the State. This Study gives us another tool to meet our mission.

Let us know what you think as well. Get in touch with us at VTrans and share your appreciation for one of Vermont's airport system.

Richard Turner  
Aviation Program Manager

## TABLE OF CONTENTS

A Message from Vermont's Secretary of Transportation .....	2
A Message from the VTrans Aviation Program Manager .....	4
Table of Contents .....	6
1. Study Goals, Scope, and Objectives .....	8
2. The Process .....	14
3. Definition of Economic Impact .....	22
4. Economic Impacts Methodology – Survey and Fieldwork .....	26
5. Economic Modeling – Methodology and Findings .....	36
6. Individual Airport Profiles .....	56
7. Special Scenarios .....	140
8. Suggested Marketing Plan for Study Results .....	152
9. Suggested Update Methodology for Future Reports .....	156
Appendix I: Glossary of Terms .....	161
Appendix II: Airport Use Surveys .....	167
Appendix III: Total Regional Effects – <i>IMPLAN-Type Multipliers</i> .....	203
Appendix IV: Executive Summary Document .....	207

(this page left intentionally blank)

## 1. STUDY GOALS, SCOPE, AND OBJECTIVES

Airports, aviation and aviation-related industries have a profound and beneficial impact on the State of Vermont. Aviation and its supporting activities directly generate significant revenues and employ thousands of State residents. Proximity to airports increases business opportunities within Vermont by permitting efficient, cost-effective travel for executives and employees, while providing companies with access to the worldwide marketplace. Airports offer a gateway to out-of-state tourists and businesses as well. Besides these economic benefits, airports also facilitate an enhanced quality-of-life for residents of the Green Mountain State.

### *Goals*

The primary goal of the *Economic Impact of Vermont's Public-Use Airports Technical Report* is to determine the quantitative and qualitative impacts of the State's seventeen public-use airports to Vermont's economy and to present the information in a manner that is useful to the potential consumers of such information, including decision makers, planners and communities. The two major categories of impact to be addressed are:

- **Quantitative Impacts** – Many of the impacts that Vermont's public-use airports provide are economically beneficial in nature. For example, airports directly and indirectly contribute income and employment to the communities they serve. These impacts can be measured and stated in numerical terms, for example, in dollars and employment.
- **Qualitative Impacts** – Other impacts, which are critical to the State's quality of life, cannot be measured in dollars. For example, Vermont's airports provide access to air ambulance service, preserve open spaces, support law enforcement and conservation activities, and work their way into the life and identity of their communities in countless other ways.

The information brought to light in this Study is relevant to a variety of different types of consumers directly and indirectly affected by aviation in Vermont. Thus, it is also a goal of the Vermont Agency of Transportation

(VTrans) to increase public understanding and awareness of the economic and quality-of-life contributions that Vermont's seventeen public-use airports make to the State.

In addition, this Study examines important current issues in the aviation industry, and how they have affected and will affect Vermont airports and the state economy as a whole. The events of September 11th, 2001 reverberated among all communities of interest within the aviation sector.

Even before September 11, general aviation nationwide had been facing a crisis as the insurance market suddenly became thinner with the exit or retrenchment of important providers. Policies had become more expensive, if available at all.

Finally, this Study examines the impacts of air transportation on the surface transportation system. The importance of the access and movement of airport workers/employees and freight and parcel service between the commercial service airports and the surface transportation network is important to understand and quantify.

Because aviation is in a state of flux, it is important for the State to analyze and understand the impact of these issues on the Vermont economy.

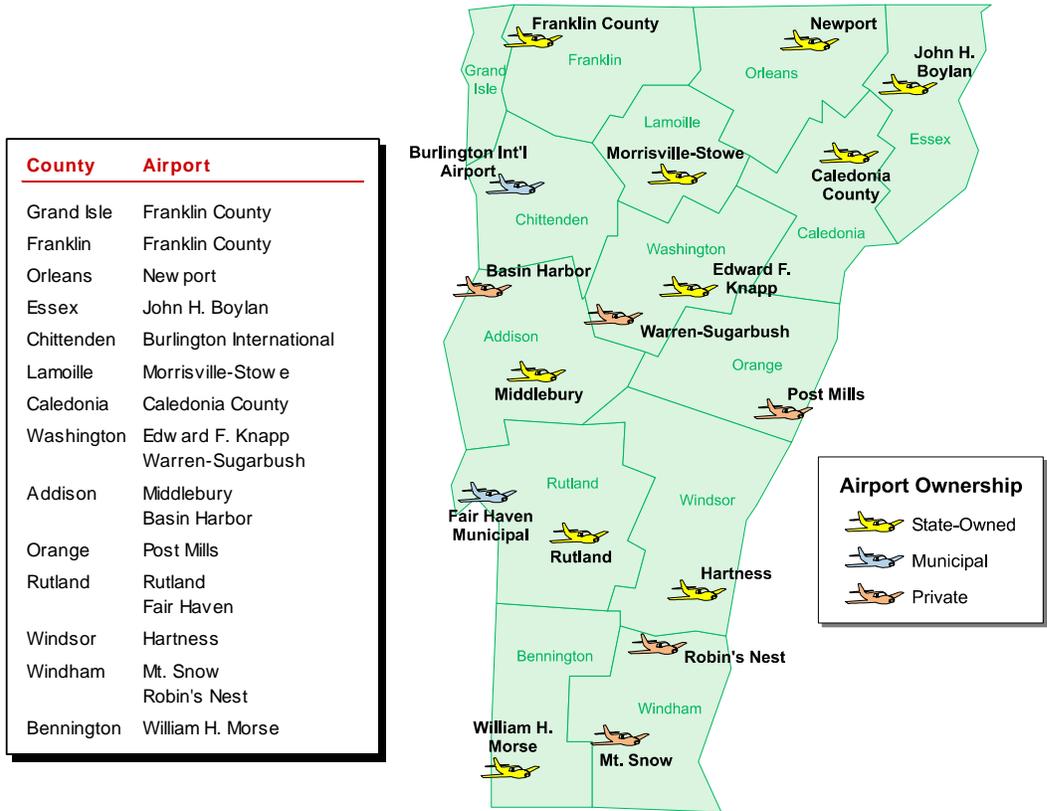
***Study Scope***

Seventeen public-use airports are spread throughout Vermont. Ten airports are State-owned, two are municipally-owned and five are privately-owned, though open to public use. General aviation activity occurs at all seventeen airports while two have commercial service operations – Burlington International Airport and Rutland State Airport (Exhibit 1).

Through the Vermont Agency of Transportation Maintenance & Aviation Division, the State is responsible for keeping Vermont State airports open, safe and aesthetically pleasing to transportation network users, while managing the system in a cost effective and environmentally sensitive manner. In addition, the Division promotes aviation-related activities and education programs and supports expanded travel opportunities at the seventeen public-use airports.

Fourteen of the State's public-use airports operate year-round while the remaining three airports are open seasonally – from spring (after the mud season) to fall (when the first snow falls). The three seasonal airports are Warren-Sugarbush, Robin's Nest-North Windham Airport and Basin Harbor. While Island Pond, Post Mills and Fairhaven are open year-round, they do not plow their runways, so only ski-equipped aircraft can utilize these facilities in the winter.

**Exhibit 1**  
**Seventeen Public-Use Airports Are Included in the VTrans Study**



Every county in Vermont has at least one public-use airport located within its borders, with the exception of Grand Isle. The airports themselves are significant economic engines for their local and the statewide economy, while also providing critical connections for residents and businesses to New England and to the world.

As commissioned by VTrans, this study has a specifically defined scope. The *Economic Impact of Vermont's Public-Use Airports Technical Report* covers

the **seventeen public-use airports** in the state. Among these seventeen, there are facilities both publicly- and privately-owned; however, all fulfill the criterion of having designated themselves “open to the public.”

Beside the seventeen public-use airports included in this Study, there are other airports that have significant economic impacts. For example, Shelburne (in Shelburne) and Asspirin Acres (in Vergennes) are two Vermont airports with a great deal of recreational general aviation activity that certainly has a positive local economic impact. However, those facilities are designated private-use, technically requiring the permission of the owner to use, thus they do not fall within the scope of this Study.

The availability of scheduled service at commercial airports outside the state, such as Montreal-Dorval, Manchester NH, Lebanon NH, Albany NY, and Hartford CT, also benefits the Vermont economy. Because VTrans has no jurisdiction over or responsibility for these facilities, they also fall outside the scope of this Study.

This Study offers a point-in-time analysis. Vermont’s public-use airports are examined as they are today. The annual economic impact of the most recent fiscal year is represented. Future scenarios in which capital improvements such as runway extensions may be made are not considered in this Study. Instead, VTrans has an Airport Capital Facilities Program to examine the costs and benefits of investment projects. The Program was developed to identify and prioritize airport projects at publicly owned airports, other than Burlington.

### **Objectives**

As mentioned above, among the goals of this study is to provide information about the comprehensive impact of Vermont’s public-use airports on the State. To achieve this, the study adopted the following objectives:

- **Quantify the economic impact** – This Study assessed the quantitative (dollars and cents) contribution of Vermont’s seventeen public-use airports to the State’s economy by measuring the economic activity directly related to the airports through a comprehensive survey process. This activity is known as the *primary impact*.

After the primary impact was totaled, a computer model was used to measure the *spin-off impact*, the respending of the primary impact within local economies. Detailed discussion of these terms, and of the specific methodology and results, are contained in the chapters that follow.

- **Describe the qualitative impacts** – The many contributions of public-use airports to Vermonters' quality-of-life often cannot be measured in dollar terms, but are real and must be recognized. This Study resolved to catalog and describe them as thoroughly as possible.

These positive qualitative impacts include emergency, safety, conservation and law enforcement aviation that public-use airports make possible. For example, many lives are saved each year through emergency medical evacuation by aircraft. These qualitative benefits are described in detail later in this Study.

- **Quantify the impact of important evolving aviation issues** – While the scope of the study encompasses the current economic impact of Vermont's airports, the analysis will engage in scenario modeling to quantify the time-to-date and likely future impact of the following issues:

*September 11<sup>th</sup>* – The study quantifies the impact of September 11<sup>th</sup> as it affected both commercial and general aviation in Vermont. Also examined is the length of time that these effects are likely to persist.

*General Aviation Insurance Crisis* – The effect of the increased price or non-availability of general aviation insurance has been measured.

*Interaction of Air and Surface Transport Network* – This Study examines the impacts of air transportation on the surface transportation system. The importance of the access and movement of airport workers/employees and freight and parcel service between the commercial service airports and the surface transportation network is important to understand and to quantify.

- **Tailor the message of the study for different target audiences –** This study was conducted with the knowledge that several different audiences are to be addressed. These audiences vary in terms of their interest in detail and in the time they can devote to consume the final study product. They are also likely to have different uses for the information. Among the audiences to be addressed:

*State Policy-Makers* – Vermont legislators are naturally interested in issues affecting the state economy and the continuing welfare of their constituents. This Study seeks to increase their appreciation of the role played by the State’s airports and aviation activities.

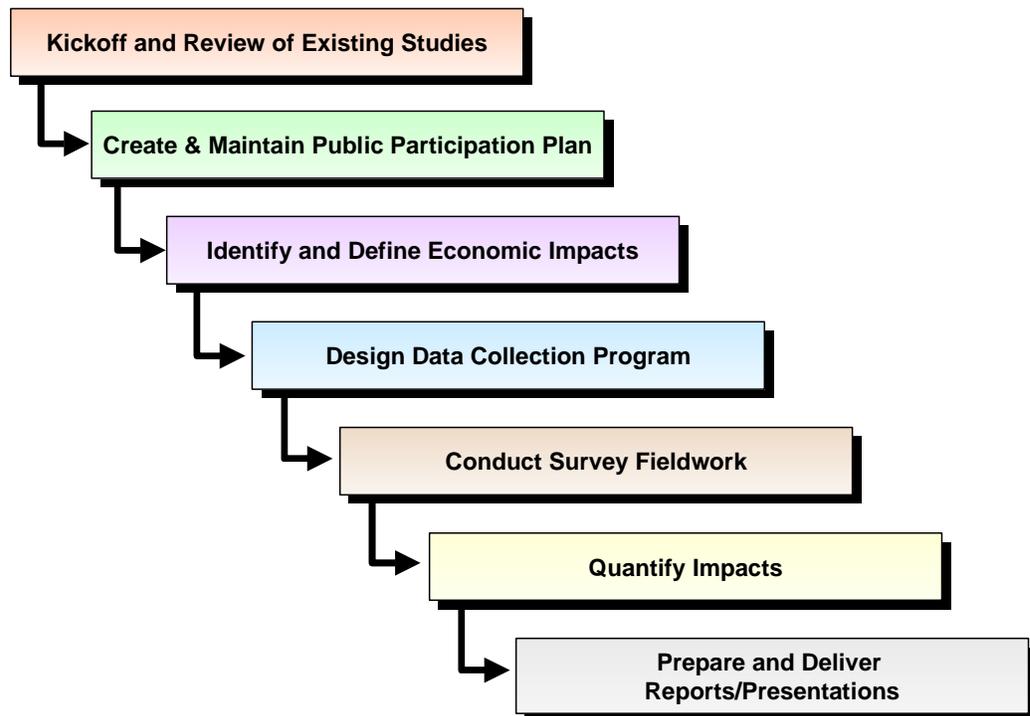
*Local Communities and the General Public* – It is the intent of this study that the public gain a better understanding of the extent to which their local economies and quality-of-life are enhanced by access to aviation through public-use airports. In this way, Vermonters can make judgments concerning support or opposition to aviation-related plans, programs, and public investment.

*Transportation Planners* – This study is intended to provide information to transportation planners as they work to communicate public awareness and understanding of the value of Vermont’s system of public-use airports.

## 2. THE PROCESS

The *Economic Impact of Vermont's Public-Use Airports Technical Report* was conducted within a progressive framework presented graphically in Exhibit 2. The specific tasks undertaken to complete the Study are described in detail throughout the body of the report.

Exhibit 2  
The Study Process



The study process began with VTrans programming funds from the Federal Highway Administration State Planning and Research program.

### *The Study Team*

SH&E, a Boston-based aviation consulting firm, was selected through an open and competitive process. Joined on the SH&E Team are the Economic Development Research Group (EDRG) of Boston; Dufresne Henry, Inc. of Springfield, Vermont; and Yellow Wood Associates of St. Albans.

***The TAC***

With close consultation from VTrans, a Technical Advisory Committee (TAC) was assembled to assist the consultant team with detailed and technical issues and reviews. During the periodic meetings throughout the course of the Study, the TAC served as a sounding board for the consultant team.

The TAC was assembled from different communities of interest within and contiguous to the aviation sector. The members of the Technical Advisory Committee were as follows:

- **George Coy** – Airport manager (Franklin County) and fixed based operator
- **Dave Pelletier** – Senior transportation planner, Lamoille County Planning Commission, representing the Vermont Association of Planning and Development Agencies
- **Greg Maguire** – Transportation Marketing Specialist, Vermont Department of Tourism and Marketing
- **George Robson** – Vermont Department of Economic Development
- **Robert North** – Private airport owner and operator (Mt. Snow) and local businessman
- **Richard Angney** – Central Vermont Economic Development Corporation

Draft products were submitted to the TAC for review prior to other distributions or presentations.

***The SAC***

The State Aviation Council (SAC) is a body created to assist VTrans in developing policies, programs and initiatives. The SAC also serves as a forum for interaction with the aviation community. It meets every other month and was apprised of the Study's progress at these meetings. The SAC served in an advisory capacity for this Study as well.

After presentation to the TAC, draft products were submitted to the SAC for review prior to other public distributions or presentations.

### ***Study Products***

This document details the course, conduct, and results of the Study process, but is just one of the final products of the Study delivered to VTrans. In addition, VTrans commissioned an Executive Summary document, attached as Appendix IV. The Executive Summary is a small, attractively designed tri-fold pamphlet that contains the major findings of the Study, including a table listing economic impact figures for individual Vermont public-use airports. This Executive Summary is inexpensive to reproduce. Thousands have already been printed and distributed across the State, and VTrans may print more as the need arises. Anyone wishing for a supply of Executive Summaries to distribute should contact VTrans.

The Study team delivered a Microsoft PowerPoint™ presentation to Vermonters during the final round of public meetings, as well as to the State Aviation Council. These 40 slides contain information about the Study's conduct and findings in a form more condensed than this report, yet with greater detail than the Executive Summary. The PowerPoint™ file is available from VTrans in electronic form and can be sent to anyone with an email address.

Finally, a video was produced. This ten-minute presentation highlights the Study's findings and discusses the importance of aviation and public-use airports to the State economy. This video is useful for communicating the results of the Study to large groups. Anyone wishing to borrow a copy of the video should contact VTrans.

### ***Public Outreach***

A public involvement strategy was in place from the beginning of the Study. VTrans sought to inform stakeholders and interested parties of the Study and its results, while providing a forum to gather information and aid in identifying data sources.

Public outreach meetings occurred in two rounds. In the first round, the Vermont public was informed about the study, and their cooperation was solicited. In particular, they were advised to expect surveys in the mail or a phone call from the study staff, and that their assistance was crucial to

ensuring that the study would be successful. The second round was intended to inform Vermonters about the results that the study had uncovered.

The first round of meetings was planned for late March over two days at three locations around the state: Burlington International Airport, Lyndonville Town Hall, and Rutland State Airport. Due to a snowstorm, the meeting in Lyndonville was cancelled, and the Burlington meeting very sparsely attended. However, those meetings were rescheduled to occur as a single meeting in May at E. F. Knapp airport in Berlin.

The second round of meetings took place in November. In this round, VTrans used the State's interactive television network to broadcast a single meeting to sites throughout the State. In addition, the Study team conducted four other meetings in-person at William H. Morse Airport in Bennington, Rutland State Airport, Burlington International Airport, and Caledonia County Airport in Lyndon.

There was a particular focus on attracting journalists to the meetings in an effort to gain local press coverage, to help ensure that the widest possible audience was reached.

## *Surveys*

Much of the data required for this study was collected through the surveying of the Vermont aviation community and public. The following set of surveys (included in Appendix 1) was developed to collect the necessary information:

- *Airport Manager Survey* – The Study team administered these surveys in-person to all Vermont public-use airport managers.
- *Airport Tenant Survey* – These surveys of businesses located on airport property were administered in-person where possible, and otherwise by mail.
- *Aircraft Owner Survey* – A survey was mailed to all aircraft owners identified by airport managers as based at their facility, as well as to all aircraft owners listed in the Federal Aviation Administration (FAA) Civil Aircraft Registry a Vermont mailing address.
- *Airport-Dependent Business Survey* – In total, over 2000 surveys were mailed to off-airport Vermont businesses. These included

establishments identified by airport managers as being reliant on their facility. In addition, Dun & Bradstreet was consulted to aid in targeting hundreds of other Vermont businesses due to their size and/or the traditional aviation-dependence of their industry; each of these businesses also received a survey.

- *Airport Visitor Spending Survey* – This survey was administered in-person to commercial and general-aviation passengers met at Vermont airports by members of the Study team. Only those passengers identifying themselves as being a visitor to the airport (trip origin not in the local area) were surveyed. Additional surveys were left with the airport managers and FBO's to be distributed to later general aviation visitors. The survey was used to determine an average profile for visitors the State, especially their expenditures.

This survey program was designed to collect information about the impact of aviation activity as thoroughly as possible. However, it was also specifically drafted with the intent to avoid double counting of impact-related numbers. For example, the aircraft owner survey was primarily targeted at businesses that owned aircraft, or owners using their aircraft for business purposes. The aircraft owner survey did not ask recreational pilots, for instance, for the amount spent annually on aviation fuel, as that amount was captured by surveying airport tenants who sell fuel. Other pilot expenditures such as maintenance parts were captured by surveying airport tenants providing maintenance services, while surveying area or airport restaurants captured money spent on food.

More discussion of the survey design and administration process can be found in Chapter 4 (Methodology – Survey and Fieldwork).

As a result of this survey process, comprehensive information was obtained from all airport managers of Vermont public-use airports (with the exception of Robin's Nest, currently closed). Completed surveys were also obtained from a high percentage of on-airport tenant businesses (see Chapter 4 for discussion of response rates). In cases where tenants did not respond, several rounds of follow-up phone calls were made. If there was still no response, Dun & Bradstreet was consulted for the tenants' most-recently available operating data.

Survey staff spent time at all Vermont airports to conduct intercept surveys of visitors getting on and off of both commercial and general aviation aircraft. The purpose of the visitor surveys was to identify average visitor spending through the survey process. Surveys were not used to estimate visitor traffic. Visitor traffic was quantified based on operations data provided by airport managers. As was mentioned above, blank surveys were left behind with airport managers and FBO's to be completed by later general aviation visitors.

**Computer Modeling** The survey data described above represents direct spending, or the *primary impacts* of aviation on the economy. However, the economic activity catalyzed by aviation does not end with the primary impact. Money spent in this first round is partially re-spent in subsequent rounds, so that a single additional dollar added to the economy has an ultimate impact that is much larger than a dollar. This additional impact resulting from the respending of new dollars is termed a *spin-off* (or *multiplier*) *impact*.

The size of the spin-off economic impact is described with a multiplier, the amount by which the impact of single new dollar is magnified by respending of that dollar. For example, a multiplier of 2.4 means that each additional dollar brought to Vermont from outside will ultimately boost the state economy by \$2.40. In this case, the *primary impact* is \$1.00, and \$1.40 represents the *spin-off impact*, for a total impact of \$2.40.

Using the correct multiplier or set of multipliers is crucial. The credibility of many other economic analyses has been thrown into question because arbitrary or overly-optimistic multipliers are used. Determining an appropriate multiplier, however, is a complex process that depends on a range of variables specific to the industry, the state, and even the county in question.

To deal with this complexity and achieve the greatest possible credibility for the Study's findings, two well-respected computer modeling programs were used to calculate spin-off impacts: IMPLAN to model the static impact of individual airports on their local economies, and REMI for modeling dynamic situations such as the Study's special scenarios (see Chapter 1: Objectives). IMPLAN and REMI represent the cutting edge of applied and theoretical

economics and the gold standard of impact modeling. A listing of the computer-determined multipliers used in the Study is available in Appendix III.

During the course of this Study, five lines of research into the economic impact of transport infrastructure were consulted. The Study's methodology and application of modeling were formulated to be consistent with the findings of this research. All of this work is current, dating no later than the past three years:

- Transportation Research Circular #477 –“Guide for Assessing the Economic Impacts of Transportation” published by the National Research Council / Transportation Research Board
- The National Synthesis of Practice on methods used for assessing impacts of airports and other transportation facilities in all 50 states
- Updates to FAA's guide for estimating the economic significance of airports, discussed in a TRB annual conference panel discussion on improving airport impact measurement
- The NCHRP guide on methods for measuring social and economic impacts of transportation investments, as well as the new FHWA guide on measuring economic impacts
- The statewide Airport Benefit/Cost measurement tool developed with FAA funding through the Wisconsin DOT, and a related Community Benefit Assessment funded by the Michigan DOT

This research represents the most advanced inquiry into the beneficial relationship between transport infrastructure and economic growth. The entire conduct of this Study was in keeping with the theoretical framework and the findings of this research.

The products of all of these efforts were authored, co-authored or co-directed by Glen Weisbrod of the Economic Development Research Group (EDRG) – a member of the Study team. Also worthy of note is that the EDRG is the only firm in the nation recognized as a consulting expert for both the IMPLAN and REMI economic impact modeling tools.

(this page left intentionally blank)

### 3. DEFINITION OF ECONOMIC IMPACT

#### What are Economic Impacts?

Total economic impact is calculated by adding together the *primary impact* and *spin-off impact* in order to measure the total contribution that public-use airports make to Vermont's economy. As shown in Exhibit 3, the *total economic impact* includes the dollars and jobs that are associated with aviation activities, aviation-supporting and aviation-dependent activities (the primary impact) in the Green Mountain State, as well as their "spin-off" effects.

Exhibit 3

Examples of Activities with Economic Impact, by Classification of Impact

Primary Economic Impacts		Spin-Off Economic Impacts
<b>On-Airport</b> Airport Management Airlines FAA Airport Maintenance Retail, Food/Beverage Vendors Car Rental Airport Taxi Service Ground Transport Fixed-Base Operators Aircraft Maintenance Aircraft Sales, Rental, Charter Hangar, Tie-down Parking Flight Instruction	<b>Off-Airport</b> <i>Businesses Serving Air Visitors</i> Hotels Restaurants Retail Travel Agents Convention Center Tourist Destinations  <i>Airport-Dependent Business (use aviation services)</i> Freight Forwarders Manufacturing Business Needing Personnel Transport	<i>Suppliers</i> of materials and services to airports, airport-dependent businesses, and businesses that serve air visitors  <i>Employees</i> respend their income on consumer products and services

Following is a brief overview of these economic impact categories. For further discussion on primary, spin-off, and total economic impacts, please see Chapter 5: Economic Modeling.

The *primary impact* represents a 'first round' of economic stimulus, and is business activity that directly uses or requires the airport. This primary impact includes both on-airport and off-airport business activity.

- The *on-airport primary impact* represents the activity of businesses and government located on airport property. Examples are the airport

itself (some of which collect fees for use), airlines, and fixed-based operators (FBO's). FBO's are businesses that provide aircraft fueling and often maintenance services; some offer a variety of other services such as flight instruction and sightseeing tours. Other on-airport activity includes food/beverage and retail establishments, and government agencies such as the FAA, Transportation Security Association (TSA) and branches of the military.

- The *off-airport primary impact* represents business activity that occurs off of airport property, but that depends on airports and aviation. Some businesses rely on income from the expenditures of visitors brought to Vermont by the air transport network, such as hotels and restaurants. Other businesses depend on airports as direct users of transport services. For example, many manufacturing firms require air transport of cargo to ship in capital equipment, replacement parts, and supplies, and to ship out finished goods. Other firms require transport of employees or customers.

To recapitulate, the primary economic impact is public sector and commercial activity that relies directly on airports. Most obvious are the activities of businesses and government agencies located on airport property. However, many off-airport businesses also depend partially or wholly on airports. Some establishments serve the visitors that airports bring, and other firms require the transport services that airports provide. Because all of this activity *depends directly on airports*, it belongs to the airport system's primary economic impact.

The *spin-off impact* is the respending of the dollars generated by the primary impact. When the aviation, aviation-supporting and aviation-dependent businesses described above receive revenues, those dollars recirculate in the local economy. The businesses buy products and services from other industries. A large portion of their revenues goes into the pockets of their employees, who spend money at local grocery stores, shops, movie theaters, and pay their rents or mortgages. The businesses that receive these dollars spend them again, etc. These additional rounds of spending create the spin-off impact (sometimes referred to as a "multiplier effect").

Spin-off impacts are frequently as large or larger than the primary impacts. Calculating spin-off impacts is a complex process; the tendency of dollars to recirculate differs from region to region within the State. For this reason, computer modeling was used to calculate spin-off impacts for each county within Vermont, and for the State as a whole.

The ***total impact*** is the sum of the primary and spin-off impacts and represents a comprehensive accounting of the full economic stimulus that Vermont public-use airports represent to their communities and to the State.

There are four important benefits to this classification system:

- It is comprehensive and inclusive,
- It avoids the usual jargon of “direct” and “indirect” effects, which tend to be confusing (though the report has provided the functional equivalents for the aforementioned terms),
- It recognizes interdependencies, which are needed to avoid double-counting of total impacts, and
- It provides a basis for assessing how emerging economic changes (including international trade and computer technologies) will increase the role and importance of aviation even more in the future.

This type of classification is fully consistent with REMI and IMPLAN, the economic impact models employed in the analysis, and provides a way to communicate results most effectively.

VTrans, airport managers, and other relevant State agencies worked to identify airport tenants and other businesses depend upon the operation of local airports. It was critical to define all the impacts accurately and to identify the sources in order to ensure reliable impact estimates. A detailed discussion of the Study’s data collection efforts is presented in Chapter 4.

(this page left intentionally blank)

#### 4. ECONOMIC IMPACTS METHODOLOGY – SURVEY AND FIELDWORK

To obtain an objective evaluation of Vermont airports' contribution to the state economy, a comprehensive and rigorous data collection effort was established at the beginning of the Study.

The analysis used a “bottom-up” approach to estimate economic impact, starting from individual business entities – hotels, fixed-base operators, car rental facilities, etc. – and building to calculate aggregate economic impact for a given airport, local community, and ultimately the entire State. This approach ensured consistency, comparability, and conservatism.

The data collection program began with the Study team meeting with airport managers. The meetings allowed for the identification of important contacts – including tenants, airport-reliant businesses, and aircraft owners – that could contribute useful data to the study.

In order to avoid overestimating or double-counting benefits, extreme care was taken throughout this study to ensure that only the *local value added* component of any expenditure was included in the assessment of economic benefits. For example, FBO's are typically engaged in selling fuel to both general aviation users and commercial airlines. The direct impact of fuel sales to general aviation users should be limited to the FBO's markup, since the remainder of the sales is passed on to the refinery outside of local area. Additionally, the FBO's fuel sales to airlines should not be double counted along with the commercial airlines' fuel purchases.

The cooperation and support of the airport managers was crucial to the success of the survey effort. The airport manager or sponsor is the most central and complete source of accurate information on airport and tenant operations. The TAC, with its broad representation of tourism, economic development and regional development agencies, was also relied upon for its knowledge of Vermont airports and their users.

Accurate data is critically important for a reliable evaluation of economic impact. Thus, a major component of a successful statewide economic impact

study was the widest participation of airport users as possible. To achieve this goal, a large part of the Study effort was spent creating a survey procedure that would ensure the greatest success.

## **FIELDWORK SURVEY AND DESIGN**

To capture the most complete pool of data possible, a substantial emphasis was placed on development of the surveys and creation of the most comprehensive list of relevant businesses and organizations. It was thus crucial to have the full cooperation and support of the airport management who, in turn, helped facilitate information gathering at their airport.

Despite the efforts undertaken, it would be unrealistic to expect a 100 percent response rate. In the cases where data was unobtainable through the survey process, one of two approaches was taken. Where there was some survey data available, ratios (such as employment to revenue and employment to payroll) were developed with the IMPLAN economic modeling tool and applied to the existing information to estimate the missing figures. If a tenant failed to respond at all, Dun & Bradstreet was consulted. Dun & Bradstreet reports approximate revenue and employment statistics for businesses throughout the country. Wages were then determined using the database ratios.

### *Airport Manager Survey*

Once the survey forms were finalized, each airport manager was contacted with a letter from VTrans announcing the study, expressing the importance of participation, and introducing the Study team. The initial contact also discussed the types of information required by the survey effort. As a result, many of the airport managers were able to help pull together needed information in advance. Following this initial contact, individual site visits were scheduled and conducted by Study staff. All airports were visited and managers interviewed.

Overall, the survey effort was quite successful, with 100 percent response among the two commercial airports surveyed, and a 93 percent response rate among General Aviation airports (See Exhibit 4).

*Airport Tenant Survey*

A second survey, designed specifically for tenant businesses located on airport property, was conducted in person with as many airport tenants as possible. For those tenants that were not available for in-person interviews, surveys were mailed. Each tenant was surveyed for information about the nature of their aviation activity and their expenditures – revenue, wages and employees. Employees were broken out by full and part-time. Tenant response rates were also impressive. Of the 54 businesses surveyed, over 76 percent responded.

*Aircraft Owner Survey*

Registered aircraft owners were surveyed in order to determine their business dependency on Vermont's airports. Data from aircraft owners was more difficult to gather; however, the team was successful in gathering almost 200 completed surveys for a response rate of 33 percent.

*Airport-Dependent Business Survey*

Surveys were sent to all businesses employing over 20 people in Vermont. Specific businesses were identified by airport managers as having likely dependency on individual airports. Therefore, after survey responses tapered off, the Study team made phone calls to those businesses identified by airport managers to encourage them to reply. The sample size of 2,000 surveys may be a little misleading. Not all of those businesses were likely to have dependency on Vermont's public-use airports. The 254 responses that were received indicated a high dependency on Vermont's public-use airports and provided valuable information.

*Airport Visitor Spending Survey*

Members of the survey team conducted passenger surveys in person at each of the airports in order to capture visitor spending of commercial and general aviation visitors.<sup>1</sup> These surveys were designed to quantify average visitor spending for out-of-state visitors to Vermont. Actual numbers of visitors at each airport were calculated according to operations data provided by airport managers and national averages of general aviation visitors per aircraft. Results of visitor surveys included 448 commercial air passenger surveys – the majority having been completed at Burlington – and 64 general aviation surveys representing all but Robin's Nest.

---

<sup>1</sup> The exception was Robin's Nest Airport, which appears to be closed.

The Study team also designed a Freight Forwarder Survey. However, it was determined later that Vermont freight-forwarding businesses had already been reached through other Study survey efforts: freight forwarding businesses located on airport property had received the Airport Tenant survey, and those located off airport property had received the Airport-Dependent Business Survey. While tailored specifically to freight-forwarders, the Freight Forwarder Survey requested basically the same information in terms of revenue, employment, and use of airports as the other two surveys just mentioned, and thus no new information was to be gained. Further, sending a second survey risked double-counting an individual business' results, and imposing unnecessary labor on these businesses. The Freight Forwarder Survey was not deployed because the businesses that it targeted had already been reached through other Study survey efforts.

**Exhibit 4**  
**Survey Response Rates**

Survey	Surveys Distributed	Surveys Received	Response Rate
<b>Airport Manager Survey</b>			
Commercial Airports	2	2	100.0%
General Aviation Airports	15	14 *	93.3%
<b>Airport Tenant Survey</b>			
Burlington International	36	22	61.1% **
Rutland	3	3	100.0%
Other	16	15	93.8% **
<b>Aircraft Owners</b>	591	196	33.2%
<b>Airport-Dependent Business Survey</b>	2004	254	12.7%
<b>Airport Visitor Spending Survey</b>			
Commercial Airlines	448	448	N/A
General Aviation Visitor	64	64	N/A

\*Robin's Nest management indicated that the airport is closed

\*\*Partial information was obtained for 100% of tenants, including those not returning surveys

A copy of each type of survey is included in Appendix II.

## QUALITATIVE IMPACTS

The primary goal of this study is to communicate the full comprehensive impact of Vermont public-use airports on the communities they serve, and on the state as a whole. A great deal of attention was devoted to measuring airports' economic impact in dollars and employment. However, airports' contributions to their communities are not limited to their roles as economic engines. Each also contributes to the health, safety, security, recreation, and general quality-of-life in the communities they serve in ways that cannot be stated in dollar terms.

Among these qualitative impacts are emergency, safety, conservation and law enforcement flights aviation activity that the State's public-use airports facilitate. The Vermont State Police, together with the Air National Guard and the Civil Air Patrol, provide emergency medical evacuation, saving many lives each year through quick removal and transfer of patients. Troopers also locate offenders and missing persons from the air, and enforce the State's highway safety laws.

The Department of Agriculture engages in aerial spraying to control mosquitoes. Vermont's Forest, Parks and Recreation Department conducts aerial surveys and digital mapping. The Department of Fish and Wildlife has a medicated bait drop program to control rabies. The Department of Taxation does orthophoto tax mapping and valuation from the air.

Airport managers and tenants were surveyed to determine what particular qualitative benefits their airports contributed to the community. They were offered an inventory of potential benefits assembled by the study staff, and asked to specify which applied at their airport. These qualitative benefits were as follows:

- *Recreational flying or parachuting* – airports provide facilities to support aircraft ownership by individuals and organizations with a love of flying and parachuting
- *Ballooning* – airports provide the space and facilities to support ballooning activities
- *Preservation of Open Space, Wetlands, or Woodlands* – airports often

offer communities the opportunity to protect and preserve open space, wetlands and woodlands, as areas around airfields need to be kept clear of development

- *Flight Training* – airports provide facilities for flight instruction programs for individuals who seek to learn to fly
- *Career Training and Education* – airports provide facilities for training programs in aircraft maintenance, avionics, and allied disciplines. The State of Vermont sponsors annual Aviation Career Education (ACE) camps at various airports in the State
- *Search and Rescue* -- airports are used as a base of operations for lost individuals or downed aircraft
- *Emergency Medical Aviation* – airports serve as a base of operations for the transport for critical care patients to emergency rooms, as well as those suffering from chronic disease flying to treatments in metropolitan centers (“Angel flights” for cancer patients, for example)
- *Police and Other Law Enforcement Use* – State and Federal law enforcement officials use local airports as a base of operations for surveillance
- *Gateway for VIP or High Profile Visitors* – airports provide celebrities, business executives and government officials the opportunity to fly directly into an area on private aircraft for the sake of convenience and/or to avoid public notice
- *Staging Area for Community Events* – as airports often encompass large tracts of open space, this open space is sometimes used to host large community events that are too big for other common-use land in a city or town
- *Aerial Photography or Surveying* – airports serve as a base of operations for businesses and state agencies regularly engaged in aerial photography or surveying
- *Aerial Inspections* – pilots use airports as ground coordination points for power line inspections and other aerial inspections
- *Environmental Patrol* – airports serve as a base of operations for State

and publicly supported environmental agencies wishing to achieve close-in inspection of natural terrain; examples include, environmental monitoring vegetation for the effects of acid rain and wildlife counts for research projects

- *Aerial Advertising* – airports serve as a base of operations for businesses that engage in aerial advertising
- *Promotional Activities* – airports offer open houses, air shows, and other educational activities designed to highlight the importance of aviation in life
- *Model Aircraft Flying* – airports provide a resource and space for those engaged in the hobby of model aircraft flying
- *Aerial Application* – airports serve as a base of operations for aircraft spreading pesticides and herbicides for agricultural and public-health purposes
- *Freight/Cargo Activity* – businesses of all sizes throughout Vermont rely on airports in order to ship and receive products and materials to and from all over the world
- *Shipping of Perishable Goods* – certain businesses in Vermont import and/or export perishable goods that need specific cargo facilities
- *Corporate or Business Aircraft Activity* – business executives rely on airports throughout the State in order to attain efficiency as the closer they can get to or from a site of business, the less time they waste in transit
- *Museums* – some airports provide museum space open to the public

In addition to the qualitative benefits explicitly offered in the inventory, the survey also offered space for airport occupants to discuss in an unstructured manner the ways in which the airport enhances community life. A summary of these results is presented below in Exhibit 5.

**Exhibit 5  
Airport Qualitative Benefits**

Airport	Recreational Flying and Parachuting	Preservation of Open Space, Wetlands, Woodlands	Search and Rescue	Flight Training	Corporate or Business Aircraft Activity	Emergency Medical Aviation	Aerial Photography and Surveying	Staging Area for Community Events	Promotional Activities
Basin Harbor	x	x			x	x		x	x
John H. Boylan	x	x	x			x			
Burlington International	x	x	x	x	x	x	x	x	x
Caledonia County	x	x	x	x	x	x	x	x	x
Fair Haven	x	x	x					x	
Franklin County	x	x	x	x	x	x	x	x	x
Hartness	x	x	x	x	x	x	x	x	x
Edward F. Knapp	x	x	x	x	x	x	x	x	x
Middlebury	x	x	x	x	x	x	x	x	x
Morrisville-Stowe	x	x	x	x	x	x	x	x	x
William H. Morse	x	x	x		x	x	x		x
Mt. Snow	x	x	x		x	x	x	x	x
Newport	x	x	x	x	x	x	x	x	x
Post Mills	x	x	x	x		x	x	x	x
Rutland	x	x	x	x	x	x	x	x	x
Warren-Sugarbush	x	x		x	x			x	

**Exhibit 5 cont'd**

Airport	Police and Law Enforcement	Career Training and Education	Environmental Patrol	Gateway for VIP and High Profile Visitors	Aerial Inspections	Model Aircraft Flying	Location for Community Facilities or Utilities	Freight and Cargo Activity	Shipping of Perishable Goods
Basin Harbor				x			x		
John H. Boylan	x		x		x	x			
Burlington International	x	x	x	x	x		x	x	x
Caledonia County	x	x	x	x	x		x	x	
Fair Haven						x	x		
Franklin County	x	x	x	x		x	x		
Hartness	x	x	x		x		x	x	
Edward F. Knapp	x	x	x	x	x			x	x
Middlebury	x	x	x	x	x	x	x		
Morrisville-Stowe	x	x		x					
William H. Morse	x	x	x	x	x		x	x	x
Mt. Snow	x			x	x	x		x	
Newport	x	x	x	x	x				
Post Mills		x	x		x	x			
Rutland	x	x		x				x	x
Warren-Sugarbush		x				x			

**Exhibit 5 cont'd**

Airport	Public Charters	Ballooning Activity	Aerial Application	Aerial Advertising and Banner Towing	Museum	Traffic and News Reporting	Other
Basin Harbor							Restaurant and Award-Winning Golf Course
John H. Boylan							
Burlington International	x						Military Presence, ACE Camp
Caledonia County			x				
Fair Haven							
Franklin County	x						Experimental Aircraft Activity, ACE Camp
Hartness							
Edward F. Knapp	x						Restaurant, Aircraft Maintenance, Sight-seeing Flights
Middlebury			x				ACE Camp
Morrisville-Stowe							Soaring, Experiment Aircraft
William H. Morse	x	x	x	x			Educational Partnership with Local High School
Mt. Snow							
Newport		x					Fly-in Campground, Restaurant
Post Mills		x			x		International Balloon Festival
Rutland				x			ACE Camp
Warren-Sugarbush				x			Restaurant, Soaring and Youth Soaring Camps, X-Country Ski Center

(this page left intentionally blank)

## 5. ECONOMIC MODELING – METHODOLOGY AND FINDINGS

### GENERAL METHODOLOGY

The study used a series of analysis steps to calculate the *total economic impact* of Vermont airports on local and state economies, which consists of the *primary impact* and the *spin-off impact*.

*Primary impact* – The primary impact has two components: the *on-airport primary impact* and the *off-airport primary impact*.

- The *on-airport primary impact* includes the jobs and income that are generated by aviation activity, and by businesses and government agencies located on airport property. Prominent examples are airlines, air taxi services, fixed-base operators, and other businesses such as restaurants located within airport terminals.
- The *off-airport primary impact* is the total of all business activity that does not take place on airport property, but that nevertheless supports and/or depends on local airport service. Examples are off-airport restaurants and hotels that serve visitors arriving in the State by air, and businesses that use aviation services, relying on cargo shipment or transport of personnel.

*Spin-off impact* – The spin-off impact is best understood as the respending of the dollars brought into the State through the primary impact. The businesses and their employees that receive the dollars of the primary impact, in turn, buy products and services from others. Their employees spend wages on food, housing, recreation, *et cetera*.

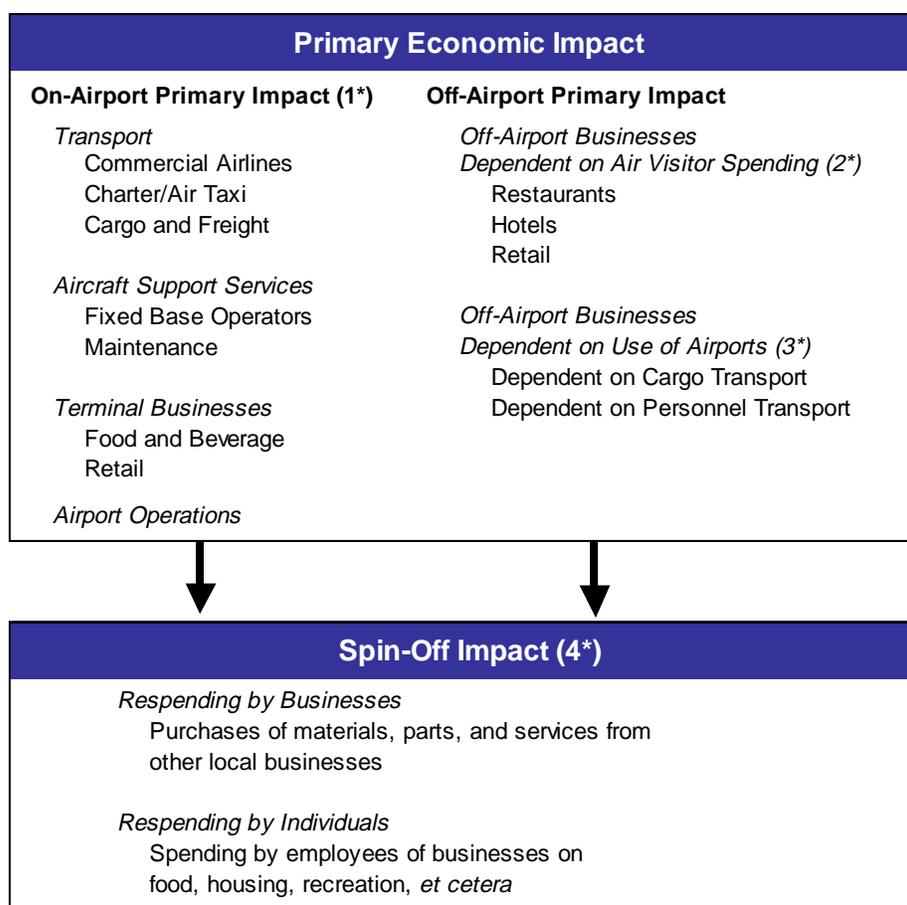
These rounds of respending create the spin-off impact, also sometimes called the “multiplier effect,” because a multiplier is used to describe its relative size. For example, a multiplier of 2.4 means that the total impact of one new dollar of economic stimulation will be \$2.40. One dollar represents the primary impact, and \$1.40 comprises the spin-off impact.

Calculating appropriate multipliers is a complex process; multipliers naturally differ among industries and among regions. Thus, computer modeling was used to develop a separate set of multipliers for each airport's local area and calculate the spin-off impact of that airport on the local economy.

**Total impact** - The total impact is the sum of the primary and spin-off impacts, and represents the full economic benefit that an airport provides to its community.

There are four steps that were covered in the airport impact model, which correspond to these same measurement concepts and follow the elements in the chart that follows.

**Exhibit 6  
Summary of Airport Economic Impact Accounting**



**Airport Total Economic Impact = Primary + Spin-off Impact**

\* Numbers reflect the steps described in the text below

## **SPECIFIC ANALYSIS STEPS**

### ***Step 1: Calculate On-Airport Economic Activity***

The surveys of airport managers and tenants were used to provide an inventory of economic activity occurring at the airport. This activity encompassed public and private enterprises involved in operating the airports, as well as businesses providing aviation support services, retail sales to passengers in the terminal, and air freight services.

Establishments were asked to provide information about employment, payroll, and economic output (equal to either business sales or public sector expenditure, depending on whether the enterprise was private or public). For the few cases where the airport tenants did not provide full information, the Study relied on Dun & Bradstreet business records for job counts, and on local industry averages from the U.S. Bureau of Economic Analysis for wages and sales per employee to approximate payroll and business sales.

### ***Step 2: Calculate Off-Airport Activity Dependent on Airport Visitor Spending***

The surveys of air passengers were used to derive an average profile of local visitor spending on lodging, food and beverages, entertainment, retail purchases, and miscellaneous activities such as car rental and personal or business services. When meeting passengers at the airport to survey them, the Study team carefully distinguished out-of-staters coming in to visit, from local residents returning via air. This distinction is important since it is the out-of-state visitors who are bringing in new money to the State and comprising the primary economic impact.

To calculate the total amount of money flowing into local communities, first the number of air visitors to the State coming through each airport was determined. To calculate commercial airline visitors, the known number of arriving airline passengers was multiplied by the percentage that are from out of state. General aviation visitors were likewise calculated by multiplying the number of arriving passengers by the percentage who are visiting from out-of-state, as determined in the airport visitor surveying process. The number of visitors was then multiplied by the average visitor spending per person, as

determined in the survey, to arrive at total visitor spending. This figure represents the total amount of money coming into local communities from visiting air travelers.

The basis of the number of commercial air visitors used in this Study is the US Department of Transportation's Origin and Destination Ticket Survey. General aviation passenger totals are based on counts of general aviation itinerant operations from airport managers. Though the GA passenger numbers are estimates, they are based on the best available data for Vermont's public-use airports at present.

To estimate the number of GA visitors to Vermont each year, an average passenger count of 1.9 per itinerant aircraft arrival (including the pilot) was assumed. This ratio is based on past empirical studies, and was supported in the findings of the Study's survey efforts.

Lastly, it was assumed that 45 percent of arriving general aviation passengers were out-of-state visitors (for commercial airline passengers, the percentage is known through US DOT statistics). This estimate is based on consultations that the project team had with faculty at the School of Natural Resources of the University of Vermont and staff associated with the Vermont Tourism Data Center, as well as the visitor-to-resident ratio that the Study team encountered when visiting and conducting surveys at Vermont general aviation airports.

The study made a further adjustment to subtract the food and retail spending by visitors within air terminals, since these expenditures were already counted in step #1. Survey results indicated that nearly all of these out-of-state air visitors utilized air transport because it was most convenient mode for them, and would significantly curtail their travel to their destinations if air transport were not an option.

### ***Step 3: Calculate Off-Airport Businesses Dependent on Use of Airports***

The Study team designed surveys for other off-airport businesses that, while not recipients of air visitor expenditure (and thus not included in step #2), depend on airports due to reliance on aviation services, such as transport of

cargo or personnel. Surveys were sent to all Vermont-domiciled businesses listed as owning their own aircraft in the FAA Civil Aircraft Registry. In addition, over two thousand other Vermont service-sector and manufacturing businesses that do not own aircraft also received surveys.

The respondents identified the nature of business functions that depend on local airport service, as well as their estimate of the percentage by which their business activity (jobs and sales) would contract if the local airport were unavailable.

The results were tabulated to identify the pro-rated portion of employment and sales that depend on the local airport. This figure is the air-dependent portion of business sales. For the sake of conservatism, the study only counted this dependence for businesses that specifically reported how and why some of their activity could not occur without local airport service.

Survey results were *not* extrapolated to other businesses that did not return a survey; for conservatism, a business that did not return a survey was assumed not to be airport-dependent. The results were further adjusted to take out spending at the airport (accounted in step #1) and visiting customer or employee spending (accounted in step #2). The final figure represents the off-airport business activity dependent on use of airports displayed in the chart in Exhibit 6.

As Exhibit 6 shows, the economic impacts accounted in steps 1, 2, and 3 represent the primary economic impact of Vermont public-use airports.

#### ***Step 4: Calculate the Spin-Off Economic Impact***

The final step was to develop and apply an economic model of the local and state economies to calculate the spin-off economic impact, which results from the primary economic impact compiled in step #'s 1, 2, and 3. As Exhibit 6 specified, the spin-off impact represents:

- Responding by businesses of the dollars received through the primary impact on local procurement of materials, supplies, and services, and

- Respending by the employees of these businesses on food, housing, recreation, and other consumer spending categories.

The IMPLAN modeling system was used to develop separate economic impact models for each county in Vermont, so that airports' local spin-off impact could be determined. In addition, a model was developed for the State as a whole. This is a form of "input-output" economic model, which traces how industries and workers purchase goods and services from other types of businesses and the extent to which these purchases remain within the same county or state.

It is important to note that the magnitude of these spin-offs will differ depending on whether it is measured as a local impact or as a statewide impact. In general, spin-off impacts are larger at the state level, since some of the respending by individuals and businesses occurs outside the local area, but within the State. Conversely, the statewide impact is reduced to the extent that some general aviation visitor spending comes from residents of other parts of Vermont. In these cases, which represent a small share of total air visitors, intra-state air travelers bring in new dollars to the local community but not to the state economy.

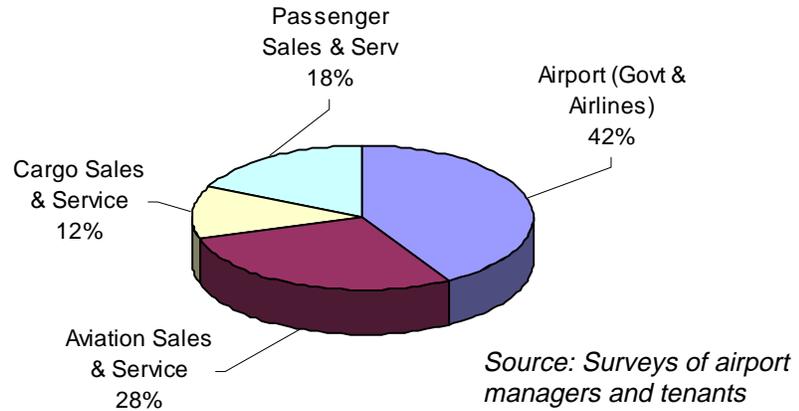
## **FINDINGS**

### ***On-Airport Economic Activity (Results of Step 1)***

The surveys of airport managers and tenants covered 16 airports (Robin's Nest is reported closed by the owner), with a total of 904 employees, generating a payroll in excess of \$33 million and total economic output of roughly \$70 million. This airport activity is supported by airlines, corporate aircraft and personal aircraft travel, and of the 904 primary, on-airport jobs, nearly 60 percent of them are attributable to private-sector businesses, as seen in Exhibit 7.

**Exhibit 7**

**Nearly 60% of Primary, On-Airport Jobs Are in the Private Sector**

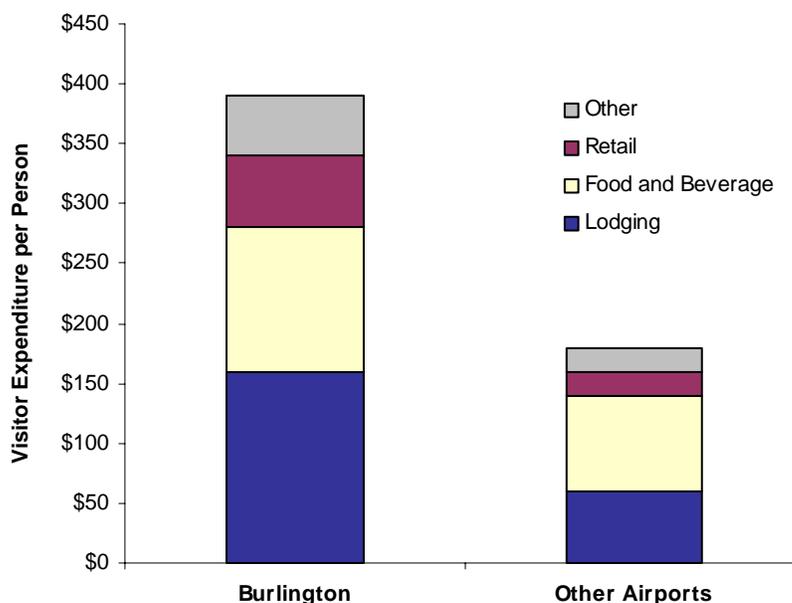


***Off-Airport Activity Dependent on Airport Visitor Spending (Results of Step 2)***

According to the U.S. Department of Transportation, Vermont's two commercial airports served 1,060,792 passengers in 2001. According to calculations derived from the Study's survey results, the general aviation facilities at GA (general aviation) and commercial service airports served 628,234 general aviation passengers. These numbers are split evenly among arriving and departing trips, and surveys show that roughly 45 percent of arriving passengers come from outside of Vermont and stay overnight in commercial lodging.

Based on averages derived from the visitor spending surveys, spending by the visitors varies by airport, but overall averages roughly \$389 per trip for outside visitors to Burlington and \$182 per trip for visits to elsewhere in Vermont, as shown in Exhibit 8. This supports a total of over \$107 million in sales for lodging, meals, retail sales, entertainment and other local businesses.

**Exhibit 8**  
**Per-Person Average Expenditures of Vermont Air Visitors**



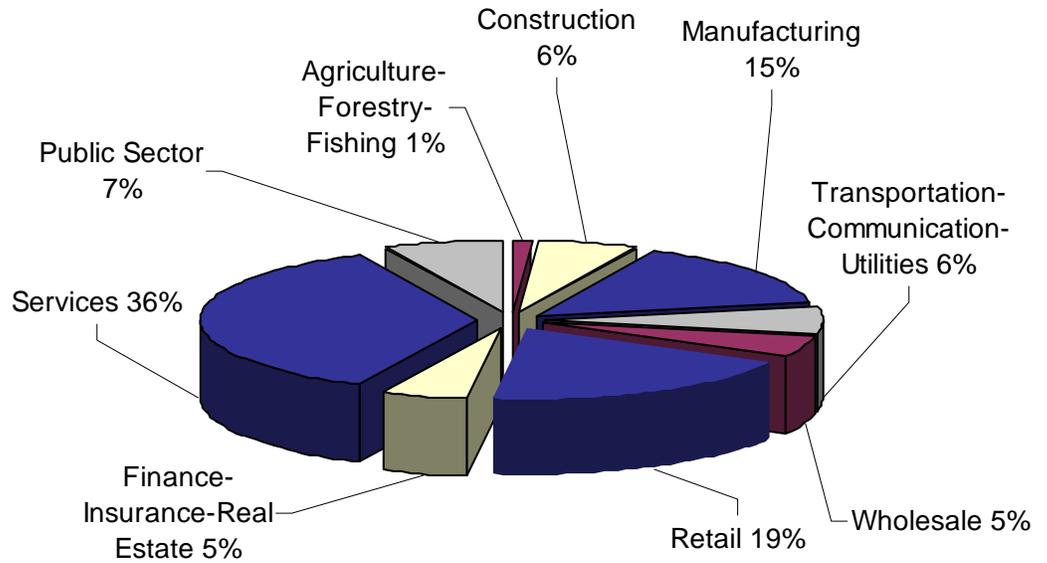
*Source: Airport Visitor Spending Survey*

***Off-Airport Economic Activity – Businesses Dependent on Use of Airports (Results of Step 3)***

A wide range of Vermont firms depend on Vermont’s airports for freight delivery, as well as for transport of principals, employees, and customers. This includes both businesses that own their own aircraft, and those that rely on commercial, charter and air taxi services.

The Study surveyed over 600 aircraft owners and over 2,000 other establishments in Vermont to assess the dependence of their business activities on Vermont’s public-use airports. Survey results indicate that a diverse group of industries rely on Vermont’s public-use airport system; not surprisingly, as shown in Exhibit 9, over half are in the service industry.

**Exhibit 9**  
**Of the Businesses That Responded to the Airport-Dependent Business Survey,**  
**Over Half are in the Service Industry**



Source: Survey of businesses

### ***Spin-Off Economic Impacts (Results of Step 4)***

The IMPLAN models for each Vermont county, as well as for the state as a whole, indicate that there are significant spin-off impacts resulting from the respending of dollars brought into Vermont by aviation, aviation-supporting, and aviation-dependent business activity.

Appendix III contains the multipliers used in this Study, as determined by IMPLAN. The multipliers for each local economy, as well as for the Statewide economy, can be found there.

## Total Statewide and Local Impacts

The total statewide economic impact of Vermont public-use airports represents more than 9,500 jobs, \$225 million in wages, and \$611 million in business sales.

The exhibits that follow break down this total impact according to its component parts.

- Exhibits 10A-C focus on the *on-airport activity* as described in Step 1.
- Exhibit 11A shows the *off-airport visitor spending activity* discussed in Step 2.
- 11B displays the value of *off-airport business activity that is dependent on aviation services*, which Step 3 addressed.
- Finally, the total value of the *spin-off impact*, defined in Step 4, is spread over all of the exhibits.
- Exhibits 12A and 12B reassemble the components of the *total economic impact* so that the reader can see how they fit together.

In Exhibits 10A, 10B, 10C, 11A, and 11B, the spin-off impact specified is the *statewide* spin-off impact, that is, the spin-off impact that occurs within the State of Vermont as a whole. The *local* spin-off impact, which occurs within the airport's community, is somewhat smaller than the statewide spin-off impact: as spin-off economic activity occurs, a certain percentage of each round of respending is spent outside of the airport's local economy, and so ceases to contribute to the local spin-off impact, yet still remains within the larger State economy. Because the State economy is larger than local economies and captures a greater percentage of each round of respending, the statewide spin-off impact is larger than the local spin-off impact.

Both impact measures are relevant in different contexts, for example, someone interested in the contribution of the whole airport system to the State economy should consider the statewide spin-off impact most relevant,

while someone else examining the impact of a single airport on a community would be most concerned with the local spin-off impact. Once again, exhibits 10A through 11B refer to statewide spin-off impacts, while exhibits 12A and 12B, as well as the exhibits in the individual airport profile chapter, show both local and statewide spin-off impacts in columns clearly labeled as such.

**Exhibit 10A – On-airport Employment** Exhibit 10A examines on-airport employment – jobs generated by the operation of the airport and its tenants, including airport operation and maintenance staff, government agencies, concessions, restaurants, rental car companies, FBO's, *et cetera*.

For Vermont's smallest airports, on-airport employees may on first glance appear overstated. However, included in these numbers is an allocation of maintenance staff employed by the State to mow, plow and maintain the ten state-owned airports. For purposes of this Study, if state employees were assigned to maintain a state-owned airport, the airport's employment could not be less than one. In addition, state employees assigned to manage the state-owned airports were counted as on-airport employees where appropriate.

The first column of Exhibit 10A, "On-Airport Employment," lists the actual employment of the airport and on-airport businesses. These figures were determined through the Study's survey process, as well as the State's management and maintenance regime at the airports that it directly owns.

The wages from these jobs go straight into the pockets of employees, and are respent in consecutive rounds in local communities, generating a spin-off impact greater than the original payroll amount. This spin-off impact, measured in dollars, can be translated into full-time equivalent positions using the average wage rates given by the IMPLAN model for individual communities. The number of spin-off full time equivalent positions is shown in the second column, "Spin-off Employment Impact."

**Exhibit 10A**  
**Summary Statewide – On-Airport Employment**

<b>Airport</b>	<b>On-Airport Employment</b>	<b>Spin-off Employment Impact</b>	<b>Total Employment Impact</b>
Basin Harbor	*	*	*
John H. Boylan	1	1	2
Burlington International	751	447	1,198
Caledonia County	2	1	3
Fair Haven	1	1	2
Franklin County	14	9	23
Hartness	5	3	8
Edward F. Knapp	20	8	28
Middlebury	15	10	25
Morrisville-Stowe	9	6	15
William H. Morse	56	37	93
Mt. Snow	6	4	10
Newport	2	1	3
Post Mills	2	1	3
Rutland	21	14	35
Warren-Sugarbush	3	2	5
<b>Total:</b>	<b>908</b>	<b>545</b>	<b>1,453</b>

\*Note: Basin Harbor Airport is a turf field located within the Basin Harbor Club, a golf/resort complex; management was unable to ascribe an employment figure to the airport by itself

**Exhibit 10B – On-airport Payroll** Exhibit 10B below shows the on-airport payroll associated with this employment, as well as its spin-off effects. The majority of these payroll figures come from the Study’s survey results. In a few cases (such as the Town of Fair Haven), there was not a specific budget devoted to airport management and maintenance. For these cases, the airport sponsor provided an approximate number of person-hours devoted to the airport, which was converted to payroll through application of ratios provided by the IMPLAN model. In other cases (such as that of Island Pond), the Study team was provided with a district maintenance expense budget by VTrans and likewise determined payroll as a portion of total expenses through application of IMPLAN-provided ratios.

Payroll spin-off is shown in the second column. Once again, the payroll spin-off represents the added economic impact as the wages received by those employed on airport property are respent in the local community. The size of the spin-off impact was determined for each local economy by the IMPLAN model.

**Exhibit 10B**  
**Summary Statewide – On-Airport Payroll**

Airport	On-Airport Payroll	Spin-off Payroll	Total Payroll
Basin Harbor	*	*	*
John H. Boylan	\$9,311	\$4,143	\$13,454
Burlington International	\$28,653,524	\$11,398,840	\$40,052,364
Caledonia County	\$50,263	\$22,073	\$72,336
Fair Haven	\$35,537	\$15,521	\$51,058
Franklin County	\$257,548	\$112,641	\$370,189
Hartness	\$152,123	\$66,645	\$218,768
Edward F. Knapp	\$322,285	\$164,511	\$486,796
Middlebury	\$205,199	\$89,690	\$294,889
Morrisville-Stowe	\$167,817	\$73,531	\$241,348
William H. Morse	\$1,639,285	\$716,186	\$2,355,471
Mt. Snow	\$150,000	\$65,513	\$215,513
Newport	\$25,728	\$11,315	\$37,043
Post Mills	\$73,394	\$32,055	\$105,449
Rutland	\$802,668	\$351,252	\$1,153,920
Warren-Sugarbush	\$132,498	\$57,869	\$190,367
<b>Total:</b>	<b>\$32,677,180</b>	<b>\$13,181,785</b>	<b>\$45,858,965</b>

\*Note: Basin Harbor Airport is a turf field located within the Basin Harbor Club, a golf/resort complex; management was unable to ascribe a payroll figure to the airport by itself

**Exhibit 10C – Total On-Airport Economic Output** Exhibit 10C shows the total economic value of the on-airport activities occurring at each facility, termed the Total On-Airport Economic Output. Once again, this figure represents the total value of on-airport activity. This activity includes the total revenues of businesses located on airport property, as well as state or local government expenditures for management and maintenance, where made.

These figures represent the revenues of on-airport businesses as determined through the Study's survey efforts, plus State expenditure figures provided by VTrans. The spin-off impact in the second column represents the respending of these dollars in local communities.

**Exhibit 10C**  
**Summary Statewide – Total On-Airport Economic Output:**  
**On-Airport Business Sales and Public Sector Expenditures**

Airport	On-Airport Output: Business Sales and Public-Sector Expenditure	Spin-off Airport Output Impact	Total Airport Output Impact
Basin Harbor	*	*	*
John H. Boylan	\$17,500	\$11,644	\$29,144
Burlington International	\$53,638,122	\$26,928,659	\$80,566,781
Caledonia County	\$109,504	\$56,723	\$166,227
Fair Haven	\$83,334	\$39,148	\$122,482
Franklin County	\$845,144	\$403,867	\$1,249,011
Hartness	\$434,658	\$212,990	\$647,648
Edward F. Knapp	\$1,055,333	\$608,481	\$1,663,814
Middlebury	\$2,015,000	\$949,515	\$2,964,515
Morrisville-Stowe	\$442,667	\$218,252	\$660,919
William H. Morse	\$6,801,825	\$3,205,053	\$10,006,878
Mt. Snow	\$214,286	\$1,315,348	\$1,529,634
Newport	\$117,500	\$58,621	\$176,121
Post Mills	\$180,438	\$84,764	\$265,202
Rutland	\$3,507,119	\$1,676,870	\$5,183,989
Warren-Sugarbush	\$200,000	\$93,953	\$293,953
<b>Total:</b>	<b>\$69,662,430</b>	<b>\$35,863,888</b>	<b>\$105,526,318</b>

\*Note: Basin Harbor Airport is a turf field located within the Basin Harbor Club, a golf/resort complex; management was unable to ascribe a sales figure to the airport by itself

**Exhibit 11A – Off-Airport Visitor Expenditures** Exhibit 11A reports the off-airport visitor expenditure impact of each airport on its local region. These figures represent spending by out-of-state visitors on lodging, food, entertainment, local transport, and a range of other expenditure categories. The totals were determined by multiplying the number of air visitors to the State by their average expenditures, as determined in the survey process.

In the table below, ‘business sales’ reports the total income of businesses from serving visitors arriving by air. The ‘payroll’ column shows the amount of this income that these businesses pay to their employees, and demonstrates that a significant part of the total business income goes right into the pockets of Vermonters. As shown, visitors to Vermont arriving by way of the airport system contributed over \$107 million to the state economy in 2001, over \$40 million of which was taken home in paychecks.

The associated spin-off effects were also considerable: an additional \$63 million in business sales was generated through the multiplier effect, which included nearly \$23 million in wages .

**Exhibit 11A**  
**Summary Statewide – Impact of Off-Airport Visitor Expenditures**

Airport	Payroll	Payroll Spinoff	Business Sales	Business Sales Spinoff
Basin Harbor	\$272,273	\$102,488	\$387,869	\$141,686
John H. Boylan	\$5,954	\$3,348	\$15,513	\$9,301
Burlington International	\$38,264,373	\$21,731,558	\$101,942,039	\$60,047,466
Caledonia County	\$30,073	\$12,850	\$81,444	\$35,885
Fair Haven	\$29,693	\$16,694	\$77,566	\$46,504
Franklin County	\$83,974	\$47,185	\$224,940	\$134,861
Hartness	\$81,326	\$46,709	\$209,427	\$125,560
Edward F. Knapp	\$415,136	\$233,398	\$1,085,918	\$651,052
Middlebury	\$236,688	\$136,544	\$649,938	\$375,248
Morrisville-Stowe	\$97,582	\$55,055	\$248,210	\$148,812
William H. Morse	\$267,303	\$150,294	\$698,090	\$418,533
Mt. Snow	\$25,925	\$14,588	\$66,706	\$39,993
Newport	\$43,175	\$24,327	\$113,246	\$67,895
Post Mills	\$59,345	\$33,437	\$155,131	\$93,007
Rutland	\$516,067	\$290,147	\$1,348,090	\$808,234
Warren-Sugarbush	\$5,931	\$3,334	\$15,513	\$9,301
<b>Total:</b>	<b>\$40,434,818</b>	<b>\$22,901,956</b>	<b>\$107,319,640</b>	<b>\$63,153,338</b>

**Exhibit 11B – Off-Airport Business Activity Dependent on Use of Airports** Exhibit 11B below reports the value of business activity by Vermont firms that depends directly on aviation (and thus airports) for transport purposes, both cargo and personnel transport. The figures come from the Study’s airport-dependent business survey for off-airport businesses, in which establishments were asked to judge the amount of their business activity that depends on the availability of aviation services. Due to its conservative nature, this Study reports results only from businesses that returned the survey; no inferences were made about firms who did not answer the survey, and they were effectively considered to be non-airport-dependent.

The survey response rate varied widely among the different regions of the State. Some larger facilities had no off-airport businesses reporting dependence on use of them, while some smaller facilities had several, leading to results that at first appear counter-intuitive. Once again, the results are an artifact of differing survey response rates among the regions of the State, but are perfectly in keeping with the goal of this document: because it is conservative in nature, while there may be some level of economic impact that this Study failed to document, the team is confident in asserting that the economic impact of Vermont airports is *at least* as great as reported. The airport-dependence of Vermont off-airport businesses that use aviation services is at least as great as reported in the Exhibit 11B below.

As the exhibit shows, Vermont businesses reported that their airport-dependent activity equals nearly \$182 million in revenues, of which almost \$62 million goes directly into the paychecks of Vermonters. The spin-off impact is also large: nearly \$154 million in business sales are generated in subsequent rounds of respending by businesses and their workers, of which over \$54 million is paid directly to workers.

#### Exhibit 11B

##### Summary Statewide – Dependence of Off-Airport Businesses on Aviation Services

Airport	Payroll	Payroll Spinoff	Business Sales	Business Sales Spinoff
Basin Harbor	\$0	\$0	\$0	0
John H. Boylan	\$0	\$0	\$0	\$0
Burlington International	\$52,235,781	\$45,124,877	\$146,053,135	\$125,726,608
Caledonia County	\$418,914	\$464,332	\$3,622,500	\$3,490,681
Fair Haven	\$0	\$0	\$0	\$0
Franklin County	\$0	\$0	\$0	\$0
Hartness	\$43,553	\$46,658	\$172,900	\$136,189
Edward F. Knapp	\$1,138,754	\$1,287,670	\$5,645,000	\$4,517,653
Middlebury	\$2,157,164	\$2,422,931	\$9,804,750	\$7,616,758
Morrisville-Stowe	\$1,611,871	\$1,805,953	\$6,291,875	\$4,882,070
William H. Morse	\$87,500	\$76,098	\$130,335	\$123,464
Mt. Snow	\$3,587	\$2,550	\$7,500	\$7,045
Newport	\$0	\$0	\$0	\$0
Post Mills	\$732,600	\$425,587	\$1,610,000	\$1,122,547
Rutland	\$3,366,765	\$2,498,757	\$8,223,674	\$5,921,736
Warren-Sugarbush	\$122,843	\$87,342	\$175,000	\$164,378
<b>Total:</b>	<b>\$61,919,332</b>	<b>\$54,242,755</b>	<b>\$181,736,669</b>	<b>\$153,709,129</b>

**Exhibit 12A – Total Economic Impact of Vermont Airports** Exhibit 12A below presents the total of on-airport and off-airport impacts for Vermont's public-use airports. Because the survey response rate of off-airport businesses (11B) varied dramatically among the different regions of the state, the economic impact of off-airport businesses that depend on airports through use of aviation services is consolidated at the bottom of the chart. The figures are presented in this manner to make the comparison among the airports easier by separating out the effects of different survey response rates among the local business communities.

There are two columns in Exhibit 12A: local economic impact, and statewide economic impact, which reflect the different multipliers used in determining the spin-off impact on local economies and on the State economy. The local column shows the economic impact that the airports have on their individual local economies. Because the State economy is larger, it captures a larger portion of each round of dollar responding, so the spin-off impact (and thus the total impact) of each airport on the State economy is larger than on the local economy.

**Exhibit 12A**  
**Summary Total Statewide Economic Impacts by Airport**

Airport	Total Local Economic Impact	Total Statewide Economic Impact
Basin Harbor	\$529,555	\$620,412
John H. Boylan	\$42,101	\$53,958
Burlington International	\$239,579,040	\$242,556,282
Caledonia County	\$272,829	\$296,500
Fair Haven	\$229,513	\$246,551
Franklin County	\$1,416,791	\$1,608,812
Hartness	\$903,809	\$982,630
Edward F. Knapp	\$3,244,452	\$3,400,784
Middlebury	\$3,515,928	\$3,989,700
Morrisville-Stowe	\$887,312	\$1,057,941
William H. Morse	\$10,204,911	\$11,123,502
Mt. Snow	\$1,340,492	\$1,636,333
Newport	\$292,928	\$357,262
Post Mills	\$415,439	\$513,340
Rutland	\$6,845,295	\$7,554,398
Warren-Sugarbush	\$305,987	\$318,767
<b>Subtotal:</b>	<b>\$270,026,382</b>	<b>\$276,317,172</b>
<b>Off-Airport Businesses</b>		
<b>Dependent on Use of Airports:</b>	<b>\$328,066,089</b>	<b>\$335,445,798</b>
<b>Total Economic Impact of Vermont's Public-Use Airports:</b>	<b>\$598,092,471</b>	<b>\$611,762,969</b>

**Exhibit 12B - Total Economic Impact of Vermont Airports (detailed)** A more detailed synopsis of the statewide total economic impact is presented in Exhibit 12B below. The exhibit is presented in the same format as the tables in Section 6, which detail the Study's results for each individual Vermont public-use airport.

**Exhibit 12B**

**Summary Total Statewide Economic Impacts by Impact Category**

<b>Airport Report:</b>		<b>State Total</b>	
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	44,099	Commercial	1,060,793
Itinerant General Aviation	143,687	General Aviation	276,290
Military	16,286		
<b>Total</b>	<b>204,072</b>	<b>Total</b>	<b>1,337,083</b>
			<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>Economic Impact Category</b>	<b>Employment</b>	<b>Payroll (Wages)</b>	
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	385	17,065,358	24,712,417
On-Airport Passenger Service	162	3,432,387	10,253,320
On-Airport Freight Service	104	3,435,935	10,368,739
Other Aviation Services	258	8,743,500	24,327,954
<i>Subtotal:</i>	<i>909</i>	<i>32,677,180</i>	<i>69,662,430</i>
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	3,261	40,434,818	107,319,640
Off-Airport Aviation-Dependent Business Activity (3*)	1,827	61,919,332	181,736,669
<i>Subtotal:</i>	<i>5,088</i>	<i>102,354,150</i>	<i>289,056,309</i>
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economies</i>	<i>3,010</i>	<i>84,533,496</i>	<i>239,373,732</i>
<i>On Statewide Economy</i>	<i>3,534</i>	<i>90,392,145</i>	<i>253,044,232</i>
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>9,007</b>	<b>219,564,825</b>	<b>598,092,471</b>
<b>On Statewide Economy</b>	<b>9,531</b>	<b>225,423,475</b>	<b>611,762,971</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

Vermont airports were responsible for nearly \$612 million in business sales in the State economy during the Study year of 2001. Of these total revenues, over \$225 million went directly into Vermonters' pockets in wages and salaries, and supported 9,531 full-time positions in the State. The following section examines the contribution made by each Vermont public-use airport to this impressive total figure.

(this page left intentionally blank)

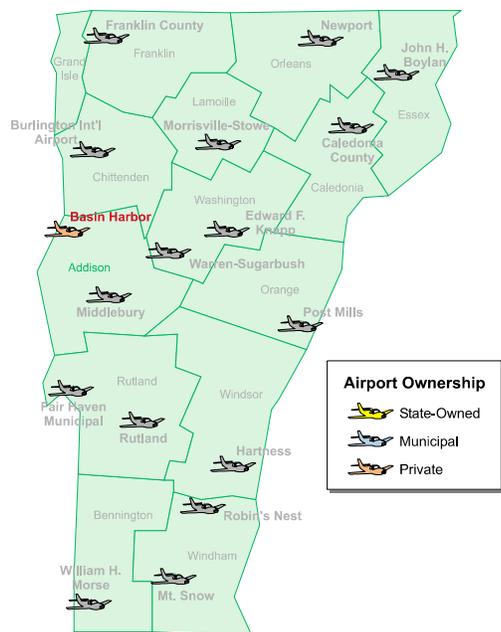
## 6. INDIVIDUAL AIRPORT PROFILES

Each of Vermont's seventeen public-use airports contributes to Vermont's economy as well as to its quality of life. In this chapter, each airport is presented to highlight its airport-related economic uses as well as other benefits. Each airport manager was asked to contribute to the profiles that appear in this chapter.

For some of the smallest airports, primary on-airport employees may seem overstated. However, included in these numbers is an allocation of maintenance staff employed by the State to mow, plow and maintain the 10 state-owned airports. For purposes of this study, if State employees were assigned to maintain a state-owned airport, the employment figure could not be less than one. In addition, VTrans employees assigned to management of the State-owned airports were assigned as on-airport employees where appropriate.

As discussed in Chapter 5, the off-airport impact consists of two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.



## BASIN HARBOR AIRPORT

### 1. Airport Background and Location

Basin Harbor Airport sits in the township of Ferrisburg, on the eastern shore of Lake Champlain. It is located on the grounds of the Basin Harbor Club, a golf and resort complex.

### 2. Facilities and Activity

This turf airfield has one runway 3000 feet in length. Each year the airport remains open from the end of the mud season in the spring until late in the fall.

The facility records approximately five thousand operations annually, though it has no based aircraft.

### 3. Airport Related Economic Uses

Despite having no based aircraft, the number of annual operations at Basin Harbor shows that the airport has a large economic impact relative to its size, due especially to the high percentage of users that are visitors to the local area and spend money on lodging and beverages.

Guests with small aircraft often use the Basin Harbor airport to reach the resort, including high profile and celebrity visitors. On weekends, the airport sees heavy use from golfers flying in for the day to play the golf course, which was recently awarded 4½ stars in *Golf Digest's Places to Play* series. The Basin Harbor grounds are also home to Red Mill Restaurant, whose patrons frequently fly into and out of the airport in the space of an evening. When good flying conditions prevail, the airport usually sees 10-20 aircraft on the field on any given weekend day.

#### 4. Other Airport Benefits

Each year, the New England Aero Club holds an annual convention for members and friends at the Basin Harbor facility. Upwards of one thousand people are normally drawn to the event, many from great distances away.

<b>Airport Report:</b>		<b>Basin Harbor</b>	
Code:		B06	
City/Town:		Vergennes	
County:		Addison	
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	0	Commercial	0
Itinerant General Aviation	5,000	General Aviation	9,500
Military	0		
<b>Total:</b>	<b>5,000</b>	<b>Total:</b>	<b>9,500</b>
			<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>Economic Impact Category</b>	<b>Employment</b>	<b>Payroll (Wages)</b>	
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	0	\$0	\$0
On-Airport Passenger Service	0	\$0	\$0
On-Airport Freight Service	0	\$0	\$0
Other Aviation Services	0	\$0	\$0
<i>Subtotal:</i>	<i>0</i>	<i>\$0</i>	<i>\$0</i>
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	16	\$272,273	\$387,869
Off-Airport Aviation-Dependent Business Activity (3*)	0	\$0	\$0
<i>Subtotal:</i>	<i>16</i>	<i>\$272,273</i>	<i>\$387,869</i>
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	<i>3</i>	<i>\$102,488</i>	<i>\$141,686</i>
<i>On Statewide Economy</i>	<i>6</i>	<i>\$164,090</i>	<i>\$232,543</i>
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>19</b>	<b>\$374,760</b>	<b>\$529,555</b>
<b>On Statewide Economy</b>	<b>22</b>	<b>\$436,363</b>	<b>\$620,412</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general aviation operations (taking off and landing at the same airport, such as touch-

and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

Because it is an integral part of the complex, resort management did not ascribe an employment figure or payroll to the Basin Harbor airfield by itself, which is why there is no on-airport impact as such shown in the table above.

### **Economic Impacts**

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

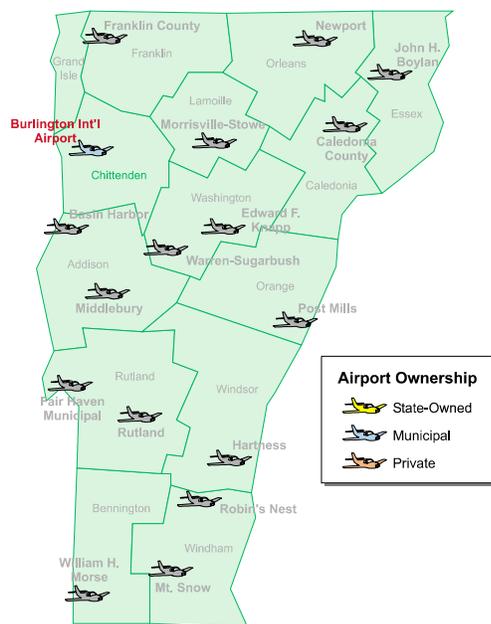
The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies the total impact of the single dollar. This additional economic activity is termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of respending. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.



## **BURLINGTON INTERNATIONAL AIRPORT**

### **1. Airport Background and Location**

Burlington International Airport is the primary commercial service airport in the state of Vermont. At the end of the 2001 calendar year, it ranked as New England’s sixth largest airport in terms of enplaned passengers. The airport is located in northwestern Vermont, close to the Canadian border, and lies approximately three miles from downtown Burlington. The Burlington Metropolitan Statistical Area (a Census-designated area comprising Chittenden, Franklin, and Grand Isle counties) reported a population of 169,391 in 2000, thus accounting for nearly 28 percent of Vermont’s population. Burlington

is defined as a “small hub” airport according to the FAA. For the purposes of economic modeling, the airport’s zone of economic impact is considered to include its own Chittenden County as well as adjacent counties: Grand Isle, Franklin, Lamoille, Washington, and Addison.

### **2. Facilities and Activity**

The airport has two intersecting runways, one of which is the longest runway in the state. Runway 15/33 is 8320 feet in length, and equipped with an Instrument Landing System glidescope and localizer. The second runway, Runway 1/19, is 3611 feet long.

Affiliated regional airlines of most major carriers serve Burlington and fly to both hubs and most major short-haul origin-destination points in the northeast with turboprops or regional jets. United Airlines also serves Burlington with mainline service in 737’s. JetBlue, a low fare carrier with operations centered at New York-JFK, also recently began serving Burlington with Airbus A-320’s. 525,000 passengers enplaned at the airport in 2001.

Burlington is also a major center of general aviation activity. 36,974 local operations were counted at the airport in 2001, as well as 81,767 itinerant operations. 130 aircraft are based at the airport. The airport supports a significant military presence, reflected in the 11,204 military aircraft

operations recorded in 2001. Approximately 9,000 tons of air cargo moved through the airport in 2001.

There is a main terminal building of approximately 87,000 square feet (cumulative rental and concessionaire area), as well as an industrial park, which consists of approximately 83 acres and 10 buildings that are occupied by numerous FBO's and other businesses involved in aviation activities. The various FBO's provide a range of services including flight training, aircraft maintenance, aircraft charters, aerial tours and sightseeing, avionics repair and sales, and aircraft rentals, as well as freight forwarding services, electronic repairs, and passenger services such as a restaurant and gift shop.

Transient traffic at the airport is served by rental car and taxi service, as well as bus transportation and parking services such as "park and shuttle" and an airport parking garage.

### **3. Airport Related Economic Uses**

In addition to the economic benefits that the scheduled passenger air service and FBO's bring to the area, the approximately 9,000 tons of air cargo that moved through the airport in 2001 has significant economic impacts. Federal Express, Airborne Express, and the freight forwarder A.N. Derringer all maintain facilities at Burlington International Airport.

A large number of businesses in the Burlington area as well as throughout the State of Vermont rely heavily on the Burlington International Airport for business-related needs. Hazelete Senip Casting Corporation, an engineering and manufacturing company employing 140 people and located in Colchester, VT, depends on the airport for 90 percent of its business activity. Resolution, Inc., an e-commerce company in South Burlington, has 225 employees and relies on the Burlington International Airport for 70 percent of its business activity. Other companies which rely on the airport to transport supplies, products, company personnel and clients include Mylan Technologies, a pharmaceutical manufacturing company employing 265 people in St. Albans, VT, and S.T. Griswold Company in Williston, VT, which employs approximately 201 people.

Burlington International Airport also serves as the primary airport for many of the State's colleges and universities. In addition to University of Vermont, Saint Michael's College and Champlain College, all of which are located in Burlington, other colleges such as Middlebury College and Norwich University utilize Burlington International Airport.

Burlington is the primary gateway for the Vermont ski industry. Many of Vermont's ski resorts' patrons use Burlington International Airport, often more than airports which may be closer to the respective ski areas. Because of the number of destinations and frequency of departures offered by the numerous airlines, Burlington is a frequent access point for resorts such as Stowe, Sugarbush and Killington. Often times, the patrons of these ski resorts simply may not have chosen to visit Vermont if the service offered by Burlington International Airport did not exist.

#### **4. Other Airport Benefits**

The Vermont Air Guard and Vermont Army National Guard both have installations at Burlington International Airport. The Vermont Air Guard has been deployed to the Middle East to patrol no-fly zones over Iraq, and the Vermont Army National Guard has sent troops to Bosnia. After the September 11<sup>th</sup> terrorist attacks, the Vermont Air Guard's 158<sup>th</sup> fighter wing flew continuous cover over New York City and Washington DC. In addition to enhanced security benefits, the Air National Guard provides crash, fire, and rescue services to the airport.

Located on the Air National Guard Base at the Burlington International Airport is a classroom of STARBASE, a nationwide school outreach program funded by the Department of Defense. This educational program, which operates under the direction and support of the Vermont National Guard, brings aviation and aerospace learning to school-age children, teaching math, physics and technology. STARBASE Vermont's Burlington site is now one of two in the state, after a second site was recently opened at the Rutland State Airport.

The airport is also home to the Burlington Composite Squadron, a Civil Air Patrol program whose missions include emergency services and aerospace education. An ACE Camp also takes place each summer.

<b>Airport Report:</b>		<b>Burlington International Airport</b>	
Code:		BTV	
City/Town:		Burlington	
County:		Chittenden	
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	38,925	Commercial	1,050,000
Itinerant General Aviation	81,767	General Aviation	155,357
Military	11,204		
<b>Total:</b>	<b>131,896</b>	<b>Total:</b>	<b>1,205,357</b>
			<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>Economic Impact Category</b>	<b>Employment</b>	<b>Payroll (Wages)</b>	
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	366	\$16,466,305	\$23,461,086
On-Airport Passenger Service	148	\$3,268,387	\$9,703,320
On-Airport Freight Service	56	\$1,985,360	\$4,292,096
Other Aviation Services	182	\$6,933,472	\$16,181,620
<i>Subtotal:</i>	<i>752</i>	<i>\$28,653,524</i>	<i>\$53,638,122</i>
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	3,087	\$38,264,373	\$101,942,039
Off-Airport Aviation-Dependent Business Activity (3*)	1,438	\$52,235,781	\$146,053,135
<i>Subtotal:</i>	<i>4,525</i>	<i>\$90,500,154</i>	<i>\$247,995,174</i>
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	<i>2,534</i>	<i>\$73,384,088</i>	<i>\$205,066,568</i>
<i>On Statewide Economy</i>	<i>3,003</i>	<i>\$78,255,274</i>	<i>\$212,702,727</i>
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>7,811</b>	<b>\$192,537,766</b>	<b>\$506,699,864</b>
<b>On Statewide Economy</b>	<b>8,280</b>	<b>\$197,408,952</b>	<b>\$514,336,023</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general aviation operations (taking off and landing at the same airport, such as touch-and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

## Economic Impacts

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

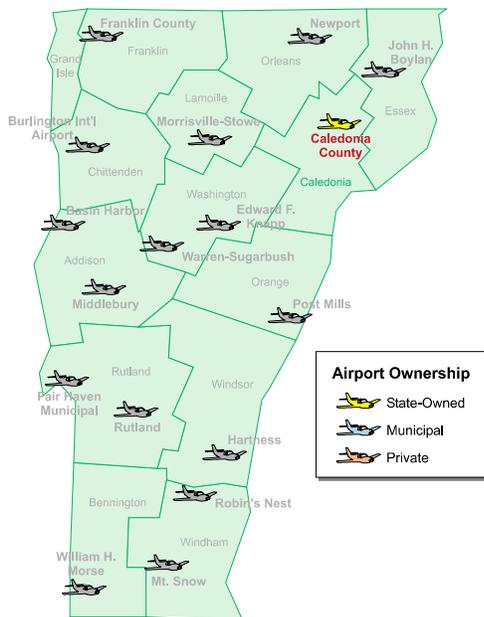
The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies the total impact of the single dollar. This additional economic activity is termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of respending. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.



## CALEDONIA COUNTY STATE AIRPORT

### 1. Airport Background and Location

Caledonia County State Airport is located near Lyndonville, Vermont in the northeast portion of the State. The Northeast Kingdom is the largest of Vermont's 12 planning regions. Larger towns in the Northeast Kingdom include St. Johnsbury, Lyndon, and Newport. This region accounts for 21 percent of the State's land mass and has a population density of approximately one-half the State average. These two statistics taken together might explain the importance that citizens of the region place on access to air transportation.

Access to the Caledonia County State Airport is via Route 122 and Pudding Hill Road. The airport is located approximately three miles north of Lyndonville. The market area for the airport is made up of Lyndon and St. Johnsbury, and is bounded by West Burke and Sutton to the north, Barnet to the south, Danville to the west, and Concord to the east.

Access to St. Johnsbury and the Lyndon area is dominated by Interstate 91 and Interstate 93. I-91 is the major north-south roadway for eastern Vermont, extending from Canada to the north, and to Massachusetts to the South. I-93 is a north-south roadway that connects Vermont to New Hampshire. I-93 enters Vermont in the northeast portion of the State and joins I-91 in St. Johnsbury. The main east-west roadway in the area is Route 2 which extends from Vermont's eastern border with New Hampshire, through St. Johnsbury and Montpelier, and on to Burlington. Discussion with citizens of the area indicates that both interstates in the area are frequently used to initiate scheduled air passenger service from airports in Burlington, Boston, and Montreal.

### 2. Facilities and Activity

This general aviation facility has one paved runway 3300 feet in length. The airport is home to fourteen based aircraft, with some registered to local businesses and a flying club. Caledonia County normally sees 1050 transient aircraft operations and 4000 local operations. While a flight school at the

airport no longer exists due to heightened insurance prices, students are currently instructed privately in their own aircraft. Landside facilities at the airport include a terminal building, auto parking, fuel facility, and hangars. The Vermont Air National Guard does some training activity at the airports, amounting to approximately 50 operations per year.

A VTrans employee who oversees the operations of the airports in the Northeast Kingdom is stationed at the airport. This employee is the airport manager of both Caledonia County State Airport and the John H. Boylan State Airport. While fuel is available, there is not a traditional FBO in operation. Transient traffic at the Caledonia County State Airport is served by taxi service and car rental service. Both businesses are based in St. Johnsbury. The taxi service operates on-call to the airport, and rental cars will be left at the airport when prior arrangements have been made.

### **3. Airport Related Economic Uses**

Many local businesses are in some way dependent on the Caledonia County State Airport.

EHV Weidman is the largest employer in the area and is a frequent user of the Caledonia County State Airport. As part of a worldwide group of companies headquartered in Switzerland, executives of EHV Weidman must travel frequently to cities including Montreal, Boston, and Knoxville. The airport plays a substantial role in the maintenance of EHV Weidman's 350 jobs and \$11 million payroll in the area.

UPS represents a potential user of the airport. Present facility constraints prevent the company and its contract carriers from operating at Caledonia County State Airport. Past discussions with the manager of a UPS distribution center in Berlin, Vermont indicate that UPS operates a similar distribution center in Lyndonville. The distribution center in Berlin relies heavily on air cargo operations to meet next-day service demands. The manager indicated that much of the volume going through the Lyndonville distribution center cannot be delivered next-day service because there is no air cargo access to the area. The ability to operate air cargo flights out of the Caledonia County State Airport would greatly expand and facilitate next-day delivery service. The UPS representative indicated that improvements in runway lighting and weather reporting would be required in order to begin air

cargo operations at the airport. The potential expansion of UPS services in the area represents potential for increased airport usage, as well as increased employment in the area.

#### **4. Other Airport Benefits**

An active Civil Air Patrol squadron is based at airport. The CAP aids in conducting aerial searches, for example, in the event of an aircraft accident in the local area. The program also offers youth a hands-on introduction to aviation and related careers in the military and commercial sectors, in addition to building discipline, teamwork, and leadership skills.

Caledonia County airport is crucial to the further development of the region. Like many rural areas, the Northeast Kingdom is served by a sparse surface transport network. Interstate 91 bisects the region, but provides convenient highway access mostly in a north-south direction. Caledonia County Airport is a vital element in the transportation network of an area facing many other infrastructural constraints.

It represents a major link between Caledonia County and the rest of the nation.

<b>Airport Report:</b>		<b>Caledonia County Airport</b>	
Code:	6B8		
City/Town:	Lyndonville		
County:	Caledonia		
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	0	Commercial	0
Itinerant General Aviation	1,050	General Aviation	1,995
Military	50		
<b>Total:</b>	<b>1,100</b>	<b>Total:</b>	<b>1,995</b>
			<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>Economic Impact Category</b>	<b>Employment</b>	<b>Payroll (Wages)</b>	<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	1	\$14,695	\$27,000
On-Airport Passenger Service	0	\$0	\$0
On-Airport Freight Service	0	\$0	\$0
Other Aviation Services	1	\$35,568	\$82,504
<i>Subtotal:</i>	<i>2</i>	<i>\$50,263</i>	<i>\$109,504</i>
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	3	\$30,073	\$81,444
Off-Airport Aviation-Dependent Business Activity (3*)	18	\$418,914	\$3,622,500
<i>Subtotal:</i>	<i>21</i>	<i>\$448,987</i>	<i>\$3,703,944</i>
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	<i>22</i>	<i>\$393,503</i>	<i>\$2,295,023</i>
<i>On Statewide Economy</i>	<i>26</i>	<i>\$503,304</i>	<i>\$3,596,233</i>
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>45</b>	<b>\$892,753</b>	<b>\$6,108,471</b>
<b>On Statewide Economy</b>	<b>49</b>	<b>\$1,002,554</b>	<b>\$7,409,681</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general aviation operations (taking off and landing at the same airport, such as touch-and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

## Economic Impacts

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

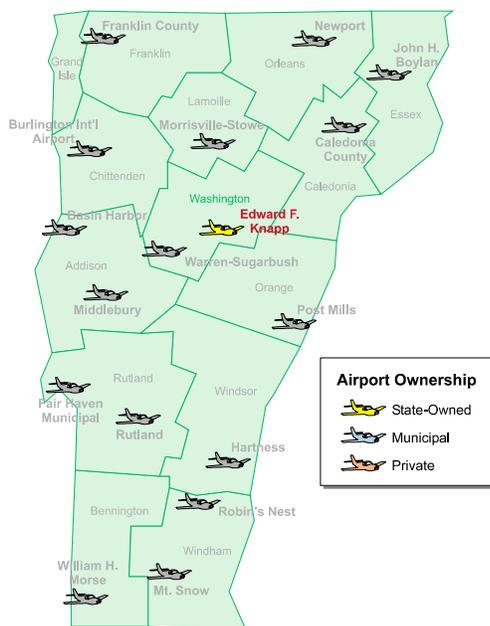
The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies the total impact of the single dollar. This additional economic activity is termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of respending. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.



## **EDWARD F. KNAPP STATE AIRPORT**

### **1. Airport Background and Location**

Edward F. Knapp State Airport is located in the Town of Berlin in the central portion of the State. The airport is located centrally between Montpelier and Barre, within five miles of both cities. The airport's proximity to both the State capital, Montpelier, and the population concentration of the Montpelier-Barre area, accounts for its importance.

Access to Edward F. Knapp State Airport is via Berlin Street Highway, which is easily accessible off of Route 62. The market area for Edward F. Knapp State Airport centers on the Montpelier-Barre area. However, the

airport is also frequently used by citizens from the Waitsfield, East Montpelier and Randolph areas. An important portion of the airport activity is related to State government. Employees of the State of Vermont may use the airport to travel to other areas of the State, or outside of it. Representatives from companies wishing to do business in Vermont often fly into the airport to meet with State government officials in Montpelier. Edward F. Knapp State Airport facilitates traffic to and from Montpelier which saves time and money for both the State and businesses. Additionally, the Knapp State Airport is used frequently by insurance industry officials who travel in and out of the airport for business purposes.

Access to the Montpelier-Barre area is dominated by Interstate 89. I-89 travels north-south from the Canadian border to Burlington and then northwest-southeast across the central portion of the State through Montpelier, until the New Hampshire border near White River Junction. I-89 is the only Interstate that provides access to the western portion of Vermont, making it vitally important to both interstate and intrastate travel. In interviews with the airport manager and other users of this airport, it was indicated that the area's access to I-89 has both positive and negative effects for the potential usage of Edward F. Knapp State Airport. In terms of passenger service, the access that I-89 provides to both Burlington and Lebanon, New Hampshire draws potential scheduled air passenger service customers from the airport. In terms of business and corporate aircraft travel,

I-89 provides more direct access from the rest of Vermont to the Randolph and Waterbury areas, thereby further encouraging the use of Knapp State Airport.

## **2. Facilities and Activity**

The airfield consists of two paved intersecting runways. The longer is Runway 17/35, at 5002 feet in length. 17 is equipped with an ILS glidescope and localizer, thus well-suited to accommodate jets. Runway 5/23 is 4022 feet long. Landside facilities at the airport include a terminal building, auto parking, and several hangars. There is a restaurant in the terminal building. In addition to serving those that are arriving and departing from the airport, the restaurant also attracts a large number of people from the local community.

The airport has a sizeable based aircraft population, totaling 62 fixed-wing aircraft, nearly all of which are single-engine pistons. Approximately 17,000 local operations were counted last year, due partially to the FBO continuing to offer flight instruction despite insurance hikes. The airport reported 14,000 itinerant general aviation operations as well.

Knapp State Airport had a history of scheduled passenger service through the late 1980's. At present, however, none is available. The airport does receive regular cargo flights from Wiggins Airways, which provides feeder services for FedEx and UPS.

Vermont Flying Services is the airport's fixed-base operator, and provides a wide range of services, including fuel, maintenance, flying lessons, and aerial tours. Sambel's restaurant is also located in the airport terminal building and serves more than just an aviation clientele.

Transient traffic at the airport is served by an Enterprise Rental Car agency, located less than one mile from the airport. Taxi service is also available at the airport.

### **3. Airport Related Economic Uses**

Review of the airport indicates that it serves the needs of local businesses in several ways. Some local businesses base aircraft there to facilitate travel to customers and suppliers. Many other local businesses and the State of Vermont regularly have customers and suppliers fly in to meet with them. A list of frequent airport users assumed to be involved in the insurance industry includes companies with large numbers of employees and equally large financial holdings. Names of companies on this list include National Life Insurance Company, Union Mutual Insurance Company, Blue Cross and Blue Shield of Vermont, Vermont Insurance Management Inc., Concord Group Insurance, USA Risk Group, and Huntington National Bank.

UPS is another important business user of this airport, and operates a distribution center on land that adjoins the airport. The ability to shuttle cargo quickly and efficiently from the airport to the distribution center was an important factor in the decision to locate and maintain the distribution center.

Perhaps one of the most important impacts that the airport has had on the region is the instrumental role it played in accessing technical support for startup companies such as Bombardier and Vermont Castings. These startups have now grown to such a size that they no longer need to operate aircraft at the airport regularly. However, proximity to Knapp was instrumental in the initial phases of the businesses, and for smaller area companies in Montpelier and Randolph the airport continues hold great importance. The airport manager cites a machine shop in Randolph that was able to have their equipment repaired in a matter of hours instead of days, because the repair technician could fly his light aircraft to a nearby airport, thereby making the necessary repairs in a timely manner.

### **4. Other Airport Benefits**

Edward F. Knapp adds in several ways to the market area's standard of life. Local pilots offer charity rides to children from a local hospital and to children associated with the Washington County Mental Health Agency. Community events are also held at the airport including fly-ins and business expositions. Twice each year, a pancake breakfast/open house is held at the airport. These breakfasts have a dual purpose, to educate the community as a whole about the Edward F. Knapp State Airport and to educate children about

aviation-related career opportunities. Norwich University frequently flies speakers in and out of the airport. The Vermont Agency of Forest and Parks uses the airport to conduct aerial surveys, and the Vermont State Police use the airport to conduct drug enforcement operations.

Knapp is the closest airport to skiing at major destinations like Sugarbush (Warren-Sugarbush Airport is closed in the winter). The airport is also a convenient point of access for those wishing to enjoy warm-weather outdoor activities in the Mad River Valley.

<b>Airport Report:</b>		<b>E. F. Knapp State Airport</b>	
Code:		MPV	
City/Town:		Berlin (Barre-Montpelier)	
County:		Washington	
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	0	Commercial	0
Itinerant General Aviation	14,000	General Aviation	26,600
Military	1,000		
<b>Total:</b>	<b>15,000</b>	<b>Total:</b>	<b>26,600</b>
			<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>Economic Impact Category</b>	<b>Employment</b>	<b>Payroll (Wages)</b>	
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	2	\$58,285	\$105,333
On-Airport Passenger Service	14	\$164,000	\$550,000
On-Airport Freight Service	0	\$0	\$0
Other Aviation Services	4	\$100,000	\$400,000
<i>Subtotal:</i>	<i>20</i>	<i>\$322,285</i>	<i>\$1,055,333</i>
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	32	\$415,136	\$1,085,918
Off-Airport Aviation-Dependent Business Activity (3*)	34	\$1,138,754	\$5,645,000
<i>Subtotal:</i>	<i>66</i>	<i>\$1,553,890</i>	<i>\$6,730,918</i>
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	<i>32</i>	<i>\$1,546,826</i>	<i>\$4,346,634</i>
<i>On Statewide Economy</i>	<i>32</i>	<i>\$1,685,578</i>	<i>\$5,777,186</i>
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>118</b>	<b>\$3,423,001</b>	<b>\$12,132,885</b>
<b>On Statewide Economy</b>	<b>118</b>	<b>\$3,561,753</b>	<b>\$13,563,437</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general aviation operations (taking off and landing at the same airport, such as touch-and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

## **Economic Impacts**

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

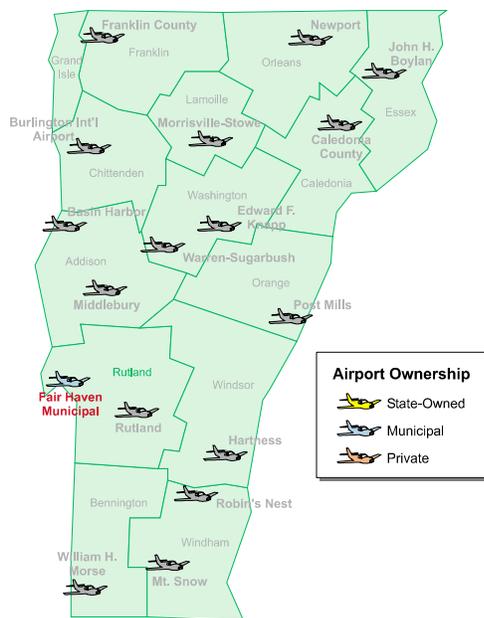
The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies the total impact of the single dollar. This additional economic activity is termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of respending. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.



## ***FAIR HAVEN MUNICIPAL AIRPORT***

### **1. Airport Background and Location**

Fair Haven Municipal airport is one of two Vermont airports owned and operated by a local government (Burlington is the other). The airport is situated only slightly more than one mile from the eastern border of Vermont with New York, in the town of Fair Haven in Rutland County.

### **2. Facilities and Activity**

Fair Haven’s single turf runway is partially topped with gravel, and is 2070 feet long. The airport reports approximately 1000 aircraft operations each year.

### **3. Other Airport Benefits**

The airport is a popular destination for people to fly into and use the picnic area, often for outdoor wedding receptions and family reunions. The town of Fair Haven uses the open space of the airport to stage the town’s Fourth of July celebration. Model aircraft enthusiasts also find Fair Haven to be well-suited for their use.

<b>Airport Report:</b>		<b>Fair Haven Municipal Airport</b>	
Code:	1B3		
City/Town:	Fair Haven		
County:	Rutland		
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	0	Commercial	0
Itinerant General Aviation	1,000	General Aviation	1,900
Military	0		
<b>Total:</b>	<b>1,000</b>	<b>Total:</b>	<b>1,900</b>
			<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>Economic Impact Category</b>	<b>Employment</b>	<b>Payroll (Wages)</b>	
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	1	\$35,537	\$83,334
On-Airport Passenger Service	0	\$0	\$0
On-Airport Freight Service	0	\$0	\$0
Other Aviation Services	0	\$0	\$0
<i>Subtotal:</i>	<i>1</i>	<i>\$35,537</i>	<i>\$83,334</i>
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	2	\$29,693	\$77,566
Off-Airport Aviation-Dependent Business Activity (3*)	0	\$0	\$0
<i>Subtotal:</i>	<i>2</i>	<i>\$29,693</i>	<i>\$77,566</i>
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	<i>1</i>	<i>\$26,468</i>	<i>\$68,623</i>
<i>On Statewide Economy</i>	<i>1</i>	<i>\$32,215</i>	<i>\$85,651</i>
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>4</b>	<b>\$91,698</b>	<b>\$229,523</b>
<b>On Statewide Economy</b>	<b>4</b>	<b>\$97,445</b>	<b>\$246,551</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general aviation operations (taking off and landing at the same airport, such as touch-and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

## Economic Impacts

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

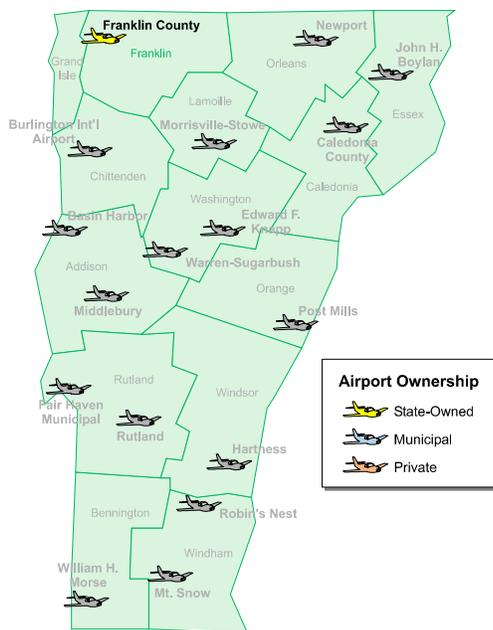
Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies the total impact of the single dollar. This additional economic activity is

termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of respending. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.



## FRANKLIN COUNTY STATE AIRPORT

### 1. Airport Background and Location

Franklin County State Airport is located near Swanton, Vermont in the northwest portion of the State. The airport is actually located in the Town of Highgate, northeast of Swanton. The proximity of this airport to Burlington allows the airport to function somewhat like a reliever airport for Burlington International Airport. Franklin County State Airport's role as a reliever represents some of the present use of the airport, as well as potential for increased future use.

Access to the Franklin County State Airport is via Route 78, which intersects I-89 in Swanton. The market area for the airport is bounded, more or less by the Canadian border to the north, St. Albans to the south, Swanton to the west, and Enosburg Falls to the east. Besides the communities of Franklin County, the airport also serves Grand Isle County which does not have its own public-use airport. Discussions with the airport manager/FBO indicate that there are some pilots from the Burlington area who prefer to operate out of Franklin County State Airport in order to avoid congestion at Burlington. These discussions also indicate that the airport's market area could be expanded into Canada. Active marketing, he believes, could attract Canadian businesses and pilots to the area and increase the usage of the airport.

Access to the Swanton/St. Albans area is dominated by Interstate 89. I-89 connects Vermont with Canada to the north and New Hampshire to the east. In the northwest portion of Vermont, I-89 runs north-south, connecting Burlington to Canada, and passing through both St. Albans and Swanton. Major east-west arteries in the area include Route 78 and Route 105. I-89 has both positive and negative effects on the airport. The access to Burlington that I-89 provides to the area's residents often draws potential users from the Franklin County State Airport to the Burlington International Airport. However, the access to Franklin County State Airport that I-89 provides to the residents of Burlington, sometimes draws general aviation pilots and aircraft from Burlington International Airport to Franklin County State Airport. Air traffic at Burlington is much greater than the traffic at most

general aviation airports, therefore circling and taxiing times at Burlington may be much longer than at general aviation airports. In many cases, pilots decide that it is worth driving out of Burlington to use personal aircraft based at airports other than Burlington International. Use of Franklin County State avoids slowdowns caused by larger amounts of traffic at the Burlington International Airport.

## **2. Facilities and Activity**

The airfield consists of one paved runway, 3000 feet in length. Franklin County has a large based aircraft population: 53 aircraft in total, 46 of which are single-engine piston planes. There are six Canadian-owned aircraft based at the airport full time, and 11 aircraft based at Franklin County Airport whose owners live in Chittenden County. Of the approximately 21,400 takeoffs or landings recorded in 2001, 17,000 or 80 per cent were local operations, meaning a takeoff and landing at the same airport, with 2900 itinerant and 1500 military operations. Though the airport's flight school and aircraft rental business were forced to close due to insurance premium increases, flight lessons do continue with private instructors in students' own planes. Landside facilities at the airport include a terminal building, auto parking, and several hangars.

Transient traffic at the airport is served by taxi and car rental services in St. Albans. A rental will be left at the airport for arriving customers if prior notice is given.

## **3. Airport Related Economic Uses**

Review of this airport indicates that many benefit from the access to aviation transportation that the airport's facilities provide. The area's largest employers, Fonda Container, Missisquoi Paper, and Union Carbide, do not base aircraft at the airport, but use its facilities to transport executives, customers, and machine parts. Several other smaller businesses also benefit from the airport. A brick company located less than a mile from the airport frequently uses it to transport products to customers who are time dependent. Some local car dealerships use the airport to inspect automobiles for potential purchase and sale on their lot. Contractors working on construction projects in the area use the airport on a weekly business to inspect the progress of projects. The airport manager also indicates that insurance companies and the

Duty Free Shop use the airport several times per year. An aerial photography business also operates an aircraft out of the airport.

Those familiar with the airport indicate that the business usage of the airport could be expanded if several steps were taken. The airport's proximity to the Canadian border makes it ideal for attracting cross-border business traffic. Franklin County State Airport is the closest American airport to Montreal; there is a substantial amount of air traffic related trans-border business dealings. Active marketing of the airport facilities could attract businesses from both the U.S. and Canada to base aircraft at the airport or to land at the facilities for access to both American and Canadian markets. Discussion also indicates that there is a business-user and general aviation market in Burlington that could be tapped for increased usage of the airport. As air ambulance, FedEx, UPS, and scheduled passenger services increase at the Burlington International Airport, corporate and general aviation users might look to base aircraft elsewhere. The access that I-89 provides to the airport could allow businesses and citizens in Burlington to base aircraft at the Franklin County State Airport, thereby avoiding increased traffic at the Burlington International Airport.

#### **4. Other Airport Benefits**

This airport adds in several ways to the areas quality of life. The Franklin County State Airport is used by the Vermont State Police for drug enforcement operations and by pilots performing both agricultural and mosquito spraying. Community events held at the airport include air shows and antique car shows. The State of Vermont also owns land adjacent to the airport where the Franklin County Fairgrounds are located. On these fairgrounds, members of the Abenaki, a local Native-American tribe, hold annual ceremonies, while concerts, tractor pulls, and county fairs are also held. The lands of both the airport and fairground have been used frequently in the past to hold large concerts. Tens of thousands of spectators have attended Grateful Dead, Phish, and flood relief concerts held on these grounds in the last fifteen years.

The U.S. Border Patrol recently began using the airport on a daily basis, and an ACE Camp takes place annually at Franklin County Airport. The local Experimental Aircraft Association is very active and sponsors frequent fly-ins at the airport, drawing aviation enthusiasts from miles around.

<b>Airport Report:</b>		<b>Franklin County Airport</b>	
Code:		FSO	
City/Town:		Highgate	
County:		Franklin	
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	0	Commercial	0
Itinerant General Aviation	2,900	General Aviation	5,510
Military	1,500		
<b>Total:</b>	<b>4,400</b>	<b>Total:</b>	<b>5,510</b>
			<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>Economic Impact Category</b>	<b>Employment</b>	<b>Payroll (Wages)</b>	
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	1	\$19,112	\$35,000
On-Airport Passenger Service	0	\$0	\$0
On-Airport Freight Service	0	\$0	\$0
Other Aviation Services	13	\$238,436	\$810,144
<i>Subtotal:</i>	<i>14</i>	<i>\$257,548</i>	<i>\$845,144</i>
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	8	\$83,974	\$224,940
Off-Airport Aviation-Dependent Business Activity (3*)	0	\$0	\$0
<i>Subtotal:</i>	<i>8</i>	<i>\$83,974</i>	<i>\$224,940</i>
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	<i>5</i>	<i>\$114,420</i>	<i>\$346,707</i>
<i>On Statewide Economy</i>	<i>12</i>	<i>\$159,827</i>	<i>\$538,728</i>
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>27</b>	<b>\$455,942</b>	<b>\$1,416,791</b>
<b>On Statewide Economy</b>	<b>34</b>	<b>\$501,349</b>	<b>\$1,608,812</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general aviation operations (taking off and landing at the same airport, such as touch-

and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

### **Economic Impacts**

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

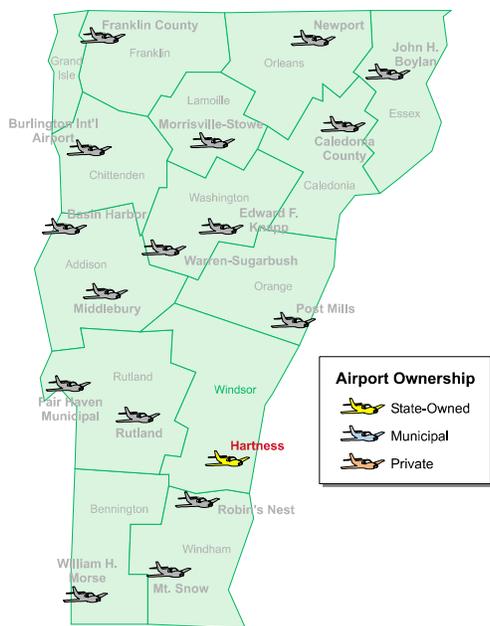
Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies the total impact of the single dollar. This additional economic activity is

termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of respending. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.



## HARTNESS STATE AIRPORT

### I. Airport Background and Location.

Hartness State Airport is located near Springfield, Vermont in the southeast portion of Vermont. Hartness State Airport is the oldest in Vermont. The State of Vermont took over the control of this airport in 1969. At one time, the airport was home to Precision Airlines, which took its name from the Precision Valley; historically, Vermont's Precision Valley was the center of the machine tool industry in the U. S. Precision Airlines became a commuter partner for Eastern Airlines and operated here until the demise of Eastern Airlines in early 1991.

Access from Springfield to Hartness State Airport is via Route 106. The airport is located near the community of North Springfield. The market area for Hartness State Airport is bounded by Ascutney to the north, Chester to the west, and Bellows Falls to the south. Springfield is located near Vermont's border with New Hampshire; the airport's market area to the east is delimited by the Connecticut River. Interviews with the airport's manager/FBO indicate that Hartness State Airport does serve some communities in New Hampshire along the Vermont border. Specifically, the New Hampshire communities of Charlestown and Claremont have some interaction with and dependence on the Hartness State Airport.

Access to the Springfield area is dominated by the community's proximity to Interstate 91; this interstate connects Vermont with Canada to the north and Massachusetts to the south. The major east-west arteries for the area include Route 11 which connects Springfield with Manchester Depot, Vermont and Route 103 which connects Springfield with Rutland to the northwest. Access provided by I-91 to the Springfield area has both positive and negative effects on the potential market area for Hartness State Airport. Because of the proximity and the convenience of this interstate, potential users of Hartness State Airport are sometimes drawn to the airports in Rutland, Burlington, Lebanon NH, and especially Hartford CT.

## **2. Facilities and Activity**

The airport has two intersecting runways. 5/23 is 5498 feet long and jet-capable, while 11/29 is 3000 feet. 16,500 general aviation takeoffs and landings were estimated in 2001, split between 13,700 local and 2700 itinerant operations, as well as 100 military operations. Thirty-seven aircraft are based at Hartness, including several registered to local businesses, a flying club, and a soaring club for glider enthusiasts.

Crown Point Aviation provides FBO services. It is one of a very few businesses still offering flying lessons and aircraft rentals, despite recent insurance premium hikes of over 300 per cent for these activities. Hartness is a center of glider activity, with airport tenant Celtic Air providing powered tows for hire.

## **3. Airport Related Economic Activity**

Several businesses in the local market area have customers or suppliers that use general aviation and the airport to reach them on a regular basis. The best example of this type of activity relates to Hancor, a company based in the Springfield area that manufactures pipe. The log of activity that is maintained by this airport indicates that companies fly into the Hartness State Airport to do business with Hancor almost on a weekly basis. Hartness State Airport is also used by a number of "second" home owners who fly back and forth between Vermont and the location of their primary residence.

Businesses that are located in the market area supply machine tool parts and products to major corporations throughout the U.S. When the assembly line of one of these major corporations is down, they will fly to Hartness State Airport to pick up parts. This national significance often overlooked.

## **4. Other Airport Benefits**

Hartness State Airport adds in several ways to the market area's quality of life. Hundreds of people are drawn to the airport once or twice each year for the International Aerobatic Conference held there. In addition, the Lebanon NH chapter of the Experimental Aircraft Association converges on Hartness

three times each summer for a barbeque and fly-in. The town of Springfield also holds its Fourth of July celebration on the airport grounds.

While the Springfield hospital has its own helipad, fuel services are not available. As a result, emergency medical flights that operate in the area refuel at the Hartness State Airport when needed. This airport is also used by Mary Hitchcock Medical Center, the hospital affiliated with Dartmouth College. Vermont's Fish and Game Department uses the airport for the storage of their equipment. The Hartness State Airport is used by Vermont's State Police for drug enforcement activities and it is also used occasionally to support search and rescue activities. The National Guard also flies into the airport on training missions. Hartness Airport is situated close to major ski destinations such as the Bromley and Okemo resorts. It is also the public-use airport nearest to Woodstock VT, a town world-renowned for its cultural activities and New England charm.

<b>Airport Report:</b>		<b>Hartness State Airport</b>	
Code:		VSF	
City/Town:		Springfield	
County:		Windsor	
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	0	Commercial	0
Itinerant General Aviation	2,700	General Aviation	5,130
Military	100		
<b>Total:</b>	<b>2,800</b>	<b>Total:</b>	<b>5,130</b>
			<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>Economic Impact Category</b>	<b>Employment</b>	<b>Payroll (Wages)</b>	
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	2	\$72,123	\$153,701
On-Airport Passenger Service	0	\$0	\$0
On-Airport Freight Service	0	\$0	\$0
Other Aviation Services	3	\$80,000	\$280,957
<i>Subtotal:</i>	<i>5</i>	<i>\$152,123</i>	<i>\$434,658</i>
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	7	\$81,326	\$209,427
Off-Airport Aviation-Dependent Business Activity (3*)	2	\$43,553	\$172,900
<i>Subtotal:</i>	<i>9</i>	<i>\$124,879</i>	<i>\$382,327</i>
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	<i>7</i>	<i>\$132,238</i>	<i>\$395,918</i>
<i>On Statewide Economy</i>	<i>7</i>	<i>\$160,012</i>	<i>\$474,739</i>
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>21</b>	<b>\$409,240</b>	<b>\$1,212,903</b>
<b>On Statewide Economy</b>	<b>21</b>	<b>\$437,014</b>	<b>\$1,291,724</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general aviation operations (taking off and landing at the same airport, such as touch-and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

## Economic Impacts

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

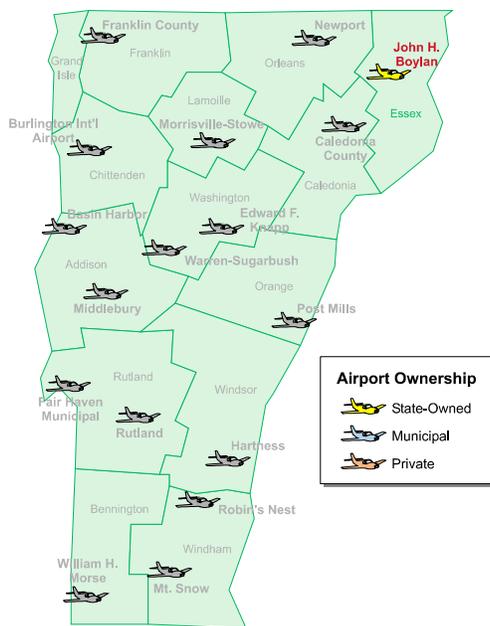
The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies the total impact of the single dollar. This additional economic activity is termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of respending. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.



## JOHN H. BOYLAN STATE AIRPORT

### 1. Airport Background and Location

John H. Boylan (Island Pond) State Airport is located near Island Pond, Vermont in the northeast section of Vermont. Island Pond is located in the Northeast Kingdom, approximately 20 miles northeast of Lyndon and approximately 20 miles southeast of Newport. This area of Vermont has no nearby interstate and is made up of mountainous and forested terrain, making Island Pond one of the most isolated areas in the State.

Access to the airport from Island Pond is via Route 105. The airport, actually in East Brighton, is approximately 3 miles east of the Town of Island Pond. The market area

for this airport is made up of sparsely populated lands in the northeast corner of the State.

Access to the Island Pond area is via Routes 105 and 114. Route 105 is an east-west road that connects Island Pond with North Stratford and the New Hampshire border to the east, and Derby Center to the west. Route 114 is a north-south road that extends from Norton and the Canadian border to the north, through Island Pond, and into Lyndon Center. The Town of Island Pond is located at the intersection of Route 105 and Route 114.

### 2. Facility and Activity

The single turf runway is 2650 feet in length. The airport is not plowed in the winter, but remains open to ski-equipped aircraft. A hangar is the only landside facility at this airport.

An employee of VTrans, whose office is located at Caledonia County State Airport, oversees operations at the John H. Boylan (Island Pond) State Airport.

Island Pond reports one based single-engine piston plane, and one ultralight. Airport management estimates that there were 200 operations in 2001.

### 3. Airport Related Economic Benefits

The turf runway restricts business use of the airport. Businesses use Caledonia County State Airport or Newport State Airport for any business related flights in the Northeast Kingdom.

### 4. Other Airport Benefits

The airport is very popular among model aircraft enthusiasts.

<b>Airport Report:</b>		<b>John H. Boylan State Airport</b>	
Code:		5B1	
City/Town:		Island Pond	
County:		Essex	
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	0	Commercial	0
Itinerant General Aviation	200	General Aviation	380
Military	0		
<b>Total:</b>	<b>200</b>	<b>Total:</b>	<b>380</b>
			<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>Economic Impact Category</b>	<b>Employment</b>	<b>Payroll (Wages)</b>	
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	1	\$9,311	\$17,500
On-Airport Passenger Service	0	\$0	\$0
On-Airport Freight Service	0	\$0	\$0
Other Aviation Services	0	\$0	\$0
<i>Subtotal:</i>	<i>1</i>	<i>\$9,311</i>	<i>\$17,500</i>
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	1	\$5,954	\$15,513
Off-Airport Aviation-Dependent Business Activity (3*)	0	\$0	\$0
<i>Subtotal:</i>	<i>1</i>	<i>\$5,954</i>	<i>\$15,513</i>
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	<i>0</i>	<i>\$3,253</i>	<i>\$9,088</i>
<i>On Statewide Economy</i>	<i>1</i>	<i>\$7,491</i>	<i>\$20,945</i>
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>2</b>	<b>\$18,518</b>	<b>\$42,101</b>
<b>On Statewide Economy</b>	<b>3</b>	<b>\$22,756</b>	<b>\$53,958</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general aviation operations (taking off and landing at the same airport, such as touch-and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

## **Economic Impacts**

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

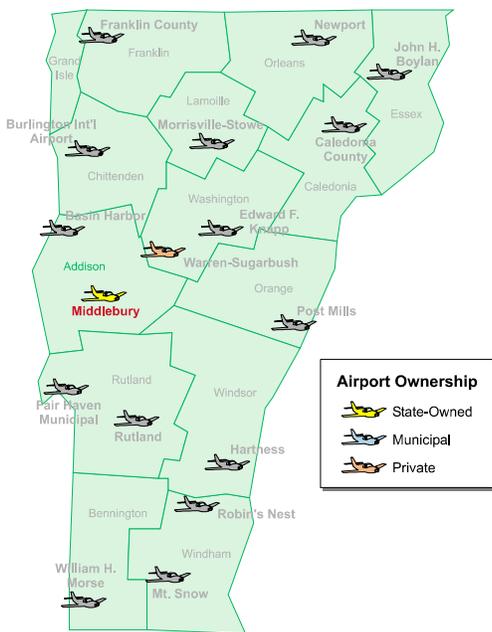
The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies the total impact of the single dollar. This additional economic activity is termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of respending. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.



## MIDDLEBURY STATE AIRPORT

### 1. Airport Background and Location

Middlebury State Airport is located near Middlebury, Vermont in the central-western portion of the State. The airport facility abuts the western edge of the Green Mountain National Forest. The topography makes the airport approach one of the most memorable in the region.

Access from Middlebury to the Middlebury State Airport is via Route 116, which is easily accessible from Route 125 and Route 7. The market area for the airport centers on Middlebury and East Middlebury, and is bounded, more or less by, Vergennes to the north, Salisbury to the south, the Green Mountains to the east, and Bridgeport to the west. Although citizens in this area use Burlington International Airport for scheduled air passenger service, some corporate and general aviation aircraft in this area choose to avoid Burlington by using Middlebury State.

Access to the Middlebury area from the north and south is via Route 7. Middlebury is located at the intersection of Routes 125, 30, and 23, which also provide access to the area. Route 7 is the major north-south highway in western Vermont, extending from the Canadian to the Massachusetts border. Route 125 is an east-west roadway which extends from the New York border, through Middlebury and East Middlebury, and continues through the Green Mountains until reaching the White River Valley. Routes 30 and 23 provide access from the southwest and northwest, respectively.

### 2. Facilities and Activity

The airport has a single paved runway 2500 feet in length. It is home to fifty based aircraft, mostly single-engine piston planes. Of approximately 11,500 aircraft operations estimated at Middlebury last year, 6650 or 57 per cent were itinerant. Landside facilities at the airport include a terminal building, auto parking, and hangars. At the present time, capacity exists for additional general aviation use of hangar and tie down facilities.

J&M Aviation functions as the airport manager, and also provides fixed-base operator services. Despite mounting insurance prices, J&M is starting flight lessons and aircraft rental services. The Jack Downey Corp. operates an aircraft repair business at Middlebury as well.

Transient traffic at the Middlebury State Airport is served by taxi service.

### **3. Airport Related Economic Uses**

Review of the Middlebury State Airport indicated that although estimated business use of the facility as a percentage of total annual operation was relatively low, several local businesses benefited greatly from the airport. In the case of Downey Corporation, the ability to operate on-site at an airport was an important factor in deciding where to locate the business. The nature of their business requires Downey employees to travel in order to locate potential planes for renovation, and it requires that customers have the ability to fly to an airport and taxi directly into the hangar where maintenance is to be performed. Middlebury College, one of the largest employers in the area, relies on the airport for several reasons. The airport is often used by parents of Middlebury College students, school guests, speakers, and officials visiting the area. Several other businesses in the area, which base planes in Burlington, often use the Middlebury State Airport when traffic is too heavy at Burlington International Airport.

### **4. Other Airport Benefits**

Middlebury State Airport adds in several ways to the area's quality of life. An important function of the airport is to provide access to recreational flying for residents in the area. Middlebury State Airport is used frequently for mosquito spraying operations, and it has been used in the past as a base for fighting forest fires. Vermont State Police use the airport for drug enforcement operations, and the National Guard uses the airport for training.

Each summer, Middlebury assists with an ACE Camp, two one-week programs sponsored by the FAA which are intended to interest children in aviation careers. Semi-monthly meetings of local pilots also take place at the airport. An open house is held each year.

<b>Airport Report:</b>		<b>Middlebury State</b>	
Code:	6B0		
City/Town:	Middlebury		
County:	Middlebury		
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	0	Commercial	0
Itinerant General Aviation	6,650	General Aviation	15,920
Military	800		
<b>Total:</b>	<b>7,450</b>	<b>Total:</b>	<b>15,920</b>
			<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>Economic Impact Category</b>	<b>Employment</b>	<b>Payroll (Wages)</b>	
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	1	\$8,387	\$15,000
On-Airport Passenger Service	0	\$0	\$0
On-Airport Freight Service	0	\$0	\$0
Other Aviation Services	14	\$196,812	\$2,000,000
<i>Subtotal:</i>	<i>15</i>	<i>\$205,199</i>	<i>\$2,015,000</i>
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	22	\$236,688	\$649,938
Off-Airport Aviation-Dependent Business Activity (3*)	55	\$2,157,164	\$9,804,750
<i>Subtotal:</i>	<i>77</i>	<i>\$2,393,852</i>	<i>\$10,454,688</i>
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	<i>101</i>	<i>\$2,563,228</i>	<i>\$8,467,923</i>
<i>On Statewide Economy</i>	<i>111</i>	<i>\$2,649,165</i>	<i>\$8,941,520</i>
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>193</b>	<b>\$5,162,279</b>	<b>\$20,937,611</b>
<b>On Statewide Economy</b>	<b>203</b>	<b>\$5,248,216</b>	<b>\$21,411,208</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general aviation operations (taking off and landing at the same airport, such as touch-and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

## Economic Impacts

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

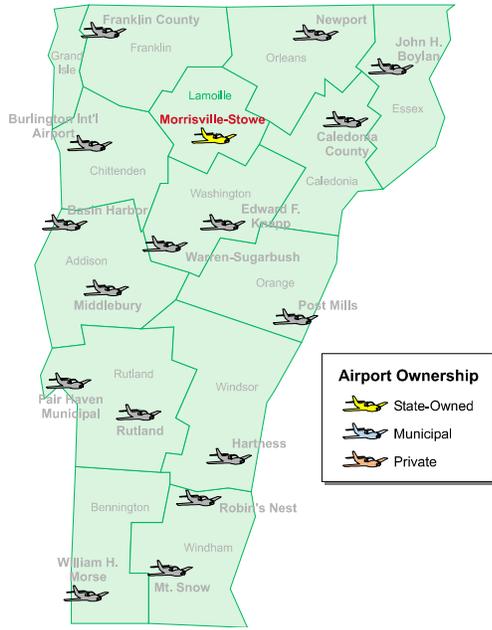
Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies the total impact of the single dollar. This additional economic activity is

termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of respending. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.



## MORRISVILLE-STOWE STATE AIRPORT

### 1. Airport Background and Location

Morrisville-Stowe State Airport is located in Morrisville, Vermont in the north-central portion of the State. The airport's location near the ski area in Stowe and tourist attractions in Jeffersonville and Waterbury make the airport ideally located to serve the demands of the strong local tourist industry. The beauty of the local topography also draws visitors who use the airport.

Access from both Morrisville and Stowe to the Morrisville-Stowe State Airport is via Route 100. The airport is located less than three miles south of Morrisville and approximately 7.5 miles north of Stowe. Visitors enter the airport parking lot directly

from Route 100, making the airport's access extremely easy. The market area for the Morrisville-Stowe State Airport is bounded, more or less, by Eden to the north, Waterbury to the south, Hardwick and Greensboro to the east, and Jeffersonville to the west.

Access to the Morrisville and Stowe areas is dominated by Interstate 89. I-89 travels northwest-southeast across the central portion of the State and intersects Route 100 in Waterbury. Access from I-89 to the Morrisville and Stowe areas is via Route 100. Route 100 is a north-south roadway that travels the length of central Vermont and passes through both Morrisville and Stowe. Stowe is approximately 10 miles north of Waterbury, and Morrisville is approximately 19 miles north of Waterbury. Access to the area from the north is via Routes 100 and 106.

### 2. Facilities and Activity

The airport's single paved runway is 3700 feet long. Morrisville-Stowe reported 14,820 local aircraft operations in 2001, and 3200 itinerant. Twenty-eight aircraft are based at Morrisville-Stowe, including eight gliders. Landside facilities at the Morrisville-Stowe State Airport include a terminal building, auto parking, and hangars.

The airport has two on-site tenants, Whitcomb Aviation and Phil's Aircraft Service. Whitcomb Aviation is the airport fixed-base operator and functions as the facility manager. Phil's Aircraft Service provides repair and related maintenance services.

Transient traffic at the Morrisville-Stowe State Airport is served by taxi and rental car service.

### **3. Airport Related Economic Uses**

Review of the airport indicates that it impacts area businesses in several ways. Examples of companies using the airport on a frequent basis include Bachman Pretzels, Metropolitan Music, House of Troy, and Cabineri Construction. Burton Snowboard Company, a nationwide producer of recreational equipment, is also a frequent user of the airport. Charter flights into the airport may also represent significant business-related use.

The tourism industry of this area is one of the largest sectors of the local economy. Morrisville-Stowe State Airport is instrumental in supporting tourism-based economic activities in the area. Air charter services frequent the Morrisville-Stowe State Airport in large numbers. These charters bring tourists to the area, and these tourists support inns, hotels, ski resorts, restaurants, and many other parts of the Vermont economy. Several well-known executives from the New York area use the airport when flying up to the Stowe area for weekend trips. Many of these executives have second homes in the area which they visit on a weekly basis, supporting local retailers and restaurants.

### **4. Other Airport Benefits**

Morrisville-Stowe State Airport adds in several ways to the area's quality of life. Every two years, the airport holds a soaring competition. This week-long glider event draws hundreds from out of the area. The airport also holds open houses to better acquaint residents with the facility.

Pilots in the area are on-call for the transportation of organs needed for transplants. Area pilots also fly patient transfer operations when the need arises. Vermont State Police use the airport for drug enforcement activities, and the National Guard uses the airport to practice helicopter operations. In

the past, Morrisville Police have accepted the volunteer efforts of local pilots who used their aircraft to aid in law enforcement operations. The Civil Air Patrol also uses airport facilities for training and search and rescue operations.

Morrisville-Stowe State Airport is involved in an annual rabies bait drop which is a joint effort by the USDA and the Canadian government to control the spread of rabies in the area. Every year the airport is used by the governments to drop bait filled with rabies vaccines over the surrounding areas.

<b>Airport Report:</b>		<b>Morrisville-Stowe Airport</b>	
Code:		MVL	
City/Town:		Morrisville	
County:		Lamoille	
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	0	Commercial	0
Itinerant General Aviation	3,200	General Aviation	6,080
Military	500		
<b>Total:</b>	<b>3,700</b>	<b>Total:</b>	<b>6,080</b>
			<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>Economic Impact Category</b>	<b>Employment</b>	<b>Payroll (Wages)</b>	
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	1	\$28,881	\$52,667
On-Airport Passenger Service	0	\$0	\$0
On-Airport Freight Service	0	\$0	\$0
Other Aviation Services	8	\$138,936	\$390,000
<i>Subtotal:</i>	<i>9</i>	<i>\$167,817</i>	<i>\$442,667</i>
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	7	\$97,582	\$248,210
Off-Airport Aviation-Dependent Business Activity (3*)	63	\$1,611,871	\$6,291,875
<i>Subtotal:</i>	<i>70</i>	<i>\$1,709,453</i>	<i>\$6,540,085</i>
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	<i>97</i>	<i>\$1,865,102</i>	<i>\$4,999,672</i>
<i>On Statewide Economy</i>	<i>114</i>	<i>\$1,934,539</i>	<i>\$5,249,134</i>
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>176</b>	<b>\$3,742,372</b>	<b>\$11,982,424</b>
<b>On Statewide Economy</b>	<b>193</b>	<b>\$3,811,809</b>	<b>\$12,231,886</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general aviation operations (taking off and landing at the same airport, such as touch-and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

## **Economic Impacts**

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

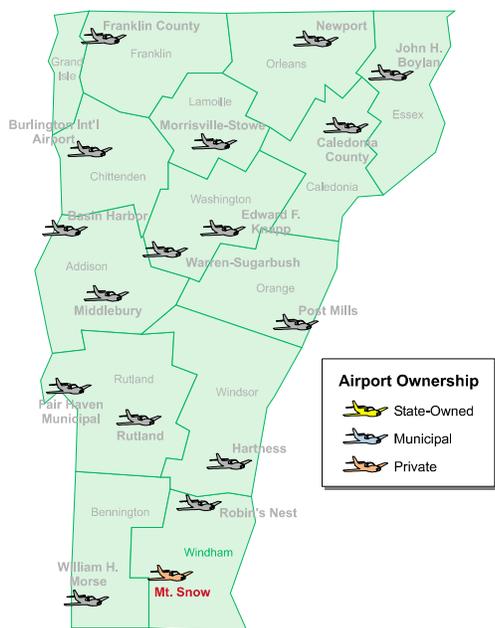
The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies the total impact of the single dollar. This additional economic activity is termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of respending. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.



## **MOUNT SNOW AIRPORT**

### **1. Airport Background and Location**

Mount Snow airport is a privately-owned facility located in the township of West Dover. The airport is situated close to several major resorts in southern Vermont, particularly the Mount Snow-Haystack area.

### **2. Facilities and Activity**

The single paved runway is 2650 feet long. It is plowed in the winter and thus remains open to general use through the ski season. Six aircraft are currently based there. The airport reported 700 local operations and 860 itinerant operations for 2001.

North Air, Inc. is the airport fixed-based operator, providing fuel and hangar space for aircraft, and miscellaneous services such as car rental and sight-seeing. Enclosed space for leasing is also available at the airport to non-aviation businesses. One of these businesses is Dover Building Company, Inc., which builds and sells timber frame homes throughout the United States from its base of operations at the Mt. Snow Airport hangar facility.

### **3. Airport Related Economic Uses**

Chalets and condominiums can be rented through North Real Estate at the airport, which draws additional visitors to the area. During warm months, camping is available on airport grounds.

The airport is also used by local brokers who frequently fly clients into the Mount Snow Airport when looking at prospective property to buy. The purchase of real estate in this area provides added economic benefits to the state of Vermont, as well as to the local area.

#### 4. Other Airport Benefits

Mount Snow airport has had an air show every year for twenty years, which draws visitors from all over the region. The airport is frequently used by emergency medical evacuation services, and is a staging ground for local search-and-rescue efforts.

<b>Airport Report:</b>		<b>Mt. Snow Airport</b>	
Code:		4V8	
City/Town:		West Dover	
County:		Windham	
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	0	Commercial	0
Itinerant General Aviation	860	General Aviation	1,634
Military	0		
<b>Total:</b>	<b>860</b>	<b>Total:</b>	<b>1,634</b>
Economic Impact Category			Total Output: Business Sales and Public Sector Expenditure
		Employment	Payroll (Wages)
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	0	\$0	\$0
On-Airport Passenger Service	0	\$0	\$0
On-Airport Freight Service	0	\$0	\$0
Other Aviation Services	6	\$150,000	\$214,286
<i>Subtotal:</i>	6	\$150,000	\$214,286
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	2	\$25,925	\$66,706
Off-Airport Aviation-Dependent Business Activity (3*)	1	\$3,587	\$7,500
<i>Subtotal:</i>	3	\$29,512	\$74,206
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	4	\$63,945	\$1,065,459
<i>On Statewide Economy</i>	4	\$82,651	\$1,362,386
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>13</b>	<b>\$243,457</b>	<b>\$1,353,951</b>
<b>On Statewide Economy</b>	<b>13</b>	<b>\$262,163</b>	<b>\$1,650,878</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general

aviation operations (taking off and landing at the same airport, such as touch-and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

### **Economic Impacts**

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

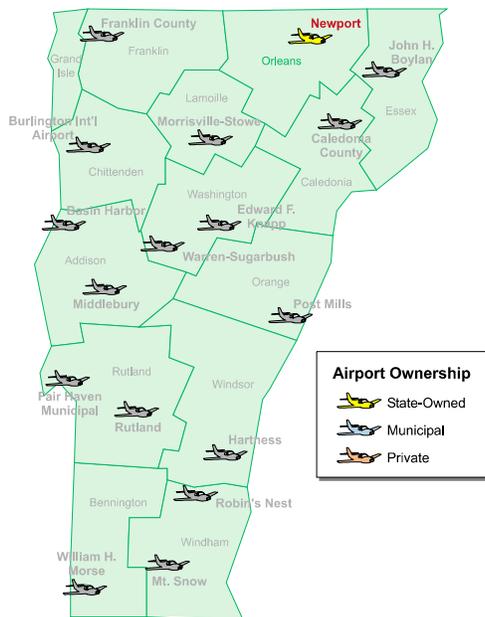
Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies

the total impact of the single dollar. This additional economic activity is termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of responding. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.



## NEWPORT STATE AIRPORT

### I. Airport Background and Location

Newport State Airport is located near Newport, Vermont in the northern portion of the State. Newport State Airport is one of the northernmost airports in the State. Therefore, it is ideally located to tap the market of cross-border traffic with Canada. The airport also adjoins parkland and sits less than a mile from the shore of Lake Memphremagog.

Access to the airport from Newport is via Airport Road, which is easily accessible from Route 5 from the middle of Newport. The market area for the Newport State Airport is bounded by Jay Peak to the west, Island Pond to the east, Barton to the south, and the Canadian Border

to the north. The inclusion of Jay Peak in the airport's market area is important because it represents a potential for increased usage of the airport. Jay Peak attracts many skiers from Quebec and Ontario. Air charter service from Canada to Newport State Airport is an idea being studied by both Jay Peak and members of the community. Access to the Newport area is dominated by Interstate 91; the highway extends the entire length of Vermont along the State's eastern boundary with New Hampshire and connects Vermont with Canada to the north and Massachusetts to the south. Route 5 is another major north-south roadway for the area. East-west access to the area is via Routes 105 and 111. Route 105 connects Newport to Island Pond to the east and the Jay Peak ski area to the west. Route 111 connects Newport to Morgan and Island Pond, both east of the town.

### 2. Facilities and Activity

The facility has two paved intersecting runways. Runways 18/36 and 5/23 are both 4000 feet long, with the latter closed during winter. There are eighteen aircraft based at Newport, with 5500 local and 1460 itinerant operations counted in 2001. Landside facilities at the airport include a terminal building, auto parking, several hangars and a restaurant.

The airport came recently under new management. Beaudry Aviation is the manager/FBO and provides both AV and jet fuel, maintenance, hangar space, and other miscellaneous services. Activity has been steadily growing at Newport State Airport. Transient traffic is served by taxi and rental car service.

### **3. Airport Related Economic Uses**

Businesses that use the airport include Columbia Forest Products, North America's largest manufacturer of hardwood, plywood, veneer, and laminated products. The president of another national company frequently uses the airport to spend time at a home he owns in the Newport area, as well as to visit the company's facilities in Vermont. The president's decision to have a second home and to locate part of its expanded operations in the area was a direct result of the access to quick and easy travel offered by the airport. The company's headquarters are in Delaware. Therefore, operation of facilities in the Newport area would be impractical if the access to corporate air travel offered by the Newport State Airport was not available.

Jay Peak Ski Resort attracts some customers with private aircraft; Newport State Airport allows these customers to fly in and out of the area. Second-home owners, mostly from New Jersey and Massachusetts, use the airport to reach homes in the Jay Peak area. The market that these tourists and second-home owners create is important to the service sector of the local economy. Discussions with a representative of the Jay Peak Resort also indicate a market exists for air charter service to bring skiers from Canada to the area. About one half of the market area for the Jay Peak Resort lies in Canada, including Ontario and Quebec.

#### 4. Other Airport Benefits

Newport State Airport adds in several ways to the area's quality of life. Newport supports the aircraft activity of local law enforcement, emergency medical services, and search and rescue teams. Aerial environmental inspections by the State of Vermont also make use of the airport. A fly-in campground is set to open in the near future, which will attract visitors from elsewhere and take advantage of the airport's location near parkland and the lake.

<b>Airport Report:</b>		<b>Newport</b>	
Code:		EFK	
City/Town:		Newport	
County:		Orleans	
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	0	Commercial	0
Itinerant General Aviation	1,460	General Aviation	2,774
Military	180		
<b>Total:</b>	<b>1,640</b>	<b>Total:</b>	<b>2,774</b>
			<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>Economic Impact Category</b>	<b>Employment</b>	<b>Payroll (Wages)</b>	
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	1	\$9,519	\$17,500
On-Airport Passenger Service	0	\$0	\$0
On-Airport Freight Service	0	\$0	\$0
Other Aviation Services	1	\$16,209	\$100,000
<i>Subtotal:</i>	2	<i>\$25,728</i>	<i>\$117,500</i>
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	4	\$43,175	\$113,246
Off-Airport Aviation-Dependent Business Activity (3*)	0	\$0	\$0
<i>Subtotal:</i>	4	<i>\$43,175</i>	<i>\$113,246</i>
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	1	<i>\$16,418</i>	<i>\$126,796</i>
<i>On Statewide Economy</i>	3	<i>\$35,642</i>	<i>\$126,516</i>
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>7</b>	<b>\$85,321</b>	<b>\$357,542</b>
<b>On Statewide Economy</b>	<b>9</b>	<b>\$104,545</b>	<b>\$357,262</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general aviation operations (taking off and landing at the same airport, such as touch-and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

## **Economic Impacts**

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

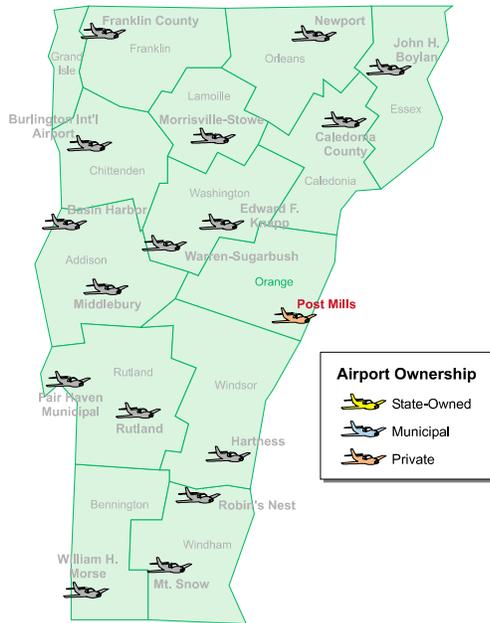
The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies the total impact of the single dollar. This additional economic activity is termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of respending. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.



## **POST MILLS AIRPORT**

### **1. Airport Background and Location**

Post Mills Airport is located at Post Mills in the township of Thetford. It is privately owned by Brian Boland. The airport has two non-intersecting turf runways 2900 and 2300 feet in length. In winter the runways are not plowed, but remain open to ski-equipped aircraft.

### **2. Facilities and Activity**

The airport is home to sixteen based aircraft. 2500 local operations were counted in 2001, as well as 2000 itinerant operations.

### **3. Airport Related Economic Uses**

Brian and Louise Boland have established the Experimental Balloon and Airship Association. Each May, the airport hosts the world's largest gathering of home-built balloons. The 2001 Experimental Balloon Meet saw forty balloons in the air in a single day, and attracted hundreds of people over a weekend in May from as far away as England, France, and Switzerland. The Bolands also maintain a large museum on airport grounds.

### **4. Other Airport Benefits**

The Post Mills Soaring Club is based at Post Mills Airport. Formed in 1987, it now numbers about twenty-five glider enthusiasts.

<b>Airport Report:</b>		<b>Post Mills</b>	
Code:		2B9	
City/Town:		Post Mills	
County:		Orange	
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	0	Commercial	0
Itinerant General Aviation	2,000	General Aviation	3,800
Military	0		
<b>Total:</b>	<b>2,000</b>	<b>Total:</b>	<b>3,800</b>
			<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>Economic Impact Category</b>	<b>Employment</b>	<b>Payroll (Wages)</b>	
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	0	\$0	\$0
On-Airport Passenger Service	0	\$0	\$0
On-Airport Freight Service	0	\$0	\$0
Other Aviation Services	2	\$73,394	\$180,438
<i>Subtotal:</i>	2	\$73,394	\$180,438
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	6	\$59,345	\$155,131
Off-Airport Aviation-Dependent Business Activity (3*)	8	\$732,600	\$1,610,000
<i>Subtotal:</i>	14	\$791,945	\$1,765,131
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	7	\$418,844	\$1,129,353
<i>On Statewide Economy</i>	7	\$491,079	\$1,300,318
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>23</b>	<b>\$1,284,183</b>	<b>\$3,074,922</b>
<b>On Statewide Economy</b>	<b>23</b>	<b>\$1,356,418</b>	<b>\$3,245,887</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general aviation operations (taking off and landing at the same airport, such as touch-and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

## Economic Impacts

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

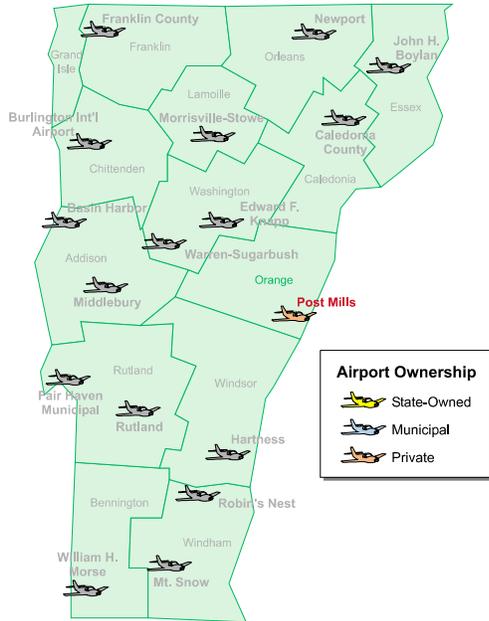
The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies the total impact of the single dollar. This additional economic activity is termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of respending. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.



## **ROBIN'S NEST – NORTH WINDHAM AIRPORT**

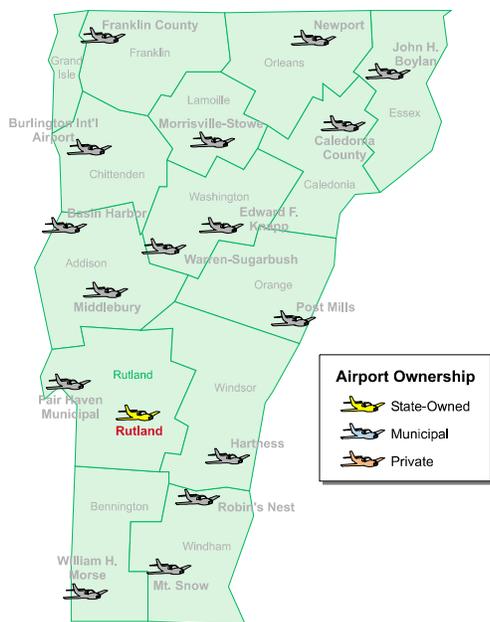
### **1. Airport Background and Location**

Robin's Nest Airport is located in the township of Windham. The airport is located adjacent to Tater Hill Country Club, which has an 18-hole championship golf course and a popular restaurant on the premises.

### **2. Facilities and Activity**

It has a single turf runway 2270 feet in length. The airport is not plowed and is normally closed during the winter and mud season.

The survey staff contacted airport management and were informed that the airport had been closed during 2001.



## RUTLAND STATE AIRPORT

### 1. Airport Background and Location

Rutland State Airport is located near Rutland, Vermont in the central portion of the State. The airport is actually located in North Clarendon, approximately six miles south of Rutland. Rutland State Airport is the largest State-owned airport in Vermont, and it is the only State-owned airport with scheduled air passenger service.

Access to the Rutland State Airport is via Airport Road, which is easily accessible from Route 103. The market area for the Rutland State Airport is larger and less defined than the other State-owned airports in Vermont because of the airport's scheduled air passenger service.

Practically speaking, the market for the airport is bounded by Proctor to the north, Manchester to the south, Killington to the east, and Castleton to the west. The market area for air passenger service at Rutland State Airport is larger than this area and probably encompasses much of the southwest portion of the State.

Access to the Rutland area is via Route 7 and Route 4. Route 7 is the main north-south highway in western Vermont, and it is located at the western edge of the Green Mountains. This roadway travels the length of Vermont from the northern border with Canada to southern border with Massachusetts. Route 4 is the largest east-west State highway in Vermont. Route 4 travels the width of central Vermont from its eastern border with New Hampshire to its western border with New York. The City of Rutland is located at the intersection of these two routes, and Rutland State Airport is approximately six miles south of this intersection on Route 7.

### 2. Facilities and Activity

Rutland has two runways: 1/19 is the longer at 5000 feet, and runway 13/31 is 3170 feet in length. Colgan, a USAirways Express carrier, flies three daily frequencies between Rutland and Boston on nineteen-seat turboprop aircraft, with two direct flights to Boston on the weekdays and two flights consisting of a circuit through Lebanon NH on the weekends. Nearly 5400 people enplaned at Rutland in 2001 on this scheduled commercial service, and 550

tons of cargo passed through the airport. Rutland reported 12,008 local general aviation operations, and 11,700 itinerant GA operations. 832 military operations were also counted. The landside facilities at the airport include a terminal building, auto parking, hangars, and a C.A.P. building. The terminal building contains space for a restaurant, recently vacated by Emilia's Canteen. In addition, the terminal building has the Colgan Air ticket counter; two rental car agency booths; and two passenger service gates. One of the passenger service gates is devoted to Colgan Air's scheduled air service, and the other gate is used to accommodate seasonal carriers who operate in Rutland during winter months to support the area's ski resorts.

Important airport tenants include the Omya Corporation's flight department, SD Air Service Corporation, and Columbia Aviation Services which provides FBO facilities. The airport provides logistical flexibility to the tenants of the adjacent Airport Industrial Park.

### **3. Airport Related Economic Uses**

Review of this airport indicates that a large number of area businesses use the airport. In some cases, these companies can only operate in the area because of the airport. Included in these business-related operations are Colgan Air's flights to and from Rutland and flights by both UPS and FedEx at the airport. FedEx has a distribution center in an industrial park that abuts the airport property, and bases a plane in a hangar at the Rutland State Airport. The scheduled passenger service provided by Colgan Air is important to area businesses because it allows employees and executives to begin scheduled air passenger travel without having to commute to Burlington, Albany, or Lebanon. Access to scheduled air service saves companies time and money and increases employee productivity.

Omya Corporation is a mineral extraction company with operations spanning the entire globe, and the headquarters Omya maintains in Rutland is a great boon to the local economy. Without the flexibility to move critical personnel provided by Rutland Airport, it would be impossible for the company to continue its HQ operation in the area. If access to the airport facilities were somehow limited or became too costly, the company would be forced to move, taking with it millions of dollars paid to the State in taxes and a significant amount of the airport's fuel sales. American Skiing Company also bases an aircraft at the airport. This company is responsible for investing

millions of dollars in the ski areas of Vermont. This investment has and will continue to have a large impact on the State's economy. Executives of the American Skiing Company use Rutland State Airport to travel between ski resorts in Vermont in addition to their other holdings across the country. This company's investments in Vermont's ski areas is creating some of the best and most consistent ski conditions in the East, which will ensure that tourists and tourist dollars continue to flow into the State.

General Electric, who has a facility in Rutland, is also known to be a frequent user of the airport. Discussions with the FBO indicate that on any given day corporate jets from such large international corporations as Nike, Time Warner, and Dow Chemicals operate at the airport. Even though most of these operations are for recreational purposes, some are known to be business-related. These business and recreational visits by executives of such large international corporations bring economic benefits into both the Rutland area and the State of Vermont.

The economic benefits for Vermont associated with business-related use of the airport ranges from job creation to increases in tax revenues, in addition to daily expenditures by these business-related visitors for hotel/motel, food and beverage, and other purchases. The economic benefits of recreational-related use of the airport ranges from the support of the tourism industry to the purchase of second homes by corporate executives.

Rutland is a particularly popular destination due to its close proximity to Killington, among the largest ski resorts on the eastern seaboard. In addition, many individuals have been attracted to build large second homes in the area because of the winter sports and year-round scenery, and among them Rutland State Airport is a popular point of access to the area. Visitors to the Equinox Hotel in Manchester often fly into Rutland State Airport. The Equinox Hotel is a world class hotel that is often used by large corporations to host business related conferences. Access provided by Route 7 from Rutland State Airport to the Manchester area makes this airport, as well as Bennington State Airport, a common destination for business aircraft shuttling executives to these conferences.

#### **4. Other Airport Benefits**

In several ways, the Rutland State Airport adds to the area's quality of life. Rutland stages two popular, well-attended flying events sponsored by the Experimental Aircraft Association on an annual basis, which attracts attendance from all over the northeast. The airport is committed to maintaining a constructive relationship with surrounding communities, and holds a yearly open house to better acquaint residents with the facility. A Civil Air Patrol squadron is active at Rutland and provides youth-oriented activities targeted at teamwork and leadership development. The Vermont State Police use the airport for drug enforcement operations, and the Air National Guard uses the airport for training purposes.

The airport hosts an annual Aviation Career Education (“ACE”) Camp. These week-long programs are co-sponsored by the FAA and give pre-teens and teenagers an introduction to the wide array of career opportunities that will one day be available to them in the field of aviation. The program focuses particularly on showcasing aviation-related careers to girls and under-represented minorities.

STARBASE, a nationwide school outreach program funded by the Department of Defense, recently opened a classroom in Rutland and works closely with the Rutland State Airport as part of its curriculum. The educational program brings aviation and aerospace learning to school-age children, teaching math, physics and technology. STARBASE Vermont is under the direction and support of the Vermont National Guard at both the Rutland State Airport and the Burlington International Airport STARBASE sites.

Emergency medical evacuations, performed by the Dartmouth College Hospital Helicopter, occur at the airport when weather conditions do not allow the helicopter to land at other sites.

In discussions with those charged with industrial development and transportation planning in the area, the importance of the airport is not overlooked. There is an industrial park that is located west of Runway 1/19 on land that abuts airport property. The industrial park currently has several tenants, including a FedEx distribution center. There is discussion of possibly expanding the industrial park and providing direct access from the

industrial park to the airport. Direct access to the airport would allow companies like FedEx to taxi aircraft directly to distribution facilities, cutting out one step in the cargo shipping process. Industrial developers stated that access to the airport is an important tool used to draw and to keep businesses in the area.

<b>Airport Report:</b>		<b>Rutland State Airport</b>	
Code:		RUT	
City/Town:		North Clarendon (Rutland)	
County:		Rutland	
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	2,174	Commercial	10,792
Itinerant General Aviation	11,700	General Aviation	22,230
Military	832		
<b>Total:</b>	<b>14,706</b>	<b>Total:</b>	<b>33,022</b>
<b>Economic Impact Category</b>			<b>Total Output: Business Sales and Public Sector Expenditure</b>
	<b>Employment</b>	<b>Payroll (Wages)</b>	
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	7	\$315,668	\$694,296
On-Airport Passenger Service	0	\$0	\$0
On-Airport Freight Service	0	\$0	\$0
Other Aviation Services	14	\$487,000	\$2,812,823
<i>Subtotal:</i>	<i>21</i>	<i>\$802,668</i>	<i>\$3,507,119</i>
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	43	\$516,067	\$1,348,090
Off-Airport Aviation-Dependent Business Activity (3*)	197	\$3,366,765	\$8,223,674
<i>Subtotal:</i>	<i>240</i>	<i>\$3,882,832</i>	<i>\$9,571,764</i>
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	<i>147</i>	<i>\$3,027,693</i>	<i>\$7,914,535</i>
<i>On Statewide Economy</i>	<i>153</i>	<i>\$3,140,156</i>	<i>\$8,620,924</i>
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>408</b>	<b>\$7,713,193</b>	<b>\$20,993,418</b>
<b>On Statewide Economy</b>	<b>414</b>	<b>\$7,825,656</b>	<b>\$21,699,807</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general aviation operations (taking off and landing at the same airport, such as touch-

and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

## **Economic Impacts**

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

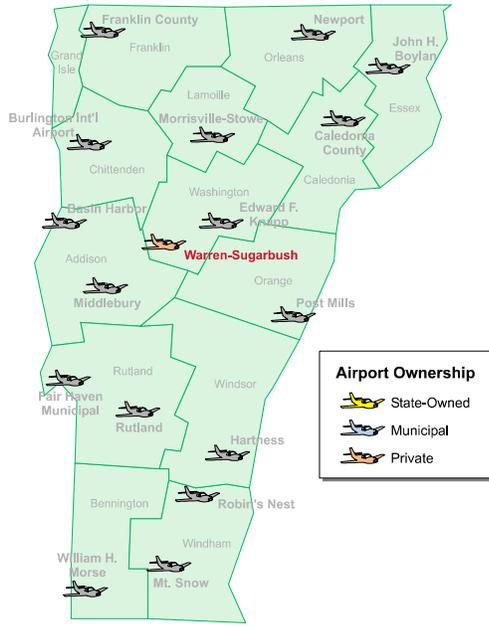
Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies

the total impact of the single dollar. This additional economic activity is termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of responding. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.



## **WARREN-SUGARBUSH AIRPORT**

### **1. Airport Background and Location**

Warren-Sugarbush is located in the township of Warren. The airport is a privately owned public access airport that welcomes visiting aircraft to the heart of the Green Mountains.

### **2. Facilities and Activity**

The airport has a single paved runway of 2575 feet. It is closed during winter months.

The facility reported 2400 local operations and 200 itinerant operations in 2001. Forty-two aircraft are based there, most of which are gliders.

The airport offers tie-downs, fuel and restaurant services for visitors.

### **3. Airport Related Economic Uses**

Soaring is the most important activity at Warren-Sugarbush. On any given weekend with good gliding weather, fifty or sixty people can be found at the airport. The Sugarbush Soaring Association numbers about seventy-five members, and reports total club revenues in the neighborhood of \$200,000. A biannual soaring competition is hosted by the club at Warren-Sugarbush, drawing an attendance of hundreds to the local area.

### **4. Other Airport Benefits**

The airport restaurant is open for lunch daily, and breakfast and lunch on weekends throughout the summer months. The glider flight school and commercial ride business during the spring, summer and fall, along with the cross-country ski center in the winter, bring hundreds of visitors to the area throughout the year.

<b>Airport Report:</b>		<b>Warren-Sugarbush Airport</b>	
Code:		OB7	
City/Town:		Warren	
County:		Washington	
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	0	Commercial	0
Itinerant General Aviation	200	General Aviation	380
Military	0		
<b>Total:</b>	<b>200</b>	<b>Total:</b>	<b>380</b>
			<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>Economic Impact Category</b>	<b>Employment</b>	<b>Payroll (Wages)</b>	<b>Expenditure</b>
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	0	\$0	\$0
On-Airport Passenger Service	0	\$0	\$0
On-Airport Freight Service	0	\$0	\$0
Other Aviation Services	3	\$132,498	\$200,000
<i>Subtotal:</i>	3	\$132,498	\$200,000
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	0	\$5,931	\$15,513
Off-Airport Aviation-Dependent Business Activity (3*)	6	\$122,843	\$175,000
<i>Subtotal:</i>	6	\$128,774	\$190,513
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	5	\$136,851	\$235,301
<i>On Statewide Economy</i>	6	\$148,545	\$267,632
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>14</b>	<b>\$398,123</b>	<b>\$625,814</b>
<b>On Statewide Economy</b>	<b>15</b>	<b>\$409,817</b>	<b>\$658,145</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general aviation operations (taking off and landing at the same airport, such as touch-and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

## Economic Impacts

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

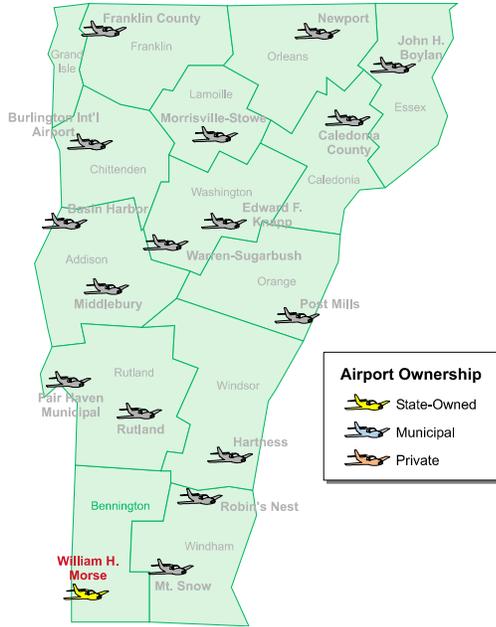
Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies the total impact of the single dollar. This additional economic activity is

termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of respending. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.



## **WILLIAM H. MORSE AIRPORT, BENNINGTON**

### **1. Airport Background and Location**

Bennington State Airport is located near Bennington, Vermont in the southwest corner of the State. The airport is located west of the city, not far from the Bennington Battle Monument. The monument was built to commemorate the Revolutionary War Battle of Bennington in which British forces were defeated by colonial volunteers from Vermont, New Hampshire, and Massachusetts.

Access from Bennington to Bennington State Airport is via Route 9. The airport is located equidistance from Bennington, east of the airport, and North Bennington, north of the airport. The market area for the Bennington State Airport extends from Pownal to the south, to the year-round resort areas Bromley and Stratton Mountain Village to the north, and stretches into New York as far west as Hoosick Falls and Eagle Bridge. Interviews with the airport manager indicate that area companies utilize Morse State Airport to facilitate executive travel and ship time-critical products via a chartered airplane.

The City of Bennington is located at the intersection of Route 7 and Route 9. Route 7 is the major State highway in western Vermont, extending from the Canadian border to the north, to Vermont's southern border with Massachusetts. Route 9 is the major State highway in southern Vermont, connecting Brattleboro, on the eastern border of Vermont, to Bennington, and then continuing into the State of New York. While Bennington's location at this intersection facilitates travel into the City, it also allows the citizens of Bennington to leave the area in order to begin aviation travel from other airports.

## **2. Facilities and Activity**

The airport has a single paved runway. 13/31 is 3,704 feet in length. Management reports approximately 3,000 commercial operations annually by charter freight carrier AirNow. Morse is also a regional center of general aviation activity, with 14,000 local operations and 9,000 itinerant operations reported last year. Forty-five aircraft are currently based at the facility.

The airport has one tenant on-site, AirNow; an air freight charter company that supplies lift capacity to some of the biggest names in American industry. AirNow also provides information management services to the two largest shipping companies in North America as well as the nation's leading transportation intermediaries.

## **3. Airport Related Economic Benefits**

Review of this airport indicates that it is of significant importance to the manufacturing business community. Specifically, NASTECH, a local employer that manufactures products for the automotive industry highly depends upon this airport to ship and receive time sensitive products. This airport's tenant, AirNow, employs 30 full time positions locally, and pumps 2.5 million dollars annually into the local economy in wages, goods, services and supplies.

Airport employees estimate that at least 75 percent of the airport's annual operations are business-related. This high percentage of business usage illustrates the dependency of local businesses on the airport.

The airport also supports local economic activity in the area in other ways. The Bennington State Airport is used occasionally to bring visitors to the southern ski areas of Vermont, or to other recreational destinations in the area. The airport is regularly used by groups that are holding business conferences in the area. The Equinox Hotel in Manchester, Vermont is a world-class hotel that is often used by large corporations or other groups to host business related conferences. The access that Route 7 provides to the Manchester area makes the Bennington State Airport, as well as Rutland State Airport, a common destination for business aircraft shuttling executives into the area for such conferences.

#### **4. Other Airport Benefits**

Because it must remain obstruction-free, the airfield itself acts to preserve open space and a meadow ecosystem in a rapidly-developing part of the state. Aerial application operators use Morse as a local base of operations. The airport also supports access to emergency services of all types: search and rescue, medical evacuation, and law enforcement are users of the airfield when the need arises.

Another important way in which the airport has woven itself into the fabric of the community is through the educational programs that it sponsors. It has partnered with the Bennington Career Development Center to establish a co-op program. Mount Anthony Union High School students frequently come to Morse as part of the school's Job Shadowing and Community Service programs. Finally, tours are given to classes of students at any age to whose curriculum an airport visit might be relevant.

In the past, the airport was used as a staging ground for community events. At the present time, the airport manager often leads school tours through the airport's facilities in an effort to educate the community about the importance of aviation and the positive economic impact that aviation related businesses have on the community.

<b>Airport Report:</b>		<b>William H. Morse State Airport</b>	
Code:	DDH		
City/Town:	Bennington		
County:	Bennington		
Aircraft Operations (take-offs and landings)		Airport Passengers	
Commercial	3,000	Commercial	0
Itinerant General Aviation	9,000	General Aviation	17,100
Military	120		
<b>Total:</b>	<b>12,120</b>	<b>Total:</b>	<b>17,100</b>
			<b>Total Output: Business Sales and Public Sector Expenditure</b>
<b>Economic Impact Category</b>	<b>Employment</b>	<b>Payroll (Wages)</b>	
<b>On-Airport Primary Impact (1*)</b>			
Airport Management and Airlines	1	\$27,535	\$50,000
On-Airport Passenger Service	0	\$0	\$0
On-Airport Freight Service	48	\$1,450,575	\$6,076,643
Other Aviation Services	7	\$161,175	\$675,182
<i>Subtotal:</i>	<i>56</i>	<i>\$1,639,285</i>	<i>\$6,801,825</i>
<b>Off Airport Primary Impact</b>			
Off-Airport Visitor Spending (2*)	21	\$267,303	\$698,090
Off-Airport Aviation-Dependent Business Activity (3*)	5	\$87,500	\$130,335
<i>Subtotal:</i>	<i>26</i>	<i>\$354,803</i>	<i>\$828,425</i>
<b>Spin-Off Effects (4*) of Airports:</b>			
<i>On Local Economy</i>	<i>44</i>	<i>\$738,131</i>	<i>\$2,764,446</i>
<i>On Statewide Economy</i>	<i>48</i>	<i>\$942,577</i>	<i>\$3,747,050</i>
<b>Vermont Airports Total Economic Impact</b>			
<b>On Own Local Economies Only</b>	<b>126</b>	<b>\$2,732,219</b>	<b>\$10,394,696</b>
<b>On Statewide Economy</b>	<b>130</b>	<b>\$2,936,665</b>	<b>\$11,377,300</b>

\* Numbers refer to steps detailed in Section 5: Methodology and Findings

In the table above, the estimated number of itinerant general aviation aircraft operations is presented because these operations estimates drove calculations of out-of-state visitors and visitor spending in Vermont. Local general aviation operations (taking off and landing at the same airport, such as touch-and-go activity), in contrast, were not used to calculate visitors to the State and so are not shown in the table.

## **Economic Impacts**

Public-use airports in Vermont, along with tenant businesses on airport property, contribute measurable benefits to their local areas and to the State economy through business activity that occurs on airport property. This activity is termed the **on-airport primary impact**, and was determined in this Study through visits and interviews with airport managers and tenant business owners.

Airports also provide direct benefits for businesses located off airport property. The **off-airport primary impact** has two components: expenditures by visitors to the State arriving by way of its airports, and off-airport businesses that depend partially or wholly on use of aviation services for transport.

Spending by out-of-state visitors to Vermont adds sales and jobs among off-airport businesses such as hotels, restaurants and retail establishments. Visitor expenditure impact was determined through a calculation of airport visitors and average expenditures as determined in surveys during airport visits.

The airport-dependent business impact was assessed through a mail survey to local businesses. The response rate to this survey varied widely around the State. Among those businesses that responded, the economic importance of airports to their activity is captured by the Study. However, because many businesses did not respond, it should be noted that the numbers are still a conservative estimate of the public-use airports' economic impact; further, directly comparing airport total impacts may yield counter-intuitive results due to the differing response rates of local businesses across the State. For a more relevant comparison of airport economic impacts by individual airport, which separates out this effect, please see Exhibit 12A.

Each dollar that an airport adds directly into an economy (the primary impact, described in the paragraphs above) continues to circulate through that economy. The re-spending of these dollars in consecutive rounds magnifies the total impact of the single dollar. This additional economic activity is

termed the **spin-off impact**. The Study employed IMPLAN to build a model of each local economy, as well as the statewide economy, in order to calculate spin-off impacts.

The total economic impact of each airport is the sum of the primary on-airport impact, the primary off-airport impact and the spin-off impact.

The airport report above presents both the local economic impact in the airport's own community, and its statewide economic impact. The difference lies in the spin-off impact, which is different for a local economy than for the State as a whole.

The local spin-off impact is somewhat smaller than the statewide spin-off impact, because the State economy is larger than local economies and captures a greater percentage of each round of respending. Both impact measures are relevant in different contexts, for example, a State policy maker may find the statewide impact of the airport most relevant for his or her purposes, while a local development official may be most concerned with the total local impact.

## 7. SPECIAL SCENARIOS

### GENERAL METHODOLOGY

The study used a separate economic forecasting and simulation model to assess the longer-term impacts of policies or scenarios that affect the cost, availability and level of aviation activity in Vermont.

A version of the REMI forecasting and policy analysis system was developed specifically for the state of Vermont. The system generates year-by-year estimates of employment, income, business output and gross domestic product for the state. These estimates include a “base case” and alternative scenarios that reflect expansion or contraction of the economy in response to a variety of potential changes in relative factor costs, disposable household income, labor wage and employment conditions, labor markets, commodity prices, business production and transportation costs, and costs of living. Articles about the model equations and research findings have been published in professional journals such as the *American Economic Review*, *The Review of Economic Statistics*, the *Journal of Regional Science*, and the *International Regional Science Review*. All of these publications support the use of REMI for the special scenarios presented in this chapter.

The model was applied to examine the impacts of three scenarios:

- ***Aftermath of Sept. 11:*** the long-term economic impacts if the loss in demand for commercial air travel and shifts in corporate aviation were to continue;
- ***Aviation Insurance Crisis:*** the long-term economic impacts of continuing the dramatic rise in costs and limitations on availability of aircraft liability insurance for general aviation within Vermont;
- ***Ground Transportation Alternatives:*** assessing the value of airports in terms of their interaction with the surface transport network, how they complement each other and how aviation relieves a burden from the State’s highway system.

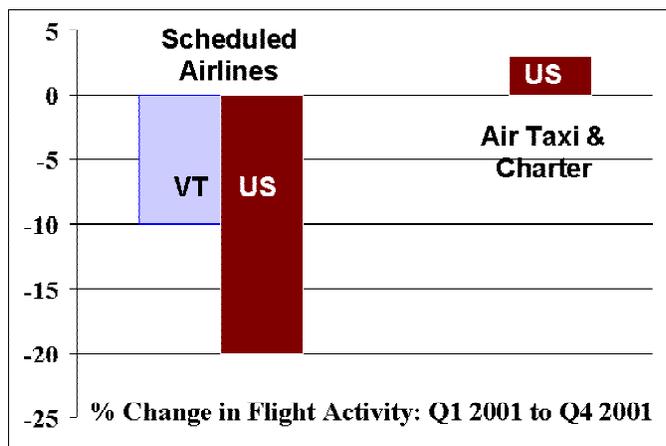
### SCENARIO 1: AFTERMATH OF SEPT. 11

Following the tragic events of Sept. 11, 2001, there was a significant reduction in passenger levels for commercial aviation, due to a combination of security concerns and increases in the time required for passenger time at air terminals. There was a modest rise in activity for corporate aircraft, which was seen by some as a means of avoiding or minimizing both of the problems facing commercial air travel.

The following figure shows that from the first to the last quarter of 2001, commercial aircraft operations declined 20 percent across the US and 10 percent in Vermont. The smaller loss in Vermont can be attributed in part to the fact that Vermont airports generally lack the coast-to-coast and overseas flights which were most severely affected. Exhibit 14 also shows that scheduled departures were similarly affected, while Exhibit 13 shows that over this period, unscheduled commercial activity— charter or air taxi operations – actually increased modestly. Total corporate general aviation flight hours in 2002 are now expected to be 2.2 percent higher than in 2001. Corresponding figures were not available for Vermont. The clear point, though, is that there was a shift in the nature of demand for air travel with a net reduction in aircraft flights coming into Vermont by air.

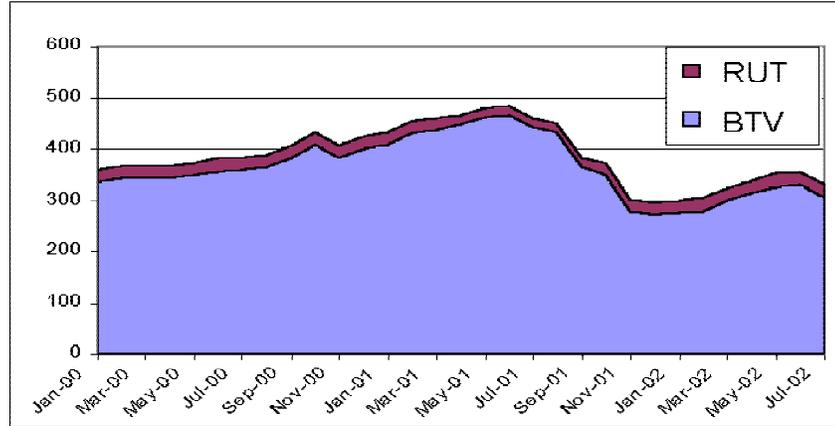
**Exhibit 13**

**Change in Flight Operations for Scheduled Airlines, Air Taxi and Charter Aircraft**



Source: FAA estimates, [www.aviationnow.com](http://www.aviationnow.com)

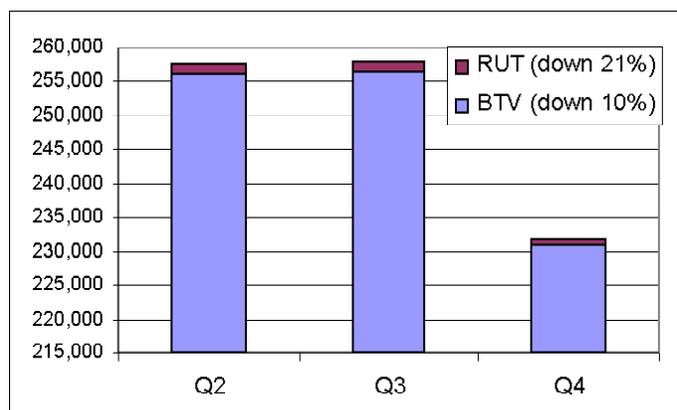
Exhibit 14  
Change in Scheduled Departures at Vermont Airports



Source: Airline schedules, Official Airline Guide

Besides the change in number of flight operations, there was also a change in the volume of commercial airline passengers flying into and out of both Rutland and Burlington airports. As seen in Exhibit 15, the number of commercial airline passengers using Rutland was down 21 percent from the fourth quarter of 2001, as compared to the second quarter of 2001, while Burlington's usage was down 10 percent for the same period.

Exhibit 15  
Change in Airline Passengers at Vermont Airports, 2001



Source: OD1A by Database Products Inc. and SH&E Analysis

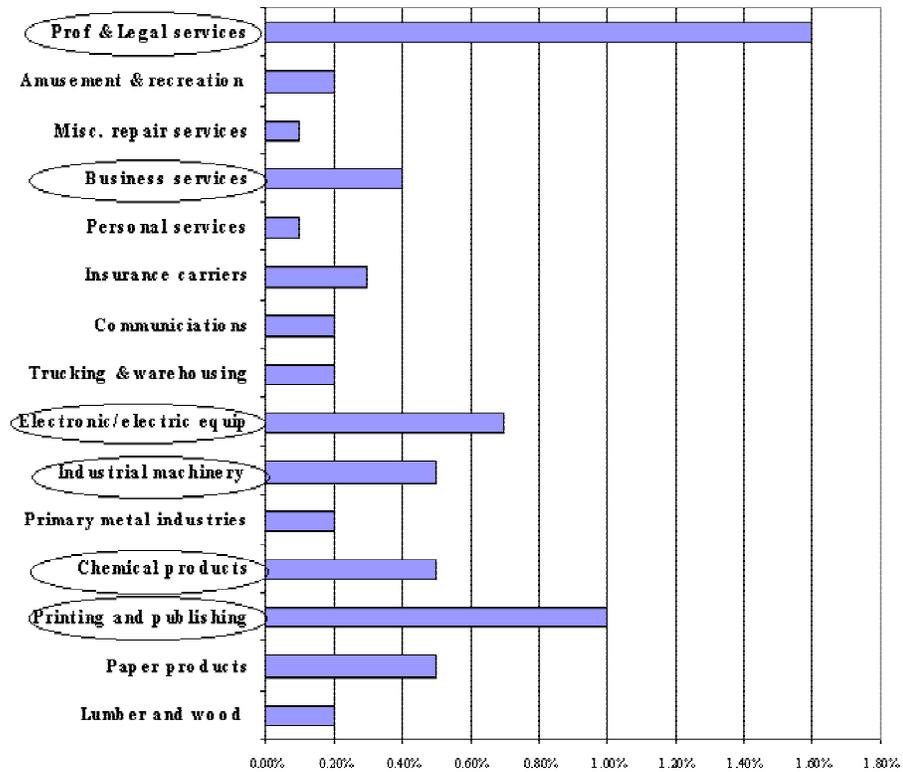
When looking at economic impacts, it is important to consider both the change in aircraft takeoffs and landings as well as the change in passenger levels. Long-term changes in the number of aircraft operations affect the level of business activity associated with aviation support – control tower, aircraft fueling, aircraft maintenance, etc. On the other hand, long-term changes in the number of passengers also affect the level of retail, lodging and other non-airport expenditures by visitors. The Study examined a scenario that assumed that both aircraft operations and visiting passenger volumes had fallen 10 percent.

A final form of economic impact is the additional wait time necessitated by increased security measures. Rutland and Burlington have not experienced lengthened wait times since September 11<sup>th</sup>. However, travelers to and from Vermont certainly experience lengthened waits at airports on the other end of their itineraries.

While additional wait time is a real loss for all commercial airline travelers, businesses can bear an additional cost of paying workers (and forgoing productivity or sales) who have to arrive earlier and wait longer at the airport. Based on survey data, it was assumed 40 percent of Vermont travelers are on business and 50 percent of these are employed by Vermont businesses. An additional average travel time of 60 minutes was assumed, based on nationally reported figures. The extra travel time was allocated to various Vermont industries based on data indicating their relative level of dependence on air travel, as shown in the following chart.

**Exhibit 16**

**Percent of Total Business Operating Cost Associated with Air Travel**



Source: Transportation Satellite Accounts -- US Bureau of Economic Analysis and US Bureau of Transportation

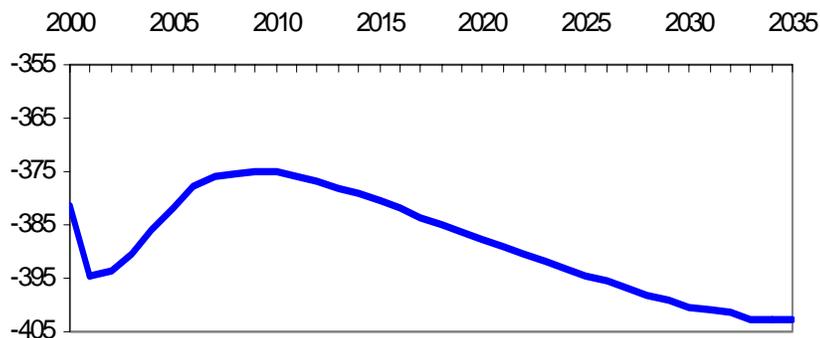
The overall result of this analysis was that, were it to continue indefinitely, the 10 percent loss of aircraft operations would lead to a loss of \$1.5 million per year in commercial aviation industry business sales. In addition, the 10 percent loss of air visitors to Vermont would lead to a \$4 million loss of visitor spending (representing a \$1.3 million loss of retail sales activity measured in terms of the local sales markup that would otherwise be gained). Finally, the added 225,000 annual hours of additional delay for business travelers would translate into \$6.8 million of additional business cost, if this downturn were to continue to compound over time.

When these costs and activity changes are entered into the REMI model, the result is a forecast of a larger loss of jobs, income and business sales over time. The total estimated impact on the Vermont economy is a loss of 395 jobs, \$13.4 million of personal income annually, and \$27.8 million of annual business sales.

The REMI model forecasts that these losses would be particularly significant in the first three years, would be slightly smaller in the following years as some economic adjustment occurs, and would then continue to increase in the longer term. However, as Exhibit 17 shows, the actual statewide loss of Vermont jobs remains within a fairly close range of 350 to 400 jobs over the next 35 years, which is the horizon of the REMI model.

**Exhibit 17**

**Change in Employment**



While there is no assumption that the downturn will be sustained for as many years as discussed here, it is important to note what kind of impact these events could have on the economy in the long term.

**SCENARIO 2: INSURANCE CRISIS**

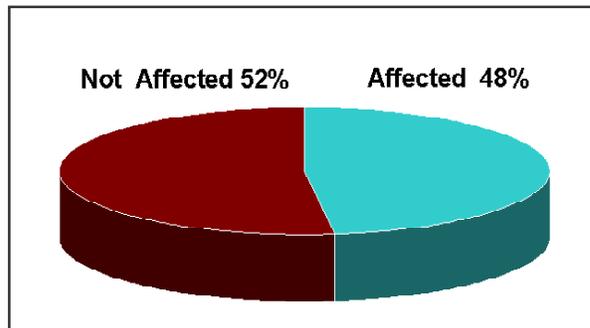
In recent years, many aircraft owners were affected by the thinning of the general aviation insurance market. For some owners, premiums have gone up; others cannot secure insurance at all. Small commercial GA operations saw their largest insurance carrier, AVEMCO, pull completely out of the market. The “general aviation insurance crisis” most affected hull, liability and premises insurance for flight schools, fixed based operators, and charter operators.

As seen in Exhibit 18, the survey of general aviation aircraft owners indicated that 48 percent had been affected by a change in aircraft liability insurance, through either a loss of insurance availability or a dramatic increase in its cost. The reported increase ranged from 30 percent - 300 percent, which is in line with reports from the adjacent state of New York (NYS DOT, Aviation Services Bureau, “General Aviation Insurance Rate Increases: The Effects on General Aviation in New York, November 2000) and those from the U.S. Government (NATA Special Report, “The Realities of the Aviation Insurance Market”), all but one of the fixed based operators at state-owned airports reported that they have eliminated or curtailed at least some of their aircraft rental or training activities due to the insurance issue.

**Exhibit 18**

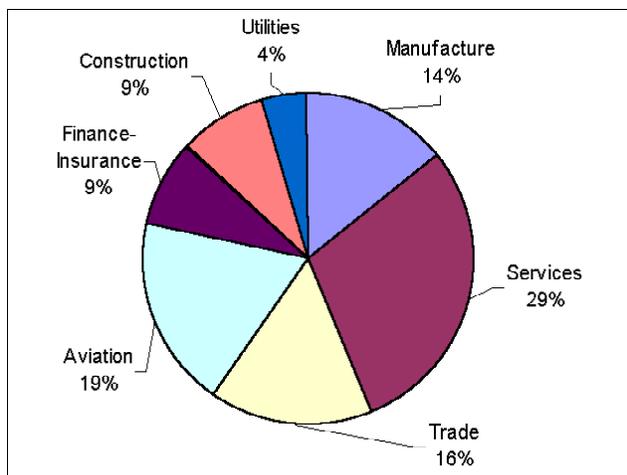
**Survey Results: Changes in General Aviation Liability Insurance**

*(including aviation businesses and other businesses owning aircraft)*



Source: Survey of corporate aircraft owners, SH&E, 2001

It is difficult to identify the full range of long-term consequences for aviation that can result from reducing the availability of flight training and rentals in Vermont. The most basic impact, however, is an estimated loss of \$7 million per year in income from these activities. The Study also estimated the added cost in operating an aircraft due to the change in liability insurance costs. Using data from the aircraft owner survey, an average cost impact of \$6,000 per business aircraft was multiplied over 230 corporate aircraft to represent a total additional business cost of \$1.2 million per year. The Study allocated the extra costs to various Vermont industries based on results from the aircraft owners survey, which indicated the following mix of industries owning aircraft:

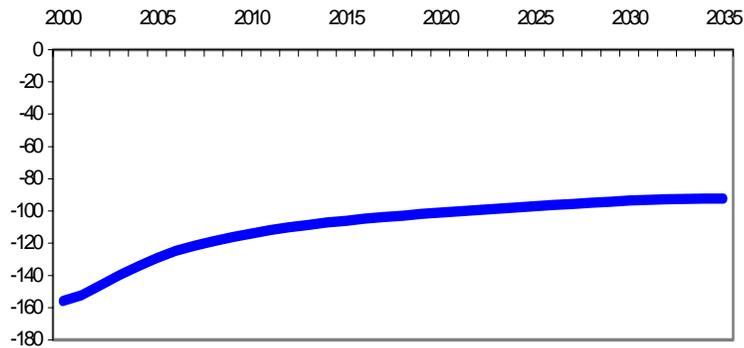
**Exhibit 19****Mix of Businesses Owning General Aviation Aircraft in Vermont**

*Source: Survey of aircraft owners, 2001*

When these costs and activity changes are entered into the REMI model, the result is a forecast of a larger loss of jobs, income and business sales over time. The total estimated impact on the Vermont economy is a loss of 155 jobs, \$5 million of personal income annually, and \$11.6 million of total business sales annually.

The REMI model forecasts that these losses would be in the range of 155 jobs within Vermont in the first year, with a gradual adjustment over time as fixed based operators move into different areas of activity and people adjust to alternative locations or activities for flight training (Exhibit 20). However, the long-term impact is forecast to remain as a continuing loss of over 100 jobs spanning REMI's 35-year horizon of analysis.

**Exhibit 20**  
**Change in Employment**



### **SCENARIO 3: GROUND TRANSPORTATION**

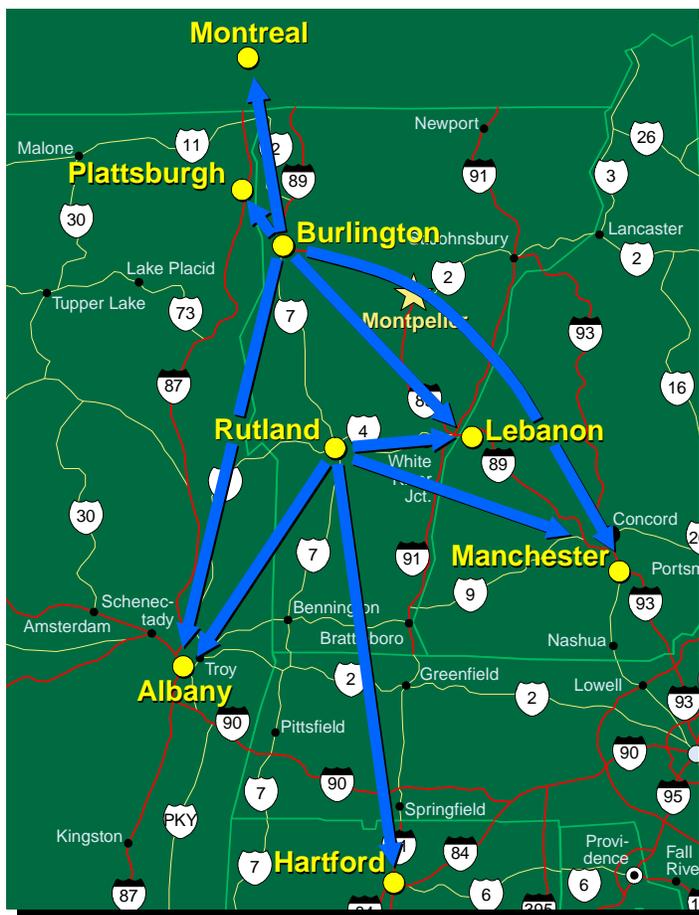
Airport activity in Vermont relies upon on the State’s surface transportation system. While it is not easy to measure the relationship between air transportation and the surface transportation system, the intermodal link is obvious. Without a well-planned and well-maintained system of roads, access to Vermont’s public-use airports would certainly be compromised. The surface transportation system allows employees to get to work, customers to get to their commercial or private aircraft, and businesses to move freight and parcels through air transportation. The intermodal link between the ground transportation and air transportation system is key to the viability of both.

There are two commercial airports within the state (Rutland and Burlington), with a variety of other commercial airports within a few hours of drive time in adjacent states (including Montreal, Albany, Plattsburgh, Manchester, Lebanon, and Hartford).

The existence of commercial airports within Vermont represents a clear convenience and savings in ground travel time and distance for passengers and cargo with origins or destinations in Vermont. The value of that convenience and savings can be calculated, and its economic benefits estimated, by examining the consequences of a scenario in which there is no commercial airline service in Vermont. Under that scenario, all passengers and freight now using Vermont airports would have to travel by highway to/from airports in other states.

The assumed diversions are shown in the map which follows. They include diversion of Burlington air travelers primarily to Montreal, Plattsburgh, Albany and Manchester. Rutland air travelers would be assumed to divert primarily to Albany, Manchester and Hartford, with a very small number going to Lebanon, NH.

**Exhibit 21**  
**Ground Transportation Routes for Diversion of Vermont Airline Travelers to Airports in Other States**



This scenario would affect a total of 1,060,792 airline passengers annually. The corresponding increase in ground travel would be an additional 119 million vehicle-miles of travel (VMT) per year, and an additional 2.6 million vehicle-hours of travel (VHT) per year. The corresponding distance and time involved in the diversion of 628,234 general aviation travelers would be smaller, due to the presence of a larger (and typically less distant) set of airport options in adjoining states. The estimated impact for them would be

an additional VMT of 32 million and additional VHT of 0.7 million annually. Adding cargo movements, the estimated grand total impact on ground transportation activity would be an increase of roughly 162 million of VMT and 3.3 million of VHT per year.

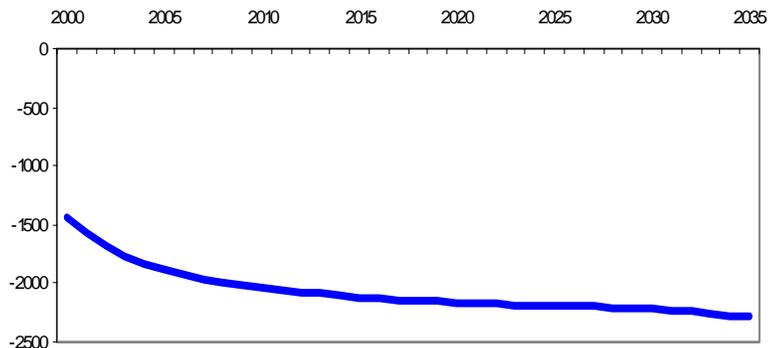
The increases in VMT can be translated into dollar costs for fuel and vehicle operating cost (roughly \$0.20 per mile for cars and \$0.50 per mile for trucks), which are borne by businesses and by households. The increases in VHT can also be translated into dollar values (using FAA guidelines of roughly \$34 per hour for business travel and \$20 for personal travel), though their economic consequences vary. For businesses, the additional value of driver time and “on-the-clock” worker time represent additional business operating costs. For personal travel by households, the additional travel time represents a loss but it does not necessarily affect the flow of dollars in terms of income or spending.

These direct impacts were input to the REMI model as a loss of \$84 million in business cost and disposable income. This is in addition to the loss of jobs and business activity that would otherwise be occurring at Vermont’s airports. The result was a REMI model forecast of larger losses to the Vermont economy over time. These losses would start at 1,430 jobs, \$42 million of personal income and \$97 million of business sales annually.

As shown by Exhibit 22, the REMI model forecasts that the contraction in Vermont’s economy would gradually increase over time from 1,430 to 2,110 jobs over a period of 20 years, as the Vermont economy grows slower than would otherwise have occurred.

**Exhibit 22**

**Change in Employment**



(this page left intentionally blank)

## 8. SUGGESTED MARKETING PLAN FOR STUDY RESULTS

The ‘marketing’ of the Study refers to an effort to publicize and make Vermonters aware of its findings.

As a complement to the Economic Impact Study results, a coordinated roll-out of the Study designed to raise awareness about public-use airports is proposed. This value-added effort is meant to raise the profile of VTrans, as well as that of the overall system of public-use airports in the Green Mountain State.

The successful implementation of an effective communications campaign at the conclusion of the Study is designed to accomplish the following straightforward goal:

- Increase the awareness among all targeted groups of the importance of Vermont’s public-use airports to the local and state economies.

Marketing the results of this Study can be carried out simultaneously on two tracks: a statewide effort by VTrans staff should target policymakers and legislators to make them aware of the Study’s findings. At the same time, the results of the Study can also be publicized at the local level by facility managers and other interested groups, to raise awareness of their airports’ beneficial impact among their fellow members of the community.

### **Statewide Level – Publicizing Study Results**

At the statewide level, the effort to publicize the results of this Study should focus on law- and policy-makers, and include the following measures:

- Develop message points for inclusion in relevant communications materials of transportation, planning and economic development agencies throughout the State.
- Create a generic press kit for individual airports to distribute to their local media outlets – provide customized inserts for each airport along with executive summary and technical document on CD-ROM.

- Identify key policy and decision makers, and the audiences that have the most influence upon them, i.e. opinion leaders at state, regional and local levels.
- Identify media outlets statewide.
- Set up meetings with relevant government agency officials, legislative officials and local leaders.
- Meet with editorial boards at news outlets throughout the State. Invite policy makers and appropriate elected officials to participate.
- Identify respected third-parties to author Op-Ed pieces in major newspapers.
- Develop a database of target audience members for follow-up communication and to track results.

### **Local Level – Publicizing Study Results**

In addition to publicizing the findings of this Study among Vermont's decision makers, it can also be used to promote a general awareness of airports' importance among the public at large, an effort which is best pursued at the local level.

- Many of the measures identified for a state-wide campaign can be replicated at the local level. For example, airport managers should seek to ensure coverage of this Study's findings in local presses. The hard numbers presented might be supplemented by soliciting an Op-Ed piece from a local citizen, for example, who had been medically evacuated from the airport, to emphasize the importance of the facility beyond abstract dollar figures.
- An executive summary pamphlet containing the condensed findings of the Study has been produced. This pamphlet is inexpensive to copy and was intended for the widest dissemination possible. Each airport should be certain to maintain a large supply of these executive summaries and keep them at points of entrance, exit, congregation at their facilities. Supplies should also be deposited at the local post office, library, and any other public places that a facility manager considers appropriate.

- Bringing more members of the public onto the airport property will enhance knowledge about the facility, including the findings of this report, not to mention general goodwill in airport-community relations. The number of ways to encourage the public to visit the airport is bounded only by creativity of local facility employees and interested local groups.

While not every airport in the State can host the U.S. Air Force's Blue Angels for an afternoon (as Burlington has), there are many simpler ways to attract the community. Many airports already sponsor open houses, which should be continued.

- In addition, airport facilities often have a great deal of indoor and outdoor space at their disposal, that could be lent to community groups for meetings or activities without detracting from the safety or efficiency of airport operations. Such space may consist of a modern conference room, or simply an out-of-the-way corner of a hangar with some folding chairs. It is recommended that facility managers make an inventory of their available public meeting spaces, and publicize their availability to community groups.

When large groups visit, an airport employee may take a few minutes to introduce the facility, hand out executive summaries, and emphasize the economic engine that it represents.

- Current airport users should be encouraged to contact State policy makers to express their support for continued investment in Vermont's aviation infrastructure, including their own airport, and cite the findings of the Study. The airport might provide form letters containing the relevant information, however, it should be noted that form letters do not have the same impact as original compositions. Therefore, the airport should pull together 'writing points' sheets that include the relevant information from this Study, and names and addresses of State and local lawmakers, that an individual can use to compose a brief letter.

(this page left intentionally blank)

## 9. SUGGESTED UPDATE METHODOLOGY FOR FUTURE REPORTS

To continue improving the understanding among decision makers, local governments, the transportation planning community and the general public about the important linkages between Vermont's public-use airports and the State's economy and quality of life, five-year updates of this Economic Impact Study are recommended.

The methodology employed in the current report should be repeated in future reporting as a way of ensuring meaningful comparisons over time. Because a methodological foundation has already been laid by this Study, updates can be conducted inexpensively. Many tasks, completed once already, do not have to be repeated. For example, time and funds for survey development need not be expended a second time. Much of the explanatory text in this report, to which the State owns the rights, can simply be copied into updated versions. While VTrans personnel were active and indispensable participants in this Study, the State may opt to take a greater role in the actual conduct of work of an update, for example, sending out and processing surveys, in the interest of minimizing costs.

Every study has a way of being improved, whether to increase the breadth and quality of information gathered or to reduce expenses. In the case of this document, the opportunities present themselves in the introduction of the Study to airport managers, and in the data-gathering stage.

**Liasing with Airport Managers** – The importance of facility managers in the process is apparent: airport managers know their facilities better than anyone else. They are the most knowledgeable about how their airport is used, and how it is perceived by the surrounding community. It is critical that they understand the State's reasons for conducting an update to the Study, and their role in that update.

This Study benefited enormously from the contributions and enthusiastic support of airport managers throughout Vermont. It is recommended that the State do even more to build awareness of the Study process among airport managers, and secure their active participation from the very beginning of an update process.

For example, at the outset of the update, VTrans might host a day-long seminar for airport managers to discuss the Study and its importance, and to introduce them to those who will be conducting the update. Airport managers are the most important source of local information, and a vital link to local aviation communities. Thus, it is recommended that particular effort be placed making them familiar with the update and those conducting it, so that information might flow freely and easily from the very start of the process. The investment in a short seminar will be recouped in terms of the time and redundancy of effort saved as the process of building rapport between those conducting the update and facility managers would be accelerated.

**Data-Gathering** – Two areas can benefit from data-gathering methods improved by insights gained during this Study process.

1. The State has a range of options available to improve data about counts of aircraft operations at individual facilities.
2. Improved techniques can also raise the response rate of off-airport establishments to the airport-dependent business survey.

*Counting aircraft operations* In Vermont as in every other state, the managers of small general aviation airports that do not have a tower on site must make educated estimates of the number of annual aircraft operations at their facilities. However, there are a variety of options for the State to explore in order to improve the accuracy of reporting at non-towered airports.

Acoustic counters are available that log aircraft operations by sensing the noise generated by arriving and departing planes. Acoustical counters have come a long way in the past two years and are now considered highly reliable, relatively inexpensive to purchase and maintain, easy to use, and the data is easy to download and analyze. In addition, some acoustical counters can make a distinction between various aircraft types.

This equipment offers reliable total operations counts at a reasonable price, and is a wise investment to gauge facility usage for planning purposes. For the purpose of economic impact modeling, however, counters pose a drawback in that they do not distinguish between local and itinerant (originating at least 20 miles away) operations. It is itinerant operations that

bring visitors and thus have an economic impact, while the impact of a touch-and-go, for example, is comparatively negligible. Thus, an itinerant-to-total operations ratio must be determined separately.

To supplement acoustic counter data, VTrans may wish to launch an operations survey effort. In this scenario, staff would be stationed at each public-use airport for a fixed amount of time each year or season to count the number and log the type of operations. For example, staff might spend two weeks at each airport per year or one week per season. The aircraft operations profiles resulting from the surveys could then be applied to total operations figures from acoustic counters.

This Study effort gained much from the expertise of a professional survey firm on the consultant team. However, the expense in deploying a private-sector firm for one or two weeks at each of seventeen public-use airports would simply be prohibitive. Thus, VTrans might hire a private-sector survey firm to train its own State personnel if the human resources are available, or temporary workers, for such an intensive survey effort. In each case, overhead expense will be avoided.

To add additional texture to the data, the State also has the option of purchasing instrument flight plan data. For nearly all operations by large and fast aircraft, such as jets and turboprops, pilots file a flight plan with the FAA and are tracked by the national air traffic control system. This flight plan and air traffic control data is gathered at a centralized facility and passed on to the private sector in the form of the Aircraft Situational Display to Industry (ASDI) feed.

Aircraft operational data for Vermont airports can be purchased from an ASDI vendor. For each operation, data includes the N-number or flight number, the aircraft type, the type of operation, and the time and date. The downside to this option is that it only captures instrument flight rule (IFR) operations. A majority of operations at small general aviation airports take place according to visual flight rules (VFR). However, VFR operations are more often conducted for recreational or instructional purposes, such as touch-and-go landings. IFR operations, because they include nearly all jet

and turboprop flights, account for a percentage of aviation-related economic impact much larger than their percentage of aircraft operations.

These options are not mutually exclusive, but complementary. Pursuing each will provide data on a facet of aircraft activity that the others cannot.

*Improving airport-dependent off-airport business survey response* The response rate for the airport-dependent off-airport business survey was nearly 13 percent; for a mail-out survey of this size, the total rate of response was above average. However, the response rate varied widely among different regions of the State. A focus on increasing the total response rate should particularly raise returns in areas with few responses in this first effort.

There is not an easy solution for achieving this objective. Many businesspeople are inundated with administrative tasks on a daily basis and simply do not have the time to fill out a survey. Still other firms are large enough that surveys often do not make it to the right person, who must be knowledgeable about the company's use of aviation. In this Study, the effort to gather information was made by the Study team through surveys and follow-up phone calls as well as by some airport managers with follow-up phone calls.

Going forward, an update to this Study will benefit from even more involvement by airport managers in gathering information about the businesses that rely on their airports. In some cases, local businesses may more likely to provide the information to their local airport manager than to a consultant with whom they are not familiar.

Another point of guidance is to work with and through local chambers of commerce. In this effort, surveys were sent out from the offices of the consultant team. If surveys were instead sent from local chambers of commerce and affixed with the signature of a local development official with whom the businessperson might be familiar, response rates would improve. Local chambers may also be convinced to aid in the follow-up efforts with phone calls. Again, co-opting the familiarity of businesspeople with local chamber officials will aid the data-gathering process.

Finally, instead of sending out paper surveys, a web-based system for data collection and reporting might be developed. Constructing such a system would require some investment of time and explicit budgeting, however, it may increase response rates and could save thousands of dollars in printing, postage, and hours spent preparing materials for mailing. VTrans may possess the necessary expertise in-house. For those without Internet access, alternative paper-based mailed surveys would still be employed.

(this page left intentionally blank)



## Appendix I Glossary of Terms

(this page left intentionally blank)

## GLOSSARY OF TERMS

**Air Taxi/Air Charter Operation** – An operation by a holder of an Air Taxi Operating Certificate which authorizes the carriage of passengers, mail, or cargo for revenue in accordance with Federal Aviation Regulation (FAR) Part 135.1.

**Aircraft Operation** – A takeoff or a landing of an aircraft.

**Aviation-dependent businesses** – Businesses that contribute to the off-airport economic impacts of an airport by depending on the airport for a portion of their business needs, such as the movement of products, personnel or customers.

**Aviation-supporting businesses** – Businesses that contribute to the off-airport economic impacts by manufacturing and assembling aviation products or distributing aviation parts and/or services.

**Economic Impact** – The three measures of economic impact are employment, payroll and business sales. These are three perspectives for measuring the same effects. Payroll is included in output impacts, so payroll and output can not be summed up.

**Fixed Based Operator (FBO)** – An on-airport aviation-related business that provides services such as aircraft maintenance, storage, fuel, charter, flight instruction, and avionics installation/repair.

**General Aviation Visitors** – Non-local passengers arriving via private or corporate aircraft.

**IMPLAN (Impact Analysis for Planning)** – An input-output model system that is commercially available and can be customized for specific counties or multi-county regions.

**Input-Output Model** – An accounting system that portrays purchases and sales between various sectors of an economy.

**Itinerant Operations** – A non-training flight that departs or arrives at an airport that is outside of a 20-mile radius from the destination or origin of the flight.

**Local Operations** - A training (touch-and-go) operation or a departure or arrival that stays within a 20-mile radius of a particular airport.

**Multiplier Effect** – The effect of money being spent and re-spent in the economy.

**Off-Airport Impacts** – Impacts that stem directly from businesses and industries not located on airport property, but rely on the airport for some portion of their sales/revenue. Such businesses can be either aviation-supporting businesses or aviation-dependent businesses.

**On-Airport Impacts (On airport aviation activity)** – The cluster of aviation-related economic activity at and around the runway and terminal.

**On-Airport Tenants** – Includes fixed based operators (FBO's), flight schools, concessionaires, airport restaurants, and government agencies located on the airport. Government also includes public airport sponsors and the Federal Aviation Administration (FAA).

**Output (Spending)** – For most tenants, output is equated with the sum of annual gross sales and average annual capital expenditures. Government output is equated to the sum of annual payroll, other expenditures, and average annual capital improvement costs. For visitor impacts, output is assumed to equal annual visitor expenditures.

**Output Multiplier** – The effect of expenditures in one industry sector on the expenditures in the economy. For example, if the air transportation sector has an output multiplier of 1.75, the \$100 in direct expenditures (output) creates secondary output impacts equivalent to \$75.

**Payroll** – Annual salaries paid to workers plus proprietors' income.

**Primary Impacts** – Economic activity that is generated by the operation of the airport and its tenants, and by businesses associated with the spending of air visitors and aviation-dependent businesses. Primary impacts include both on-airport primary impacts (on-airport aviation activity) and off-airport primary impacts.

**Qualitative Impacts** – Impacts which cannot be measured in dollar amounts but are critical to the quality of life.

**Quantitative Impacts** – Impacts which are economically beneficial in nature and can be measured and stated in numerical terms, such as dollars or employment figures.

**Regional Economic Models, Inc. (REMI)** – The REMI model is widely acknowledged to be the premier economic simulation and forecasting system specifically designed for project and policy impact analysis within the U.S., and is used by state transportation departments around the United States. For each study, the model is calibrated for the specific affected counties. REMI presents a "dynamic" or "long-term" view of the change in regional population and economic growth rates which would occur over time under alternative "scenarios" in which relative costs of living and costs of doing business change, thus affecting regional economic competitiveness. REMI combines the same features as the IMPLAN model with additional features of regional population and employment forecasts and policy assessment tools -- to measure changes in the relative competitiveness or attractiveness of the region and their impacts on the long-term regional economy.

**SAC (State Aviation Council)** -- The State Aviation Council (SAC) is a policy body created to assist VTrans in developing policies, programs and initiatives. The SAC also serves as a forum for interaction with the aviation community. It meets every other month and was apprised of this Study's progress at these meetings. The SAC served in an advisory capacity for this Study as well.

**Spin-Off Impacts** – All first round airport-related spending, payroll, and employment result in additional spin-off economic benefits. Spin-off impacts are often referred to as the multiplier effect due to the fact that direct benefits will ripple through or “multiply” within the economy. These successive waves of employment, payroll, and re-spending (spin-off impacts) continue within the economy until they are lost through leakage.

**TAC (Technical Advisory Committee)** -- With close consultation from VTrans, a Technical Advisory Committee (TAC) was assembled to assist the consultant team with detailed and technical issues and reviews for this Study. During the periodic meetings throughout the course of the Study, the TAC served as a sounding board for the consultant team.

The TAC was assembled from different communities of interest within and contiguous to the aviation sector. The members of the Technical Advisory Committee were as follows:

- **George Coy** – Airport manager (Franklin County) and fixed based operator
- **Dave Pelletier** – Senior transportation planner, Lamoille County Planning Commission, representing the Vermont Association of Planning and Development Agencies
- **Greg Maguire** – Transportation Marketing Specialist, Vermont Department of Tourism and Marketing
- **George Robson** – Vermont Department of Economic Development
- **Robert North** – Private airport owner and operator (Mt. Snow) and local businessman
- **Richard Angney** – Central Vermont Economic Development Corporation

Draft products were submitted to the TAC for review prior to any other distributions or presentations.

**Total Impacts** – The sum of all primary and spin-off impacts attributable to the airport or system of airports.

**VTrans** (Vermont Agency of Transportation) -- VTrans directed the study as well as sponsored it with funds programmed from the Federal Highway Administration.

VTrans, through its Transportation Maintenance & Aviation Division, is responsible for keeping Vermont State airports open, safe and aesthetically pleasing to transportation network users, while managing the system in a cost effective and environmentally sensitive manner. In addition, the Division promotes aviation-related activities and education programs and supports expanded travel opportunities at the seventeen public-use airports.



## Appendix II Airport Use Surveys

(this page left intentionally blank)



## AIRCRAFT OWNER SURVEY

June 2, 2002

Dear Vermont Aircraft Owner,

The State of Vermont recently launched a study to measure the value of Vermont airports to their communities and to the state. As you know, airports provide a wide range of benefits, such as stimulating tourism, facilitating transport of goods, an array of positive quality-of-life impacts, as well as supporting on-airport activities.

An important part of this study involves surveying the Vermont aviation community as comprehensively as possible. This Aircraft Owner Survey is intended to gain an understanding of the economic engine that aircraft activity represents, as well as its contribution to the welfare, safety, and recreation of Vermonters.

Please take a few minutes to complete this survey. You will find general questions about your operations, but also space to discuss your perspective on current aviation issues such as the medium- and long-term impact of the events of September 11<sup>th</sup> 2001, and the ongoing general aviation insurance crisis.

Your participation is crucial to the success of this study. **Your answers to these questions will be held in strict confidence**, and the data resulting from the study will be published in an aggregated form that does not reveal individual- or firm-specific information.

Should you have questions about the study or concerns regarding this survey, please contact Scott Bascom, Multi-modal Planning Coordinator at The Vermont Agency Of Transportation (VAOT) (802)-828-5748. You may also contact Christina Cassotis or Johnathan Mathiesen of SH&E, Inc., the lead consultant on the study, at (617)-225-2800.

VAOT thanks you for your time and assistance.

Sincerely,

Scott Bascom  
Multi-modal Planning Coordinator,  
VAOT



## AIRCRAFT OWNER SURVEY

1. Please indicate the percentage of total utilization time that you operate your aircraft for business purposes: \_\_\_\_\_%

**If your answer to Question 1 is 0%:**

Please skip ahead to question 16.

**If your answer to Question 1 is more than 0%:** Please complete the following questions:

2. Company Name: \_\_\_\_\_

3. Address: \_\_\_\_\_

4. Telephone Number: \_\_\_\_\_

5. Contact Name: \_\_\_\_\_

6. What is your firm's primary product or service? \_\_\_\_\_

7. How many people did your business employ in 2001?

Full-time employees \_\_\_\_\_

Part-time employees \_\_\_\_\_

8. What were your total revenues for 2001, or for the latest available period?

\$ \_\_\_\_\_

If the exact revenue figure is not available, please estimate the range:

- |                                                   |                                                 |
|---------------------------------------------------|-------------------------------------------------|
| <input type="checkbox"/> \$25,000 or less         | <input type="checkbox"/> \$25,000 to \$50,000   |
| <input type="checkbox"/> \$50,000 to \$75,000     | <input type="checkbox"/> \$75,000 to \$100,000  |
| <input type="checkbox"/> \$100,000 to \$200,000   | <input type="checkbox"/> \$200,000 to \$500,000 |
| <input type="checkbox"/> \$500,000 to \$1 million | <input type="checkbox"/> Over \$1 million       |

9. How do you use Vermont's airports? (e.g., to ship in supplies, to ship out finished products, for the transport of personnel or revenue-paying passengers, etc.)

\_\_\_\_\_

\_\_\_\_\_

10. If possible, please estimate the percentage of your business activity that depends on the availability of air transportation \_\_\_\_\_%

11. Please list the Vermont-based aircraft owned by your business, or attach a list if more convenient:

	Aircraft Model	Based At	Registered To
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____

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

- |                                         |                                                 |
|-----------------------------------------|-------------------------------------------------|
| <input type="checkbox"/> Business-owned | <input type="checkbox"/> Owned by an individual |
| <input type="checkbox"/> Leased         | <input type="checkbox"/> Chartered              |

13. How much do you spend each year (or, if appropriate, how great are the expenses you recognize annually) for:

Operating expenses \$ \_\_\_\_\_  
(fuel, maintenance, service)

Aircraft capital costs \$ \_\_\_\_\_  
(lease payments, depreciation, equipment purchases)

14. In the future, does your business plan to (check as many as apply)

Buy more aircraft     Sell your aircraft

Upgrade your fleet         Make no changes to your aircraft

15. Please estimate the total number of hours per year that your aircraft is used for business purposes.

\_\_\_\_\_ hours per year

16. Please list the airports within Vermont that you utilize and please indicate approximately how often you use them each year.

<u>Airport Name</u>	<u>Times per Year</u>
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

17. What would be your reaction if your base airport were no longer available?  
(check as many as apply)

- Substitute other modes such as bus, truck, rail
- Use next closest airport (please name airport)
- Make fewer trips
- Relocate aircraft
- Sell aircraft
- Relocate business
- Other (please specify)

---

---

18. What would be your reaction if your most frequently used Vermont airport (other than base) were no longer available? (check as many as apply)

- Substitute other transport modes such as bus, truck, rail
- Use a different airport (name or ID code)\_\_\_\_\_
- Make fewer trips
- Sell aircraft
- Relocate business
- Other (please specify)

---

---

19. Do you find the infrastructure to be adequate for the operations that you would like to conduct at Vermont airports?

- |                         |                                   |                                     |
|-------------------------|-----------------------------------|-------------------------------------|
| Airport facilities:     | <input type="checkbox"/> Adequate | <input type="checkbox"/> Inadequate |
| Road access to airport: | <input type="checkbox"/> Adequate | <input type="checkbox"/> Inadequate |

If no, please comment on inadequacies that constrain your activities:

---

---

---

---

20. What improvements not described already do you think need to be made to Vermont airports, or to the general aviation system in Vermont?

---

---

---

21. Have the September 11 terrorist attacks affected your business and/or your use of your aircraft?

Yes                       No

If yes, please comment:

---

---

---

---

---

22. Has your business and/or aviation activity been affected by the ongoing 'aviation insurance crisis,' the sudden unavailability or jump in the cost of general aviation-related insurance?

Yes                       No

If yes, please comment, especially upon any **recent jumps in your insurance premiums** and what you have done in response:

---

---

---

---

If you have any concerns or additional information you would like to provide regarding this survey, please contact:

Johnathan Mathiesen  
Senior Analyst  
SH&E  
One Main St.  
Cambridge, MA 02142  
617-225-2800 ext. 172  
[jmathiesen@sh-e.com](mailto:jmathiesen@sh-e.com)

***Thank you for your time and cooperation. Your participation is crucial to the success of this study.***

(this page left intentionally blank)



## VERMONT BUSINESS SURVEY

July 20, 2002

Dear <<Name inserted from mailing list database>>,

The State of Vermont recently launched a study to measure the value of Vermont airports to their communities and to the state. As many Vermont businesspeople know, airports provide a wide range of benefits, such as stimulating tourism, facilitating transport of goods, as well as an array of positive quality-of-life impacts.

An important part of this study involves surveying Vermont businesses about your use of or reliance on the state's airports. This Business Survey will aid in building an understanding of the economic engine that airports represent.

Please take a few minutes to complete this survey. You will find general questions about your use of Vermont airports, as well as space to discuss the impact on your business of current aviation issues such as fallout of September 11<sup>th</sup> 2001.

Your participation is crucial to the success of this study. **Your answers to these questions will be held in strict confidence**, and the data resulting from the study will be published in an aggregated form that does not reveal individual- or firm-specific information.

Should you have questions about the study or concerns regarding this survey, please contact Scott Bascom, Multi-modal Planning Coordinator at The Vermont Agency Of Transportation (VAOT) (802)-828-5748. You may also contact Christina Cassotis or Johnathan Mathiesen of SH&E, Inc., the lead consultant on the study, at (617)-225-2800.

The Vermont Agency of Transportation thanks you for your time and assistance with this important study, and we look forward to sharing the results with you in the near future.

Sincerely,

Scott Bascom  
Multi-modal Planning Coordinator,  
VAOT



**VERMONT BUSINESS SURVEY**

**Thank you for your participation in this important study. Please provide the following information:**

- 1. Company Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Telephone Number: \_\_\_\_\_  
 Contact Name: \_\_\_\_\_

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

3. How many people did your business employ in 2001? Full-time employees \_\_\_\_\_  
 Part-time employees \_\_\_\_\_

4. What were your total sales for 2001, or for the latest available period? \$ \_\_\_\_\_

If the exact revenue figure is not available, please estimate the range:

- |                                                |                                                   |
|------------------------------------------------|---------------------------------------------------|
| <input type="checkbox"/> \$25,000 or less      | <input type="checkbox"/> \$100,000 to \$200,000   |
| <input type="checkbox"/> \$25,000 to \$50,000  | <input type="checkbox"/> \$200,000 to \$500,000   |
| <input type="checkbox"/> \$50,000 to \$75,000  | <input type="checkbox"/> \$500,000 to \$1 million |
| <input type="checkbox"/> \$75,000 to \$100,000 | <input type="checkbox"/> Over \$1 million         |

5. Please provide the total 2001 taxes (local and state) **paid by your business** to your locality and to the State of Vermont: \$ \_\_\_\_\_

6. How does your company use Vermont'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 company personnel
  - To transport customers and business associates
  - Other (please specify): \_\_\_\_\_

7. What percentage of your business activity depends on your local airport:

\_\_\_\_\_ %

8. Please list the airports within Vermont on which your business relies, and indicate approximately how often you use them each year.

<u>Airport Name</u>	<u>Times per Year</u>
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

9. What would be your reaction if your most frequently-used airport were no longer available? (check as many as apply)

- Substitute other modes such as bus, truck, rail
- Use next closest airport (please name airport)
- Make fewer trips
- Relocate business
- Other (please specify)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

10. Are there any airport facility inadequacies that are limiting you from your full desired use of a Vermont airport? What is the inadequacy and what would your firm do differently if remedied?

Yes       No

If yes, please describe:

---

---

---

---

11. Have the September 11 terrorist attacks, through the effect on the national aviation system, significantly and negatively impacted your business? Please check all that apply.

This business **reduced employment** by \_\_\_\_\_ full-time equivalent positions

This business suffered **a loss in sales** of approximately \$ \_\_\_\_\_

This business faced **an increase in costs** of approximately \$ \_\_\_\_\_

Please comment on these business consequences, especially, how long you expect them to persist:

---

---

---

12. Has your business and/or aviation activity been affected by the ongoing 'aviation insurance crisis,' the sudden unavailability or jump in the cost of general aviation-related insurance?

Yes       No

If yes, please comment:

---

**Thank you for your time and assistance.**

**Your participation is crucial to the success of this study.**

(this page left intentionally blank)



## AIRPORT MANAGER SURVEY

March 14, 2002

Dear Vermont Airport Manager,

The State of Vermont recently commissioned a study to measure the value of Vermont airports to their communities and to the state. As you know, airports provide a wide range of benefits, such as stimulating tourism, facilitating transport of goods, an array of positive quality-of-life impacts, as well as supporting on-airport activities.

An important part of this study involves surveying the Vermont aviation community as comprehensively as possible. This Airport Manager Survey is intended to gain an understanding of the economic engine that airports represent, as well as their contribution to the welfare, safety, and recreation of Vermonters.

Erv Deck of Dufresne-Henry, a representative from the study staff, will be in contact with you shortly to schedule a meeting at your convenience, at which time he will go over this survey with you. In the mean time, if possible, please take some time to familiarize yourself with this survey and gather any information you need. You will find general questions about your operations, but also space to discuss your perspective on current aviation issues such as the medium- and long-term impact of the events of September 11<sup>th</sup> 2001, and the ongoing general aviation insurance crisis.

Your participation is crucial to the success of this study. *Your answers to these questions will be held in strict confidence*, and the data resulting from the study will be published in an aggregated form that does not reveal individual- or firm-specific information.

Should you have questions about the study or concerns regarding this survey, please contact Scott Bascom, Multi-modal Planning Coordinator at The Vermont Agency Of Transportation (VAOT) (802)-828-5748. You may also contact Christina Cassotis or Johnathan Mathiesen of SH&E, Inc., the lead consultant on the study, at (617)-225-2800.

VAOT thanks you for your time and cooperation.

Sincerely,

Scott Bascom  
Multi-modal Planning Coordinator,

VAOT



## SURVEY FOR AIRPORT MANAGERS

1. How many people did you employ in Vermont during 2001?

Full-time employees \_\_\_\_\_

Part-time employees \_\_\_\_\_

2. How much revenue did the airport collect in 2001 from:

Landing fees \$ \_\_\_\_\_

Fuel flowage fees \$ \_\_\_\_\_

Tie-down fees \$ \_\_\_\_\_

Aircraft parking fees \$ \_\_\_\_\_

Hangar rentals \$ \_\_\_\_\_

Terminal space rent \$ \_\_\_\_\_

Commercial concessionaire revenue (besides rent)

\$ \_\_\_\_\_

Other sources (please specify) \$ \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. Please provide the following 2001 activity data for your airport:

**Commercial Service (both air carrier and commuter)**

Operations \_\_\_\_\_

Enplanements \_\_\_\_\_

**General Aviation Activity**

Local Operations \_\_\_\_\_

Itinerant Operations \_\_\_\_\_

Military Operations \_\_\_\_\_

Based Aircraft \_\_\_\_\_

Tons of Air Cargo Shipped  
\_\_\_\_\_

4. Approximately what percentage of your general aviation operations consists of business/corporate aviation activity? \_\_\_\_\_%

5. Please attach an inventory list of all aircraft based at your airport, including N-numbers.

6. Please identify any air taxi and charter operators at your airport. If available, please provide contact information.

**Air Taxi (Firm and Contact)**

**Charter (Firm and Contact)**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

7. **Besides those listed above in Question 5, please list all tenants and businesses located at your airport. In addition, please list any local businesses of which you are aware that rely on your airport. If available, please include contact information.**

<u>Company Name</u>	<u>Type of Firm</u>	<u>Contact</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

8. Please report how much your airport spent for capital improvements in 2001:  
\$ \_\_\_\_\_ for capital improvements
9. Please list the total wages paid to all Vermont employees reported in **Question 1**.  
\$ \_\_\_\_\_ in total payroll
10. Besides payroll and capital improvements, please estimate how much your airport spent for all other operating expenses in 2001:  
\$ \_\_\_\_\_ in other operating expenses
11. Please estimate the taxes paid by the airport to your locality and to the state of Vermont:  
\$ \_\_\_\_\_ in local and state taxes

12. How were these expenditures distributed among the firms that supplied your airport? (just a rough estimate, according to your experience and judgment):

	<u>Firms In Vermont</u>	<u>Firms Outside Vermont</u>
Operating Materials (Working Cap.)	(\$ or %) _____	(\$ or %) _____
Services	(\$ or %) _____	(\$ or %) _____
Capital Equipment	(\$ or %) _____	(\$ or %) _____
Construction labor	(\$ or %) _____	(\$ or %) _____
Other Expenditure	(\$ or %) _____	(\$ or %) _____

*If available, please provide a copy of your most recent annual report. We would also appreciate a copy of any past studies conducted concerning the economic impact of your airport.*

13. This study is also concerned with the many qualitative benefits that airports provide the communities they serve, which are often not measurable in dollar 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.

- |                                                                                    |                                                              |
|------------------------------------------------------------------------------------|--------------------------------------------------------------|
| <input type="checkbox"/> Recreational flying and/or parachuting                    | <input type="checkbox"/> Shipping of perishable goods        |
| <input type="checkbox"/> Ballooning                                                | <input type="checkbox"/> Model aircraft flying               |
| <input type="checkbox"/> Pres. of open space/wetlands/ woodlands                   | <input type="checkbox"/> Agricultural spraying               |
| <input type="checkbox"/> Career training / Education                               | <input type="checkbox"/> Freight / Cargo activity            |
| <input type="checkbox"/> Search & Rescue                                           | <input type="checkbox"/> Traffic / News reporting            |
| <input type="checkbox"/> Flight training                                           | <input type="checkbox"/> Corporate / Business activity       |
| <input type="checkbox"/> Emergency medical aviation                                | <input type="checkbox"/> Environmental patrol                |
| <input type="checkbox"/> Gateway for VIP / High profile visitors                   | <input type="checkbox"/> Aerial photography / Surveying      |
| <input type="checkbox"/> Staging area for community events                         | <input type="checkbox"/> Museums                             |
| <input type="checkbox"/> Aerial inspections                                        | <input type="checkbox"/> Police / Law enforcement            |
| <input type="checkbox"/> Aerial advertising / Banner towing                        | <input type="checkbox"/> Location for community facil./util. |
| <input type="checkbox"/> Promotional activities i.e., open houses, air shows, etc. | <input type="checkbox"/>                                     |

Airport regularly services public charters

Other (please describe)

---

14. Please provide very brief descriptions (ex., "Chnl 8 news helicopter" or "Ann'l June Air Show") regarding the above checked activities:

---

---

---

---

---

---

15. In your opinion, are there any acute infrastructural constraints that are limiting actual or potential airport users from their desired use of your airport?

- Inadequate airport facilities                       Inadequate road access to airport

If so, please comment:

---

---

---

16. Has your airport felt a discernible impact from the September 11, 2001 terrorist attacks?

- Yes                       No

If so, please comment:

---

---

---

17. Has your airport felt an impact from the on-going 'aviation insurance crisis' (the recent sudden jump in price or non-availability of general aviation insurance)?

Yes

No

If so, please comment, especially on any recent increases in your insurance premiums, and any measures you have taken in response:

---

---

---

---

---

---

---

---

The Vermont Agency of Transportation is committed to working with publicly and privately-owned airports to ensure that the state maintains a first-class aviation infrastructure. In this regard, we would greatly appreciate your comments or suggestions about how VAOT might better serve your needs. Please use the space below:

---

---

---

---

---

---

---

---

---

---

---

---

---

If you have any concerns or additional information you would like to provide regarding this survey, please contact:

Johnathan Mathiesen  
Senior Analyst  
SH&E  
One Main St.  
Cambridge, MA 02142  
617-225-2800 ext. 172  
[jmathiesen@sh-e.com](mailto:jmathiesen@sh-e.com)

***Thank you for your time and cooperation. Your participation  
is crucial to the success of this study.***



## AIRPORT TENANTS SURVEY

March 14, 2002

Dear Vermont Airport Tenant,

The State of Vermont recently commissioned a study to assess the value of Vermont airports to their communities and to the state. As you know, airports provide a wide range of benefits, such as stimulating tourism, facilitating transport of goods, an array of positive quality-of-life impacts, as well as supporting on-airport organizations and businesses.

An important part of this study involves surveying the Vermont aviation community as comprehensively as possible. This Airport Tenant Survey is intended to gain an understanding of the economic engine that aviation-dependent businesses represent, as well as their contribution to the health, safety, and recreation of Vermonters.

Please take a few minutes to complete this survey. You will find general questions about your operations, but also space to discuss your perspective on current aviation issues such as the medium- and long-term impact of the events of September 11<sup>th</sup> 2001, and the ongoing general aviation insurance crisis.

Your participation is crucial to the success of this study. *Your answers to these questions will be held in strict confidence*, and the data resulting from the study will be published in an aggregated form that does not reveal firm-specific information.

Should you have questions about the study or concerns regarding this survey, please contact Scott Bascom, Multi-modal Planning Coordinator at The Vermont Agency Of Transportation (VAOT) (802)-828-5748. You may also contact Christina Cassotis or Johnathan Mathiesen of SH&E, Inc., the lead consultant on the study, at (617)-225-2800.

VAOT thanks you for your time and cooperation.

Sincerely,

Scott Bascom  
Multi-modal Planning Coordinator,  
VAOT



# AIRPORT TENANTS SURVEY

## 1. Airport Information

*Please verify the following information:*

Airport at which your business is located: \_\_\_\_\_

Business Name: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

## 2. Aviation Activity

*Please identify all of the activities that describe your business at the airport:*

- Certificated Passenger Airline
- Certificated Cargo Airline
- Air Taxi
- Aircraft Charter
- Baggage and/or Ground Handling
- Corporate Flight Operations
- Other Transport Activities: \_\_\_\_\_
- Flight Instruction

**Part 61:**     Yes    No

**Part 141:**    Yes    No

- Aerial Sight Seeing and/or Tours
- Aerial Advertising, Banner Towing, Etc.
- Agricultural Spraying
- Aircraft Leasing and/or Rental
- Aircraft Sales

- Aircraft Part Sales
- Airframe Maintenance Type(s): \_\_\_\_\_
- Acft. Eng. Maintenance Type(s): \_\_\_\_\_
- Aircraft Hangars and/or Tie-downs:
  - Traditional Hangars: Space for \_\_\_\_\_ aircraft
  - T-Hangars: Space for \_\_\_\_\_ aircraft
  - Tie-down positions: Space for \_\_\_\_\_ aircraft
- Sales of Aviation Gasoline
- Self-Fueling of Aviation Gasoline
- Sales of Aviation Jet Fuel
- Self-Fueling of Aviation Jet Fuel
- Airport Security
- Airport Management
- Facility Maintenance (custodial functions, grounds-keeping)
- Food and Beverage
- Retail
- Rental Cars
- Aircraft Insurance, Financing or Consulting Services
- Government Agency
- Other Business (Please Specify: \_\_\_\_\_)

**3. Employment**

How many people did your operations at this airport employ in 2001?

Full-time employees: \_\_\_\_\_

Part-time employees: \_\_\_\_\_

**4. Operating Expenditures**

Please report the total wages paid to all employees at this airport:

\$\_\_\_\_\_ in total payroll

Besides payroll, please estimate how much your business spent for all other operating expenses in 2001:

\$\_\_\_\_\_ in non-payroll operating expenses

**5. Gross Sales**

Please estimate the gross sales of your business at this airport:

\$ \_\_\_\_\_ in gross sales

**6. Other Information**

This study is also concerned with the many qualitative benefits that airports provide the communities they serve, that may not be measurable directly in dollar 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, welfare, safety, and economic well-being of your community.

Please check all applicable activities/attributes at your airport.

- |                                                                                    |                                                          |
|------------------------------------------------------------------------------------|----------------------------------------------------------|
| <input type="checkbox"/> Recreational flying and/or parachuting                    | <input type="checkbox"/> Shipping of perishable goods    |
| <input type="checkbox"/> Ballooning                                                | <input type="checkbox"/> Model aircraft flying           |
| <input type="checkbox"/> Pres of open space/wetlands/woodlands                     | <input type="checkbox"/> Agricultural spraying           |
| <input type="checkbox"/> Career training / Education                               | <input type="checkbox"/> Freight / Cargo activity        |
| <input type="checkbox"/> Search & Rescue                                           | <input type="checkbox"/> Traffic / News reporting        |
| <input type="checkbox"/> Flight training                                           | <input type="checkbox"/> Corporate / Business activity   |
| <input type="checkbox"/> Emergency medical aviation                                | <input type="checkbox"/> Environmental patrol            |
| <input type="checkbox"/> Gateway for VIP / High profile visitors                   | <input type="checkbox"/> Aerial photography / Surveying  |
| <input type="checkbox"/> Staging area for community events                         | <input type="checkbox"/> Museums                         |
| <input type="checkbox"/> Aerial inspections                                        | <input type="checkbox"/> Police / law enforcement        |
| <input type="checkbox"/> Aerial advertising / Banner towing                        | <input type="checkbox"/> Loc. for community facil./util. |
| <input type="checkbox"/> Promotional Activities i.e., open houses, air shows, etc. |                                                          |
| <input type="checkbox"/> Airport regularly services public charters                |                                                          |
| <input type="checkbox"/> Other (please describe)                                   |                                                          |

---

---

7. Are there any infrastructure inadequacies that are constraining your business from your full desired use of the airport?

Inadequate airport facilities

Inadequate road access to airport

If so, please comment:

---

---

---

8. Has your business felt a discernible impact from the September 11 2001 terrorist attacks?

Yes

No

If so, please comment:

---

---

---

9. Has your business felt an impact from the on-going 'aviation insurance crisis' (the recent sudden jump in price or non-availability of general aviation insurance)?

Yes

No

If so, please comment:

---

If you have any concerns or additional information you would like to provide regarding this survey, please contact:

Johnathan Mathiesen  
Senior Analyst  
SH&E  
One Main St.  
Cambridge, MA 02142  
617-225-2800 ext. 172  
[jmathiesen@sh-e.com](mailto:jmathiesen@sh-e.com)

***Thank you for your time and cooperation. Your participation  
is crucial to the success of this study.***



## AIRPORT VISITORS SURVEY

Dear Vermont Visitor,

The State of Vermont recently launched a study to measure the value of Vermont airports to their communities and to the state. Airports provide a wide range of benefits, such as stimulating tourism, facilitating transport of goods, an array of positive quality-of-life impacts, as well as supporting on-airport activities.

An important part of this study involves surveying airport users. This Airport Visitor Survey is intended to gain an understanding of the economic benefit that visitors contribute to the state.

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.*

Should you have questions about the study or concerns regarding this survey, please contact Scott Bascom, Multi-modal Planning Coordinator at The Vermont Agency Of Transportation (VAOT) (802)-828-5748. You may also contact Christina Cassotis or Johnathan Mathiesen of SH&E, Inc., the lead consultant on the study, at (617)-225-2800.

VAOT thanks you for your time and cooperation.

Sincerely,

Scott Bascom

Multi-Modal Planning Coordinator  
Vermont Agency of Transportation

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

2a. Are you:     Arriving         Departing

b. If you are traveling on a commercial airline flight, which airline did you fly?  
\_\_\_\_\_

c. If you are traveling on a private aircraft, how many people, including the pilot, were/will be traveling on your plane? \_\_\_\_\_

3. Is your trip for business purposes, personal travel, vacation, or a convention?

Business     Personal     Vacation     Convention

4. If your trip is business-related, please check the categories of your business, as well as that of any business you are visiting in Vermont.

**Your  
Business**

**Business You  
Are Visiting**

- |                          |                          |                                                   |
|--------------------------|--------------------------|---------------------------------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | Agriculture, Forestry, Fishing                    |
| <input type="checkbox"/> | <input type="checkbox"/> | Mining                                            |
| <input type="checkbox"/> | <input type="checkbox"/> | Construction                                      |
| <input type="checkbox"/> | <input type="checkbox"/> | Transportation / Communication / Public Utilities |
| <input type="checkbox"/> | <input type="checkbox"/> | Manufacturing                                     |
| <input type="checkbox"/> | <input type="checkbox"/> | Professional services                             |
| <input type="checkbox"/> | <input type="checkbox"/> | Wholesale Trade                                   |
| <input type="checkbox"/> | <input type="checkbox"/> | Retail Trade                                      |
| <input type="checkbox"/> | <input type="checkbox"/> | Business Services                                 |
| <input type="checkbox"/> | <input type="checkbox"/> | Financial / Insurance / Real Estate               |
| <input type="checkbox"/> | <input type="checkbox"/> | 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?

---

- 5. If traveling on business:** The survey staff understands that corporate security policy or business considerations may prevent you from revealing information about your travel. If possible, however, please provide the following information. Once again, all survey responses will be held in strict confidence.

***Your Company:***

---

Name

---

Address

***Company You Are Visiting:***

---

Name

---

Address

- 6.** How many nights did you or will you spend in Vermont during this trip? \_\_\_\_\_

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

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

Residence

7. Approximately how much money did you or will you spend during this trip on each of the following items?

(Please list **only** expenditures made inside Vermont; if traveling as a family, please estimate the total expenditures made by everyone)

Lodging	_____
Food & beverage	_____
Rental Car	_____
Entertainment	_____
FBO Services (fuel, maintenance, etc.)	_____
Other	_____
Total	_____

8. If traveling as a family, how many people are traveling with you? \_\_\_\_\_

9. How many times per year do you fly into this particular airport? \_\_\_\_\_

What would you or your business do if this airport were no longer available to you (e.g., use another airport, curtail travel to or operations in Vermont, *etc.*)?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

10. Do you fly to other Vermont airports on a regular basis?  Yes  No

*if Yes, please list the Vermont airports and the number of your annual trips.*

<u>Airport Name or Identifier Code</u>	<u>Annual Trips</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

11. Do you find road access to the airport to be adequate?

Yes

No

\_\_\_\_\_  
\_\_\_\_\_

12. Please briefly describe how Vermont airports benefit you or your business.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

13. **This question pertains to general aviation pilots only:**

Where is your aircraft based?

\_\_\_\_\_  
Airport Name or Identifier Code                      City                                              State

14. If the airport named in question 13 is a Vermont airport, do you find the airport facilities adequate for your desired use of them?

Yes

No

If no, please describe the inadequacies, including airside and ground access issues:

---

---

---

---

If you have any concerns or additional information you would like to provide regarding this survey, please contact:

Johnathan Mathiesen  
Senior Analyst  
SH&E  
One Main St.  
Cambridge, MA 02142  
617-225-2800 ext. 172  
[jmathiesen@sh-e.com](mailto:jmathiesen@sh-e.com)

***Thank you for your time and cooperation. Your participation is crucial to the success of this study.***



## **Appendix III**

# **Total Regional Effects – *IMPLAN Type Multipliers***

(this page left intentionally blank)

As discussed in Chapter 5, the **primary impact** represents additional economic activity that is brought to Vermont *directly* by public-use airports. Each dollar of new activity is partially respent within the local economy; it continues to circulate, and so ultimately has an economic impact larger than one dollar. This additional effect is termed the **spin-off impact**, which is measured by a multiplier. The Study used the IMPLAN model to calculate multipliers for each industry in each local economy served by public-use airports; these multipliers are displayed below. For example, Basin Harbor's Lodging multiplier is 1.39. Thus, one additional dollar of total output (business sales) brought into the Lodging industry in Basin Harbor Airport's local economy recirculates such that its ultimate impact is \$1.39: \$1.00 represents the primary impact, and \$0.39 is the spin-off impact.

	Airport Building and Facilities	FAA / Public Sector Expenditure	Airlines	Aircraft Leasing and Maintenance	Misc. Air Services	Retail	Lodging	Food Service	Rental Car	Entertainment	Taxi Services	Manufacturing	Services	Trade	Finance, Insurance and Real Estate	Construction and Utilities
<b>Basin Harbor Airport</b>																
Total Output							1,389	1,352	1,307	1,363						
per \$ of Primary Impact Output							1.367	1.346	1.404	1.317						
Total Wages							1,281	1,181	1,242	1,058						
per Unit of Prim. Imp. Employment																
<b>Burlington International Airport</b>																
Total Output	1,457	1,572	1,457	1,457	1,457	1,480	1,575	1,623	1,477	1,541	1,480	1,713	1,915	1,679	1,534	1,994
per \$ of Primary Impact Output	1.426	1.253	1.426	1.426	1.426	1.364	1.551	1.564	1.631	1.476	1.364	1.945	1.820	1.587	1.970	2.143
Total Wages	1,426	1,467	1,426	1,426	1,426	1,264	1,392	1,297	1,762	1,099	1,264	2,594	1,817	1,445	1,987	2,257
per Unit of Prim. Imp. Employment																
<b>Caledonia County State Airport</b>																
Total Output	1,505				1,393		1,457	1,468	1,375	1,419			1,764			1,610
per \$ of Primary Impact Output	1.346				1.366		1.404	1.448	1.437	1.357			1.621			1.902
Total Wages	1,476				1,581		1,248	1,220	1,379	1,177			1,692			2,184
per Unit of Prim. Imp. Employment																
<b>EF Knapp State Airport</b>																
Total Output	1,591			1,415			1,539	1,550	1,421	1,504	1,550	1,562				1,697
per \$ of Primary Impact Output	1.348			1.372			1.486	1.507	1.547	1.425	1.507	2.064				1.964
Total Wages	1,536			1,597			1,425	1,265	1,505	1,132	1,265	2,431				2,162
per Unit of Prim. Imp. Employment																
<b>Fair Haven Municipal Airport</b>																
Total Output	1,371						1,515	1,479	1,407	1,474						
per \$ of Primary Impact Output	1.343						1.481	1.474	1.514	1.420						
Total Wages	1,539						1,422	1,241	1,627	1,087						
per Unit of Prim. Imp. Employment																
<b>Franklin County State Airport</b>																
Total Output	1,417			1,308			1,382	1,398	1,302	1,329						
per \$ of Primary Impact Output	1.284			1.314			1.361	1.374	1.413	1.534						
Total Wages	1,377			1,242			1,280	1,166	1,438	1,084						
per Unit of Prim. Imp. Employment																
<b>Hartness State Airport</b>																
Total Output	1,517				1,367		1,464	1,448	1,367	1,448			1,779			1,938
per \$ of Primary Impact Output	1,341				1,334		1,420	1,417	1,474	1,374			2,123			1,723
Total Wages	1,450				1,654		1,225	1,343	1,424	1,099			2,740			1,661
per Unit of Prim. Imp. Employment																
<b>John H. Boylan State Airport</b>																
Total Output	1,195				1,389		1,389	1,352	1,307	1,363						
per \$ of Primary Impact Output	1,123				1,367		1,367	1,346	1,404	1,317						
Total Wages	1,198				1,281		1,281	1,181	1,242	1,058						
per Unit of Prim. Imp. Employment																

	Airport Building and Facilities	FAA / Public Sector Expenditure	Airlines	Aircraft Leasing and Maintenance	Misc. Air Services	Retail	Lodging	Food Service	Rental Car	Entertainment	Manufacturing	Services	Trade	Finance, Insurance and Real Estate	Construction and Utilities
<b>Middlebury State Airport</b>															
Total Output	1,4523			1,3073			1,3899	1,3582	1,3073	1,3636	1,7769				1,7614
per \$ of Primary Impact Output															
Total Wages	1,3001			1,3068			1,2565	1,3460	1,4041	1,3179	2,1233				1,9846
per \$ of Primary Impact Payroll															
Total Employment	1,4124			1,2554			1,2819	1,1811	1,2426	1,0589	2,7240				2,1192
per Unit of Prim. Imp. Employment															
<b>Morrisville-Stowe State Airport</b>															
Total Output	1,4618			1,2799			1,4072	1,3782	0,0000	1,3978	1,7266				1,5703
per \$ of Primary Impact Output															
Total Wages	1,3001			1,2641			1,3552	1,3481	0,0000	1,3270	2,1166				1,7521
per \$ of Primary Impact Payroll															
Total Employment	1,4146			1,2147			1,3230	1,1984	0,0000	1,1382	2,4640				2,1832
per Unit of Prim. Imp. Employment															
<b>Mt. Snow Airport</b>															
Total Output				1,3671			1,4923	1,4873	1,4035	1,4469	1,7945				1,7945
per \$ of Primary Impact Output															
Total Wages				1,3353			1,4539	1,4367	1,5298	1,3819	1,6212				1,6212
per \$ of Primary Impact Payroll															
Total Employment				1,5521			1,3747	1,2477	1,7202	1,0947	1,5608				1,5608
per Unit of Prim. Imp. Employment															
<b>Newport State Airport</b>															
Total Output	1,4597			1,2605			1,3862	1,3939	0,0000	1,3727					1,6442
per \$ of Primary Impact Output															
Total Wages	1,3038			1,2518			1,3411	1,3656	0,0000	1,3019					1,5244
per \$ of Primary Impact Payroll															
Total Employment	1,4229			1,1984			1,2709	1,1870	0,0000	1,1206					1,4563
per Unit of Prim. Imp. Employment															
<b>Post Mills Airport</b>															
Total Output				1,2493			1,3694	1,3572	1,3529	1,3529					1,6442
per \$ of Primary Impact Output															
Total Wages				1,2212			1,3421	1,3621	1,3023	1,3023					1,5244
per \$ of Primary Impact Payroll															
Total Employment				1,4195			1,2863	1,1779	1,0802	1,0802					1,4563
per Unit of Prim. Imp. Employment															
<b>Rutland State Airport</b>															
Total Output	1,5682			1,3731			1,5155	1,4769	1,4079	1,4774					1,5428
per \$ of Primary Impact Output															
Total Wages	1,3919			1,3483			1,4861	1,4748	1,5414	1,4220					1,9985
per \$ of Primary Impact Payroll															
Total Employment	1,5380			1,5395			1,4226	1,2410	1,6227	1,1087					2,0561
per Unit of Prim. Imp. Employment															
<b>Warren-Sugarbush Airport</b>															
Total Output				1,4115			1,5369	1,5530	1,4291	1,5047					1,8276
per \$ of Primary Impact Output															
Total Wages				1,3728			1,4896	1,5007	1,5547	1,4251					1,6684
per \$ of Primary Impact Payroll															
Total Employment				1,5957			1,4256	1,2656	1,5065	1,1382					1,6137
per Unit of Prim. Imp. Employment															
<b>William H. Morse State Airport</b>															
Total Output	1,5446			1,3482			1,4680	1,4621	1,3961	1,4658	1,5291				1,7921
per \$ of Primary Impact Output															
Total Wages	1,3702			1,3158			1,4359	1,4434	1,5109	1,3990	1,9114				1,6087
per \$ of Primary Impact Payroll															
Total Employment	1,4946			1,6088			1,3618	1,2402	1,5092	1,1370	2,4836				1,5900
per Unit of Prim. Imp. Employment															



## Appendix IV Executive Summary Document

(this page left intentionally blank)



## The Vital Role of Vermont Aviation

Vermont's public-use airports play an instrumental role in creating thousands of jobs and adding millions of dollars in sales and personal income to Vermont's economy. The airports also are responsible for contributing to a higher quality of life for citizens of the Green Mountain State. In this study, the economic activities that occur at Vermont's public-use airports were measured along with the circulation in the state economy of the business income and personal income earned at the airports, and reliance of Vermont's business community on air service, and spending by out of state visitors who arrive in Vermont by air. When taken together, these activities:

- Employ over 9,500 people annually,
- Produce over \$611 million dollars each year in business sales, and
- Generate over \$225 million dollars each year in personal income for the State's citizens.

"AVIATION SERVES A VITAL NATIONAL INTEREST. VERMONT'S SYSTEM OF AIRPORTS IS USED AND VALUED BY PEOPLE FROM ALL OVER THE WORLD FOR ITS ABILITY TO PROVIDE DIRECT ACCESS TO VERMONT'S DIVERSE BUSINESS INTERESTS AND ITS VAST CULTURAL, LEISURE AND AGRICULTURAL RESOURCES."

BRIAN SEARLES,  
VERMONT SECRETARY OF TRANSPORTATION

# VERMONT



## The Economic Impact of Vermont's Public-Use Airports

"VERMONT CITIZENS ENJOY SIGNIFICANT BENEFITS FROM THE DAILY OPERATION OF VERMONT'S AIRPORT SYSTEM. EMPLOYEES OF BUSINESSES AND CORPORATIONS THAT BASE CORPORATE AIRCRAFT AT VERMONT'S AIRPORTS; COMMERCIAL AND INDUSTRIAL EMPLOYERS WHOSE SHIPMENTS ARRIVE OR DEPART VIA THE AIRPORTS; AND THE TOURISM INDUSTRY INCLUDING HOTELS, RESTAURANTS AND TOURISM RELATED ACTIVITIES WHOSE PATRONS USE THE GENERAL AVIATION AIRPORTS TO VISIT VERMONT TOURISM DESTINATIONS ALL RELY ON OUR STATE'S AIRPORTS."

RICH TURNER,  
VAOT AVIATION PROGRAM Manager

**VTrans** Working to Get You There  
Vermont Agency of Transportation

For more information contact:

Vermont Agency of Transportation  
Maintenance and Aviation Division  
National Life Building, Drawer 33  
Montpelier, Vermont 05633 - 5001

802-828-2833

[rich.turner@state.vt.us](mailto:rich.turner@state.vt.us)

<http://www.aot.state.vt.us/maint/aviation/AIR.HTM>

[www.VermontAirports.com](http://www.VermontAirports.com)

Vermont Agency of Transportation

## Individual Airport Contributions

Vermont's public-use airports themselves are significant economic engines for their local and the statewide economy, while also providing critical connections for residents and businesses to New England and to the world. Below is a breakout of how each airport contributes to its community and the State in terms of economic impact expressed in business sales (revenues) including wages.

Public-Use Airport	Economic Impact Business Sales (Revenues)
Basin Harbor	\$ 620,412
Burlington International	\$ 242,556,282
Caledonia County State	\$ 296,500
Edward F. Knapp State	\$ 3,400,784
Fair Haven Municipal	\$ 246,551
Franklin County State	\$ 1,608,812
Hartness State	\$ 982,630
John H. Boylan State	\$ 53,958
Middlebury State	\$ 3,989,700
Morrisville-Stowe State	\$ 1,057,941
Mount Snow	\$ 1,636,333
Newport State	\$ 357,262
Post Mills	\$ 513,340
Rutland State	\$ 7,554,398
Warren-Sugarbush	\$ 318,767
William H. Morse State	\$ 11,123,502
<b>Subtotal Airports</b>	<b>\$ 276,317,173</b>
Aviation-Dependent Businesses in Vermont	\$ 335,445,798
<b>Total Economic Impact of Vermont's Public-Use Airports</b>	<b>\$ 611,762,971</b>

\*Over 250 businesses responded to an aviation-dependent business survey administered as part of this Study. However, since not all businesses that rely on aviation to move people and/or goods responded to the survey, the economic impact of aviation-dependent businesses is certainly underreported.

Note: Roblin's Nest Airport is closed and therefore its impacts are not included.

## Commercial and General Aviation Airports



Of the 17 public-use airports in Vermont, two are commercial service airports, while the remaining 15 are general aviation facilities.

The two commercial service airports, Burlington International (BTV) and Rutland State (RUT), play an important role in connecting the State's commercial passengers with the rest of the nation and the world. In 2001, over half a million passengers embarked at BTV and RUT. Together, these two airports are responsible for:

- 8,500 jobs,
- with over \$205 million in annual wages and
- over \$536 million in business sales.

Businesses in Vermont rely heavily on general aviation for the movement of goods, products and personnel.

## Quality of Life

In addition to contributing to the State's transportation system by facilitating the movement of people and goods in, out of and within the State, aviation is critical to the quality of life in Vermont. Everyday communities around Vermont rely on the State's 17 public-use airports for valuable services such as charter and air taxi service, corporate flights, emergency, safety, and law enforcement public service flights, as well as access for individual aircraft. This Study identified many important quality of life issues associated with Vermont's airports including:

- Preservation of Open Space, Wetlands, or Woodlands
- Flight Training
- Environmental Patrol
- Search and Rescue
- Emergency Medical Aviation
- Police and Other Law Enforcement Use
- Career Training and Education
- Aerial Photography or Surveying
- Aerial Inspections
- Aerial Application
- Freight/Cargo Activity
- Corporate or Business Aircraft Activity
- Gateway for VIP or High Profile Visitors
- Museums
- Recreational flying or parachuting
- Ballooning.

Fixed based operators serve nine of Vermont's public-use airports, providing the aviation community with services such as aircraft maintenance, fueling services, flight instruction, and aircraft sales and service. The 15 public-use general aviation airports are responsible for generating:

- close to 900 jobs,
- over \$20 million in personal income and
- over \$75 million annually in economic activity for the State.

