

Delaware Airports

Economic Impact Assessment

Technical Report



Prepared for:



Prepared by:



Economic Impact Assessment of Delaware Airports

Final Technical Report

Prepared for:

**Delaware Department of Transportation
State of Delaware**

Prepared by:



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Chapter 1: Executive Summary

Executive Summary

THE PURPOSE OF THIS STUDY IS TO update the economic impact and contribution of airports in Delaware to the State's economy. End products of this analysis are described in terms of jobs, income, taxes generated, and total economic output in dollars. The economic impact analysis of Delaware airports provides stakeholders with evidence that their expenditures on local airports are having an impact in creating and sustaining jobs, as well as generating additional tax revenue to federal, State, and local governments.

ECONOMIC IMPACT DEFINITIONS

Prior to presenting results of the analysis, it is helpful to define the technical terms that are used in this report:

- **Direct Spending:** Includes on-airport spending on employment, operations, and capital projects. It also includes off-airport spending by air travelers for rental cars, hotels, restaurants, etc. Thus, direct spending is associated with both the *providers* and the *users* of airport services.
- **Induced Benefits:** Impacts above the original direct spending created by the successive rounds of spending in the local economy until the original direct impact has been incrementally exported from the local area.
- **Jobs and Income:** Jobs and income generated by activity at airports in Delaware.
- **Total Output in Dollars:** The combined impacts of direct and induced spending.
- **Taxes:** Tax revenue contribution of the Delaware airports to local and State units of government in Delaware.

AIRPORTS STUDIED

Currently, there are 11 public-use aviation facilities located in the State of Delaware. Of these airports, only four (Delaware Airpark, New Castle Airport, Summit Airport, and Sussex County Airport) are contained in the National Plan of Integrated Airport Systems (NPIAS). Each of NPIAS airports was surveyed as a part of the inventory effort. On-site visits were made to the other airports to determine employment levels and business activity. The 11 public-use airports include the following:

NPIAS Airports

- Delaware Airpark
- New Castle Airport
- Summit Airport
- Sussex County Airport

Non-NPIAS Public-Use Airports

- Chandelle Estates
- Civil Air Terminal/Dover AFB
- Chorman Airport
- DelDOT Helistop
- Jenkins Airport
- Laurel Airport
- Smyrna Airport

SURVEYS AND INPUT

For this study, two surveys were developed and mailed to different segments of Delaware's aviation economy: aircraft tenant surveys and on-airport employer surveys. Information collected was helpful in determining a number of economic impact metrics. From the results of this survey, it was determined that general averages of expenditure patterns could be identified for single and twin engine propeller aircraft of \$12,777 per year. The relationship between business and personal use of aircraft was reported to be 43 percent business and 57 percent personal use.

In addition, the number of jobs at each Delaware airport was estimated using surveys and discussions with airport management. Only aviation-related jobs were included since that more accurately portrays the real value of aviation to the Delaware economy. Using the methods described above, the statewide estimate of *direct* airport business and employer employment totaled 2,272 full time and 1,074 part time (not including Dover AFB).

In addition to the survey input, data was collected on the average annual capital spending at each study airport. Statewide, that spending averages \$9.2 million for the public-use civilian airports. Estimated average annual visitor spending of \$24.6 million was used to input the direct expenditures at Delaware airports. Together, these spending components add \$33.8 million to the direct economic impact of airports in the State.

Of significance in 2013 was the reintroduction of airline service to New Castle Airport from Frontier Airlines. The Airline serves five cities and is adding other cities as ridership increases. It is anticipated that commercial airline service will spark new economic growth at New Castle Airport in the future.

ECONOMIC IMPACT METHODOLOGY

The method used to estimate the total economic impacts for airports in Delaware involved inputting the direct impacts (spending for operations, capital expenditures, and visitor expenditures) into the IMPLAN economic modeling system to calculate the induced effects of direct spending.

By definition, induced economic impacts are the *multiplied effects* of the direct impacts. Induced impacts are created by the successive rounds of spending in the local economy until the original direct or indirect impact has been incrementally exported from the local area. Thus, the economic impacts of aviation can be felt in parts of Delaware's economy that are far removed from aviation. Regions that are more economically self-sufficient have higher responding "multipliers" than do regions that are more dependent on regional imports since less of the money is siphoned out of the community for goods and services.

ECONOMIC IMPACT RESULTS

Table 1-1 presents a summary of the economic impacts associated with Delaware airports. As shown, the statewide impacts of airports are anticipated to sustain about 12,300 jobs, \$598.4 million in income, and \$1.07 billion in annual output. In addition, these airports contribute roughly \$43.4 million in state and local taxes each year.

By comparison to the 2007 study, the most recent economic impact assessment shows a slight increase in overall dollar output (8 percent), while recording a rather significant drop in the number of jobs associated with aviation (-21 percent). Some of this decline can be attributed to monetary inflation, which decreases the number of jobs that can be supported with the same amount of money. Table 1-2 presents the comparisons by airport. As shown, the most significant drop in the number of jobs involved Dover Air Force Base. In this regard, the military reported a decline of 1,407 direct jobs and 1,629 indirect/induced jobs. Thus, 3,036 jobs out of the difference of 3,230 can be attributable to the Air Force Base. The remaining decline of 194 jobs was spread between a number of airports, but primarily Sussex County Airport, which indicated a decline in the aircraft manufacturing business. Even though New Castle Airport showed a modest decline, it is anticipated that the new airline service established at the Airport in 2013 will grow significantly and will spark new economic growth at that facility in the near future.

Table 1-1 - Summary of Economic Impacts

Airport Name	Direct Employment	Direct Impacts	Direct Income	Induced Employment	Induced Impacts	State & Local Taxes	Grand Total Employment	Grand Total Income	Grand Total Impacts
Chorman	14	\$1,050,900	\$482,700	6	\$594,000	\$67,600	20	\$698,500	\$1,644,900
Civil Air Terminal	20	\$1,382,700	\$465,800	5	\$565,200	\$144,800	25	\$648,900	\$1,947,900
Dover AFB	6,400	\$466,000,000	\$368,387,000	2,275	\$192,678,800	\$24,487,100	8,675	\$428,404,800	\$658,678,800
Delaware Airpark	32	\$2,503,600	\$1,125,200	12	\$1,208,000	\$158,900	44	\$1,550,800	\$3,711,600
Laurel Airport	12	\$861,900	\$353,000	5	\$515,900	\$80,300	17	\$530,500	\$1,377,800
New Castle Airport	1,606	\$146,868,600	\$70,115,600	740	\$93,616,900	\$10,486,300	2,346	\$104,687,800	\$240,485,500
Summit Airport	158	\$12,708,000	\$6,211,800	88	\$9,943,900	\$1,019,400	246	\$10,413,200	\$22,651,900
Sussex County Airport	426	\$96,133,700	\$36,427,500	446	\$43,318,500	\$6,907,200	872	\$51,183,100	\$139,452,200
Private, Public-Use Airports*	4	\$313,200	\$146,500	2	\$245,800	\$25,000	6	\$245,400	\$559,000
Grand Totals	8,672	\$727,822,600	\$483,715,100	3,579	\$342,687,000	\$43,376,600	12,251	\$598,363,000	\$1,070,509,600

* Three private, public-use airports include Chandelle Estates, Jenkins, and Smyrna Airport.

Table 1-2 - Comparison of 2007 and 2013 Economic Impacts

Airport	2007 Employment	2013 Employment	% Change	2007 Total Impact	2013 Total Impact	% Change
Chorman Airport	16	20	25%	\$2,515,000	\$1,644,900	-35%
Civil Air Terminal	N/A	25	N/A	N/A	\$1,947,900	N/A
Delaware Airpark	45	44	-2%	\$3,610,600	\$3,711,600	3%
Dover Air Force Base	11,711	8,675	-26%	\$528,180,200	\$658,678,800	25%
Laurel Airport	27	17	-37%	\$3,121,900	\$1,377,800	-56%
New Castle Airport	2,462	2,346	-5%	\$272,111,000	\$240,485,500	-13%
Summit Airport	194	246	27%	\$27,997,100	\$22,651,900	-19%
Sussex County Airport	1,021	872	-15%	\$151,048,700	\$139,452,200	-8%
Private, Public-Use Airports*	5	6	20%	\$387,300	\$559,000	44%
STATE TOTAL	15,481	12,251	-21%	\$988,971,800	\$1,070,509,600	+8%

* Three private, public-use airports include Chandelle Estates, Jenkins, and Smyrna Airport.

Chapter 2: Inventory & Data Collection

Inventory And Data Collection

1. INTRODUCTION

THE PURPOSE OF THIS STUDY IS TO update the economic impact and contribution of airports in Delaware to the State's economy. All over the nation, and particularly in the Northeast, there exists a growing negative attitude toward aviation development and growth in general. These attitudes have many causes but environmental concerns and quality of life issues lead the list. It is interesting to note that negative perceptions of environmental consequences of airports, in many instances, are driven by experience with large airline airports rather than small general aviation facilities. The perceptions are often much worse than the reality. Yet airports support new jobs and industry, which bring a higher standard of living for the residents of a particular area. Thus, small general aviation airports are pegged with over-negative perceptions of environmental impact, while at the same time, they are not credited with their economic contributions to the community.

In many communities, there is a misperception of the value of the local airport to businesses and to the overall economy. This misperception plays out in the setting of funding priorities, where airports compete with other municipal projects such as sewer or highway improvements. In many instances, airports lose the funding battles resulting in lost opportunities for the community. In fact, it can be stated that lost opportunities represent an invisible handicap to a community. It is invisible because the lack of growth in the job market makes the economy *seem* sluggish. In reality, lost opportunities may have made a positive difference had they been implemented - but it is a difference that the community may not recognize. Everyone notices the loss of existing jobs, but few would notice the lack of new jobs. It is this invisible segment - new jobs - in addition to the existing jobs supported by aviation, that a study such as this can quantify.

Competition for land, especially in the vicinity of growing communities, threatens to absorb many airports and jeopardizes the viability of others as land is converted to non-complementary uses (e.g. residential). Local zoning authorities often do not have enough information concerning the true economic impact of the airports or their need to apply zoning protection for the airport and its surrounding land uses. Hence, the major overall need is the provision of project appraisal that can account for the direct and induced benefits and costs associated with airports in Delaware.

1.1 What Is Economic Impact Analysis?

Economic impact analysis is the process of quantifying the economic contributions of any specific activity under study. End products of these analyses are described in terms of jobs, income, and total economic output in dollars. The economic impact analysis of Delaware airports will quantify the significance of these facilities within the State. It will also provide stakeholders with evidence that their expenditures on local airports are having an impact in creating and sustaining jobs.

As an example, if a new firm comes into an area and employs 50 people and also purchases some local goods and services, economic studies have shown that the impacts in the area will be

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

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

1.2 What Are the Results of an Economic Impact Analysis?

This study demonstrates the economic impacts of airport use within the State of Delaware. It traces the movement of expenditures through the various economic sectors until the money is exported incrementally from the State through purchases of outside goods and services. In addition, the study documents the number of jobs created and sustained by each airport in Delaware. It will also show the loss of economic activity that occurs when people must drive to other states to begin the air travel portion of their trips. Economic impact studies of aviation can be used to support the following:

- Estimating economic outputs at airports from a given set of inputs
- Quantifying the hidden value associated with airport activity
- Providing information for public education about the economic value of aviation
- Providing information in support of decision making and funding allocations
- Comparison of economic impacts between airports and other enterprises

1.3 Report Organization

In order to adequately address these issues, this chapter is organized to include the following topics:

- Review of Previous Studies
- Survey of Airport Tenants and Users
- Airport Data Profile
- Military Aviation In Delaware
 - Dover Air Force Base

- New Castle Airport Army & Air National Guards
- Economic Data & Statewide Statistics
- Appendix 2-A: Survey Results

The most significant, work-intensive portion of the economic impact analysis is the data collection effort. Results of the inventory and data collection form the basis for inputs to the economic impact model. If these data are flawed or incorrect, the model will multiply that error. Therefore, the greatest care was given to the collection process and the thoroughness in which the data was examined.

2. REVIEW OF PREVIOUS STUDIES

TO KEEP THIS EFFORT COST-EFFECTIVE, A REVIEW of previous economic impact studies relating to Delaware airports or aviation was made. Several other sources were examined including the Association of State Highway Traffic Officials (ASHTO) and the US Department of Transportation (USDOT). From this research, a number of previous studies were identified:

National Level

- *The Economic Impact of Civil Aviation on the U.S. Economy* - April 2011, Federal Aviation Administration
- *What's Your Airport Worth?* - Aircraft Owners & Pilots Association Website: www.aopa.org
- *Estimating the Regional Economic Significance of Airports* - 1992 US Department of Transportation, Federal Aviation Administration

Delaware Studies

- *Delaware Aviation - Key to Economic Vitality* - 1991 for Delaware Transportation Authority
- *Economic Impact Assessment of Delaware Airports & Aviation* - 2001 for Delaware Department of Transportation
- *Delaware State Aviation System Plan* - 2007 for Delaware Department of Transportation
- *Delaware Airport Community Value* - 2011 for Delaware Department of Transportation

In addition to these reports, numerous other economic impact reports for individual airports were reviewed as a part of the inventory process.

The review of these reports considered their results, but more importantly, the components that each report examined and the methodology used. It was assumed that many of the older reports had data that was outdated or not completely relevant to the current economic picture. However, the methodology used for these analyses and the specific types of input were important to this effort to ensure that all relevant factors be considered. Factors common to most or all of these economic impact studies included the following:

- Outputs of the studies:
 - ***Direct Spending:*** On-airport spending for employment, operations, and capital

- expenditures. This includes direct off-airport spending by air travelers for rental cars, hotels, restaurants, etc.
- **Induced Benefits:** Multiplied effects of the circulation of money through spending and re-spending.
- **Jobs and Income:** The aviation sectors from which the jobs and income were generated such as airline, general aviation, manufacturing, etc.
- **Total Output in Dollars:** The combined impacts of direct, indirect, and induced spending.
- Descriptions and quantification of the importance of aviation to the economy

In addition to these items, many of the studies and reports documented transportation savings and the tax impacts of aviation. Others were very detailed in breaking down the economic impacts by the type of industry or even by the type of air traveler. To provide a background context, many of the studies considered the local demographic trends and quantified the aviation activity that occurred at each airport. For the studies related to Delaware airports, a key factor in the development of a total economic impact number was the inclusion of military aviation impact such as Dover Air Force Base and the New Castle Airport Army and Air National Guard Wing.

With regard to methodology, all of the studies utilized some version of a regional input-output modeling system. All of the various economic impact models available (including the IMPLAN, EIFS, and RIMS II) take their base data from the national input-output tables developed by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA). Each of these models share a similar structure, but there are slight distinctions between each model. For example, all of the methods are based on input-output or social accounting principles but differ in the manner in which the data inserted into the model were assembled and manipulated. All three of the models are county-based and thus can be suitable for both small and large-scale geographies. All methodologies use non-survey input-output tables. However, the IMPLAN model has additional detail concerning income-consumption linkages and tax impacts. These factors are important since they convey the information most relevant to tax-paying constituents.

2.1 Previous Results for Delaware Airports

The most recent previous economic study that involved Delaware airports was examined and information regarding the results of that analysis was extracted for use as baseline estimates for this study. The previous study used the IMPLAN economic modeling system and is directly comparable to the results of this updated study. Table 2-1 presents a summary of the economic impact of each Delaware Airport as presented in previous studies.

Table 2-1 - Previous Economic Impact Values, by Airport¹		
Airport	Total Employment²	Total Impact²
Chandelle Estates	2	\$180,400
Chorman Airport	16	\$2,515,000
Civil Air Terminal	N/A	N/A
Delaware Airpark	45	\$3,610,600

Table 2-1 - Previous Economic Impact Values, by Airport ¹		
Airport	Total Employment ²	Total Impact ²
Dover Air Force Base	11,711	\$528,180,200
Jenkins Airport	2	\$123,100
Laurel Airport	27	\$3,121,900
New Castle Airport	2,462	\$272,111,000
Smyrna Airport	1	\$83,800
Summit Airport	194	\$27,997,100
Sussex County Airport	1,021	\$151,048,700
STATE TOTAL	15,489	\$989,247,000

¹ Source: Delaware State Aviation System Plan - 2007 for Delaware Department of Transportation

² Direct and Induced

To get a picture of the dominance of the Dover AFB impact on the overall totals, Figure 2-1 shows the relative proportion of impact. As shown, Dover AFB, New Castle Airport, and Sussex County Airport were the primary sources of aviation related job creation in Delaware in 2007.

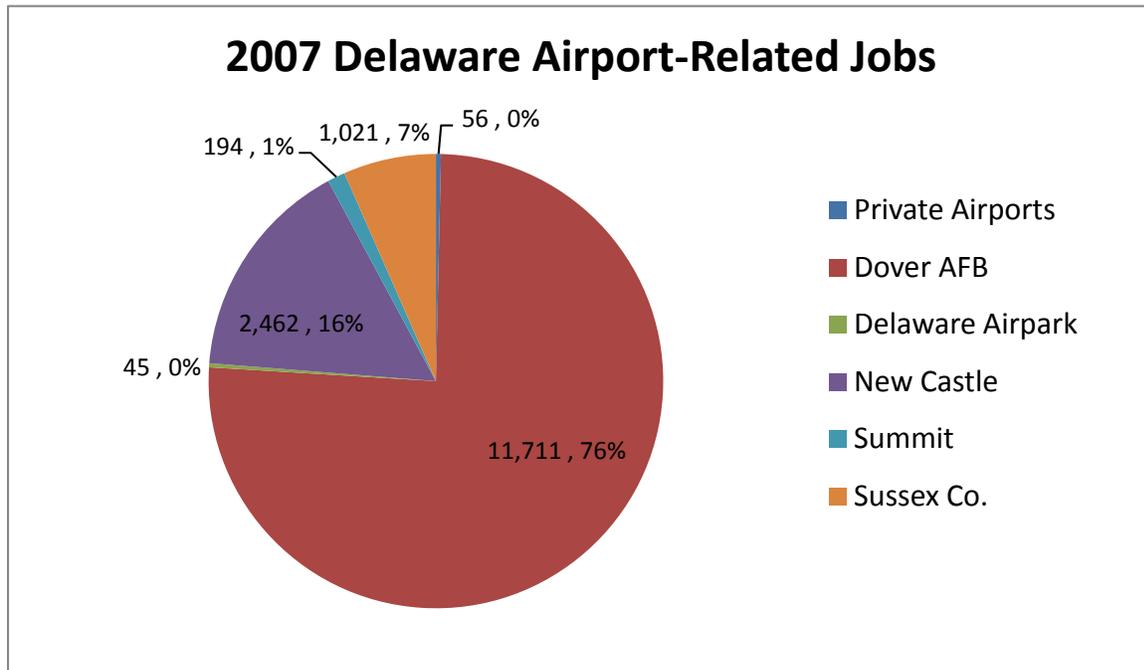


Figure 2-1 - Chart Showing Relative Job Creation Numbers and Percentages

3. SURVEY OF AIRPORT TENANTS AND USERS

FOR AIRPORT SPECIFIC STUDIES SUCH AS THIS, surveys are often the only way to access local data. In this regard, two surveys were developed and mailed to different segments of Delaware's aviation economy:

- Aircraft Tenant Surveys
- On-Airport Business Surveys

Each of these surveys and their aggregate results are presented in the following sections.

3.1 Aircraft Tenant Surveys

Lists of aircraft tenants were collected from airport management and surveys were developed to identify the economic impacts associated with based aircraft at Delaware airports. Typically, based aircraft economic impacts come in the form of owner/operator spending and business interaction. Given these two basic areas of impact, a survey questionnaire was developed that asked specific questions about annual expenditures relating to based aircraft and the importance of the business use of that aircraft. In addition to these two areas, information was requested about aircraft activity in order to better understand and interpret the expenditure numbers. A copy of the Aircraft Tenant Survey is presented on the following pages, while Appendix 2-A provides summarized results of that survey on a statewide basis.

The Aircraft Tenant Survey was designed to measure aircraft user spending, activity, and business relationships. As such, the survey was divided into three major sections, along with name and address information. The three sections included: Aircraft Economic Information, Aircraft Activity Information, and Business/Aviation Relationships.

Aircraft Economic Information

Three questions included in this section involved:

- Aircraft type
- Home Airport for aircraft
- Total annual spending associated with the aircraft at its home Airport

Information gained from answers to these questions was used to quantify overall spending by aircraft owners at each Delaware airport. In addition to statewide averages, sample sizes at most of the airports permitted direct assessment of aircraft user expenditures at specific airports. For those airports with insufficient numbers of responses, average expenditures by aircraft type (single engine, multi-engine, jet, etc.) could be estimated from the statewide averages and applied to fleet mix numbers for the airports in question.



Economic Impact Assessment of
Delaware Airports & Aviation
AIRPORT USER/EMPLOYER SURVEY



Name _____ Phone _____

Address _____ Email: _____

City _____ State _____ ZIP _____

Aircraft Economic Information

1. Aircraft type (Please list all aircraft): _____
2. Home Airport for your aircraft: _____
3. Please estimate the total annual level of spending associated with your aircraft at your home Airport:
Fuel: \$ _____
Maintenance: \$ _____
Storage \$ _____
Other \$ _____
TOTAL \$ _____

Aircraft Activity Information

4. Please estimate the **number of take offs or landings** per year at your home Airport: _____
5. From the above question, please estimate the **percentage of training flights** that you conduct each year:
_____ %
6. Please estimate the **average trip length** on flights other than training flights: _____ miles.
7. Please estimate the percentage use of your aircraft:
Business: _____ %
Personal: _____ %
Other: _____ %
Total 100%

If You Have a Business on the Airport:

8. Type of Business Product or Service _____
9. This Business is: _____ Aviation Related _____ Non-Aviation Related _____ Partial
10. Total number of employees at this location in 2012: Full Time _____ Part Time _____
11. Please estimate what percent, if any, of your company's employment and sales is related to the availability of your local Airport:
Employment _____ % Sales _____ % Local Airport Name: _____

12. If applicable, please explain the importance of the business use of your aircraft to you or your business:

To Return the Survey, You May Either Mail this Survey to the Address Below or Complete it Online at:

www.delawaresurveys.com

Thank You For Your Response!

R.A. Wiedemann & Associates, Inc.
Delaware Survey Response
P.O. Box 621
Georgetown, Kentucky 40324

Please Tape or Staple Here

Aircraft Activity Information

Four questions in this section included:

- Estimate the number of take offs or landings per year at the home Airport
- Estimate the annual percentage of training flights
- Estimate the average trip length
- Estimate the percentage business/personal use of your aircraft

By including questions about aircraft activity, expenditures on aircraft could be related to activity levels. In addition, the number of short training flights including touch-and-go operations could be factored into the overall aircraft owner profile. Because many small planes are used on a part-time basis for business purposes, the survey asked respondents to quantify the types of usage.

If You Have a Business on the Airport

To capture on-airport employers that may have been missed in the employer survey, five questions were included in this section:

- Type of business product or service
- Whether or not the business is aviation-related
- Total number of employees at that location in 2012
- What percentage of employment and sales is related to the local airport
- Explain the importance of the business use of aircraft to your company or business.

These questions attempted to quantify the relationships between aviation and businesses in the local community. The first question identified the type of business product or service. The second question asked if the company was aviation or non-aviation related. The third question asked the total number of employees at that location for the most recent year. The aircraft owner was also asked about the value of the airport to the sales or employment of the business. The last question was open-ended and permitted respondents to explain the importance of aviation to their business or company. Responses to this question provided anecdotal testimonials to the importance of the local airport in supporting local jobs and businesses.

3.2 Airport Business Surveys

A second survey was developed that examined the business sector of airport economic impact. It is recognized that not all employers are businesses, e.g. governmental entities and educational institutions are not businesses. For simplicity, this survey was called the Airport Business Survey. A copy of the survey is presented on the following page, while Appendix 1-A presents a summary of the results on a statewide basis. The Airport Business Survey was divided into two major sections: Company Information and Business Aviation Activity. In addition, a comment section was provided to record open-end responses of employers



Economic Impact Assessment of
Delaware Airports & Aviation
AIRPORT BUSINESS SURVEY



Name _____ Phone _____

Address _____ Email: _____

City _____ State _____ ZIP _____

Company Information

1. Type of Business Product or Service _____

2. This Business is: _____ Aviation Related _____ Non-Aviation Related _____ Partial

3. Total number of employees at this location in 2012: Full Time _____ Part Time _____

Business Aviation Activity

4. Please estimate what percent, if any, of your company's employment and sales is related to the availability of your local Airport:

Employment _____% Sales _____% Local Airport Name: _____

5. Please describe the dependence listed in Question 4 of your business upon the local airport, if any: _____

Comments

6. Comments: _____

Company Information

In addition to the name and address of the company or employer, three questions were asked in this section:

- Type of business product or service
- Whether or not the business is aviation related
- Number of full and part time employees

This information is at the heart of measuring the economic value of the airport to the community. Key information includes the type of product or service and the employment totals for the business. This information is necessary for programming accurate inputs to the IMPLAN model.

Business Aviation Activity

There were two questions in this section. The first asked respondents to describe the percent (if any) of the company's employment or sales that may be related to the local airport. The second question asked the respondent to follow up on the first question and describe the dependence of their businesses upon local airports. This was an open-end question and allowed varied responses. Similar to the other surveys with this question, the desire was to gain a better understanding of the economic relationships between airport business users and aviation transportation. The last question on the survey was for comments. Some companies or employers used this space to expand on other responses in the survey.

4. AIRPORT DATA PROFILE

FOR EACH DELAWARE AIRPORT, A DATA PROFILE was developed to assist in the analysis and estimation of its economic impact. The data gathered for each public-use airport comprised the following categories:

- Airport Functions and Use
- Airport Users and Dependent Businesses
- Airport and Tenant Expenditures
- Aviation Suppliers

Each of these topics are described below.

4.1 Airport Functions and Use

Currently, there are 11 public-use aviation facilities located in the State of Delaware. Of these airports, only four (Delaware Airpark, New Castle Airport, Summit Airport, and Sussex County Airport) are contained in the National Plan of Integrated Airport Systems (NPIAS). Each of NPIAS airports was surveyed as a part of the inventory effort. On-site visits were made to the other airports to determine employment levels and business activity. The 11 public-use airports include the following:

- Chandelle Estates
- Civil Air Terminal/Dover AFB*
- Chorman Airport
- Delaware Airpark
- DelDOT Helistop
- Jenkins Airport
- Laurel Airport
- New Castle Airport
- Smyrna Airport
- Summit Airport
- Sussex County Airport

* It should be noted that Dover AFB is a restricted use facility, with a 72-hour prior permission only requirement for landing.

In order to understand the relative size and activity of each public-use airport in Delaware, a description is presented that details the service area, the type of aircraft that uses each facility, and the overall activity, along with a brief description of the airfield and landside areas making up the airport. Table 2-2 presents a summary of this information. To better understand the table, it is appropriate to define the terms used in the description categories.

Ownership

In Delaware, as in other parts of the nation, general aviation airports are either publicly owned or privately owned. Listed in the table are both publicly and privately owned, public-use airports. Some privately owned airports in the State are deemed restricted or private-use facilities and as such, are not listed in the table. The Civil Air Terminal is a publicly owned, joint use civil-military aviation facility operated by the Delaware River and Bay Authority.

Airport Reference Code (ARC) Class

The Airport Reference Code has two components: the aircraft approach category, and the airplane design group. The first component is depicted by a letter (A, B, C, D, or E) and is related to the aircraft approach speed. The second component is depicted by a Roman numeral and is related to the airplane wingspan.

- Aircraft Approach Category is based upon 1.3 times an aircraft's stall speed in their landing configuration at their maximum certificated landing weight:
 - A: Speed less than 91 knots.
 - B: Speed 91 knots or more but less than 121 knots.
 - C: Speed 121 knots or more but less than 141 knots.
 - D: Speed 141 knots or more but less than 166 knots.
 - E: Speed 166 knots or more.
- Airplane Design Group is based upon wingspan:

- I: Up to but not including 49 feet.
- II: 49 feet up to but not including 79 feet.
- III: 79 feet up to but not including 118 feet.
- IV: 118 feet up to but not including 171 feet.
- V: 171 feet up to but not including 214 feet.
- VI: 214 feet up to but not including 262 feet.

Under this system, short runway airports and turf airports are classified as A-I and Less than A-I, respectively. Airports expected to accommodate single-engine airplanes are classified as B-I. Airports in the General Utility classification, serving larger general aviation and commuter-type aircraft are categorized as B-II airports. Finally, small to medium sized airports serving business jets and larger aircraft are classified as C-III airports.

Runways

The number, size, and surface type of runways at an airport indicate the type of aircraft serviced at that airport. Airports with multiple runways are able to operate when wind conditions are not favorable to a single runway. Also, the larger the runways, the larger and faster the aircraft that it is able to accommodate. The surface type of runway indicates which airports are seasonal and which facilities can be used during all weather conditions. Turf runways cannot be plowed for snow removal and often tend to get muddy during rainy seasons. Use of these airports is highly dependent upon favorable weather conditions. Because of this, most turf runway airports support more personal flying than business flying. Asphalt or concrete runways, on the other hand, can be open year-round and can serve business needs during wet and snowy seasons. Airports with these types of runways tend to have a higher level of business activity than turf runway airports.

Based Aircraft and Operations

The number of based aircraft and operations at an airport shows the activity level of the facility. The higher the activity level, the more economic impact the airport is likely to generate. Based aircraft refers to the number of permanently stationed aircraft at an airport. Operations refer to the number of take-offs and landings that occur at an airport. A take off and a landing are two operations.

Table 2-2 - Delaware Public Use Airport And Heliport Facilities

AIRPORT	Ownership	ARC Class**	# of Rnwys	Runway Dimensions	Runway Surface	Based Aircraft	Civil Aircraft Operations	Service Area	Business Aviation Activity
Chandelle Estates	Private	Less Than A-I	1	2,533' x 28'	Asphalt	24	1,300	Local	Crop Spraying, Powerline Surveillance, Pilot Training
Chorman	Private	B-I	1	3,588' x 37'	Asphalt	19	14,600	Local	Crop Spraying
Civil Air Terminal at Dover AFB*	Civil-Mil. Joint Use	E-VI	2	9,602' x 200' 12,903' x 150'	Asphalt	0	660	Regional	Corporate Aviation, NASCAR Race Air Travel Support, Military Aviation
Delaware Airpark	Public	B-I	1	3,582' x 60'	Asphalt	33	23,000	Regional	Crop Spraying, Pilot Training, Corporate Aviation, Sight Seeing, Tourism
Jenkins Airport	Private	Less Than A-I	2	2,842' x 70' 2,035' x 70'	Turf	20	1,400	Local	Aircraft Salvage
Laurel Airport	Private	Less Than A-I	2	3,175' x 270'	Turf	14	9,100	Local	Parachute Training, Crop Spraying, Pilot Training, Sight Seeing
New Castle Airport	Public	C-IV	3	7,275' x 150' 7,012' x 150' 4,602' x 150'	Asphalt Asphalt Asphalt	225	56,200	Regional	Air Cargo, Pilot Training, Corporate Aviation, Military Aviation, Medevac, Airline, Tourism
Smyrna Airport	Private	Less Than A-I	1	2,600' x 125'	Turf	10	2,300	Local	Pilot Training
Summit Airport	Private	B-II	2	4,488' x 65' 3,601' x 200'	Asphalt Turf	41	31,000	Regional	Corporate Aviation, Military Aviation, Aircraft Maintenance, Medevac
Sussex County Airport	Public	B-II	2	5,500' x 150' 3,109' x 75'	Asphalt Asphalt	54	33,900	Regional	Pilot Training, Aircraft Manufacturing, Corporate Aviation, Tourism, Banner Towing, Military Aviation, Air Cargo, Medevac
DELDOT Helistop	Public	N/A	1	60' x 60'	Asphalt	0	50	Local	Helicopter Operations

* Joint-use facility with State-owned civil facilities.

** ARC = Airport Reference Code

Service Area

The service areas described for each airport were reduced to two general categories: local and regional. The local service area implies a 30 mile driving radius from the airport. This service area is generally limited to those living relatively near the airport and using the airport to base their aircraft. Local service area airports are low activity facilities that primarily accommodate pilot training and personal flying.

For this study, an airport with a regional service area implies a driving radius larger than 30 miles for users and the attraction of corporate general aviation aircraft. Regional service airports are generally higher activity airports (with the exception of the Civil Air Terminal) with larger runway facilities. They are generally able to accommodate many of the business class aircraft including multi-engine turboprops and business jets and tend to attract business use due to their facilities and ground services.

Activity Types

Airports accommodate numerous types of aviation activity which support both commerce and personal use. Activity types listed by airport operators included:

- ***Air Cargo*** - This type of cargo delivery to general aviation airports is usually on a special order basis. At New Castle Airport, for example, air cargo flights have brought spare parts to assembly plants when shortages threatened the production line with stoppage.
- ***Crop Spraying*** - Application of pesticides and fertilizers are made from specially fitted aircraft. In Delaware, there is a significant amount of seasonal aerial crop spraying. Mosquito control is another use for spray planes in a state that has significant acres of wetlands and marsh areas.
- ***Powerline Surveillance*** - Powerlines often traverse land that is not easily accessible from highways. For this reason, aircraft have been used by power companies to survey their lines and detect potential problems with vegetation growth or other facility problems.
- ***Pilot Training*** - Pilot training occurs at general aviation airports through flight schools or private instructors. If a public-use airport doesn't have a flight school, it is still likely that private instruction is provided at the airport.
- ***Corporate Aviation*** - Most corporate aviation is conducted using larger turboprop or turbo jet aircraft. However, many single engine aircraft are also used for business purposes. Typically, corporate aviation implies the use of professional pilots, while business aviation can mean private pilots using their aircraft for business purposes.
- ***Military Aviation*** - Military aviation activity is the regular or occasional use of an airport by military aircraft. For example, the Air National Guard units located at New Castle Airport are regular users, while other general aviation airports in the State receive occasional training flights. Dover Air Force Base is obviously classified as military

aviation.

- ***Aeromedical Evacuation (Medevac)*** - Medevac is the life-saving activity of helicopter and fixed wing aircraft in transporting sick or injured persons to hospital facilities via air. For critical trauma victims, the first hour is called the golden hour because every minute of delay decreases the likelihood of complete recovery. Most medevac activity involves transfers of patients from one hospital to another more specialized in the field of patient needs.
- ***Tourism/Sightseeing*** - Tourism and sightseeing are important aviation activities since they draw discretionary spending from tourists to a particular area. Coupled with local attractions such as beaches, Dover Downs, or conventions, tourism and sightseeing aviation activity can provide supplemental economic impact.
- ***Glider/Balloon Activity*** - Often, these types of aviation activity are associated with festivals or specialized airports. While not large economic impact endeavors, many corporations sponsor balloons with high visibility company logos printed on the balloon itself.
- ***Banner Towing*** - Banner towing activities in support of aerial advertising occur in highly populated areas such as beaches or at sporting events. These operations are localized and seasonal.

4.2 Airport Users and Dependent Businesses

In Delaware, many large businesses are dependent upon local airports for a part of their business activities. In some cases, corporate flight departments located at Delaware airports are used to transport company employees to different locations around the nation and internationally. In other cases, the airports themselves are the location of the companies' businesses. In addition, airports provide access to the nation's airspace system and give aircraft owners and pilots an ability to conduct business using general aviation transportation.

Surveys were sent to 90 on-airport businesses and on-airport employers. At airports in the State, aircraft manufacturing and modification, military aviation, parachute training, flight training, and many other aviation-dependent business and governmental activities were conducted. These activities would not occur without local airports from which to operate. All of the employment, all of the income, and all of the economic output to the community would be lost if these aviation dependent employers did not have local airports.

National Overview

General aviation includes all civil flying except the airlines. General aviation contributes more than \$150 billion annually to the U.S. economy and sustains more than 1.2 million jobs.¹

¹ Source: National Business Aviation Association, 2012 *NBAA Business Aviation Fact Book* (Internet address: www.nbaa.org)

GA aircraft fly almost 25 million hours and carry 140 million passengers per year. There are 10 times more general aviation airports than airline airports and for many locations, general aviation is the only form of air travel available to businesses.

Business aviation is one of the most important segments of general aviation and consists of companies and individuals using aircraft as tools in conducting their business. Business aircraft range from small single-engine, piston-powered airplanes to large multi-engine, turbine powered jet aircraft. Business aircraft are used by companies for a variety of reasons, but those most often quoted include:

- Time savings for employees
- Increased productivity enroute
- Industrial security
- Control of air transportation scheduling
- Reaching remote locations not served by airlines

The purposes of these trips are wide ranging, including the transport of company executives, mid-level managers and salespeople, as well as customers and suppliers. Business aircraft can also be used to bring customers to the point of sale such as a factory or distribution center.

Fractional Ownership

An option for businesses that do not desire an entire flight department is fractional aircraft ownership in which companies or individuals own a fraction of an aircraft and receive management and pilot services associated with the aircraft's operation. This concept is similar to a condominium time-sharing plan where a block of time for use is essentially sold as a fractional part of the ownership plan. If the particular aircraft owned is not available when desired, a similar or identical aircraft can be substituted. This concept reduces the startup costs and facilities investment for companies that desire corporate aviation services. The fractional ownership concept began in 1986 with Executive Jet Aviation (NetJets) and was followed several years later by Business Jet Solutions (FlexJet). In 1986, there were four owners of fractionally held aircraft. By 2010 there were almost 5,000 companies using fractional ownership.²

Individual deals on fractional ownership vary, since most are negotiated. Typically, a one-eighth interest is bought or leased and this is roughly equivalent to 100 hours per year of usage. Individuals can also purchase one-sixteenth (50 hours) or one-quarter (200 hours) interest in corporate aircraft. The cost of fractional ownership varies widely by the fraction of the aircraft owned and the size of the aircraft. In addition to the ownership costs, there are other monthly and use fees for service and administration charged by the fractional aircraft management company. The economics of each situation differ, however, the following general guidelines are commonly used:

- Zero to 100 hours per year - Charter Aircraft
- 400 hours per year or more - Institute In-house Flight Department

² Source: <http://libraryonline.erau.edu/online-full-text/books-online/GamaDatabookOutlook.pdf>

- 101 to 399 hours per year - Fractional Jet Ownership may be feasible.

As implied above, fractional jets are used up to 800 hours per year. A large fractional aircraft management company (NetJets) used more than 120 million gallons of jet fuel and had an average fuel upload of 450 gallons per flight in 2012.³

Business Dependency on Aviation in Delaware

Key to the examination of economic impact of aviation on the Delaware economy is the interaction of local businesses at Delaware airports. The previous paragraphs have discussed the national overview of business aviation and the most recent trends toward fractional ownership. However, it is in the local interaction of businesses and aviation that economic impacts are felt. In this regard, surveys of airport users indicated that business use of aircraft averaged 42.6 percent overall. When asked to describe the importance of business use of aircraft to their companies and businesses, survey respondents indicated one or more of the following general categories:

- Significant time savings for employees
- Flight instruction business
- Aerial photography business
- Crop dusting operation
- Increases geographical range of business
- Life Line flight service
- Commute to work via aircraft

Each of these responses indicated a vital connection between business and aviation. In some cases, such as crop dusting, flight instruction, or aerial photography, the business would not exist without aviation. In other cases, aviation made a significant difference in the bottom line of company earnings through employee time savings or increased geographic coverage of market areas. In each case, the use of business aviation strengthens the local economy by supporting local jobs and industry.

4.3 Airport and Tenant Expenditures

From the survey of aircraft tenants and on-airport businesses (described in the previous section), much was learned about expenditures that occur on airports. In this regard, aviation-related expenditures could be grouped into several categories:

- Airport capital expenditures
- Aircraft user expenditures
- Number of jobs of airport businesses and employers

These primary categories can account for most of the spending that occurs on an airport.

³ Source: NetJet representative Ryan Cottrill, July 17, 2013 telephone conversation.

Airport Capital Expenditures

Airport capital expenditures provide direct economic impacts for construction and materials supply sectors of the Delaware economy. Each year, capital improvement programs are identified and updated for Delaware airports that are eligible for federal and State funding assistance. Information from these programs were used in this analysis to provide a realistic estimate for capital spending on an annual basis. For those privately owned airports that are not eligible for federal or State assistance, estimates of annual capital spending were made based on conversations with the owners and historical records of improvement spending. On a statewide basis, more than \$27.5 million in capital development is projected over the next three years at all Delaware airports, with less than one percent of this going toward privately owned, public-use airports.

Airport User Expenditures

The Airport User/Employer Survey polled based aircraft owners and pilots, requesting information on the level of spending associated with their aircraft on an annual basis. From the results of this survey, the following general averages of expenditure patterns could be identified for single and twin engine propeller aircraft:

Average fuel costs	\$4,387 per year
Average maintenance costs	\$5,227 per year
Average storage costs	\$2,607 per year
Other costs	<u>\$ 556 per year</u>
TOTAL AVERAGE COSTS	\$12,777 per year

This information was helpful since less than 100 percent response was received from based aircraft owners and operators. Using the statewide averages above, extrapolation of aircraft user expenditure amounts could be made, given a knowledge of the based aircraft fleet mix type. The statewide estimate of aircraft user expenditures (excluding business jets) totaled \$4.82 million for 2012. This number does not include the costs for 63 based business jet aircraft in the State. It is estimated that the corporate flight departments that manage these business jets expend more than \$88 million annually.

Jobs of Airport Businesses and Other Employers

A difficult segment of information to collect involved the number of direct jobs at each airport. In this regard, airport managers were asked for employment information. All complied and listed information for airport management as well as for on-airport businesses and organizations. For companies for which they did not have information, follow up calls were made to confirm employment totals.

Another consideration was whether or not the enterprise was aviation-related. In this regard, Sussex County Airport has an industrial park on airport property with businesses that are not aviation-related. Those businesses were not included in the employment and expenditure estimates for this study. Only aviation-related businesses were included since that more accurately

portrays the real value of aviation to the Delaware economy. Using the methods described above, the statewide estimate of direct airport business and employer employment totaled 2,272 full time and 1,074 part time (not including Dover AFB). A subsequent chapter details the airport-by-airport breakdown of employment.

5. MILITARY AVIATION IN DELAWARE

THE ECONOMIC INFLUENCE OF MILITARY AVIATION IN Delaware is significant. In this regard, there are two airports that serve the bulk of military aviation in the State: Dover Air Force Base (AFB), and New Castle Airport. Due to its size and activity, Dover AFB has the largest economic impact of any aviation facility in the State. This section is organized to include the following topics:

- Dover AFB Impact
 - Direct Employment Impacts
 - Direct Income Impacts
- New Castle Airport Military Units Impact
 - Air National Guard Direct Employment
 - Army National Guard Direct Employment
- Summary of Military Impacts

5.1 Dover AFB Impact

Dover Air Force Base is located in the "First State," and the center of the Delmarva (Delaware, Maryland, and Virginia) peninsula. Dover AFB is home to the 436th Airlift Wing, known as the "Eagle Wing" and the 512th Airlift Wing, our Air Force Reserve associate- referred to as the "Liberty Wing." Together, these two wings make up the "Dover Team." The 436th Airlift Wing is the active duty military host unit at Dover Air Force Base, which provides command and staff supervision, along with support functions, for assigned airlift providing worldwide movement of outsized cargo and personnel on scheduled, special assignment, exercise and contingency airlift missions.

Home to the C-5 Galaxy and C-17 Globemaster III aircraft, the Eagle Wing flies hundreds of missions throughout the world and provides 25 percent of the Nation's strategic airlift capability, projecting global reach to over 100 countries around the globe. Dover AFB operates the largest and busiest air freight terminal in the Department of Defense and is also home to the Air Mobility Command Museum, which welcomes thousands of visitors each year. The Charles C. Carson Center for Mortuary Affairs is the DOD's largest joint-service mortuary facility and the only one located in the continental United States.⁴

⁴ Source: <http://www.dover.af.mil/units/index.asp>

Direct Employment

Direct employment can be defined as the employment located at Dover AFB that is directly related to the operation and mission of the facility. Dover AFB creates significant economic impacts in the local community, primarily through the employment of thousands of military and civilian personnel. In addition, local purchases of goods and services support direct employment in the Dover area. The numbers of personnel employed at Dover AFB can be identified as follows:

This total is considered the direct employment at Dover AFB. There are roughly 10,000 military retirees in the Delaware area, which are also considered a part of the Dover AFB economic impact, since they receive their retirement benefits through the base, including use of hospital and PX facilities.

Direct Expenditures

Similar to direct employment, direct expenditures represent money spent on operations and maintenance activities, construction, and what is called "Transportation Working Capital Fund." For 2012, the expenditures in these categories were as follows:

Input to the IMPLAN model for direct spending at Dover AFB totaled \$488.4 Million in 2012.

5.2 New Castle Airport Military Units Impact

There are two military units located at New Castle Airport: the Delaware Air National Guard, and the Army National Guard. The overall mission of both the Air and Army National Guard is to have qualified individuals available for active duty in time of war, national emergency, or when required by National Security. They must be trained, organized, and equipped to mobilize on short notice and take their place with active military units.

The Air National Guard at New Castle Airport is composed primarily of the 166th Airlift Wing. Its federal mission is to provide organized, trained and equipped combat ready units to meet federal mobilization requirements in support of U.S. national security objectives. Operating eight permanently assigned, Lockheed C-130 H2 Hercules transport aircraft, the wing provides the U.S. Air Force with tactical airlift and air and land drop of troops, cargo and passengers and aeromedical evacuation of patients anywhere in the world. Additionally, the wing has a civil engineer function and a network warfare unit (the 166th Network Warfare Squadron).

Under command of the Governor of Delaware, the wing is prepared to support the State of Delaware with trained personnel and equipment for various humanitarian missions to protect life and property and to preserve peace, order and public safety. In a larger sense, the mission of the 166th Operations Group is to train and supply mission ready tactical airlift and aeromedical aircrews. Combat trained aircrews are prepared to respond to state, national and world-wide contingencies and disasters. The group has three units; the 166th Operations Support Flight, the 142nd Airlift Squadron and the 142nd Aeromedical Evacuation Squadron. Given this mission statement, the analysis presented herein will assist in quantifying the value added by the Delaware Air National Guard to the State's economy.

The Delaware Army National Guard unit at New Castle Airport is called the Army Aviation Support Facility (AAFS). This unit is responsible for Army helicopter operations and maintenance at their New Castle Airport base. In addition, they provide support service for several smaller Guard units in the area. Similar to the Air National Guard, their mission is to provide trained and equipped personnel, at the call of the Governor, to meet emergency needs and to protect life and property of the citizens of Delaware. Their federal mission is to have qualified individuals available for active duty in time of war, national emergency, or when required by National Security. They must be trained, organized, and equipped to mobilize on short notice and take their place with active military units.

In the following sections, the employment, income, and other expenditures of the military units at New Castle Airport are described.

Air National Guard Direct Employment

The Delaware Air National Guard units are all located at the New Castle Airport. The Air National Guard employs 1,100 people. Full and part time breakdowns of these numbers include the following:

• Full Time	225
• Part Time	<u>875</u>
Total	1,100

Most of the part-time personnel are the weekend warriors who are members of Reserve units. These personnel take part in regular training exercises and programs so as to remain combat ready.

Army National Guard Direct Employment

The Army National Guard is made up of a much smaller group of personnel than the Air National Guard. In this regard, total Army National Guard personnel breakdowns are as follows:

• Full Time	46
• Part Time	<u>225</u>
Total	271

As shown, there are 271 Army National Guardsmen serving at New Castle Airport. These totals,

along with the Air National Guard employment were input to the IMPLAN model.

6. ECONOMIC DATA AND STATEWIDE STATISTICS

INFORMATION THAT DOES NOT FIT IN OTHER sections of this inventory were consolidated in this section. For example, travel and tourism data, socioeconomic data, and economic multiplier data were collected for this section of the report. Each of these items is described below.

6.1 Travel and Tourism Data

An important part of the data collection, particularly for assessing the indirect economic impacts of aviation, is information pertaining to travel expenditures in Delaware. This would include such statistics as the number of visitors to each airport, their average daily expenditures, their average length of stay, and any modal differences in expenditure patterns. Components of this data were available through the Delaware Tourism Office.⁵ In this regard, visitor profiles have been developed to capture vital information concerning travel and spending patterns of visitors. By definition, visitors are people who travel more than 50 miles from home. Although the majority of these visitors come by automobile, modal differences were not noted in the profiles. Therefore, it was assumed that spending patterns for auto travelers was similar to spending patterns for air travelers. This assumption is likely to understate the actual spending by air visitors to Delaware who will have, in most cases, the added costs of renting cars at local airports.

The most recent visitor profile was compiled for the year 2011. In this regard, the value of tourism to the State of Delaware was estimated as follows:

- The total market value of goods and services produced (GDP) by the state's economy during Fiscal Year 2011 was \$2.2 billion.
- In 2011, there were 7.2 million visitors to the State of Delaware.
- The Delaware tourism industry is the 3rd largest private employer in the state, employing 39,300 people.
- The tourism industry generated \$437 million in state and local government taxes/fees in Fiscal Year 2011.
- The average visitor spent \$564 per trip in 2011.
- Without tourism in Delaware, each Delaware household would pay \$1,309 more in taxes to maintain current levels of state and local taxes.

For this analysis, the most important fact involved the average visitor spending per trip of \$564. That number was used in concert with estimates of the numbers of annual visitors to each airport within the State.

6.2 Socioeconomic Data

Socioeconomic statistics are generally used to describe the economic and demographic conditions and trends expected to occur in a particular area. Socioeconomic factors are a key

⁵ Source: <http://www.visitdelaware.com/about-us/tourism-statistics/>

measure of economic health in a region. Examination of historical data can be helpful in identifying both positive and negative economic trends in the service area. For pro-active decision-makers, socioeconomic and demographic trends provide information on when and where to apply economic development incentives in counteracting negative trends.

The Great Recession, which began in December 2007, officially ended in June 2009.⁶ This recession caused the most severe job loss in the U.S. since the Great Depression more than 70 years ago. By definition, a recession is period of economic decline, typically measured by a decline in Gross Domestic Product (GDP) for two consecutive quarters. The effects of this recession were economically painful in Delaware, where business activity is critical to the corporate tax revenues paid to the State. Housing prices, demand for durable goods, tourism, and the service industry all declined during the recession and have not rebounded as quickly as desired. The aviation market in Delaware was affected by lower demand, reflecting the broad decline of these and other economic activity indicators.

Socioeconomic factors have been shown in numerous studies sponsored by the FAA to be related to an area's demand for aviation facilities and services. Among the most significant are population, income, and employment. This section identifies each of these factors and presents historical statistics and trends for the years 2000-2011 for all three Delaware counties.

Population

Analysis and projection of population are useful for making planning decisions and assessing major economic development proposals. In many instances, the growth or decline of population determines the level of demand for future facilities and serves as an index of most county and urban characteristics. Because all economic impact and development is related to population, it is important to identify Delaware population trends for this study.

Table 2-3 presents the historical population growth for Delaware counties. As shown, Kent County has shown the highest percentage growth (29.6%), while Sussex County has shown the highest population growth (a net gain of 43,023 over the period). For the State, there has been a 15.4 percent growth over the 2000-2011 period, growing from 786,373 to 907,135.

Table 2-3 - Delaware Historical Population Trends*				
Year	Kent	New Castle	Sussex	State Total
2000	127,229	501,837	157,307	786,373
2001	129,228	506,026	160,445	795,699
2002	131,824	510,158	164,187	806,169
2003	134,605	514,769	168,629	818,003
2004	139,342	518,944	172,517	830,803

⁶ Source: http://www.epi.org/publication/ten_facts_about_the_recovery/

Table 2-3 - Delaware Historical Population Trends*				
Year	Kent	New Castle	Sussex	State Total
2005	144,585	523,343	177,222	845,150
2006	149,704	527,174	182,390	859,268
2007	153,969	530,555	187,225	871,749
2008	157,925	533,958	191,991	883,874
2009	160,081	536,898	194,751	891,730
2010	162,873	539,007	197,912	899,792
2011	164,834	541,971	200,330	907,135
2000-'11 % Change	29.6%	8.0%	27.3%	15.4%

* Source: Bureau of Economic Analysis (BEA), U.S. Department of Commerce, June, 2013. www.bea.gov

Income

Similar to population, an area's income and economic activity have been shown to be positively related to the demand for aviation services and facilities in many parts of the country. Further, there is an assumed causal relationship between concentrated economic activity and demand for air transportation.

Income statistics commonly include Total Personal Income (TPI) and Per Capita Personal Income (PCPI). For tracking growth trends, PCPI is the preferred statistic since it removes the population growth factor from the income growth factor. Thus, PCPI statistics were collected for the inventory. Table 2-4 presents the historical growth in PCPI for each Delaware county and the State total.

Table 2-4 - Study Area Historical PcpI*				
Year	Kent	New Castle	Sussex	State Total
2000	23,929	34,757	24,776	31,009
2001	25,047	36,061	26,528	32,350
2002	26,051	37,107	26,458	33,130
2003	26,589	37,686	27,501	33,760
2004	27,705	39,652	29,469	35,534
2005	28,484	41,101	30,746	36,771
2006	29,193	43,831	32,199	38,812
2007	30,368	44,627	33,915	39,808

Table 2-4 - Study Area Historical Pcpⁱ*				
Year	Kent	New Castle	Sussex	State Total
2008	31,785	45,172	34,973	40,565
2009	31,585	42,674	33,570	38,695
2010	32,078	43,561	34,208	39,425
2011	33,302	46,315	34,988	41,449
2000->11 % Change	39.2%	33.3%	41.2%	33.7%

* Source: Bureau of Economic Analysis (BEA), U.S. Department of Commerce, June, 2013. www.bea.gov

As shown in the table, Per Capita Personal Income in Delaware has grown by almost 34 percent between 2000 and 2011. This translates into a compound growth of 2.7 percent per year, which is slightly faster than the average rate of inflation during that same period (2.5 percent). All of the counties had similar growth in per capita personal income, with ranges of between 33.3 percent and 41.2 percent separating the top and bottom growth.

Average Annual Wages by Major Industry Sector

In addition to Per Capita Personal Income, it is helpful to examine the average annual wages by major industrial sector. This examination permits comparisons of wages by industry type and permits decision makers to see the types of industries that are more desirable in terms of recruiting for economic development. Table 2-5 presents a summary of average annual wages by major industrial sector for each county and for the State as a whole.

Table 2-5 - 2012 Average Wages by Major Industry Sector*				
Sector	Kent	New Castle	Sussex	Statewide
Utilities	\$79,009	\$97,319	\$91,646	\$95,641
Construction	\$43,752	\$54,989	\$39,188	\$50,985
Manufacturing	\$54,003	\$76,086	\$36,855	\$57,172
Wholesale trade	\$44,794	\$91,135	\$52,298	\$81,329
Retail trade	\$24,968	\$26,962	\$24,215	\$26,158
Transportation and warehousing	\$37,654	\$46,148	\$34,945	\$42,568
Information	\$46,968	\$60,261	\$42,539	\$59,229
Finance and insurance	\$70,571	\$89,273	\$49,752	\$86,523
Real estate and rental and leasing	\$33,050	\$47,339	\$33,468	\$42,014
Professional and technical services	\$59,152	\$104,320	\$51,872	\$97,574
Management of companies	\$76,000	\$130,992	\$112,047	\$129,305

Sector	Kent	New Castle	Sussex	Statewide
Administrative and waste services	\$28,933	\$35,132	\$26,968	\$33,869
Educational services	\$37,342	\$44,127	\$23,418	\$42,434
Health care and social assistance	\$39,878	\$52,855	\$46,892	\$49,940
Arts, entertainment, and recreation	\$27,840	\$28,630	\$21,651	\$27,448
Accommodation and food services	\$14,267	\$17,171	\$17,106	\$16,789
Other services, except public administration	\$23,977	\$28,354	\$25,059	\$27,359
Government	\$47,052	\$57,116	\$42,087	\$51,947
Total - All Industries	\$38,491	\$58,808	\$34,489	\$51,757

* Source: Delaware Department of Labor, Office of Occupational & Labor Market Information

Employment

Employment statistics are another measure of economic activity and thus are related to the demand for air transportation facilities and services. Growing employment trends point toward greater economic activity. This activity, in turn, leads to more use of aviation and air transportation services. Historical employment statistics for Delaware counties are presented in Table 2-6. As shown, overall employment for Delaware grew by 5.9 percent over the period. Kent County showed the fastest growth with 20.4 percent, while New Castle County had the slowest growth with 0.1 percent. These statistics are consistent with the population and income trends described earlier.

Year	Kent	New Castle	Sussex	State Total
2000	71,849	349,291	82,427	503,567
2001	73,704	344,210	82,353	500,267
2002	75,820	340,283	85,119	501,222
2003	77,553	341,571	86,754	505,878
2004	80,521	347,860	91,131	519,512
2005	83,895	351,811	94,505	530,211
2006	85,267	357,047	98,085	540,399
2007	87,297	361,378	100,353	549,028
2008	87,335	361,482	100,303	549,120
2009	84,799	347,961	97,604	530,364

Table 2-6 - Delaware Historical Employment¹				
Year	Kent	New Castle	Sussex	State Total
2010	85,881	343,792	97,857	527,530
2011	86,475	349,477	97,476	533,428
2000->11 % Change	20.4%	0.1%	18.3%	5.9%

* Source: Bureau of Economic Analysis (BEA), U.S. Department of Commerce, June, 2013. www.bea.gov

6.3 Input/Output Economic Sector Multipliers

In conducting an impact analysis, one of the most critical tasks in the selection of an appropriate model; this model has to represent the structure of the economy under review - either an individual county or the state as a whole - and will have to be constructed primarily from non-survey data since the costs of model construction from primary sources would be prohibitively expensive. The model will have to trace the sector-to-sector impacts and estimate the proportion of any change in the economy that will circulate within the economy and the percentage that will leak out to other parts of the country.

Input-output modeling takes into account the dependency of each economic sector on every other sector (there are 500 recorded in the Bureau of Economic Analysis (BEA) input-output tables). Using the IMPLAN Econometric Input-output Model, the BEA input-output tables are adjusted to take into account the structure of the Delaware economy. For example, in calculating the manufacturing multiplier, over 300 sectors were involved. Each of their contributions to the multiplier was weighted by the size of the sector (in terms of output).

There have been numerous studies conducted to definitively establish respending multipliers for various geographic areas and segments of the economy. These studies have indicated that multipliers ranging from one to four are appropriate for airport economic estimates. For this study, sector-specific input-output multipliers were developed to estimate the respending impacts of airport-related wages and salaries and other aviation-related expenditures on the study area economy. For impacts relating to airport employment, construction, and local business use, multipliers from a number of different sectors were used. Chapter 3 of this report presents a breakdown of the induced economic impacts for both the direct and indirect expenditures and employment, and shows the sectors used in calculating the multiplier amounts.

Appendix 2-A: Survey Results

Appendix 2-A SURVEY RESULTS

In March, 2013, Delaware Airport users and businesses were surveyed to evaluate local area business use and economic impact of Aviation in the State of Delaware. The Airport User/Business Survey was developed and mailed to all based aircraft owners on file. A total of 346 Surveys were mailed and 10 were returned as undeliverable. In addition to these direct mailings, the Airport User/Business and Employer-Only Surveys were launched using a special Delaware website address in combination with www.surveymonkey.com so that respondents could complete them online.

The direct mailings and online surveys asked respondents to return completed surveys by April 1, 2013. During this period, a total of 34 Airport User/Business Surveys and 10 Airport Employer-Only Surveys were completed via online and mail-in respondents. This represents a response rate of 13 percent for the total mailing. This response rate falls under the normal response range of 18 percent to 28 percent.

NEW CASTLE AIRPORT

A total of 22 User/Business Surveys and 4 Airport Employer-Only Surveys were collected from respondents that identified New Castle Airport as their home airport.

1. Please list type of aircraft

A total of 22 Airport Users responded to this question. Aircraft types included 14 single-engine aircraft, 8 jet aircraft, 4 multi-engine aircraft for a total of 26 aircraft (some respondents owned multiple aircraft).

2. Please estimate the total annual level of spending associated with your aircraft at your local Airport:

A total of 22 Airport Users responded to this question, and spent an average per plane of \$34,776. Of this amount, an average of \$23,565 is spent annually for fuel, \$6,555 for maintenance, \$6,906 for storage, and \$1,471 for "other." Total spending for the 22 respondents to this question equaled \$909,893. The following are the average annual spending numbers for a single aircraft:

- Single Engine: \$5,744
- Multi-Engine: \$35,625
- Jet Aircraft: \$76,331 (These are not business jets, rather they are Museum/Military jets which are seldom flown)

3. Estimated Yearly Takeoffs:

Twenty-one users with 24 aircraft (12 single engine, 8 jets, and 4 multi-engine) reported an estimated 3,832 annual operations (1,916 takeoffs) for an average of 160 operations per aircraft or

182 operations per user.

4. *Please estimate the percentage use of your aircraft?*

A total of 22 Airport users responded to this question. The Airport users indicated that 42.0 percent of flights flown were for personal reasons, while 56.3 percent of flights were for business reasons, and 1.7 percent of flights flown were for other reasons. In terms of the number of flights flown, respondents indicated that 1,078 flights were for business, 805 flights were personal, and 33 flights were for other purposes.

SUSSEX COUNTY AIRPORT

A total of 9 User/Business Surveys and 5 Airport Employer-Only Surveys were collected from respondents that identified Sussex County Airport as their home airport.

1. *Please list type of aircraft*

A total of 8 Airport Users responded to this question. Aircraft types included 8 single-engine aircraft, and 1 multi-engine for a total of 9 aircraft (one respondent owned two aircraft).

2. *Please estimate the total annual level of spending associated with your aircraft at your local Airport:*

Nine respondents, accounting for 9 based aircraft at Sussex County Airport spent an average per plane of \$12,737. Of this amount, an average of \$5,071 is spent annually for fuel, \$4,313 for maintenance, \$3,265 for storage, and \$350 for “other.” Total spending for the 22 respondents to this question equaled \$101,859. The average annual spending for a single engine aircraft equaled \$11,337.

3. *Estimated Yearly Takeoffs:*

Nine users with 9 aircraft (8 single engine and 1 multi-engine) reported an estimated 1,672 annual operations (836 takeoffs) for an average of 186 operations per aircraft/person.

4. *Please estimate the percentage use of your aircraft?*

A total of 8 Airport users responded to this question. The Airport users indicated that 56.2 percent of flights flown were for personal reasons, while 43.2 percent of flights were for business reasons, and less than one percent of flights flown were for other reasons. In terms of the number of flights flown, respondents indicated that 343 flights were for business, 447 flights were personal, and 5 flights were for other purposes.

DELAWARE AIRPARK

One User/Business Survey and one Employer-Only Survey were collected from

respondents that identified Delaware Airpark as their home airport. The User operates 3 Single-engine aircraft, spends an average annual amount of \$2,307 per aircraft, estimates 300 annual operations (150 take offs), and 100 percent personal use of the aircraft.

OTHER AIRPORTS

Other surveys that were received were grouped so as not to identify the specific users. These surveys represented 17 single engine and 3 multi-engine aircraft that are used for business purposes. Spending on these aircraft averaged \$63,755 per year, with roughly 3,250 annual operations.

Chapter 3: Economic Impact Evaluation

Economic Impact Evaluation

TO ADEQUATELY MEASURE ECONOMIC IMPACTS, AN ANALYSIS that follows an industry-wide accepted methodology was used in this study. That methodology first identifies the direct spending and employment at airports (called direct impacts) and includes the direct spending at off-airport sites such as hotels and restaurants. Armed with this information, regional multipliers are applied to the data to determine the multiplied impacts of direct spending (called induced impacts). The technical processes of analysis documented in this chapter included the following:

- Direct Impacts
- Induced Economic Impacts
- Application to Delaware Aviation
- Other Key Outputs
- Economic Impact Summary

1. DIRECT IMPACTS

BY WAY OF DEFINITION, DIRECT IMPACTS ARE associated with *providers* of services at the airport. They are immediate consequences of airport economic activity. The value of direct impacts is the sum of all payroll, capital expenditures, operating and maintenance costs, taxes, and fees incurred by providers of services at the airport. In addition, direct impacts include *users* of airport services that are derived from *off-site* economic activities that are attributable to the airport. The value of these impacts is the sum of the fees and charges paid, time and cost savings, expenses related to food, lodging, ground transportation, and similar outlays.

The collection of data concerning direct impacts is essential for the accurate assessment of overall economic impacts of aviation. That is why time and effort were expended to survey different components of aviation in Delaware: on-airport businesses and employers and airport aircraft tenants. In addition, interviews with airport management were held to record their input on activities and trends at their airports. Response to these surveys varied by airport, but overall, much valuable information was collected. In some cases, extrapolation of the survey information was needed to cover non-respondents. For example, aircraft tenants of airports were asked to specify their spending on their aircraft. From this statewide pool of information, averages for single-engine, multi-engine, jet aircraft, and helicopters could be compiled and extrapolated for non-respondents.

1.1 Direct Impact Components

There were a number of ways that the direct impacts of aviation in Delaware were estimated. These included surveys, published data, and extrapolated results. From the surveys, specific questions were asked concerning on-airport spending and employment. The spending component involves capital improvement expenditures and visitor spending. The employment component is needed in order to estimate the spending of the various businesses and

organizations on an airport. The IMPLAN model estimates employment from expenditure input and expenditures from employment input. Thus, a knowledge of one or the other inputs can result in a completed output from the economic multiplier modeling.

In Delaware, airport managers knew the average annual amount of capital spending for their airports but not the number of workers associated with each capital improvement project. Thus, the IMPLAN modeling used the direct impact of average annual capital improvement expenditures to derive employment numbers. Similarly, airport visitor spending was estimated in order to develop an associated employment total associated with this spending. In addition to asking questions about the capital spending activity airport managers were asked about the number of businesses and employers located at the airport. In this regard, information was requested concerning the number of full and part time administration/operations employees. This information concerning employment and sponsor expenditures on the airport is considered direct airport-related impact and is not duplicated by other sources.

On-Airport Business Survey

The On-Airport Business Survey was distributed to all employers located on Delaware airports. Responses were screened by asking whether or not the business was aviation related. If the business had no requirement for aviation, its location on the airport was not an essential aspect of its operation and thus, it was not included in the survey data base. Responses that were applied to the study's catalogue of impacts were limited to those companies or employers that needed the airport in some way in order to operate effectively. Employers like Fixed Base Operators, corporate flight departments, the Air National Guard, and so on, were included in the aviation-related impact base. Key questions asked in this survey included the type of businesses, the number of full and part-time employees, and the importance of aviation to their businesses.

Airport Aircraft Tenant Survey

Direct economic impacts of based aircraft tenants were assessed through a survey questionnaire. In addition to activity levels and business/personal use questions, the survey asked about the level of spending for fuel, maintenance, storage, and "other" expenses. In addition, the aircraft type was recorded so that statewide or airport level averages could be developed on the basis of the size of the aircraft. With a knowledge of an airport's fleet mix, these averages could then be applied to non-respondents at that airport.

General Aviation Airport Visitor Spending

As defined earlier, visitor spending economic impacts are those associated with the use of airports and aviation. They include expenditures by visitors who arrive by air and spend money at local hotels, restaurants, travel agencies, and other businesses as a result of airport use. As can be imagined, a survey effort needed to track the expenditures of airport visitors in Delaware would require resources much greater than those available for this effort. Therefore, a surrogate measure of indirect impacts was developed that did not require surveys of arriving passengers.

The method for determining visitor spending impacts was based on an adaptation of the

Aircraft Owners and Pilots Association method in their publication "What's Your Airport Worth?"¹ This method first estimates the number of visitors to an airport. Then, an estimated expenditure per visitor is applied to the total number of visitors, quantifying the total spending. To estimate the number of general aviation visitors in Delaware, it was assumed that only the transient pilots and passengers would be counted as visitors. For some privately owned airports, zero visitors were estimated, while at other airports a range of activity was assumed. For the other Delaware airports, visitor traffic was assumed to be carried by itinerant aircraft arrivals. Further, the FAA estimates that on average, there are 2.5 occupants aboard each general aviation flight. Thus, to calculate the number of visitors, one half of the actual itinerant arrivals are multiplied by 2.5. Using this method, the number of general aviation visitors was estimated for each airport in Delaware.

To estimate the individual economic impact of air transportation visitors using Delaware airports, the number of annual visitors was multiplied by a per diem expense level times the average length of stay. The per diem amount utilized within this report was taken from information available through the Delaware Tourism Office.² For this analysis, the most important fact involved their survey finding that the average visitor spending per trip in 2011 was \$564. That number was used in concert with estimates of the numbers of annual visitors to each airport within the State.

2. INDUCED ECONOMIC IMPACTS

INDUCED ECONOMIC IMPACTS ARE THE *MULTIPLIED EFFECTS* of the direct impacts. Induced impacts are created by the successive rounds of spending in the local economy until the original direct or indirect impact has been incrementally exported from the local area. Thus, the economic impacts of aviation can be felt in parts of Delaware's economy that are far removed from aviation. Regions that are more economically self-sufficient have higher responding "multipliers" than do regions that are more dependent on regional imports since less of the money is siphoned out of the community for goods and services.

The effects of induced economic impacts can be demonstrated through the following example. A new firm opens up in Delaware, generating 200 new jobs, most of them filled by local residents. At the end of the year, the regional labor office notes that employment has risen by 350 - yet only 200 new jobs were created. Why did an additional 150 jobs appear in the State? The process by which these jobs were created is known as the multiplier or ripple effect and is a result of several factors: the new firm making purchases of inputs from other firms in the region (thereby generating additional output and potentially employment) as well as the impacts of the expenditures of wages and salaries earned by the 200 new employees. It would be a tedious and difficult process to trace the impacts on a case by case study. Fortunately, an accounting system and associated model exists to make this more feasible. To adequately describe the model and analytical processes, this section is organized to include the following:

¹ Source: <http://www.aopa.org/Advocacy/Get-Involved/Airport-Support-Network/Guide-to-Obtaining-Community-Support-for-Your-Local-Airport/Guide-to-Obtaining-Community-Support-for-Your-Local-Airport-Whats-Your-Airport-Worth>

² Source: <http://www.visitdelaware.com/about-us/tourism-statistics/>

- The Input-Output Accounting System
- Input-Output Model Demonstration.
- Input-Output and Social Accounting
- IMPLAN software

2.1 Input-Output Accounting System

A typical region with m firms, produces a whole array of goods and services from agriculture, to food processing, to manufacturing, to personal and business services and government. Tracing all the detailed transactions between these firms would be a daunting task; hence, firms are assigned to n broad sectors based on their principal product. The number of sectors, n , ranges from 50 to several hundred and the allocation conforms to the North American Industry Classification System (NAICS). For this example, only 5 sectors will be shown to facilitate the analysis and to avoid getting bogged down in details.

The transactions between these sectors are arrayed in a matrix (n rows and n columns), as shown in Table 3-1. Looking across the *rows*, the sales made by the firm at the left can be traced to firms listed at the top of the column. Thus sector 3 sells \$3m to sector 1, \$20m to sector 2, \$50m to sector 4 and so forth. The *columns* provide complementary information of the source of purchases made by the sector at the top of the column from all other sectors. Again, following sector 3, note that it buys \$9m from sector 1, \$7m from sector 2, \$38m from sector 4 and \$26m from sector 5. This part of the input-output table is referred to as the *interindustry transactions*; it provides an *economic photograph* of the ways in which one sector is linked to another sector.

Table 3-1 - The Input-Output Accounting System											
		Interindustry Transactions (Millions of \$)					Final Demand (Millions of \$)				
							Households	Government	Exports	Total Final Demand	Total Sales
	<i>Sector</i>	1	2	3	4	5	6	7	8	9	10
1	1	21	0	9	3	0	30	15	22	67	100
2	2	1	8	7	29	0	25	7	23	55	100
3	3	3	20	0	50	7	5	9	6	20	100
4	4	31	2	38	0	3	12	13	1	26	100
5	5	10	25	26	1	4	9	19	6	34	100
6	Total Intermediate	66	55	80	83	14	81	63			
7	Value Added	20	40	10	17	40	2	62			
8	Imports	14	5	10	0	46	77	55			
9	TOTAL INPUTS	100	100	100	100	100	160	180			

However, sectors also make sales to other sets of activities: consumers, government and to customers located outside the region (exports). In addition, firms also make purchases of labor (wages and salaries), returns to capital (profits and dividends) and imports. The sum of wages and salaries and profits and dividends (returns to labor and capital) are referred to as *value added*. These are shown in row 7 while *imports* has its own row (8). The columns 6-8 (aggregated in column 9) are referred to as *final demand*; rows 7 and 8 are referred to as primary inputs.

2.2 The Input-Output Model Demonstration

Table 3-1 is basically an accounting system - a double entry one similar to that prepared for a business in which sales and purchases or assets and liabilities will be shown but, in this case, for a regional economy. The next step is to prepare an economic model so that the impact of changes in one sector can be traced on the rest of the economy. The reason for doing this rather than assuming that all sectors will have the same impact is because the nature of dependence on the regional economy and interdependence among sectors varies.

It can be assumed that each sector produces goods and services according to a fixed recipe (formally known as a production function); hence, to produce \$1m worth of steel, it is assumed that a fixed proportion will be allocated to limestone, iron ore, scrap, energy, coke, labor and so forth. Inputs are expressed in monetary terms since it would be difficult to combine tons of iron ore with megawatts of electricity, or hours of labor in some consistent fashion. This fixed recipe permits expression of the transactions in proportional form, known as *direct coefficients*. These are shown in Table 3-2. A simple case was used in which each sector's output was \$100m (in reality, each sector's production will be very different). To obtain the direct coefficients, the entries in the 5 x 5 part of Table 3-1 are divided by 100. It is further assumed that these proportions are invariant with levels of production (i.e., no economies of scale). The final assumption is that the economy is driven by signals emanating from final demand (consumers, government, exports). This is the *exogenous* part of the economy, while the interindustry transactions respond to these signals and are therefore *endogenous*.

Table 3-2 - The Direct Coefficients Matrix					
<i>Sector</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>1</i>	0.21	0.00	0.09	0.03	0.00
<i>2</i>	0.01	0.08	0.07	0.29	0.00
<i>3</i>	0.03	0.20	0.00	0.50	0.07
<i>4</i>	0.31	0.02	0.38	0.00	0.03
<i>5</i>	0.10	0.25	0.26	0.01	0.04

In a mathematical sense, the input-output model can be defined by a series of equations. Using a simplified format:

- Let T be the matrix of transactions in the 5x5 part of Table 3-1;
- Let f (nx1) be the aggregation of final demand and
- Let x be the vector (nx1).

The accounting yields the following:

$$T+f=x \tag{1}$$

Define R as the matrix of coefficients (Table 3-2); by definition:

$$T=Rx \tag{2}$$

Substituting for T back into equation (1), yields the following:

$$Rx+f=x \tag{3}$$

Solving for x , yields the following:

$$x= [I - R]^{-1}f \tag{4}$$

Equation (4), therefore, represents the basic driving mechanism of the regional economy. Final demand, f , generates total output x , but expanded by the value $[I - R]^{-1}$. The latter is the essence of the input-output model and is known as the *Leontief inverse matrix*, named after the founder of input-output analysis, who was awarded the Nobel Prize in economics for his efforts. This matrix is shown in Table 3-3. The entries reveal the direct and indirect impacts on a sector when final demand in the sector at the top of the column changes by \$1 (or \$1 million or \$100 million). Moving down column 3, it was noted earlier that sector 3 purchased \$0.09 for every \$1 of production from sector 1. However, as a result of this, sector 1's production increases and this, in turn, generates additional demands on other sectors and eventually some of these sectors will require inputs from sector 1. Thus, the difference between 0.09 in Table 3-2 and 0.18 in Table 3-3 represents the *induced impact*. Moving down the rest of column 3 and comparing the entries with those in Table 3-2, it is noted that the entry on the principal diagonal is always >1. The unit value represents the increase in final demand in that sector. The remaining portion is the direct and induced impact of expansion.

Table 3-3 - The Leontief Inverse (Multiplier) Matrix					
SECTOR	1	2	3	4	5
1	1.33	.05	.18	.15	.02
2	.23	1.17	.3	.50	.04
3	.4	.36	1.41	.82	.13
4	.58	.19	.61	1.38	.09
5	.31	.41	.48	.38	1.09
Multiplier	2.85	2.18	2.98	3.23	1.37

At the bottom of Table 3-3 there is a row labeled "multiplier." It should be noted that these values vary from 1.37 (sector 5) to 3.23 (sector 4). How should these entries be interpreted? Essentially, they provide information on the impact on the rest of the economy (including the sector in question) of a unit change in final demand in any sector. The value 2.98 for sector 3 explains that for every increase of \$1 in that sector an additional 1.98 worth of activity is generated for a total value of production of 2.98. Why do these values vary? In large part, they reflect the degree to which a sector is dependent on other sectors in the region for its inputs and as a source of consumption for its products. It would be incorrect to assume that a sector's importance in the economy is directly related to the size of the multiplier. While true in part, a sector with a large volume of production but a modest multiplier may generate a greater volume of activity in the region than the sector with the largest multiplier but a smaller volume of production.

There are several additional multipliers that can be calculated. For example, when a sector expands production, it will increase payments to labor generating additional wages and salaries that will be spent in the region. Further, other industries whose production has to expand to meet these new demands will also spend more on wages and salaries. Thus, an income multiplier may be generated that reveals the relationship between direct income generation and total income (in similar fashion to output). The analysis could also be transformed into employment terms. Referring back to the opening section, it becomes clear why 350 jobs were created in total when only 200 direct jobs were created. The secret is the multiplier process!

Multipliers vary not only across sectors but also across regions. A small regional economy, with a modest representation of industry, may not be able to provide all the necessary inputs required by local industry. Thus, there will be considerable importation of inputs (sometimes referred to as leakages). In general, the larger the value of the imports, the lower the value of the multiplier. The value of multipliers could be expected to decrease as the economic region under consideration gets smaller. Thus moving from the US as a whole to a census region, an individual state, a metropolitan region and finally to a county would result in smaller and smaller multiplier values. However, there are a few cases in which this finding is not confirmed - cases in which a region may have a significant representation of a particular sector.

2.3 *Estimates of State and Local Taxes*

The input-output system simplifies the transactions that take place in an economy by focusing on industry-to-industry activities. However, there may be other important transactions that an analyst would like to explore - those between the government and consumers (taxes, transfers such as unemployment compensation, welfare), between firms and government (such as business taxes) or between consumers and firms (dividends from stock ownership). These so-called institutional transactions are captured in the social accounting matrix. It can be thought of as an expanded input-output system in which some of the entries in the primary inputs and final demand section of Table 3-1 are expanded to capture the transactions just noted. This process makes more activities endogenous and, concomitantly, less activities exogenous.

With a social accounting system, the multipliers tend to be larger than those derived from the input-output system alone. This stems from the fact that more activities have become

endogenous to the accounting system, thus circulating impacts more times before they are exported out. It should be noted that contained within the social accounting system is the input-output transactions from Table 3-1.

The primary benefit of using an input-output model that includes a social accounting system is the quantification of taxes collected through the various transactions between sectors. In this regard, State and local taxes were estimated for each Delaware airport studied in this analysis.

2.4 IMPLAN Software

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

The input-output and social accounting models are derived from national data with adjustments made to reflect regional specialization, size and industrial composition. The procedures used to accomplish this are well-known and accepted in the literature on nonsurvey techniques. Since IMPLAN provides a comprehensive system (i.e., the complete input-output table or social accounts), it is possible to trace impacts of change in one sector on other sectors in a detailed fashion. The IMPLAN software permits users to:

- Develop a complete set of social account matrices
- Develop user-specified multiplier tables
- Change any component of the system: production functions, trade flows, or database
- Create custom impact analyses by entering final demand changes
- Obtain any report in the system to examine the model's assumptions and calculations

In addition, the IMPLAN databases are composed of the following components:

- Employment;
- Industry Output;
- Value Added
 - Employee Compensation;
 - Proprietary Income;
 - Other Property Type Income;
 - Indirect Business Taxes;
- Institutional Demands
- Personal Consumption Expenditures (PCE) - three income levels;
- Federal Government Military and Non-Military Purchases;
- State and Local Government Education and Non-Education Purchases;
- Commodity Credit Corporation;

- Inventory Purchases;
- Capital Formation;
- Foreign Exports;
- Federal, State and Local Government Sales;
- Inventory Sales.
- National Structural Matrices
 - Use
 - Make
 - Inter-Institutional Transfers (SAM)

The ability to edit data makes IMPLAN a dynamic economic modeling tool. Software users have the ability to edit all underlying data, from value added, employment, and final demands to production functions, byproducts, and regional purchase coefficients - and many other components.

3. APPLICATION TO DELAWARE AVIATION

THE FINAL STEP IN THE ANALYTICAL PROCESS of regional economic impact analysis is the estimation of the induced or multiplied effects of Delaware's direct and indirect aviation impacts. Using the IMPLAN software, multiplier tables were generated for each Delaware county for all of the potential impacted industries. Results and data from the estimation of direct and indirect impacts were plugged into the appropriate multiplier process and the results were summed for each airport to obtain output and employment totals supported by aviation. Appendix A presents the tabular results of the IMPLAN process.

This section provides a summary of each airport's direct and induced economic impacts. In addition, there is a discussion of market potential and future economic development at each airport. This documentation is the culmination of work involving the survey data, the secondary source data, and the IMPLAN multipliers in determining the economic impact of Delaware airports.

3.1 Chorman Airport

Chorman Airport (D74) is located 2 miles southwest of Farmington in a mostly agricultural area. The Airport is a privately owned, public-use facility. It has one runway - a 3,588-foot by 37-foot paved surface. No expansion is likely due to physical constraints. The Airport has 19 based aircraft and 14,600 annual aircraft operations. Key economic and business activities that occur at the Airport include crop spraying and aircraft maintenance. As a privately owned airport, the crop spraying business is operated by the airport owner, with maintenance work provided by Russell Aircraft Service. The bulk of aircraft operations at the Airport are in support of the crop spraying operation.

For the future, the Airport will likely remain in the current market niche, with agricultural spraying operations. There is a young and energetic management that will likely expand the business function of the airport within its market niche. The Airport owners recently constructed

an eight-unit T-hangar which serves a function by accommodating aircraft in hangars that would otherwise be needed at other central Delaware airports. In this regard, the Airport serves to increase the overall capacity of the State's airport system without cost to any public unit of government.

The economic impact of the airport includes direct and induced components of output, employment and income. Table 3-4 presents a summary of each of these components of economic impact for Chorman Airport.

Table 3-4 - Chorman Airport Direct and Induced Economic Impacts	
Item	Amount
Direct Impacts	
Airport-Related Payrolls*	\$482,700
Airport Expenditures	\$1,050,900
Airport-Related Employment	14
Estimated State and Local Taxes	\$67,600
Induced Impacts	
Induced Impacts	\$594,000
Total Induced Employment Impacts	6
Grand Total Dollar Impacts	\$1,644,900
Grand Total Income Impacts	\$698,500
Grand Total Employment Impacts	20

* This is a subset of the total impacts and is already included in the output number.

3.2 Civil Air Terminal (CAT)

The Civil Air Terminal (CAT) is located within the city limits of Dover adjacent to Dover Air Force Base (AFB). The CAT occupies roughly 20 acres and has a 2,000 square foot terminal building with 40-space auto parking lot. The airside operations area includes a 6.5 acre aircraft parking ramp with a taxiway connected to Dover Air Force Base. The CAT is currently operated by the Delaware River and Bay Authority (DRBA) under agreement with DeIDOT. The CAT has no based aircraft, but it does serve as the main airport to accommodate general aviation aircraft used NASCAR race drivers and teams to access Dover Downs Raceway. NASCAR race weekend typically attracts 100 or more high-performance aircraft to the CAT. Many of these business jets and multi-engine turboprops use the expanded ramp for parking during that time.

Key economic and business activities that occur at the CAT include the accommodation of corporate aviation into central Delaware and the support of race weekends at Dover Downs. No other airport in Kent County has all-weather capability and runways as long as Dover AFB.

As a result, corporate and business jet aircraft desire the use of the facility for safety and convenience. There is a landing fee charged by Dover AFB for civil aircraft using the CAT. This limits the amount of training or small general aviation aircraft usage of the facility. However, corporate and business aviation interests are not deterred from using the facility by the fee structure.

For the future, the mission of the CAT will likely change to incorporate overnight parking for large, B-747 aircraft used by supplemental air cargo carriers under contract with the military. Currently, work is underway to develop significantly expanded and strengthened pavement (upwards of 65,000 square yards) to accommodate this new activity. The added benefit of this expansion will be the greater ability to accommodate the aircraft activity associated with NASCAR race weekends. As such, the economic impact of the future for the CAT will be much greater than the existing or past impacts.

The current economic impact of the CAT includes direct and induced components of output, employment and income. Table 3-5 presents a summary of each of these components of economic impact for the CAT.

Table 3-5 - Civil Air Terminal Direct and Induced Economic Impacts	
Item	Amount
Direct Impacts	
Airport-Related Payrolls*	\$465,800
Airport Expenditures	\$1,382,700
Airport-Related Employment	20
Estimated State and Local Taxes	\$144,800
Induced Impacts	
Induced Impacts	\$565,200
Total Induced Employment Impacts	5
Grand Total Dollar Impacts	\$1,947,900
Grand Total Income Impacts	\$648,900
Grand Total Employment Impacts	25

* This is a subset of the total impacts and is already included in the output number.

3.3 Delaware Airpark

Delaware Airpark (33N) is located 1 mile west of Cheswold in an agricultural and residential area. The Airport is owned by the State of Delaware and is being operated by the Delaware River and Bay Authority (DRBA). The Airport has one runway - a 3,582-foot by 60-foot paved surface. The Airport is currently expanding its footprint and has purchased significant acreage from adjacent property owners. The Airport has 33 based aircraft and 23,000 annual

aircraft operations.

Key economic and business activities that occur at the Airport include the flight training operation of Delaware State University, a maintenance shop, and a specialty FBO that works on one type of aircraft (Beechcraft Bonanzas). Other business aviation activities at the Airport include crop spraying, tourism, and some business/corporate use of aircraft. Of these activities, perhaps the most visible is the Delaware State University flight training operation. Under this program, the University has contracted with the military to train pilots in ROTC and aerospace programs. The operation utilizes eight aircraft, along with five full-time and 13 part-time instructors.

For the future, a new 4,200-foot by 75-foot runway is to be constructed. The existing runway will become part of the future taxiway system. This new runway will be parallel to the existing runway and will be offset such that no displaced thresholds will be caused by existing roadways. In addition to the new runway, a new set of T-hangars will be constructed. Delaware Airpark's market will be identified and expanded as businesses in central Delaware learn of investment and improvements at the facility.

The economic impact of the airport includes direct, indirect, and induced components of output, employment and income. Table 3-6 presents a summary of each of these components of economic impact for Delaware Airpark.

Table 3-6 - Delaware Airpark Direct and Induced Economic Impacts	
Item	Amount
Direct Impacts	
Airport-Related Payrolls*	\$1,125,200
Airport Expenditures	\$2,503,600
Airport-Related Employment	32
Estimated State and Local Taxes	\$158,900
Induced Impacts	
Induced Impacts	\$1,208,000
Total Induced Employment Impacts	12
Grand Total Dollar Impacts	\$3,711,600
Grand Total Income Impacts	\$1,550,800
Grand Total Employment Impacts	44

* This is a subset of the total impacts and is already included in the output number.

3.4 Laurel Airport

Laurel Airport (N06) is located 1 mile southwest of the city in an agricultural area. The

Airport is not paved and is surrounded by open fields and some residential development. The Airport has one turf runway - a 3,175 foot by 270 foot runway. Any expansion would be difficult due to physical constraints of a highway at one end of the runway (State Highway 24) and property boundaries at the other runway end. The Airport has 14 based aircraft and recorded 9,100 annual aircraft operations. The Airport's primary economic activity is directed toward parachute jump training, with other business and personal use activities as well. The parachute training is significant, attracting over 1,000 sky-divers to the airport each year. The training and jump season extends year-round, with peak activity occurring the in summer months. Local hotels, restaurants, and other retail outlets benefit from the attraction of weekend sky divers. It is estimated that the Airport generates approximately 600 hotel room stays each year, with significant numbers of purchased meals at area restaurants. Other business and economic activities at the Airport include aircraft maintenance, a crop spraying operation, and rental of hangar and tie-down space. The Airport is operated by a partnership of principals involved in the parachute training and aerial spraying businesses.

For the future, there are no plans to change the mission or operational character of the airport. The Airport serves a niche market and has established a name within the sky-diving community. The Airport serves a geographic area in Delaware devoid of other aviation facilities and thus increases the overall capacity and coverage of the State's airport system without cost to any public unit of government.

The economic impact of the airport includes direct and induced components of output, employment and income. Table 3-7 presents a summary of each of these components of economic impact for Laurel Airport.

Table 3-7 - Laurel Airport Direct and Induced Economic Impacts	
Item	Amount
Direct Impacts	
Airport-Related Payrolls*	\$353,000
Airport Expenditures	\$861,900
Airport-Related Employment	12
Estimated State and Local Taxes	\$80,300
Induced Impacts	
Induced Impacts	\$515,900
Total Induced Employment Impacts	5
Grand Total Dollar Impacts	\$1,377,800
Grand Total Income Impacts	\$530,500
Grand Total Employment Impacts	17

* This is a subset of the total impacts and is already included in the output number.

3.5 New Castle Airport

New Castle Airport (ILG) is located 4 miles south of Wilmington in an industrial, commercial, and residential area. In 1995, the Airport came under operational control of the Delaware River & Bay Authority (DRBA). The 1,250 acre Airport has three runways, ten taxiways, and several aircraft parking ramps. The runways include:

- 7,275 foot by 150 foot asphalt surface runway (9/27)
- 7,012 foot by 150 foot asphalt surface runway (1/19)
- 4,602 foot by 150 foot asphalt surface runway (14/32).

The availability and length of the longest runways are sufficient to accommodate the largest business jet aircraft in the nation's fleet. In all, 61 business jets are located on the Airport. The Airport has 225 based aircraft and accommodated 56,200 annual aircraft operations in 2012. That number is down significantly from previous years.

New Castle Airport recently received airline service from Frontier Airlines. The new carrier serves five cities from Wilmington - Chicago, Denver, Orlando, Tampa, and Ft. Myers. The new service began in the summer of 2013 and is anticipated to grow as the carrier establishes itself at New Castle Airport. Frontier Airlines is a low-fare carrier that also has operations from Trenton, NJ. The Wilmington operation is meant to attract patrons from south Philadelphia, as well as northern and central Delaware.

New Castle Airport is home to four FBOs including: AeroTaxi; Aero Ways, Inc; Atlantic -ILG; and Dassault Falcon Jet. The Airport's tenants range in size from major corporate clients to individual aircraft owners. Some of the on-airport businesses are not aviation related and thus were not included in our estimates of employment, income, and dollar output. Major employers on the Airport that were included in the analysis were the FBOs, corporate flight departments, Flight Safety International (a pilot and mechanic training facility), and the Army and Air National Guard units.

For the future, new airline terminal facilities and parking areas will be developed to accommodate this new, growing market. In addition, it can be anticipated that new corporate facilities will continue to be constructed to accommodate business and corporate aviation. Some needed facility capital maintenance will occur as the Airport runway infrastructure is improved.

The economic impact of the airport includes direct and induced components of output, employment and income. Table 3-8 presents a summary of each of these components of economic impact for New Castle Airport.

Table 3-8 - New Castle Airport Direct and Induced Economic Impacts	
Item	Amount
Direct Impacts	
Airport-Related Payrolls*	\$70,115,600
Airport Expenditures	\$146,868,600
Airport-Related Employment	1,606
Estimated State and Local Taxes	\$10,486,300
Induced Impacts	
Induced Impacts	\$93,616,900
Total Induced Employment Impacts	740
Grand Total Dollar Impacts	\$240,485,500
Grand Total Income Impacts	\$104,687,800
Grand Total Employment Impacts	2,346

* This is a subset of the total impacts and is already included in the output number.

3.6 Summit Airport

Summit Airport (EVY) is located 5 miles north of the city of Middletown in an agricultural and increasingly residential development area. The Airport has significant infrastructure, with one paved runway (4,487 feet by 65 feet) and one turf crosswind runway (3,600 feet by 200 feet). It is the largest privately owned airport in Delaware, occupying over 520 acres. Some expansion of the primary runway to more than 5,000 feet is possible and may be undertaken in the near future. This expansion would increase safety margins for larger aircraft and expand the potential market base for the Airport.

The Airport has 41 based aircraft and has an estimated 31,000 annual aircraft operations. The Airport's primary economic activity is directed toward airframe, engine, and avionics maintenance and overhaul. Employment of approximately 145 is directed toward these on-airport activities. Both civil and military aircraft are brought to Summit Airport each year for maintenance, avionics, and modification. Other business activities that take place on the Airport include aircraft interior refurbishment, corporate aviation, and fuel sales. In addition, the State Police helicopter base of operation of northern Delaware is located at the Airport. This base includes a hangar facility and 3 helicopters which are medevac equipped.

For the future, there are no plans to change the mission or operational character of the airport. The Airport is working maintain and improve relations with its neighbors, as the area surrounding the Airport continues to increase in residential development. The Airport serves a broad market and has established a name within the aircraft maintenance, avionics, and overhaul business market. Because the Airport is privately owned, the Airport Sponsor provides all aircraft services offered on the facility. This arrangement is not expected to change in the future.

The economic impact of the Airport includes direct and induced components of output, employment and income. Table 3-9 presents a summary of each of these components of economic impact for Summit Airport.

Table 3-9 - Summit Airport Direct and Induced Economic Impacts	
Item	Amount
Direct Impacts	
Airport-Related Payrolls*	\$6,211,800
Airport Expenditures	\$12,708,000
Airport-Related Employment	158
Estimated State and Local Taxes	\$1,019,400
Induced Impacts	
Induced Impacts	\$9,943,900
Total Induced Employment Impacts	88
Grand Total Dollar Impacts	\$22,651,900
Grand Total Income Impacts	\$10,413,200
Grand Total Employment Impacts	246

* This is a subset of the total impacts and is already included in the output number.

3.7 Sussex County Airport

Sussex County Airport (GED) is located 2 miles northeast of the city of Georgetown in an agricultural and industrial development area. The Airport has significant infrastructure, with one paved runway (5,500 feet by 150 feet) and another crosswind runway (3,109 feet by 75 feet). Ultimately, the runway will be lengthened to 6,000 feet. The Airport has 54 based aircraft and an estimated 33,900 annual aircraft operations. On-airport business activity attracts a steady flow of business jet aircraft to the airport as well.

The Airport's character has evolved over past decade toward a business friendly facility that seeks to expand on-airport employment. Many of the area's citizens and political leaders appreciate the economic benefits that accrue to the region as a result of airport employment. In this regard, the airport's primary economic activity is directed toward airframe modification, aircraft manufacturing, flight training, aircraft maintenance, and corporate aircraft storage. The largest aviation employer is PATS with 325 employees. This company specializes in modifying fuel tanks on Boeing Business Jets, along with interior completions for other corporate business jet types. Other on-airport aviation employment is provided by the Delaware State Police in support of their southern Delaware helicopter medevac unit. In addition to aviation-related employment, the Sussex County Airport is home to an industrial park that features more than 150 acres of land and 17 businesses. Employment at the industrial park is estimated at more than 500.

For the future, continued business development and expansion of the Airport's client base is planned. In this regard, the planned runway extension cumulative cost is anticipated to exceed \$25 million. The Airport continues to market its strengths including an adjacent industrial park, its significant airfield infrastructure, and its location near Delaware beaches. A new private industrial park is being developed on an adjacent land parcel. The Airport has excess property that it could also use for industrial development if demand warranted.

The economic impact of the Airport includes direct and induced components of output, employment and income. Table 3-10 presents a summary of each of these components of economic impact for Sussex County Airport.

Table 3-10 - Sussex County Airport Direct and Induced Economic Impacts	
Item	Amount
Direct Impacts	
Airport-Related Payrolls*	\$36,427,500
Airport Expenditures	\$96,133,700
Airport-Related Employment	426
Estimated State and Local Taxes	\$6,907,200
Induced Impacts	
Induced Impacts	\$43,318,500
Total Induced Employment Impacts	446
Grand Total Dollar Impacts	\$139,452,200
Grand Total Income Impacts	\$51,183,100
Grand Total Employment Impacts	872

* This is a subset of the total impacts and is already included in the output number.

It should be noted that the industrial park located on the Airport property produces 1,136 jobs, generates \$57.33 million in incomes, and produces an economic output of \$277.7 million. These numbers were separated from the aviation-related impacts because they do not reflect the aviation function at the Airport.

3.8 Dover Air Force Base (AFB)

Dover AFB is home to the 436th Airlift Wing, known as the "Eagle Wing" and the 512th Airlift Wing, our Air Force Reserve associate--referred to as the "Liberty Wing." Together, these two wings make up the "Dover Team." Home to the C-5 Galaxy and C-17 Globemaster III aircraft, the Eagle Wing flies hundreds of missions throughout the world and provides 25 percent of the Nation's strategic airlift capability, projecting global reach to over 100 countries around the globe. Dover AFB operates the largest and busiest air freight terminal in the Department of Defense and is also home to the Air Mobility Command Museum, which welcomes thousands of

visitors each year. The Charles C. Carson Center for Mortuary Affairs is the DOD's largest joint-service mortuary facility and the only one located in the continental United States.³

Dover AFB creates significant economic impacts in the local community, primarily through the employment of thousands of military and civilian personnel. In addition, local purchases of goods and services support direct employment in the Dover area. The Air Force has indicated that Dover AFB employs 7,249 and spends more than \$488 million in the local area each year.

The economic impact of the AFB includes direct and induced components of output, employment, and income. This data was provided by the military, with multiplier effects calculated by the consultant. Table 3-11 presents a summary of each of these components of economic impact for Dover Air Force Base.

Table 3-11 - Dover AFB Direct and Induced Economic Impacts	
Item	Amount
Direct Impacts	
Airport-Related Payrolls*	\$368,387,000
Airport Expenditures	\$466,000,000
Airport-Related Employment	6,400
Estimated State and Local Taxes	\$24,478,100
Induced Impacts	
Induced Impacts	\$192,678,800
Total Induced Employment Impacts	1,893
Grand Total Dollar Impacts	\$658,678,800
Grand Total Income Impacts	\$428,404,800
Grand Total Employment Impacts	8,293

* This is a subset of the total impacts and is already included in the output number.

3.9 Small Privately Owned, Public-Use Airports

Three small privately owned, public-use airports were grouped together for economic impact analysis. These facilities have one or fewer full time workers and as such, were aggregated to show their collective impact. The airports include Chandelle Estates, Jenkins Airport, and Smyrna Airport:

- **Chandelle Estates Airport:** Chandelle Estates Airport (0N4) is located 3 miles northeast of Dover in an agricultural and light residential area. The Airport has a paved runway

³ Source: <http://www.dover.af.mil/units/index.asp>

2,533 feet in length by 28 feet in width. Any expansion of the runway would be difficult due to physical constraints of a highway at one end and woodlands at the other. The Airport has 24 based aircraft and an estimated 1,300 annual aircraft operations. The airport serves a local set of pilots who use the facility primarily as a recreational and training facility, with relatively minor business use. The primary economic activities on the airport involve flight training, the sale of aircraft fuel and oil, rental of hangar and tie-down space, and aircraft maintenance. In addition, the Airport serves as a base for some crop spraying operations and powerline surveillance. For the future, it is likely that the facility will continue in its present role until ownership changes or the airport is converted to a different use.

- **Jenkins Airport:** Jenkins Airport (15N) is located 1 mile west of the city of Wyoming in a mostly agricultural area. The Airport is not paved and is surrounded by open fields and some residential development. The current runway is 2,842 feet in length by 70 feet in width. Any expansion would be difficult due to physical constraints of a highway (County Highway 52) on one side and property boundaries on the other. The Airport has 20 based aircraft and an estimated 1,400 annual aircraft operations. The primary economic activities on the airport is aircraft salvage and parts sales. Jenkins Aircraft Parts buys old or damaged aircraft and salvages parts from those aircraft for use in the repair of other aircraft in the region and across the nation. For the future, it is likely that the facility will continue in its present role until ownership changes or the airport is converted to a different use.
- **Smyrna Airport:** Smyrna Airport (38N) is located 1 mile east of the city of Smyrna in an agricultural area. The Airport is not paved and is surrounded by open fields and wetlands. The current runway is 2,600 feet in length by 125 feet in width. Any expansion would be difficult due to physical constraints. The Airport has 10 based aircraft and an estimated 2,300 annual aircraft operations. The primary economic activities on the Airport involve the sale of aircraft fuel and oil, rental of hangar and tie-down space, and minor aircraft maintenance. For the future, it is likely that the facility will continue in its present role until ownership changes or the airport is converted to a different use.

The combined economic impact of these three airports includes direct and induced components of output, employment and income. Table 3-12 presents a summary of each of these components of economic impact for the small privately owned, public-use airports.

Table 3-12 - Small Private Public-Use Airports Direct and Induced Economic Impacts	
Item	Amount
Direct Impacts	
Airport-Related Payrolls*	\$146,500
Airport Expenditures	\$313,200
Airport-Related Employment	4

Table 3-12 - Small Private Public-Use Airports Direct and Induced Economic Impacts	
Item	Amount
Estimated State and Local Taxes	\$25,000
Induced Impacts	
Induced Impacts	\$245,800
Total Induced Employment Impacts	2
Grand Total Dollar Impacts	\$559,000
Grand Total Income Impacts	\$245,400
Grand Total Employment Impacts	6

* This is a subset of the total impacts and is already included in the output number.

4. OTHER KEY OUTPUTS

The analysis provided other key outputs that can be used to aid decision makers in fiscal issues. In this regard, the study provided a basis for the following:

- Alternate Uses of Resources
- The Hidden Value of Economic Activities
- Beneficiaries of Public Investments

Each of these topics is discussed briefly in the following sections.

4.1 Alternate Uses of Resources

Public investment in airport infrastructure is often questioned by opponents in order to suggest a better or more productive use of the money. This study examined the expenditures of private enterprise and public agencies at airports and documented the effects. Those effects were felt in Delaware's economy through spending and re-spending of the original investment. In order to identify the portion of public spending that could be used elsewhere, this study examined the impacts of capital expenditures.

With regard to capital expenditures, only three publicly owned airports were eligible for local funding of those expenditures: Delaware Airpark, New Castle Airport, and Sussex County Airport. Table 3-13 shows the average annual capital expenditures for each of the airports, as used in the economic impact model. The table indicates that the bulk of spending at the local airport for capital improvements (90 percent) is from sources outside the State. This federal grant money is leveraged against a 10 percent local match. The local match can be matched by State funding on a 50-50 percent basis. Thus, for federally eligible projects, the local airport may only have to contribute 5 percent. Without considering the multiplier effects of capital spending at airports, there is an automatic leverage of local funds at a rate of either 9 to 1 or 19 to 1. This investment return cannot be matched in the private sector.

Table 3-13 - Capital Improvement Spending			
Airport	Local Share	Federal Grant	Total
Delaware Airpark	\$102,660	\$923,940	\$1,026,600
New Castle Airport	\$217,750	\$1,959,750	\$2,177,500
Sussex County Airport	\$485,690	\$4,371,210	\$4,856,900

When the ripple effect is considered and dollars are converted into construction costs, and jobs and income, it can be shown that for every dollar spent at the various airports, an additional amount (between \$0.49 to \$0.64 dollars, depending upon the airport) is added to final output. Similarly, for every construction job added by these investments, an additional job is created in the local economy. Because the total construction dollars have already been leveraged at 9 to 1, this means that the local investment creates 9 times the amount of multiplier effects than other investments in capital projects that don't involve federal grants. The upshot of this is the fact that capital investment in the local airport creates an abnormally high return on the investment in terms of jobs and income to the local community.

4.2 The Hidden Value of Economic Activities

The existence of multiplier effects are the evidence of the hidden value of economic activities. These hidden values are directly linked to an initial round of spending. That first round, however, does not end the cycle. Successive rounds of spending continue until the original amount is exported from the region. The lingering effects of the respending of money within the region constitute the hidden value described by the multiplier effect. For Delaware, multipliers with values between 1.49 and 1.64 are common. This indicates a partial recirculation of money within the economy prior to its exit from the region.

The multiplier effect also works in the opposite direction when businesses contract, or leave a community. Again the hidden or invisible effects may not be as noticeable as when new money is introduced to the community, but they are there nonetheless. These hidden effects make the economy *seem* sluggish. The lack of new jobs is one of the invisible effects of a loss of economic activity. During the economic recession of 2007-2009, millions of jobs were lost nationwide. This downturn of the economy demonstrated the multiplied impacts of job loss at the local level. Often, the impacts of business layoffs were two to three times the amount of the actual cut-back, once all of the successive rounds of impact were considered. Thus, the hidden effects of economic activity are often greater than the visible ones.

4.3 Beneficiaries of Public Investments

The IMPLAN software permits an analysis of who the beneficiaries of public investment can be within Delaware's economy. For example, public money spent for airports can be traced to a number of different economic sectors. In this regard, only the mining sector is unaffected by investment in airports and aviation in Delaware. Examination of the total impacts of aviation in

Delaware shows that jobs are supported in the following economic sectors:

Economic Sector	Jobs
11 Ag, Forestry, Fish & Hunting	3.2
21 Mining	0.2
22 Utilities	19.4
23 Construction	116.1
31-33 Manufacturing	14.5
42 Wholesale Trade	32.5
44-45 Retail trade	758.3
48-49 Transportation & Warehousing	1,416.3
51 Information	36.0
52 Finance & insurance	205.0
53 Real estate & rental	160.8
54 Professional- scientific & tech svcs	152.7
55 Management of companies	11.5
56 Administrative & waste services	298.2
61 Educational svcs	60.4
62 Health & social services	591.1
71 Arts- entertainment & recreation	153.0
72 Accommodation & food services	652.3
81 Other services	242.8
92 Government & non NAICs	7,326.7
TOTALS	12,251.0

Given that a wide range of jobs are created by expenditures at airports, the general public needs to be informed that public money spent at local airports not only is leveraged by federal grants, but that it is also distributed to industries far outside the aviation and air transportation sectors. In short, many workers in different economic sectors benefit from expenditures at airports.

5. ECONOMIC IMPACT SUMMARY

Table 3-14 presents a summary of the economic impacts associated with Delaware airports. As shown, the statewide impacts of airports are anticipated to sustain about 12,300 jobs, \$598.4 million in income, and \$1.07 billion in annual output. In addition, these airports contribute roughly \$43.4 million in state and local taxes each year.

By comparison to the 2007 study, the most recent economic impact assessment shows a slight increase in overall dollar output (8 percent), while recording a rather significant drop in the number of jobs associated with aviation (-21 percent). Some of this decline can be attributed to monetary inflation, which decreases the number of jobs that can be supported with the same amount of money. Table 3-15 presents the comparisons by airport. As shown, the most significant drop in the number of jobs involved Dover Air Force Base. In this regard, the military

reported a decline of 1,407 direct jobs and 1,629 indirect/induced jobs. Thus, 3,036 jobs out of the difference of 3,230 can be attributable to the Air Force Base. The remaining decline of 194 jobs was spread between a number of airports, but primarily Sussex County Airport, which indicated a decline in the aircraft manufacturing business. Even though New Castle Airport showed a modest decline, it is anticipated that the new airline service established at the Airport in 2013 will grow significantly and will spark new economic growth at that facility in the near future.

Table 3-14 - Summary of Economic Impacts

Airport Name	Direct Employment	Direct Impacts	Direct Income	Induced Employment	Induced Impacts	State & Local Taxes	Grand Total Employment	Grand Total Income	Grand Total Impacts
Chorman	14	\$1,050,900	\$482,700	6	\$594,000	\$67,600	20	\$698,500	\$1,644,900
Civil Air Terminal	20	\$1,382,700	\$465,800	5	\$565,200	\$144,800	25	\$648,900	\$1,947,900
Dover AFB	6,400	\$466,000,000	\$368,387,000	2,275	\$192,678,800	\$24,487,100	8,675	\$428,404,800	\$658,678,800
Delaware Airpark	32	\$2,503,600	\$1,125,200	12	\$1,208,000	\$158,900	44	\$1,550,800	\$3,711,600
Laurel Airport	12	\$861,900	\$353,000	5	\$515,900	\$80,300	17	\$530,500	\$1,377,800
New Castle Airport	1,606	\$146,868,600	\$70,115,600	740	\$93,616,900	\$10,486,300	2,346	\$104,687,800	\$240,485,500
Summit Airport	158	\$12,708,000	\$6,211,800	88	\$9,943,900	\$1,019,400	246	\$10,413,200	\$22,651,900
Sussex County Airport	426	\$96,133,700	\$36,427,500	446	\$43,318,500	\$6,907,200	872	\$51,183,100	\$139,452,200
Private, Public-Use Airports*	4	\$313,200	\$146,500	2	\$245,800	\$25,000	6	\$245,400	\$559,000
Grand Totals	8,672	\$727,822,600	\$483,715,100	3,579	\$342,687,000	\$43,376,600	12,251	\$598,363,000	\$1,070,509,600

* Three private, public-use airports include Chandelle Estates, Jenkins, and Smyrna Airport.

Table 3-15 - Comparison of 2007 and 2013 Economic Impacts

Airport	2007 Employment	2013 Employment	% Change	2007 Total Impact	2013 Total Impact	% Change
Chorman Airport	16	20	25%	\$2,515,000	\$1,644,900	-35%
Civil Air Terminal	N/A	25	N/A	N/A	\$1,947,900	N/A
Delaware Airpark	45	44	-2%	\$3,610,600	\$3,711,600	3%
Dover Air Force Base	11,711	8,675	-26%	\$528,180,200	\$658,678,800	25%
Laurel Airport	27	17	-37%	\$3,121,900	\$1,377,800	-56%
New Castle Airport	2,462	2,346	-5%	\$272,111,000	\$240,485,500	-13%
Summit Airport	194	246	27%	\$27,997,100	\$22,651,900	-19%
Sussex County Airport	1,021	872	-15%	\$151,048,700	\$139,452,200	-8%
Private, Public-Use Airports*	5	6	20%	\$387,300	\$559,000	44%
STATE TOTAL	15,481	12,251	-21%	\$988,971,800	\$1,070,509,600	+8%

* Three private, public-use airports include Chandelle Estates, Jenkins, and Smyrna Airport.

**Appendix 3-A:
IMPLAN Economic Impact Results**

Economic Impact of Civil Air Terminal, Kent County, DE 2013

Employment

Description	Direct	Indirect	Induced	Total
Total	19.8	3.1	2.5	25.4
11 Ag, Forestry, Fish & Hunting	0.0	0.0	0.0	0.0
21 Mining	0.0	0.0	0.0	0.0
22 Utilities	0.0	0.1	0.0	0.1
23 Construction	2.1	0.2	0.0	2.3
31-33 Manufacturing	0.0	0.0	0.0	0.0
42 Wholesale Trade	0.0	0.0	0.0	0.0
44-45 Retail trade	2.0	0.2	0.7	2.8
48-49 Transportation & Warehousing	0.5	0.2	0.1	0.7
51 Information	0.0	0.1	0.0	0.1
52 Finance & insurance	0.0	0.2	0.2	0.4
53 Real estate & rental	0.0	0.2	0.1	0.3
54 Professional- scientific & tech svcs	0.0	0.3	0.1	0.4
55 Management of companies	0.0	0.1	0.0	0.1
56 Administrative & waste services	0.0	0.8	0.1	0.9
61 Educational svcs	0.0	0.0	0.1	0.1
62 Health & social services	0.0	0.0	0.6	0.6
71 Arts- entertainment & recreation	3.4	0.0	0.1	3.5
72 Accommodation & food services	11.9	0.5	0.3	12.6
81 Other services	0.0	0.2	0.2	0.4
92 Government & non NAICs	0.0	0.1	0.0	0.1
<i>Multiplier</i>	1.28			

Income

Description	Direct	Indirect	Induced	Total
Total	\$465,789	\$104,938	\$78,192	\$648,919
11 Ag, Forestry, Fish & Hunting	\$0	\$33	\$53	\$85
21 Mining	\$0	\$23	\$4	\$27
22 Utilities	\$0	\$7,443	\$1,895	\$9,337
23 Construction	\$85,250	\$7,301	\$1,113	\$93,664
31-33 Manufacturing	\$0	\$562	\$78	\$640
42 Wholesale Trade	\$0	\$674	\$996	\$1,670
44-45 Retail trade	\$36,620	\$4,031	\$17,547	\$58,197
48-49 Transportation & Warehousing	\$17,415	\$6,517	\$1,784	\$25,716
51 Information	\$0	\$6,983	\$1,076	\$8,059
52 Finance & insurance	\$0	\$2,638	\$2,261	\$4,899
53 Real estate & rental	\$0	\$3,329	\$1,513	\$4,842
54 Professional- scientific & tech svcs	\$0	\$14,273	\$2,855	\$17,128
55 Management of companies	\$0	\$2,106	\$126	\$2,232
56 Administrative & waste services	\$0	\$22,226	\$3,157	\$25,382
61 Educational svcs	\$0	\$159	\$1,280	\$1,439
62 Health & social services	\$0	\$1	\$26,827	\$26,828
71 Arts- entertainment & recreation	\$88,453	\$920	\$1,960	\$91,334
72 Accommodation & food services	\$238,050	\$8,066	\$5,675	\$251,791
81 Other services	\$0	\$10,405	\$7,087	\$17,492
92 Government & non NAICs	\$0	\$7,249	\$906	\$8,155
<i>Multiplier</i>	1.39			

Output

Description	Direct	Indirect	Induced	Total
Total	\$1,382,723	\$308,963	\$256,204	\$1,947,890
11 Ag, Forestry, Fish & Hunting	\$0	\$129	\$153	\$282
21 Mining	\$0	\$64	\$10	\$74
22 Utilities	\$0	\$49,841	\$11,554	\$61,395
23 Construction	\$180,000	\$15,450	\$2,925	\$198,376
31-33 Manufacturing	\$0	\$1,933	\$459	\$2,391
42 Wholesale Trade	\$0	\$1,458	\$2,154	\$3,611
44-45 Retail trade	\$86,038	\$9,127	\$40,520	\$135,685
48-49 Transportation & Warehousing	\$38,034	\$16,195	\$4,502	\$58,732
51 Information	\$0	\$19,727	\$4,731	\$24,458
52 Finance & insurance	\$0	\$30,665	\$29,193	\$59,858
53 Real estate & rental	\$0	\$26,992	\$59,491	\$86,484
54 Professional- scientific & tech svcs	\$0	\$33,961	\$6,846	\$40,808
55 Management of companies	\$0	\$7,149	\$428	\$7,578
56 Administrative & waste services	\$0	\$43,853	\$6,040	\$49,892
61 Educational svcs	\$0	\$349	\$2,405	\$2,754
62 Health & social services	\$0	\$3	\$48,681	\$48,683
71 Arts- entertainment & recreation	\$190,350	\$2,139	\$5,373	\$197,862
72 Accommodation & food services	\$888,300	\$23,578	\$16,575	\$928,453
81 Other services	\$0	\$15,628	\$12,105	\$27,732
92 Government & non NAICs	\$0	\$10,722	\$2,059	\$12,781
<i>Multiplier</i>	1.41			

Taxes

State & Local

Description	Employee Comp.	Proprietor Income	Ind. Bus. Tax	Households	Corporats.
Dividends					\$98
Social Ins Tax- Employee Contribution	\$318				
Social Ins Tax- Employer Contribution	\$563				
Indirect Bus Tax: Sales Tax			\$20,918		
Indirect Bus Tax: Property Tax			\$28,424		
Indirect Bus Tax: Motor Vehicle Lic			\$818		
Indirect Bus Tax: Severance Tax					
Indirect Bus Tax: Other Taxes			\$52,945		
Indirect Bus Tax: S/L Non Taxes			\$23,974		
Corporate Profits Tax					\$4,965
Personal Tax: Income Tax				\$9,976	
Personal Tax: Non Taxes (Fines- Fees				\$1,202	
Personal Tax: Motor Vehicle License				\$347	
Personal Tax: Property Taxes				\$116	
Personal Tax: Other Tax (Fish/Hunt)				\$97	
Total State and Local Tax	\$881		\$127,078	\$11,738	\$5,063

Federal

Description	Employee Comp.	Proprietor Income	Tax on Production and Imports	Households	Corporats
Social Ins Tax- Employee Contribution	\$19,129	\$3,664			
Social Ins Tax- Employer Contribution	\$24,855				
Tax on Production and Imports: Excise Taxes			\$9,556		
Tax on Production and Imports: Custom Duty			\$4,032		
Tax on Production and Imports: Fed NonTaxes			\$0		
Corporate Profits Tax					\$18,371
Personal Tax: Income Tax				\$28,659	
Total Federal Tax	\$43,984	\$3,664	\$13,589	\$28,659	\$18,371

Economic Impact of Chorman Airport, Kent County, DE 2013

Employment

Description	Direct	Indirect	Induced	Total
Total	13.7	3.8	2.6	20.1
11 Ag, Forestry, Fish & Hunting	0.0	0.0	0.0	0.0
21 Mining	0.0	0.0	0.0	0.0
22 Utilities	0.0	0.0	0.0	0.0
23 Construction	1.2	0.1	0.0	1.3
31-33 Manufacturing	0.0	0.0	0.0	0.0
42 Wholesale Trade	0.0	0.0	0.0	0.0
44-45 Retail trade	0.0	0.1	0.7	0.8
48-49 Transportation & Warehousing	12.5	1.3	0.1	13.8
51 Information	0.0	0.0	0.0	0.0
52 Finance & insurance	0.0	0.2	0.2	0.4
53 Real estate & rental	0.0	0.1	0.1	0.2
54 Professional- scientific & tech svcs	0.0	0.2	0.1	0.2
55 Management of companies	0.0	0.0	0.0	0.0
56 Administrative & waste services	0.0	1.2	0.1	1.3
61 Educational svcs	0.0	0.0	0.1	0.1
62 Health & social services	0.0	0.0	0.6	0.6
71 Arts- entertainment & recreation	0.0	0.0	0.1	0.1
72 Accommodation & food services	0.0	0.1	0.3	0.4
81 Other services	0.0	0.2	0.2	0.4
92 Government & non NAICs	0.0	0.3	0.0	0.3
<i>Multiplier</i>	1.47			

Income

Description	Direct	Indirect	Induced	Total
Total	\$482,740	\$133,176	\$82,595	\$698,511
11 Ag, Forestry, Fish & Hunting	\$0	\$6	\$56	\$62
21 Mining	\$0	\$15	\$4	\$19
22 Utilities	\$0	\$2,260	\$2,018	\$4,279
23 Construction	\$47,361	\$4,470	\$1,176	\$53,007
31-33 Manufacturing	\$0	\$101	\$83	\$184
42 Wholesale Trade	\$0	\$295	\$1,061	\$1,356
44-45 Retail trade	\$0	\$2,825	\$18,490	\$21,315
48-49 Transportation & Warehousing	\$435,379	\$47,305	\$1,883	\$484,566
51 Information	\$0	\$1,541	\$1,142	\$2,683
52 Finance & insurance	\$0	-\$986	\$2,363	\$1,377
53 Real estate & rental	\$0	\$2,452	\$1,605	\$4,058
54 Professional- scientific & tech svcs	\$0	\$7,975	\$3,022	\$10,996
55 Management of companies	\$0	\$901	\$133	\$1,034
56 Administrative & waste services	\$0	\$32,903	\$3,336	\$36,239
61 Educational svcs	\$0	\$14	\$1,341	\$1,355
62 Health & social services	\$0	\$1	\$28,367	\$28,368
71 Arts- entertainment & recreation	\$0	\$384	\$2,068	\$2,451
72 Accommodation & food services	\$0	\$1,267	\$6,007	\$7,274
81 Other services	\$0	\$9,947	\$7,483	\$17,431
92 Government & non NAICs	\$0	\$19,498	\$958	\$20,457
<i>Multiplier</i>	1.47			

Output

Description	Direct	Indirect	Induced	Total
Total	\$1,050,860	\$323,345	\$270,640	\$1,644,845
11 Ag, Forestry, Fish & Hunting	\$0	\$27	\$161	\$189
21 Mining	\$0	\$42	\$11	\$53
22 Utilities	\$0	\$15,004	\$12,317	\$27,320
23 Construction	\$100,000	\$9,466	\$3,086	\$112,552
31-33 Manufacturing	\$0	\$406	\$487	\$893
42 Wholesale Trade	\$0	\$638	\$2,294	\$2,932
44-45 Retail trade	\$0	\$6,391	\$42,699	\$49,090
48-49 Transportation & Warehousing	\$950,860	\$122,509	\$4,752	\$1,078,121
51 Information	\$0	\$6,652	\$5,026	\$11,678
52 Finance & insurance	\$0	\$25,337	\$30,901	\$56,238
53 Real estate & rental	\$0	\$14,037	\$62,654	\$76,690
54 Professional- scientific & tech svcs	\$0	\$17,424	\$7,247	\$24,671
55 Management of companies	\$0	\$3,058	\$453	\$3,511
56 Administrative & waste services	\$0	\$57,289	\$6,382	\$63,672
61 Educational svcs	\$0	\$32	\$2,527	\$2,558
62 Health & social services	\$0	\$2	\$51,474	\$51,476
71 Arts- entertainment & recreation	\$0	\$1,198	\$5,663	\$6,861
72 Accommodation & food services	\$0	\$3,729	\$17,547	\$21,276
81 Other services	\$0	\$13,198	\$12,777	\$25,975
92 Government & non NAICs	\$0	\$26,907	\$2,181	\$29,088
<i>Multiplier</i>	1.57			

Taxes

State and Local

Description	Employee Comp.	Proprietor Income	Ind. Bus. Tax	Households	Corporats.
Dividends					\$33
Social Ins Tax- Employee Contribution	\$371				
Social Ins Tax- Employer Contribution	\$658				
Indirect Bus Tax: Sales Tax			\$8,658		
Indirect Bus Tax: Property Tax			\$11,764		
Indirect Bus Tax: Motor Vehicle Lic			\$338		
Indirect Bus Tax: Severance Tax					
Indirect Bus Tax: Other Taxes			\$21,913		
Indirect Bus Tax: S/L Non Taxes			\$9,923		
Corporate Profits Tax					\$1,695
Personal Tax: Income Tax				\$10,403	
Personal Tax: Non Taxes (Fines- Fees				\$1,254	
Personal Tax: Motor Vehicle License				\$362	
Personal Tax: Property Taxes				\$121	
Personal Tax: Other Tax (Fish/Hunt)				\$101	
Total State and Local Tax	\$1,029		\$52,596	\$12,241	\$1,729

Federal

Description	Employee Comp.	Proprietor Income	Tax on Production and Imports	Households	Corporats
Social Ins Tax- Employee Contribution	\$22,347	\$1,906			
Social Ins Tax- Employer Contribution	\$29,037				
Tax on Production and Imports: Excise Taxes			\$3,955		
Tax on Production and Imports: Custom Duty			\$1,669		
Tax on Production and Imports: Fed NonTaxes			\$0		
Corporate Profits Tax					\$6,273
Personal Tax: Income Tax				\$29,887	
Total Federal Tax	\$51,384	\$1,906	\$5,624	\$29,887	\$6,273

Economic Impact of Delaware Airpark, Kent County, DE 2013

Employment

Description	Direct	Indirect	Induced	Total
Total	31.8	6.7	6.0	44.5
11 Ag, Forestry, Fish & Hunting	0.0	0.0	0.0	0.0
21 Mining	0.0	0.0	0.0	0.0
22 Utilities	0.0	0.0	0.0	0.1
23 Construction	12.0	0.2	0.1	12.2
31-33 Manufacturing	0.0	0.0	0.0	0.0
42 Wholesale Trade	0.0	0.0	0.0	0.0
44-45 Retail trade	0.6	0.6	1.6	2.8
48-49 Transportation & Warehousing	16.0	1.7	0.1	17.8
51 Information	0.0	0.1	0.0	0.1
52 Finance & insurance	0.0	0.3	0.4	0.8
53 Real estate & rental	0.0	0.2	0.2	0.4
54 Professional- scientific & tech svcs	0.0	0.6	0.2	0.7
55 Management of companies	0.0	0.0	0.0	0.0
56 Administrative & waste services	0.0	1.8	0.3	2.0
61 Educational svcs	0.0	0.0	0.1	0.1
62 Health & social services	0.0	0.0	1.4	1.4
71 Arts- entertainment & recreation	0.7	0.1	0.2	1.0
72 Accommodation & food services	2.6	0.2	0.8	3.6
81 Other services	0.0	0.4	0.5	0.9
92 Government & non NAICs	0.0	0.4	0.0	0.5
<i>Multiplier</i>	1.40			

Income

Description	Direct	Indirect	Induced	Total
Total	\$1,125,234	\$239,006	\$186,533	\$1,550,772
11 Ag, Forestry, Fish & Hunting	\$0	\$37	\$126	\$163
21 Mining	\$0	\$109	\$9	\$118
22 Utilities	\$0	\$5,110	\$4,529	\$9,639
23 Construction	\$486,210	\$7,914	\$2,655	\$496,779
31-33 Manufacturing	\$0	\$492	\$186	\$678
42 Wholesale Trade	\$0	\$1,140	\$2,381	\$3,521
44-45 Retail trade	\$10,633	\$17,095	\$41,829	\$69,558
48-49 Transportation & Warehousing	\$557,285	\$64,142	\$4,254	\$625,682
51 Information	\$0	\$4,252	\$2,570	\$6,823
52 Finance & insurance	\$0	\$364	\$5,379	\$5,743
53 Real estate & rental	\$0	\$6,689	\$3,613	\$10,302
54 Professional- scientific & tech svcs	\$0	\$26,940	\$6,814	\$33,754
55 Management of companies	\$0	\$1,669	\$301	\$1,970
56 Administrative & waste services	\$0	\$50,069	\$7,532	\$57,600
61 Educational svcs	\$0	\$64	\$3,047	\$3,111
62 Health & social services	\$0	\$1	\$64,021	\$64,022
71 Arts- entertainment & recreation	\$19,263	\$848	\$4,675	\$24,786
72 Accommodation & food services	\$51,842	\$4,087	\$13,544	\$69,473
81 Other services	\$0	\$21,290	\$16,905	\$38,195
92 Government & non NAICs	\$0	\$26,693	\$2,162	\$28,856
<i>Multiplier</i>	1.38			

Output

Description	Direct	Indirect	Induced	Total
Total	\$2,503,590	\$596,763	\$611,196	\$3,711,548
11 Ag, Forestry, Fish & Hunting	\$0	\$142	\$364	\$506
21 Mining	\$0	\$302	\$25	\$327
22 Utilities	\$0	\$34,226	\$27,627	\$61,853
23 Construction	\$1,026,600	\$16,757	\$6,977	\$1,050,334
31-33 Manufacturing	\$0	\$2,273	\$1,096	\$3,369
42 Wholesale Trade	\$0	\$2,466	\$5,148	\$7,615
44-45 Retail trade	\$24,983	\$38,675	\$96,595	\$160,254
48-49 Transportation & Warehousing	\$1,217,101	\$165,864	\$10,738	\$1,393,703
51 Information	\$0	\$16,290	\$11,301	\$27,592
52 Finance & insurance	\$0	\$53,072	\$69,678	\$122,751
53 Real estate & rental	\$0	\$32,849	\$141,812	\$174,661
54 Professional- scientific & tech svcs	\$0	\$57,200	\$16,341	\$73,541
55 Management of companies	\$0	\$5,665	\$1,022	\$6,688
56 Administrative & waste services	\$0	\$88,762	\$14,410	\$103,172
61 Educational svcs	\$0	\$142	\$5,730	\$5,871
62 Health & social services	\$0	\$3	\$116,172	\$116,175
71 Arts- entertainment & recreation	\$41,454	\$2,337	\$12,810	\$56,601
72 Accommodation & food services	\$193,452	\$11,986	\$39,561	\$244,999
81 Other services	\$0	\$30,651	\$28,873	\$59,524
92 Government & non NAICs	\$0	\$37,100	\$4,915	\$42,015
<i>Multiplier</i>	1.48			

Taxes

State and Local

Description	Employee Comp.	Proprietor Income	Ind. Bus. Tax	Households	Corporats.
Dividends					\$97
Social Ins Tax- Employee Contribution	\$774				
Social Ins Tax- Employer Contribution	\$1,372				
Indirect Bus Tax: Sales Tax			\$20,394		
Indirect Bus Tax: Property Tax			\$27,713		
Indirect Bus Tax: Motor Vehicle Lic			\$797		
Indirect Bus Tax: Severance Tax					
Indirect Bus Tax: Other Taxes			\$51,619		
Indirect Bus Tax: S/L Non Taxes			\$23,374		
Corporate Profits Tax					\$4,938
Personal Tax: Income Tax				\$23,673	
Personal Tax: Non Taxes (Fines- Fees				\$2,853	
Personal Tax: Motor Vehicle License				\$824	
Personal Tax: Property Taxes				\$274	
Personal Tax: Other Tax (Fish/Hunt)				\$230	
Total State and Local Tax	\$2,145		\$123,898	\$27,854	\$5,035

Federal

Description	Employee Comp.	Proprietor Income	Tax on Production and Imports	Households	Corporats
Social Ins Tax- Employee Contribution	\$46,592	\$7,737			
Social Ins Tax- Employer Contribution	\$60,540				
Tax on Production and Imports: Excise Taxes			\$9,317		
Tax on Production and Imports: Custom Duty			\$3,931		
Tax on Production and Imports: Fed NonTaxes			\$0		
Corporate Profits Tax					\$18,272
Personal Tax: Income Tax				\$68,007	
Total Federal Tax	\$107,132	\$7,737	\$13,249	\$68,007	\$18,272

Economic Impact of Dover AFB on Kent County DE 2013

Employment

Description	Direct	Indirect	Induced	Total
Total	6,400.0	170.1	2,105.3	8,675.0
11 Ag, Forestry, Fish & Hunting	0.0	-	1.6	1.4
21 Mining	0.0	0.1	-	0.2
22 Utilities	0.0	0.7	15.6	14.2
23 Construction	0.0	2.2	21.4	20.5
31-33 Manufacturing	0.0	0.6	1.2	1.5
42 Wholesale Trade	0.0	0.8	8.4	8.1
44-45 Retail trade	0.0	65.0	559.0	543.1
48-49 Transportation & Warehousing	0.0	7.1	44.2	44.7
51 Information	0.0	1.4	15.5	14.9
52 Finance & insurance	0.0	10.5	152.7	142.1
53 Real estate & rental	0.0	5.8	79.4	74.2
54 Professional- scientific & tech svcs	0.0	36.8	53.1	78.2
55 Management of companies	0.0	0.2	2.6	2.5
56 Administrative & waste services	0.0	15.7	91.8	93.6
61 Educational svcs	0.0	-	45.3	39.4
62 Health & social services	0.0	-	492.6	428.8
71 Arts- entertainment & recreation	0.0	1.1	66.7	59.0
72 Accommodation & food services	0.0	5.4	268.2	238.3
81 Other services	0.0	15.6	171.3	162.7
92 Government & non NAICs	6,400.0	0.7	14.4	6,707.7
<i>Multiplier</i>	1.36			

Income

Description	Direct	Indirect	Induced	Total
Total	\$368,387,026	\$5,308,936	\$54,708,858	\$428,404,820
11 Ag, Forestry, Fish & Hunting	\$0	\$2,440	\$37,055	\$39,495
21 Mining	\$0	\$9,693	\$2,648	\$12,341
22 Utilities	\$0	\$68,933	\$1,338,702	\$1,407,635
23 Construction	\$0	\$71,797	\$778,704	\$850,501
31-33 Manufacturing	\$0	\$27,225	\$54,843	\$82,067
42 Wholesale Trade	\$0	\$70,261	\$704,290	\$774,552
44-45 Retail trade	\$0	\$1,437,464	\$12,252,348	\$13,689,812
48-49 Transportation & Warehousing	\$0	\$288,543	\$1,246,776	\$1,535,319
51 Information	\$0	\$85,974	\$756,953	\$842,928
52 Finance & insurance	\$0	\$117,046	\$1,562,469	\$1,679,515
53 Real estate & rental	\$0	\$323,155	\$1,064,136	\$1,387,290
54 Professional- scientific & tech svcs	\$0	\$1,557,059	\$2,002,065	\$3,559,124
55 Management of companies	\$0	\$7,141	\$88,439	\$95,579
56 Administrative & waste services	\$0	\$381,310	\$2,209,569	\$2,590,879
61 Educational svcs	\$0	\$1,194	\$886,977	\$888,171
62 Health & social services	\$0	\$25	\$18,780,788	\$18,780,814
71 Arts- entertainment & recreation	\$0	\$17,978	\$1,369,054	\$1,387,031
72 Accommodation & food services	\$0	\$81,264	\$3,982,449	\$4,063,713
81 Other services	\$0	\$724,641	\$4,955,645	\$5,680,286
92 Government & non NAICs	\$368,387,026	\$35,793	\$634,949	\$369,057,768
<i>Multiplier</i>	1.16			

Output

Description	Direct	Indirect	Induced	Total
Total	\$465,999,998	\$13,401,299	\$179,277,539	\$658,678,836
11 Ag, Forestry, Fish & Hunting	\$0	\$8,950	\$106,951	\$115,902
21 Mining	\$0	\$26,816	\$7,326	\$34,142
22 Utilities	\$0	\$481,565	\$8,170,667	\$8,652,233
23 Construction	\$0	\$152,183	\$2,044,197	\$2,196,380
31-33 Manufacturing	\$0	\$151,809	\$322,898	\$474,707
42 Wholesale Trade	\$0	\$151,938	\$1,523,003	\$1,674,941
44-45 Retail trade	\$0	\$3,251,793	\$28,294,065	\$31,545,858
48-49 Transportation & Warehousing	\$0	\$737,766	\$3,146,932	\$3,884,697
51 Information	\$0	\$397,222	\$3,333,152	\$3,730,374
52 Finance & insurance	\$0	\$1,600,869	\$20,474,689	\$22,075,558
53 Real estate & rental	\$0	\$1,026,066	\$41,485,428	\$42,511,494
54 Professional- scientific & tech svcs	\$0	\$3,142,843	\$4,802,054	\$7,944,897
55 Management of companies	\$0	\$24,240	\$300,229	\$324,469
56 Administrative & waste services	\$0	\$716,222	\$4,227,510	\$4,943,732
61 Educational svcs	\$0	\$2,636	\$1,672,781	\$1,675,418
62 Health & social services	\$0	\$58	\$34,077,818	\$34,077,876
71 Arts- entertainment & recreation	\$0	\$39,131	\$3,749,250	\$3,788,381
72 Accommodation & food services	\$0	\$238,115	\$11,632,854	\$11,870,969
81 Other services	\$0	\$1,189,703	\$8,460,346	\$9,650,049
92 Government & non NAICs	\$465,999,998	\$61,374	\$1,445,389	\$467,506,761
<i>Multiplier</i>		1.41		

Taxes

State and Local

Description	Employee Comp.	Proprietor Income	Ind. Bus. Tax	Households	Corporats.
Dividends					\$51,504
Social Ins Tax- Employee Contribution	\$259,458				
Social Ins Tax- Employer Contribution	\$459,948				
Indirect Bus Tax: Sales Tax			\$2,117,119		
Indirect Bus Tax: Property Tax			\$2,876,840		
Indirect Bus Tax: Motor Vehicle Lic			\$82,763		
Indirect Bus Tax: Severance Tax					
Indirect Bus Tax: Other Taxes			\$5,358,602		
Indirect Bus Tax: S/L Non Taxes			\$2,426,460		
Corporate Profits Tax					\$2,622,064
Personal Tax: Income Tax				\$6,988,945	
Personal Tax: Non Taxes (Fines- Fees				\$842,215	
Personal Tax: Motor Vehicle License				\$243,284	
Personal Tax: Property Taxes				\$80,996	
Personal Tax: Other Tax (Fish/Hunt)				\$67,859	
Total State and Local Tax	\$719,405		\$12,861,784	\$8,223,299	\$2,673,567

Federal

Description	Employee Comp.	Proprietor Income	Tax on Production and Imports	Households	Corporats
Social Ins Tax- Employee Contribution	\$14,036,649	\$283,061			
Social Ins Tax- Employer Contribution	\$18,238,582				
Tax on Production and Imports: Excise Taxes			\$721,692		
Tax on Production and Imports: Custom Duty			\$304,523		
Tax on Production and Imports: Fed NonTaxes			\$0		
Corporate Profits Tax					\$8,999,591
Personal Tax: Income Tax				\$17,388,063	
Total Federal Tax	\$32,275,231	\$283,061	\$1,026,215	\$17,388,063	\$8,999,591

Economic Impact of ILG, New Castle County, DE 2013

Employment

Description	Direct	Indirect	Induced	Total
Total	1,605.8	278.8	461.9	2,346.4
11 Ag, Forestry, Fish & Hunting	0.0	0.0	0.0	0.0
21 Mining	0.0	0.0	0.0	0.0
22 Utilities	0.0	1.1	1.3	2.3
23 Construction	19.3	9.8	4.3	33.4
31-33 Manufacturing	0.0	0.6	0.3	0.9
42 Wholesale Trade	0.0	1.7	11.0	12.7
44-45 Retail trade	31.8	4.8	95.8	132.4
48-49 Transportation & Warehousing	728.0	47.6	8.3	783.9
51 Information	0.0	5.9	6.9	12.8
52 Finance & insurance	0.0	13.3	34.8	48.1
53 Real estate & rental	3.0	20.1	34.8	57.8
54 Professional- scientific & tech svcs	0.0	23.5	16.2	39.7
55 Management of companies	0.0	5.8	1.6	7.4
56 Administrative & waste services	6.0	84.1	23.3	113.4
61 Educational svcs	0.0	0.3	17.6	17.9
62 Health & social services	0.0	0.0	99.3	99.3
71 Arts- entertainment & recreation	60.8	3.2	14.6	78.7
72 Accommodation & food services	210.9	14.5	53.1	278.4
81 Other services	0.0	16.7	34.6	51.4
92 Government & non NAICs	546.0	25.7	4.0	575.7
<i>Multiplier</i>	1.46			

Income

Description	Direct	Indirect	Induced	Total
Total	\$70,115,580	\$14,323,907	\$20,248,289	\$104,687,776
11 Ag, Forestry, Fish & Hunting	\$0	\$5	-\$571	-\$567
21 Mining	\$0	\$6,990	\$140	\$7,130
22 Utilities	\$0	\$161,296	\$182,317	\$343,614
23 Construction	\$1,303,099	\$665,110	\$263,358	\$2,231,567
31-33 Manufacturing	\$0	\$33,658	\$21,749	\$55,407
42 Wholesale Trade	\$0	\$161,385	\$1,026,939	\$1,188,324
44-45 Retail trade	\$706,912	\$137,539	\$2,756,109	\$3,600,560
48-49 Transportation & Warehousing	\$24,231,932	\$2,075,016	\$392,639	\$26,699,588
51 Information	\$0	\$538,145	\$504,799	\$1,042,945
52 Finance & insurance	\$0	\$1,150,248	\$2,811,918	\$3,962,165
53 Real estate & rental	\$343,209	\$325,844	\$456,427	\$1,125,480
54 Professional- scientific & tech svcs	\$0	\$2,038,278	\$1,477,587	\$3,515,865
55 Management of companies	\$0	\$783,553	\$213,954	\$997,507
56 Administrative & waste services	\$411,273	\$2,996,902	\$805,770	\$4,213,945
61 Educational svcs	\$0	\$9,255	\$593,119	\$602,374
62 Health & social services	\$0	\$80	\$5,710,887	\$5,710,967
71 Arts- entertainment & recreation	\$1,498,174	\$50,399	\$311,431	\$1,860,003
72 Accommodation & food services	\$6,004,570	\$313,016	\$1,147,257	\$7,464,843
81 Other services	\$0	\$867,513	\$1,295,135	\$2,162,648
92 Government & non NAICs	\$35,616,410	\$2,009,673	\$277,328	\$37,903,411
<i>Multiplier</i>	1.49			

Output

Description	Direct	Indirect	Induced	Total
Total	\$146,868,595	\$33,556,099	\$60,060,830	\$240,485,526
11 Ag, Forestry, Fish & Hunting	\$0	\$286	\$1,857	\$2,143
21 Mining	\$0	\$27,196	\$627	\$27,823
22 Utilities	\$0	\$1,019,124	\$1,124,932	\$2,144,056
23 Construction	\$2,399,407	\$1,230,778	\$614,066	\$4,244,251
31-33 Manufacturing	\$0	\$157,583	\$104,633	\$262,217
42 Wholesale Trade	\$0	\$399,648	\$2,543,070	\$2,942,718
44-45 Retail trade	\$1,661,134	\$327,358	\$6,644,339	\$8,632,831
48-49 Transportation & Warehousing	\$59,788,234	\$5,515,941	\$1,047,813	\$66,351,988
51 Information	\$0	\$2,327,584	\$2,774,715	\$5,102,300
52 Finance & insurance	\$0	\$3,639,373	\$9,468,514	\$13,107,886
53 Real estate & rental	\$998,591	\$2,906,807	\$12,150,777	\$16,056,175
54 Professional- scientific & tech svcs	\$0	\$3,649,391	\$2,675,497	\$6,324,888
55 Management of companies	\$0	\$1,467,509	\$400,712	\$1,868,223
56 Administrative & waste services	\$1,093,816	\$5,708,699	\$1,642,764	\$8,445,280
61 Educational svcs	\$0	\$20,401	\$1,119,811	\$1,140,210
62 Health & social services	\$0	\$194	\$10,557,231	\$10,557,424
71 Arts- entertainment & recreation	\$3,675,077	\$149,200	\$1,012,854	\$4,837,130
72 Accommodation & food services	\$19,622,316	\$892,249	\$3,266,909	\$23,781,473
81 Other services	\$0	\$1,288,031	\$2,296,515	\$3,584,546
92 Government & non NAICs	\$57,630,021	\$2,828,747	\$613,196	\$61,071,963
<i>Multiplier</i>	1.64			

Taxes

State and Local

Description	Employee Comp.	Proprietor Income	Ind. Bus. Tax	Households	Corporats.
Dividends					\$12,201
Social Ins Tax- Employee Contribution	\$18,304				
Social Ins Tax- Employer Contribution	\$32,448				
Indirect Bus Tax: Sales Tax			\$1,180,350		
Indirect Bus Tax: Property Tax			\$1,603,915		
Indirect Bus Tax: Motor Vehicle Lic			\$46,143		
Indirect Bus Tax: Severance Tax					
Indirect Bus Tax: Other Taxes			\$2,987,562		
Indirect Bus Tax: S/L Non Taxes			\$1,352,815		
Corporate Profits Tax					\$621,172
Personal Tax: Income Tax				\$2,236,369	
Personal Tax: Non Taxes (Fines- Fees				\$269,498	
Personal Tax: Motor Vehicle License				\$77,847	
Personal Tax: Property Taxes				\$25,918	
Personal Tax: Other Tax (Fish/Hunt)				\$21,714	
Total State and Local Tax	\$50,751		\$7,170,784	\$2,631,346	\$633,374

Federal

Description	Employee Comp.	Proprietor Income	Tax on Production and Imports	Households	Corporats
Social Ins Tax- Employee Contribution	\$4,380,007	\$359,472			
Social Ins Tax- Employer Contribution	\$5,691,182				
Tax on Production and Imports: Excise Taxes			\$554,968		
Tax on Production and Imports: Custom Duty			\$234,173		
Tax on Production and Imports: Fed NonTaxes			\$0		
Corporate Profits Tax					\$2,298,283
Personal Tax: Income Tax				\$6,424,567	
Total Federal Tax	\$10,071,189	\$359,472	\$789,141	\$6,424,567	\$2,298,283

Economic Impact of Laurel Airport, Sussex County, DE 2013

Employment

Description	Direct	Indirect	Induced	Total
Total	11.7	2.7	2.7	17.2
11 Ag, Forestry, Fish & Hunting	0.0	0.0	0.0	0.0
21 Mining	0.0	0.0	0.0	0.0
22 Utilities	0.0	0.0	0.0	0.0
23 Construction	0.3	0.1	0.0	0.5
31-33 Manufacturing	0.0	0.0	0.0	0.0
42 Wholesale Trade	0.0	0.0	0.0	0.0
44-45 Retail trade	0.5	0.1	0.7	1.3
48-49 Transportation & Warehousing	7.0	0.7	0.1	7.7
51 Information	0.0	0.0	0.0	0.0
52 Finance & insurance	0.0	0.1	0.2	0.2
53 Real estate & rental	0.0	0.2	0.2	0.4
54 Professional- scientific & tech svcs	0.0	0.2	0.1	0.3
55 Management of companies	0.0	0.0	0.0	0.0
56 Administrative & waste services	0.0	0.7	0.1	0.8
61 Educational svcs	0.0	0.0	0.0	0.0
62 Health & social services	0.0	0.0	0.6	0.6
71 Arts- entertainment & recreation	0.8	0.0	0.1	1.0
72 Accommodation & food services	3.1	0.2	0.4	3.6
81 Other services	0.0	0.1	0.2	0.3
92 Government & non NAICs	0.0	0.3	0.0	0.3
<i>Multiplier</i>	1.46			

Income

Description	Direct	Indirect	Induced	Total
Total	\$352,971	\$92,591	\$84,943	\$530,505
11 Ag, Forestry, Fish & Hunting	\$0	\$22	\$179	\$201
21 Mining	\$0	\$0	\$0	\$0
22 Utilities	\$0	\$1,129	\$661	\$1,789
23 Construction	\$11,363	\$5,304	\$1,221	\$17,888
31-33 Manufacturing	\$0	\$426	\$394	\$820
42 Wholesale Trade	\$0	\$483	\$1,792	\$2,275
44-45 Retail trade	\$9,376	\$1,459	\$17,470	\$28,304
48-49 Transportation & Warehousing	\$237,596	\$23,087	\$2,058	\$262,740
51 Information	\$0	\$2,166	\$868	\$3,033
52 Finance & insurance	\$0	\$1,386	\$2,733	\$4,120
53 Real estate & rental	\$0	\$4,167	\$3,188	\$7,355
54 Professional- scientific & tech svcs	\$0	\$7,707	\$3,258	\$10,966
55 Management of companies	\$0	\$624	\$97	\$722
56 Administrative & waste services	\$0	\$18,138	\$2,864	\$21,002
61 Educational svcs	\$0	\$29	\$571	\$599
62 Health & social services	\$0	\$1	\$30,160	\$30,161
71 Arts- entertainment & recreation	\$25,448	\$314	\$1,458	\$27,220
72 Accommodation & food services	\$69,188	\$3,531	\$7,652	\$80,372
81 Other services	\$0	\$5,144	\$7,069	\$12,213
92 Government & non NAICs	\$0	\$17,474	\$1,249	\$18,724
<i>Multiplier</i>	1.50			

Output

Description	Direct	Indirect	Induced	Total
Total	\$861,878	\$234,433	\$281,490	\$1,377,800
11 Ag, Forestry, Fish & Hunting	\$0	\$125	\$752	\$877
21 Mining	\$0	\$0	\$0	\$0
22 Utilities	\$0	\$7,399	\$4,331	\$11,730
23 Construction	\$25,000	\$11,707	\$3,337	\$40,044
31-33 Manufacturing	\$0	\$2,681	\$3,801	\$6,482
42 Wholesale Trade	\$0	\$1,477	\$5,482	\$6,959
44-45 Retail trade	\$22,944	\$3,351	\$40,723	\$67,017
48-49 Transportation & Warehousing	\$526,294	\$59,148	\$5,237	\$590,679
51 Information	\$0	\$5,476	\$3,191	\$8,667
52 Finance & insurance	\$0	\$13,895	\$31,031	\$44,926
53 Real estate & rental	\$0	\$25,595	\$72,110	\$97,706
54 Professional- scientific & tech svcs	\$0	\$20,753	\$9,042	\$29,795
55 Management of companies	\$0	\$1,872	\$292	\$2,163
56 Administrative & waste services	\$0	\$39,134	\$6,529	\$45,663
61 Educational svcs	\$0	\$89	\$1,397	\$1,486
62 Health & social services	\$0	\$2	\$53,214	\$53,216
71 Arts- entertainment & recreation	\$50,760	\$1,783	\$5,559	\$58,101
72 Accommodation & food services	\$236,880	\$9,647	\$20,857	\$267,384
81 Other services	\$0	\$8,033	\$11,730	\$19,763
92 Government & non NAICs	\$0	\$22,265	\$2,876	\$25,141
<i>Multiplier</i>	1.60			

Taxes

State and Local

Description	Employee Comp.	Proprietor Income	Ind. Bus. Tax	Households	Corporats.
Dividends					\$46
Social Ins Tax- Employee Contribution	\$121				
Social Ins Tax- Employer Contribution	\$214				
Indirect Bus Tax: Sales Tax			\$10,652		
Indirect Bus Tax: Property Tax			\$14,475		
Indirect Bus Tax: Motor Vehicle Lic			\$416		
Indirect Bus Tax: Severance Tax					
Indirect Bus Tax: Other Taxes			\$26,961		
Indirect Bus Tax: S/L Non Taxes			\$12,209		
Corporate Profits Tax					\$2,323
Personal Tax: Income Tax				\$10,934	
Personal Tax: Non Taxes (Fines- Fees				\$1,318	
Personal Tax: Motor Vehicle License				\$381	
Personal Tax: Property Taxes				\$127	
Personal Tax: Other Tax (Fish/Hunt)				\$106	
Total State and Local Tax	\$335		\$64,713	\$12,865	\$2,369

Federal

Description	Employee Comp.	Proprietor Income	Tax on Production and Imports	Households	Corporats
Social Ins Tax- Employee Contribution	\$23,637	\$1,840			
Social Ins Tax- Employer Contribution	\$30,713				
Tax on Production and Imports: Excise Taxes			\$4,341		
Tax on Production and Imports: Custom Duty			\$1,832		
Tax on Production and Imports: Fed NonTaxes			\$0		
Corporate Profits Tax					\$8,596
Personal Tax: Income Tax				\$31,410	
Total Federal Tax	\$54,351	\$1,840	\$6,172	\$31,410	\$8,596

Economic Impact of Summit Airport, New Castle County, DE 2013

Employment

Description	Direct	Indirect	Induced	Total
Total	157.8	42.2	46.3	246.3
11 Ag, Forestry, Fish & Hunting	0.0	0.0	0.0	0.0
21 Mining	0.0	0.0	0.0	0.0
22 Utilities	0.0	0.1	0.1	0.2
23 Construction	6.6	1.5	0.4	8.5
31-33 Manufacturing	0.0	0.0	0.0	0.1
42 Wholesale Trade	0.0	0.2	1.1	1.3
44-45 Retail trade	0.4	0.9	9.6	10.9
48-49 Transportation & Warehousing	130.0	8.3	0.8	139.1
51 Information	0.0	0.6	0.7	1.3
52 Finance & insurance	0.0	2.0	3.5	5.4
53 Real estate & rental	0.0	2.7	3.5	6.1
54 Professional- scientific & tech svcs	5.5	3.6	1.6	10.7
55 Management of companies	0.0	0.7	0.2	0.8
56 Administrative & waste services	2.0	13.4	2.3	17.7
61 Educational svcs	0.0	0.0	1.8	1.8
62 Health & social services	0.0	0.0	10.0	10.0
71 Arts- entertainment & recreation	0.8	0.3	1.5	2.6
72 Accommodation & food services	2.5	1.2	5.3	9.0
81 Other services	0.0	2.6	3.5	6.0
92 Government & non NAICs	10.0	4.2	0.4	14.6
<i>Multiplier</i>	1.56			

Income

Description	Direct	Indirect	Induced	Total
Total	\$6,211,811	\$2,172,807	\$2,028,532	\$10,413,151
11 Ag, Forestry, Fish & Hunting	\$0	\$175	\$57	\$233
21 Mining	\$0	\$1,281	\$14	\$1,295
22 Utilities	\$0	\$14,093	\$18,202	\$32,295
23 Construction	\$448,829	\$100,443	\$26,367	\$575,639
31-33 Manufacturing	\$0	\$3,127	\$2,178	\$5,305
42 Wholesale Trade	\$0	\$20,935	\$102,645	\$123,580
44-45 Retail trade	\$9,253	\$25,040	\$276,361	\$310,654
48-49 Transportation & Warehousing	\$4,327,131	\$359,694	\$39,345	\$4,726,170
51 Information	\$0	\$51,463	\$50,505	\$101,967
52 Finance & insurance	\$0	\$167,578	\$282,070	\$449,649
53 Real estate & rental	\$0	\$45,929	\$45,575	\$91,504
54 Professional- scientific & tech svcs	\$710,797	\$321,819	\$147,977	\$1,180,594
55 Management of companies	\$0	\$87,535	\$21,427	\$108,963
56 Administrative & waste services	\$63,414	\$483,760	\$80,713	\$627,888
61 Educational svcs	\$0	\$584	\$59,392	\$59,976
62 Health & social services	\$0	\$55	\$572,179	\$572,234
71 Arts- entertainment & recreation	\$19,609	\$5,345	\$31,219	\$56,174
72 Accommodation & food services	\$69,182	\$26,655	\$114,841	\$210,677
81 Other services	\$0	\$130,622	\$129,814	\$260,436
92 Government & non NAICs	\$563,597	\$327,026	\$27,764	\$918,386
<i>Multiplier</i>	1.68			

Output

Description	Direct	Indirect	Induced	Total
Total	\$12,707,990	\$4,483,189	\$5,460,676	\$22,651,855
11 Ag, Forestry, Fish & Hunting	\$0	\$101	\$169	\$270
21 Mining	\$0	\$5,055	\$57	\$5,112
22 Utilities	\$0	\$79,744	\$101,916	\$181,659
23 Construction	\$750,000	\$168,589	\$55,826	\$974,415
31-33 Manufacturing	\$0	\$16,582	\$9,504	\$26,086
42 Wholesale Trade	\$0	\$47,047	\$230,678	\$277,725
44-45 Retail trade	\$19,732	\$54,093	\$604,626	\$678,451
48-49 Transportation & Warehousing	\$9,689,068	\$871,849	\$95,299	\$10,656,216
51 Information	\$0	\$252,326	\$251,770	\$504,096
52 Finance & insurance	\$0	\$490,695	\$862,151	\$1,352,846
53 Real estate & rental	\$0	\$349,193	\$1,104,671	\$1,453,864
54 Professional- scientific & tech svcs	\$1,187,065	\$509,454	\$243,165	\$1,939,684
55 Management of companies	\$0	\$148,782	\$36,420	\$185,201
56 Administrative & waste services	\$181,814	\$817,157	\$149,321	\$1,148,291
61 Educational svcs	\$0	\$1,153	\$101,648	\$102,800
62 Health & social services	\$0	\$121	\$959,932	\$960,053
71 Arts- entertainment & recreation	\$43,654	\$15,256	\$92,162	\$151,072
72 Accommodation & food services	\$203,717	\$69,027	\$296,773	\$569,518
81 Other services	\$0	\$174,101	\$208,908	\$383,009
92 Government & non NAICs	\$632,940	\$412,866	\$55,682	\$1,101,488
<i>Multiplier</i>	1.78			

Taxes

State and Local

Description	Employee Comp.	Proprietor Income	Ind. Bus. Tax	Households	Corporats.
Dividends					\$639
Social Ins Tax- Employee Contribution	\$1,737				
Social Ins Tax- Employer Contribution	\$3,079				
Indirect Bus Tax: Sales Tax			\$118,137		
Indirect Bus Tax: Property Tax			\$160,530		
Indirect Bus Tax: Motor Vehicle Lic			\$4,618		
Indirect Bus Tax: Severance Tax					
Indirect Bus Tax: Other Taxes			\$299,014		
Indirect Bus Tax: S/L Non Taxes			\$135,398		
Corporate Profits Tax					\$32,522
Personal Tax: Income Tax				\$224,171	
Personal Tax: Non Taxes (Fines- Fees				\$27,014	
Personal Tax: Motor Vehicle License				\$7,803	
Personal Tax: Property Taxes				\$2,598	
Personal Tax: Other Tax (Fish/Hunt)				\$2,177	
Total State and Local Tax	\$4,815		\$717,696	\$263,763	\$33,161

Federal

Description	Employee Comp.	Proprietor Income	Tax on Production and Imports	Households	Corporats
Social Ins Tax- Employee Contribution	\$415,575	\$53,248			
Social Ins Tax- Employer Contribution	\$539,979				
Tax on Production and Imports: Excise Taxes			\$55,545		
Tax on Production and Imports: Custom Duty			\$23,437		
Tax on Production and Imports: Fed NonTaxes			\$0		
Corporate Profits Tax					\$120,330
Personal Tax: Income Tax				\$643,992	
Total Federal Tax	\$955,555	\$53,248	\$78,982	\$643,992	\$120,330

Economic Impact of Sussex County Airport, DE

(2) Airport-related*

Employment

Description	Direct	Indirect	Induced	Total
Total	425.7	245.8	200.5	872.0
11 Ag, Forestry, Fish & Hunting	-	0.5	1.3	1.8
21 Mining	-	-	-	-
22 Utilities	-	1.3	1.3	2.5
23 Construction	32.4	2.9	1.6	36.9
31-33 Manufacturing	1.3	6.1	4.6	12.0
42 Wholesale Trade	-	5.7	4.7	10.4
44-45 Retail trade	4.0	8.0	52.0	63.9
48-49 Transportation & Warehousing	362.6	36.6	5.7	404.8
51 Information	-	5.0	1.8	6.8
52 Finance & insurance	-	3.9	3.6	7.5
53 Real estate & rental	1.4	11.0	8.9	21.3
54 Professional- scientific & tech svcs	0.2	17.8	4.4	22.4
55 Management of companies	-	0.5	0.2	0.7
56 Administrative & waste services	-	63.2	4.9	68.1
61 Educational svcs	-	-	1.0	1.0
62 Health & social services	-	-	49.6	49.6
71 Arts- entertainment & recreation	1.0	1.0	5.1	7.1
72 Accommodation & food services	6.8	68.3	31.1	106.2
81 Other services	-	2.6	17.9	20.6
92 Government & non NAICs	16.0	11.4	1.0	28.4
<i>Multiplier</i>	2.05			

Income

Description	Direct	Indirect	Induced	Total
Total	\$36,427,526	\$8,131,128	\$6,624,450	\$51,183,103
11 Ag, Forestry, Fish & Hunting	\$0	\$7,142	\$21,750	\$28,892
21 Mining	\$29	\$0	\$0	\$29
22 Utilities	\$0	\$122,326	\$120,058	\$242,385
23 Construction	\$1,125,987	\$122,039	\$65,111	\$1,313,137
31-33 Manufacturing	\$86,275	\$332,912	\$272,318	\$691,504
42 Wholesale Trade	\$0	\$285,145	\$236,720	\$521,865
44-45 Retail trade	\$86,264	\$213,109	\$1,377,638	\$1,677,010
48-49 Transportation & Warehousing	\$34,208,851	\$1,400,001	\$233,532	\$35,842,384
51 Information	\$643	\$254,274	\$87,294	\$342,212
52 Finance & insurance	\$2	\$290,472	\$259,252	\$549,727
53 Real estate & rental	\$28,496	\$283,269	\$215,065	\$526,830
54 Professional- scientific & tech svcs	\$12,886	\$1,020,266	\$258,713	\$1,291,866
55 Management of companies	\$0	\$10,220	\$4,095	\$14,315
56 Administrative & waste services	\$120	\$1,553,830	\$105,387	\$1,659,337
61 Educational svcs	\$0	\$1,145	\$55,732	\$56,876
62 Health & social services	\$0	\$88	\$2,092,594	\$2,092,682
71 Arts- entertainment & recreation	\$25,456	\$14,119	\$118,224	\$157,798
72 Accommodation & food services	\$139,056	\$1,371,342	\$627,896	\$2,138,295
81 Other services	\$0	\$88,317	\$421,102	\$509,418
92 Government & non NAICs	\$713,460	\$761,112	\$51,969	\$1,526,541
<i>Multiplier</i>	1.41			

Output

Description	Direct	Indirect	Induced	Total
Total	\$96,133,703	\$23,114,843	\$20,203,662	\$139,452,209
11 Ag, Forestry, Fish & Hunting	\$0	\$77,052	\$238,179	\$315,231
21 Mining	\$313	\$2	\$2	\$317
22 Utilities	\$0	\$585,157	\$572,419	\$1,157,576
23 Construction	\$3,416,095	\$269,776	\$158,746	\$3,844,618
31-33 Manufacturing	\$280,617	\$1,153,398	\$1,308,384	\$2,742,399
42 Wholesale Trade	\$0	\$709,221	\$588,777	\$1,297,998
44-45 Retail trade	\$190,139	\$467,982	\$3,051,262	\$3,709,381
48-49 Transportation & Warehousing	\$90,461,847	\$5,335,986	\$3,937,098	\$99,734,930
51 Information	\$2,228	\$957,078	\$346,788	\$1,306,094
52 Finance & insurance	\$5	\$929,820	\$910,633	\$1,840,457
53 Real estate & rental	\$187,089	\$1,844,023	\$1,354,392	\$3,385,505
54 Professional- scientific & tech svcs	\$17,497	\$1,658,623	\$426,640	\$2,102,760
55 Management of companies	\$0	\$27,263	\$10,923	\$38,186
56 Administrative & waste services	\$420	\$4,520,464	\$209,845	\$4,730,730
61 Educational svcs	\$0	\$2,025	\$90,853	\$92,878
62 Health & social services	\$0	\$233	\$3,985,031	\$3,985,264
71 Arts- entertainment & recreation	\$77,837	\$33,067	\$340,324	\$451,228
72 Accommodation & food services	\$350,807	\$3,353,180	\$1,548,493	\$5,252,480
81 Other services	\$0	\$244,038	\$1,005,252	\$1,249,290
92 Government & non NAICs	\$825,997	\$946,456	\$119,624	\$1,892,077
<i>Multiplier</i>	1.45			

Taxes

State and Local

Description	Employee Comp.	Proprietor Income	Ind. Bus. Tax	Households	Corporats.
Dividends					\$3,607
Social Ins Tax- Employee Contribution	\$14,418				
Social Ins Tax- Employer Contribution	\$25,559				
Indirect Bus Tax: Sales Tax			\$846,716		
Indirect Bus Tax: Property Tax			\$1,150,555		
Indirect Bus Tax: Motor Vehicle Lic			\$33,100		
Indirect Bus Tax: Severance Tax					
Indirect Bus Tax: Other Taxes			\$2,143,106		
Indirect Bus Tax: S/L Non Taxes			\$970,431		
Corporate Profits Tax					\$183,544
Personal Tax: Income Tax				\$1,305,592	
Personal Tax: Non Taxes (Fines- Fees				\$157,333	
Personal Tax: Motor Vehicle License				\$45,448	
Personal Tax: Property Taxes				\$15,130	
Personal Tax: Other Tax (Fish/Hunt)				\$12,676	
Total State and Local Tax	\$39,977		\$5,143,908	\$1,536,179	\$187,151

Federal

Description	Employee Comp.	Proprietor Income	Tax on Production and Imports	Households	Corporats
Social Ins Tax- Employee Contribution	\$2,819,752	\$221,779			
Social Ins Tax- Employer Contribution	\$3,663,856				
Tax on Production and Imports: Excise Taxes			\$345,044		
Tax on Production and Imports: Custom Duty			\$145,593		
Tax on Production and Imports: Fed NonTaxes			\$0		
Corporate Profits Tax					\$679,095
Personal Tax: Income Tax				\$3,750,660	
Total Federal Tax	\$6,483,608	\$221,779	\$490,637	\$3,750,660	\$679,095

* Tables used the IMPLAN model of 2007 and adjusted for inflation

Economic Impact of Small Private Airports (Chandelle Estates, Jenkins, Smyrna) on State of DE 2013

Employment

Description	Direct	Indirect	Induced	Total
Total	4.0	1.1	1.1	6.3
11 Ag, Forestry, Fish & Hunting	0.0	0.0	0.0	0.0
21 Mining	0.0	0.0	0.0	0.0
22 Utilities	0.0	0.0	0.0	0.0
23 Construction	0.5	0.0	0.0	0.5
31-33 Manufacturing	0.0	0.0	0.0	0.0
42 Wholesale Trade	0.0	0.0	0.0	0.0
44-45 Retail trade	0.0	0.0	0.3	0.3
48-49 Transportation & Warehousing	3.5	0.3	0.0	3.8
51 Information	0.0	0.0	0.0	0.0
52 Finance & insurance	0.0	0.0	0.1	0.1
53 Real estate & rental	0.0	0.1	0.1	0.1
54 Professional- scientific & tech svcs	0.0	0.1	0.0	0.1
55 Management of companies	0.0	0.0	0.0	0.0
56 Administrative & waste services	0.0	0.3	0.1	0.4
61 Educational svcs	0.0	0.0	0.0	0.0
62 Health & social services	0.0	0.0	0.2	0.2
71 Arts- entertainment & recreation	0.0	0.0	0.0	0.0
72 Accommodation & food services	0.0	0.0	0.1	0.2
81 Other services	0.0	0.1	0.1	0.1
92 Government & non NAICs	0.0	0.1	0.0	0.1
<i>Multiplier</i>	1.57			

Income

Description	Direct	Indirect	Induced	Total
Total	\$146,451	\$52,865	\$46,053	\$245,369
11 Ag, Forestry, Fish & Hunting	\$0	\$4	\$64	\$68
21 Mining	\$0	\$49	\$4	\$53
22 Utilities	\$0	\$448	\$563	\$1,011
23 Construction	\$27,561	\$1,979	\$626	\$30,165
31-33 Manufacturing	\$0	\$172	\$179	\$352
42 Wholesale Trade	\$0	\$489	\$2,033	\$2,523
44-45 Retail trade	\$0	\$1,057	\$6,965	\$8,022
48-49 Transportation & Warehousing	\$118,890	\$12,011	\$951	\$131,851
51 Information	\$0	\$957	\$1,014	\$1,970
52 Finance & insurance	\$0	\$3,030	\$5,442	\$8,471
53 Real estate & rental	\$0	\$1,265	\$1,091	\$2,356
54 Professional- scientific & tech svcs	\$0	\$6,845	\$3,102	\$9,946
55 Management of companies	\$0	\$1,678	\$436	\$2,114
56 Administrative & waste services	\$0	\$11,041	\$1,801	\$12,842
61 Educational svcs	\$0	\$10	\$1,100	\$1,110
62 Health & social services	\$0	\$0	\$13,336	\$13,337
71 Arts- entertainment & recreation	\$0	\$117	\$791	\$907
72 Accommodation & food services	\$0	\$519	\$2,853	\$3,372
81 Other services	\$0	\$3,086	\$3,102	\$6,188
92 Government & non NAICs	\$0	\$8,108	\$601	\$8,709
<i>Multiplier</i>	1.68			

Output

Description	Direct	Indirect	Induced	Total
Total	\$313,238	\$114,375	\$131,368	\$558,982
11 Ag, Forestry, Fish & Hunting	\$0	\$17	\$255	\$272
21 Mining	\$0	\$173	\$14	\$187
22 Utilities	\$0	\$2,746	\$3,308	\$6,053
23 Construction	\$50,000	\$3,604	\$1,418	\$55,023
31-33 Manufacturing	\$0	\$2,078	\$1,719	\$3,797
42 Wholesale Trade	\$0	\$1,125	\$4,677	\$5,802
44-45 Retail trade	\$0	\$2,337	\$15,631	\$17,968
48-49 Transportation & Warehousing	\$263,238	\$30,058	\$2,357	\$295,653
51 Information	\$0	\$4,721	\$4,910	\$9,630
52 Finance & insurance	\$0	\$10,247	\$19,324	\$29,571
53 Real estate & rental	\$0	\$7,808	\$27,181	\$34,990
54 Professional- scientific & tech svcs	\$0	\$11,318	\$5,419	\$16,737
55 Management of companies	\$0	\$2,918	\$757	\$3,675
56 Administrative & waste services	\$0	\$19,138	\$3,440	\$22,578
61 Educational svcs	\$0	\$21	\$1,935	\$1,956
62 Health & social services	\$0	\$1	\$22,778	\$22,779
71 Arts- entertainment & recreation	\$0	\$408	\$2,344	\$2,751
72 Accommodation & food services	\$0	\$1,389	\$7,602	\$8,991
81 Other services	\$0	\$4,202	\$5,066	\$9,268
92 Government & non NAICs	\$0	\$10,068	\$1,234	\$11,302
<i>Multiplier</i>	1.78			

Taxes

State and Local

Description	Employee Comp.	Proprietor Income	Ind. Bus. Tax	Households	Corporats.
Dividends					\$14
Social Ins Tax- Employee Contribution	\$57				
Social Ins Tax- Employer Contribution	\$102				
Indirect Bus Tax: Sales Tax			\$2,995		
Indirect Bus Tax: Property Tax			\$4,070		
Indirect Bus Tax: Motor Vehicle Lic			\$117		
Indirect Bus Tax: Severance Tax					
Indirect Bus Tax: Other Taxes			\$7,581		
Indirect Bus Tax: S/L Non Taxes			\$3,433		
Corporate Profits Tax					\$707
Personal Tax: Income Tax				\$5,042	
Personal Tax: Non Taxes (Fines- Fees				\$608	
Personal Tax: Motor Vehicle License				\$176	
Personal Tax: Property Taxes				\$58	
Personal Tax: Other Tax (Fish/Hunt)				\$49	
Total State and Local Tax	\$159		\$18,195	\$5,933	\$720

Federal

Description	Employee Comp.	Proprietor Income	Tax on Production and Imports	Households	Corporats
Social Ins Tax- Employee Contribution	\$9,977	\$826			
Social Ins Tax- Employer Contribution	\$12,964				
Tax on Production and Imports: Excise Taxes			\$1,368		
Tax on Production and Imports: Custom Duty			\$577		
Tax on Production and Imports: Fed NonTaxes			\$0		
Corporate Profits Tax					\$2,614
Personal Tax: Income Tax				\$14,485	
Total Federal Tax	\$22,942	\$826	\$1,945	\$14,485	\$2,614