NORTH DAKOTA ECONOMIC IMPACT OF AVIATION

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INTRODUCTION

In today's global economy, air transportation provides vital links that enable businesses to function efficiently and improve the quality of life for residents of North Dakota. Airports and aviation help to both support and stimulate economic activity throughout the state. The North Dakota Department of Transportation's Division of Aviation completed this study in 2010 to measure the value of airports and aviation-related activity in North Dakota. The statewide economic impact study shows how aviation serves as an economic engine for North Dakota. The study also documents various ways air transportation is used in North Dakota and other benefits that air transportation supports, many of which are found away from airports.

Aviation benefits North Dakota in many ways. Air transportation is essential for business attraction and retention. Airports play a key role in economic development for many communities. In today's time-sensitive environment, air transportation improves overall business efficiency by enabling businesses to improve customer service and the delivery of their products to market. Airports in North Dakota are the gateway to the nation's air transportation system and the world's economy.

Air transportation brings tourists to the state, enabling them to enjoy the open spaces and natural beauty of North Dakota. While there, these visitors spend money locally on food, lodging, and other items in mutually beneficial transactions. Residents of North Dakota use airports for travel, connecting them to family and friends through the convenience of modern air travel.

The primary effort of this study involved identifying the economic benefits associated with the eight commercial service and 81 general aviation airports that serve communities throughout North Dakota. However, there are benefits associated with aviation-related activities that are found beyond the boundaries of the airport. This study estimates the economic benefits of these additional off-airport, yet aviation-related, activities.

Air transportation is not only important to businesses in North Dakota, it also helps to support tourism, agriculture, emergency medical services, the military, and public safety. Airports enable doctors to reach smaller towns in North Dakota, and they facilitate the transfer of patients to larger medical centers. Airports increase accessibility to better health care throughout the state. Aircraft applying pesticides to crops fly from North Dakota airports, both public and private. Airports help to support services which are vital to all citizens in North Dakota. Even if they never use an airport directly, citizens benefit from an improved quality of life that air transportation helps to support. Through simple things such as package delivery and the ability to visit family and friends, aviation in North Dakota helps promote safer, healthier, and more productive lives.

STUDY SUMMARY

The 89 public-use airports in North Dakota are important transportation resources as well as critical economic catalysts. **Figure 1** shows the location of each of these airports. Airports in North Dakota support the air travel needs of North Dakota residents, businesses, and visitors. This report highlights the important economic contributions that North Dakota realizes from its airports by quantifying employment, payroll, and total economic activity. The analysis presented in this report considers the annual economic benefits accrued in 2010 associated with airport operations, on-airport construction, visitors who arrive via commercial airlines, and visitors who arrive on privately-owned general aviation aircraft. These on-airport impacts are reported for each individual airport. These impacts are then broken down by sub-industry segments to give a clearer picture of what parts of the aviation industry make the greatest contribution to North Dakota's economy.

In addition, this study summarizes other benefits attributed to aviation in North Dakota. Some of these benefits are from aviation businesses that operate off-airport and an estimate of their economic benefits is included in this analysis. Other areas of aviation provide benefits that go beyond the economic value associated with jobs, payroll and output. These additional areas that were analyzed are:

Off-Airport Aerospace Manufacturing – North Dakota has a significant number of businesses that support aviation through parts manufacturing, but these businesses are not located on an airport. A survey of these businesses produced an estimate of jobs, payroll, and output.

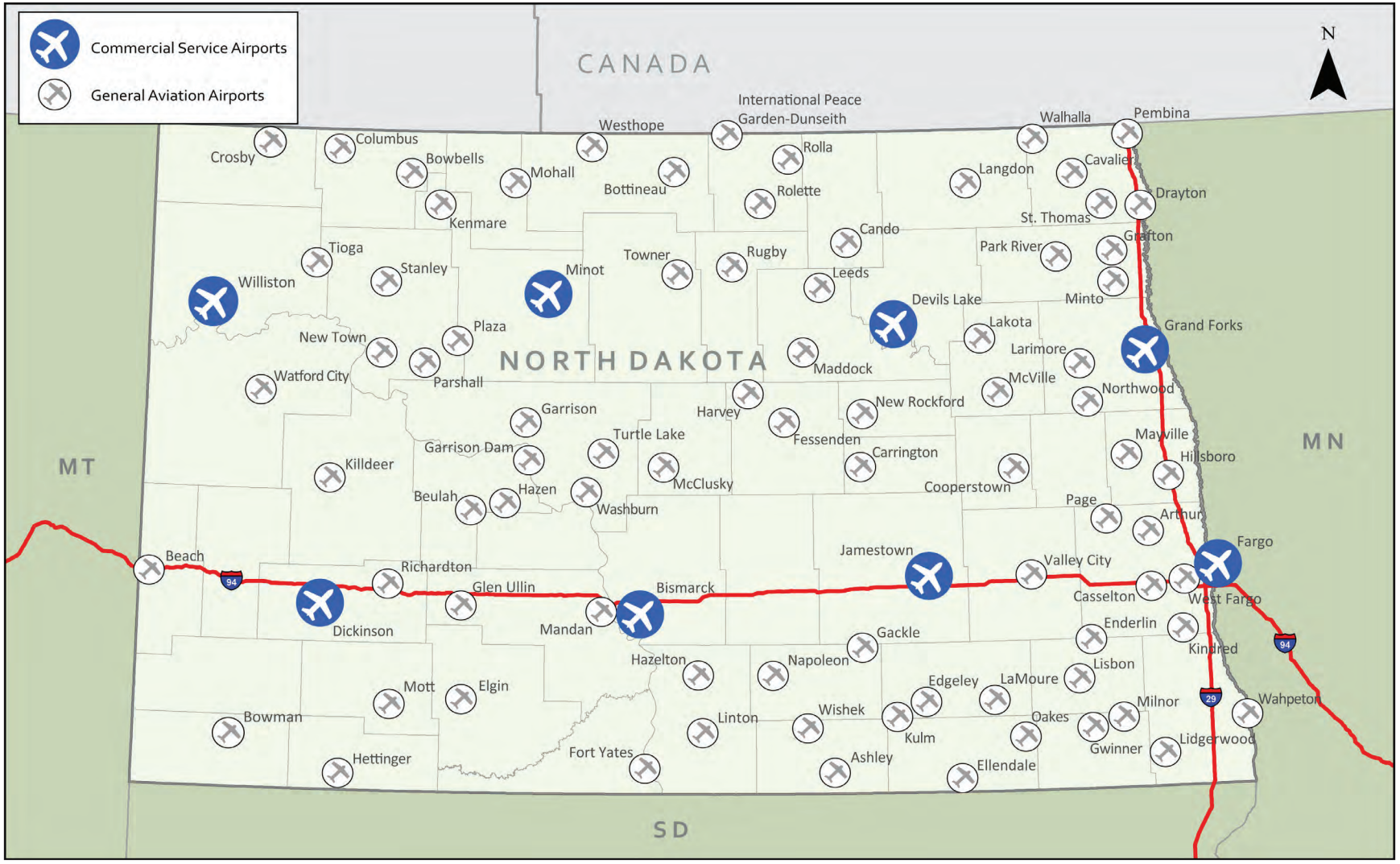
Unmanned Aerial Systems – North Dakota has cultivated an environment for the growth of the unmanned aerial systems (UAS) industry. As a result, a number of businesses that research, design, test, and manufacture UAS have established themselves in North Dakota and expanded their facilities, especially in the Red River Valley Research Corridor along the North Dakota and Minnesota border. Additionally, the North Dakota Air National Guard and U.S. Customs and Border Protection are increasing their use of UAS. As an offshoot of aerospace manufacturing, the impact of these businesses is included in the estimate of impacts for off-airport aerospace manufacturing. However, due to the significant amount of UAS activity in North Dakota, it was deemed worthwhile to examine UAS on its own.

Aerial Application – Most aerial applicators operate from a public airport and the economic benefits they produce were captured in the impacts associated with those airports. In North Dakota, however, there are a significant number of aerial applicators that operate from private airfields. These aerial applicators were identified from the state's list of licensed aerial applicators. They were surveyed in order to develop an estimate of the number of employees, their payroll, and the output these aerial applicators supported.

Travel Agencies – Most travel agencies generate a significant portion of their revenues through airline ticket sales. North Dakota has a number of large travel agencies that are supported by the travel generated by the airline industry. Surveys of North Dakota travel agents obtained data used to estimate the economic impact of travel agencies.

Airport and Heliport Use by Hospitals – Many hospitals depend on aviation to quickly move critically ill or injured patients, deliver drugs and organs, and transport healthcare workers. This analysis examined how hospitals throughout North Dakota make use of local airports and heliports.

Figure 1: North Dakota Airports Included In Economic Impact Analysis



Source: Wilbur Smith Associates

Qualitative Airport Benefits – Airports provide contributions in forms other than jobs, payroll and economic activity. This section highlights some of the airport benefits that are not easily assigned a number value.

These more detailed analyses provide examples of how North Dakota airports improve the livelihoods of the residents of North Dakota, over and above the jobs, payroll, and economic output that they generate.

In 2010, North Dakota's system of public airports was comprised of eight commercial service and 81 general aviation airports. The North Dakota Aeronautics Commission supports the operation and development of these 89 airports through grant funding, inspections, planning studies, education efforts, and communication with local, state, and federal officials. The North Dakota Aeronautics Commission also works closely with various aviation associations, including the North Dakota Aviation Council.

The system of 89 public-use airports generated $1.1 billion of economic activity and supported tens of thousands of quality jobs in 2010. This included expenditures by hundreds of on-airport businesses and hundreds of thousands of visitors, as well as the multiplier effect associated with this spending. In addition, North Dakota residents increasingly depend on civil aviation to support their health, welfare, and safety needs. In brief, the 89 public-use airports included in the system:

- Supported approximately 9,792 jobs
- Generated $365.9 million in annual payroll
- Produced $1.1 billion in annual economic activity

Clearly, the airports of North Dakota are a major catalyst to the state's growing economy. Other findings included:

- Off-airport impacts from aerospace manufacturers, travel agents, and aerial applicators operating from private airfields add another 5,688 jobs, $224 million in payroll, and $560 million in output.
- Airport impacts are fairly well diversified among the various market segments. Visitor spending accounts for the largest segment with just under 20 percent of all airport output. Aerial applicators are the next largest share of airport economic impacts, comprising more than 13 percent of the total.
- The total economic output and associated expenditures from North Dakota's airports and visitors who arrive by air comprised 3.3 percent of the state's 2009 estimated gross domestic product. When off-airport aviation impacts are included, the share of state gross domestic product related to aviation increases to 5.1 percent.

- North Dakota's airports serve as vital business links and support critical services such as medical care, agriculture support, search and rescue, law enforcement, recreation, and environmental services.

Table 1 lists the total employment, payroll, and output for the 89 North Dakota study airports. These economic benefits include impacts from on-airport businesses and government agencies, spending by visitors using commercial airlines and general aviation, and the induced impacts resulting from the re-circulation of money spent by all of the aforementioned activities.

Table 1: Total Economic Impacts for North Dakota Airports

Associated City	Airport Name	Total Employment	Total Payroll	Total Output
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	1,572	$58,286,900	$161,326,100
Devils Lake	Devils Lake Regional	99	$3,157,600	$9,677,400
Dickinson	Dickinson-Theodore Roosevelt Regional	204	$5,867,600	$17,138,800
Fargo	Hector International	4,001	$170,003,100	$425,131,500
Grand Forks	Grand Forks International	1,888	$68,870,800	$207,265,400
Jamestown	Jamestown Regional	121	$3,676,400	$13,104,300
Minot	Minot International	732	$22,757,900	$70,559,200
Williston	Sloulin Field International	255	$7,765,800	$26,781,200
COMMERCIAL SERVICE AIRPORTS TOTAL		**8,872**	**$340,386,100**	**$930,983,900**
GENERAL AVIATION AIRPORTS				
Arthur	Arthur	Less than 1	$5,200	$27,100
Ashley	Ashley Municipal	10	$272,300	$1,168,400
Beach	Beach	1	$43,600	$122,500
Beulah	Beulah	32	$981,300	$4,544,000
Bottineau	Bottineau Municipal	13	$366,100	$2,193,600
Bowbells	Bowbells Municipal	Less than 1	$5,200	$27,000
Bowman	Bowman Municipal	16	$261,000	$1,027,500
Cando	Cando Municipal	6	$145,900	$858,500
Carrington	Carrington Municipal	11	$281,500	$1,746,900
Casselton	Casselton Robert Miller Regional	47	$1,337,300	$6,457,600
Cavalier	Cavalier Municipal	16	$398,800	$3,306,700
Columbus	Columbus Municipal	Less than 1	$5,400	$27,400
Cooperstown	Cooperstown Municipal	6	$158,000	$811,400
Crosby	Crosby Municipal	12	$369,700	$2,379,700
Drayton	Drayton Municipal	7	$194,400	$1,189,300
Edgeley	Edgeley Municipal	6	$136,300	$775,200
Elgin	Elgin Municipal	Less than 1	$5,300	$27,200
Ellendale	Ellendale Municipal	3	$83,800	$246,300
Enderlin	Sky Haven	2	$73,000	$271,900
Fessenden	Fessenden Municipal	14	$414,600	$2,784,700
Fort Yates	Standing Rock	10	$290,700	$1,099,500
Gackle	Gackle Municipal	Less than 1	$5,200	$27,000
Garrison	Garrison Municipal	6	$235,900	$1,114,400
Garrison Dam	Garrison Dam Recreational Airpark	1	$2,000	$3,900
Glen Ullin	Glen Ullin Regional	Less than 1	$23,800	$88,200
Grafton	Hutson Field	36	$997,000	$3,740,900
Gwinner	Gwinner-Roger Melroe Field	19	$289,000	$970,000

Associated City	Airport Name	Total Employment	Total Payroll	Total Output
Harvey	Harvey Municipal	26	$797,600	$5,202,200
Hazelton	Hazelton Municipal	12	$342,500	$2,283,000
Hazen	Mercer County Regional	8	$150,200	$807,000
Hettinger	Hettinger Municipal	21	$597,800	$2,258,300
Hillsboro	Hillsboro Municipal	30	$713,900	$4,001,900
International Peace Garden-Dunseith	International Peace Garden	2	$27,300	$88,900
Kenmare	Kenmare Municipal	7	$191,700	$1,032,000
Killdeer	Weydahl Field	Less than 1	$6,200	$30,700
Kindred	Hamry Field	35	$1,208,700	$4,370,800
Kulm	Kulm Municipal	Less than 1	$7,800	$36,600
Lakota	Lakota Municipal	4	$105,900	$402,000
LaMoure	LaMoure Rott Municipal	11	$354,200	$2,174,500
Langdon	Robertson Field	14	$404,700	$2,642,600
Larimore	Larimore Municipal	26	$783,700	$5,140,500
Leeds	Leeds Municipal	Less than 1	$5,600	$28,500
Lidgerwood	Lidgerwood Municipal	Less than 1	$2,400	$9,500
Linton	Linton Municipal	8	$229,600	$1,286,100
Lisbon	Lisbon Municipal	12	$396,200	$2,018,300
Maddock	Maddock Municipal	11	$367,700	$2,038,500
Mandan	Mandan Municipal	31	$1,003,600	$4,390,900
Mayville	Mayville Municipal	16	$429,600	$1,749,000
McClusky	McClusky Municipal	1	$15,600	$16,200
McVille	McVille Municipal	Less than 1	$1,700	$7,900
Milnor	Milnor Municipal	Less than 1	$6,500	$32,000
Minto	Minto Municipal	Less than 1	$8,000	$34,200
Mohall	Mohall Municipal	22	$665,200	$3,849,800
Mott	Mott Municipal	17	$432,800	$1,373,400
Napoleon	Napoleon Municipal	6	$177,100	$872,900
New Rockford	Tomlinson Field	8	$233,100	$1,561,900
New Town	New Town Municipal	1	$41,400	$217,600
Northwood	Northwood Municipal-Vince Field	7	$193,800	$1,045,000
Oakes	Oakes Municipal	7	$201,600	$1,348,600
Page	Page Regional	17	$501,100	$4,141,000
Park River	Park River-W C Skjerven Field	24	$681,500	$1,978,000
Parshall	Parshall-Hankins	4	$97,600	$475,100
Pembina	Pembina Municipal	6	$161,700	$596,600
Plaza	Trulson Field	Less than 1	$5,400	$27,400
Richardton	Richardton	0	$0	$3,400
Rolette	Rolette	Less than 1	$4,100	$13,600
Rolla	Rolla Municipal	16	$620,200	$2,515,800

Associated City	Airport Name	Total Employment	Total Payroll	Total Output
Rugby	Rugby Municipal	16	$351,400	$2,846,600
St. Thomas	St. Thomas Municipal	6	$171,700	$1,096,600
Stanley	Stanley Municipal	5	$133,900	$714,300
Tioga	Tioga Municipal	17	$463,300	$1,923,400
Towner	Towner Municipal	3	$113,500	$760,500
Turtle Lake	Turtle Lake Municipal	Less than 1	$2,600	$8,800
Valley City	Barnes County Municipal	31	$636,700	$4,274,000
Wahpeton	Harry Stern	94	$2,615,700	$11,585,200
Walhalla	Walhalla Municipal	13	$298,500	$3,709,400
Washburn	Washburn Municipal	6	$145,200	$655,600
Watford City	Watford City Municipal	21	$511,600	$3,003,600
West Fargo	West Fargo Municipal	24	$457,600	$2,004,100
Westhope	Westhope Municipal	Less than 1	$2,200	$8,500
Wishek	Wishek Municipal	Less than 1	$11,800	$43,000
GENERAL AVIATION AIRPORTS TOTAL		**920**	**$25,473,300**	**$131,772,600**
ALL AIRPORTS TOTAL		**9,792**	**$365,859,400**	**$1,062,756,500**

Note: Airports with less than one employee represent part-time work by one or more people.
Sources: Wilbur Smith Associates and RIMS II multipliers.
Prepared: December 2010.

A more detailed breakout of this information can be found in the appendix at the end of this report.

SOCIOECONOMIC OVERVIEW OF NORTH DAKOTA

The magnitude of the economic impact of North Dakota's airports is linked to the demand that is generated within the state for aviation services. While some amount of air traffic will be tied to the state's tourism activities, much of the growth in aviation activity in North Dakota is driven by its residents and businesses. As population, employment, and income levels rise in the state, demand for airline travel, air cargo shipments, personal flying, and other aviation-related activities also rises. This section will inventory North Dakota's general economic characteristics.

Population

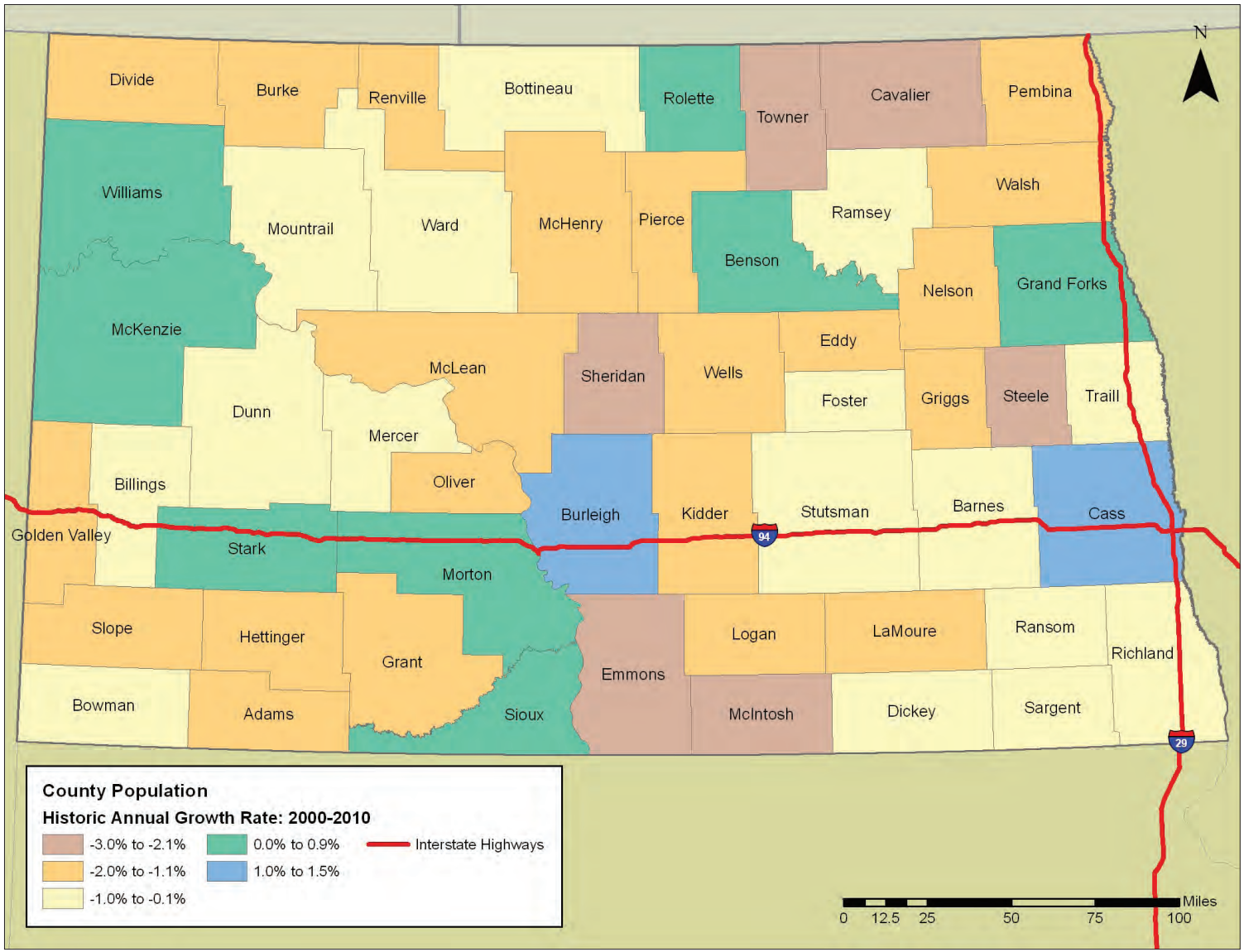
In terms of population, North Dakota is among the smaller states in the U.S. In 2000, the U.S. Census Bureau reported that North Dakota had a population of 641,183. By 2010, the population had grown to 672,591, representing an average annual growth rate of approximately 0.5 percent. Compared to national trends, North Dakota's population growth lags significantly. From 2000 to 2010, the U.S. population grew at an average annual growth rate of 0.9 percent. North Dakota's slow population growth is reflected at the county level, where only 10 out of the state's 53 counties showed an increase in population over the past decade. **Figure 2** illustrates population growth rates for North Dakota by county from 2000 to 2010. As can be seen in the figure, the fastest growing counties are those counties with large cities, such as Cass County (Fargo), and Burleigh County (Bismarck).

Future population projections based on U.S. Census data indicate that the population growth trends experienced from 2000 to 2010 will slow even more. North Dakota's population as a whole is expected to grow at an average annual rate of only 0.2 percent from 2010 to 2020. The national population is expected to grow at an annual rate of 1.0 percent. Even though North Dakota's population growth is expected to slow over the next decade, it is expected to distribute that slow growth more evenly among its counties than has occurred historically.

From 2010 to 2020, North Dakota is projected to show positive growth in 22 of its 53 counties. As in the past decade, future population growth is expected to be highest in counties with large cities, such as Cass County and Burleigh County. **Figure 3** shows population growth rate forecasts for North Dakota by county from 2010 to 2020. Counties expected to see the largest declines in population are concentrated in the southeast part of the state, and in west central parts of the state.

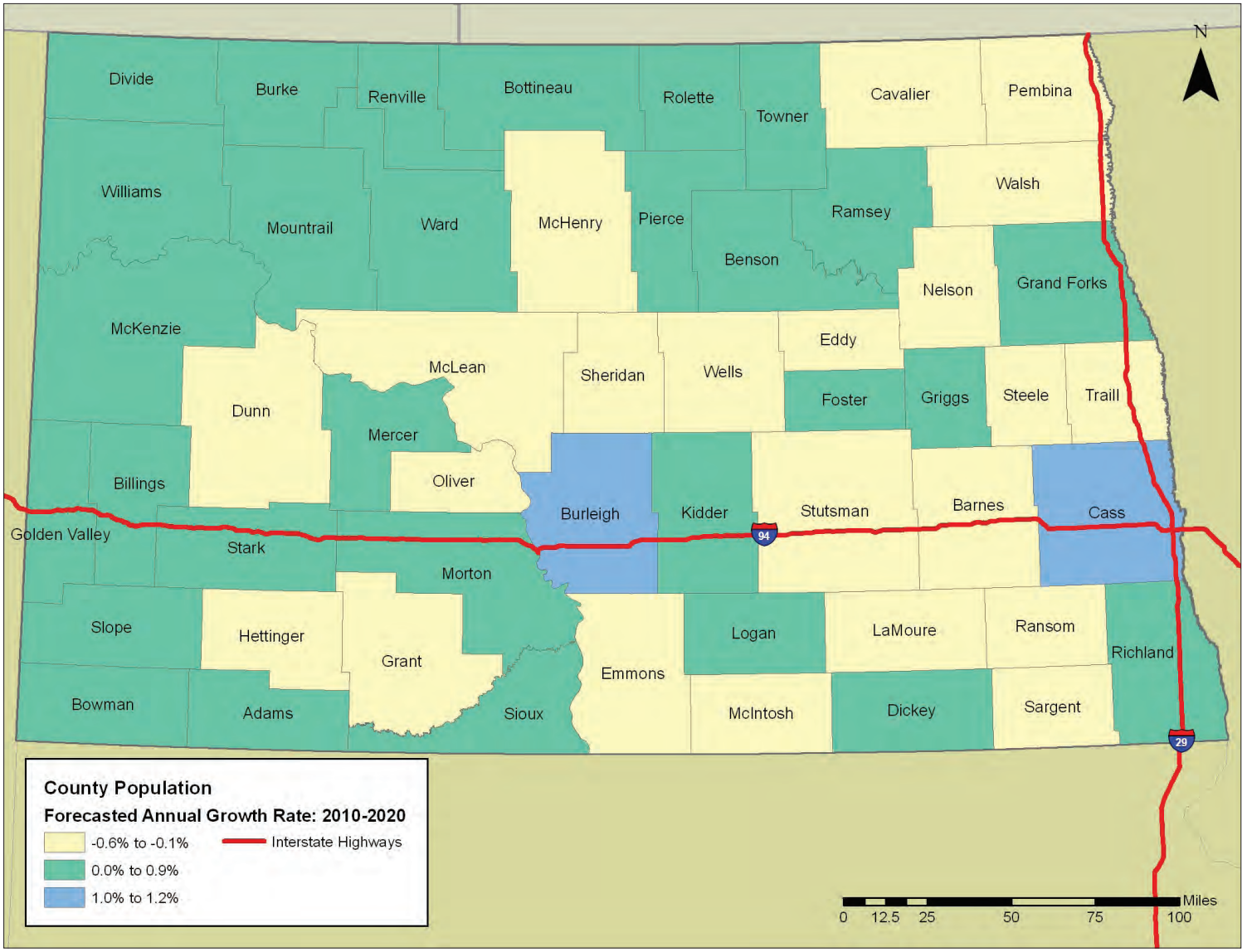
Despite North Dakota's slow growth population, it has thrived financially, as illustrated in the following sections that examine several economic measures of the state.

Figure 2: 2000-2010 North Dakota Population Growth



Source: Wilbur Smith Associates; U.S. Census Bureau

Figure 3: 2010-2020 North Dakota Population Growth Forecast



Source: Wilbur Smith Associates; U.S. Census Bureau; Woods & Poole Economics, Inc.

Gross State Product And Industry Mix

North Dakota's Gross State Product (the state equivalent of Gross Domestic Product) in 2009 was nearly $31.9 billion. This was an increase of 6.7 percent annually from $17.8 billion in 2000.

By comparison, the national Gross Domestic Product grew 4.1 percent annually during the same period. The economy of North Dakota is relatively diversified as no single industry, with the exception of government, represents more than 10 percent of the gross state product.

Historically, a major sector of North Dakota's economy has been agriculture, driven by the global demand for grain and food exports. The major crops raised in North Dakota include sunflower seeds, barley, and wheat. Energy is also a major part of North Dakota's economy. The Bakken Formation in the western part of the state is a focal point for oil extraction and exploration efforts. Wind energy is also a developing industry in North Dakota, thanks to the state's open areas.

Government is the largest sector of North Dakota's economy, as local, state, and federal governments constitute more than 14 percent of the gross state product, as shown in **Table 2**. The next largest sectors are agriculture and health care, both of which contribute 8.4 percent to North Dakota's economy. Trade, in the form of wholesale and retail, add 6.9 percent and 6.7 percent to the state's gross domestic product.

Durable goods manufacturing rounds out those industries in North Dakota that comprise more than 6 percent of the state's gross product, with 6.4 percent. Aerospace plays a major role in the productivity of durable goods manufacturing, as several large aviation corporations have manufacturing facilities in North Dakota, including Goodrich Cargo Systems; Killdeer Mountain Manufacturing, an aircraft parts manufacturer; and Cirrus Design, producer of high performance, four-seat, single-engine aircraft.

Table 2: North Dakota Gross State Product by Industry For 2008

Industry	Gross State Product (In Millions)	Percent
Agriculture, Forestry, Fishing, and Hunting	$2.7	8.4%
Mining	$1.0	4.0%
Utilities	$0.9	2.7%
Construction	$1.4	4.5%
Durable Goods Manufacturing	$1.6	6.4%
Non-durable Goods Manufacturing	$1.1	2.7%
Wholesale Trade	$2.4	6.9%
Retail Trade	$2.0	6.7%
Transportation and Warehousing	$1.4	4.6%
Information	$1.0	3.2%
Finance and Insurance	$2.2	5.3%
Real Estate, Rental, and Leasing	$3.5	8.1%
Professional and Technical Services	$1.1	3.4%
Management of Companies	$0.3	1.0%
Administrative and Waste Service	$0.5	1.6%
Educational Services	$0.1	0.4%
Health Care and Social Assistance	$2.7	8.4%
Arts, Entertainment, and Recreation	$0.1	0.5%
Accommodation and Food Services	$0.8	2.4%
Other Services	$0.8	2.1%
Government	$4.4	14.1%
TOTAL	**$31.9**	**100.0%**

Source: US Bureau of Economic Analysis, December 2010.

Employment

In 2009, the workforce in North Dakota totaled 491,889 workers. This was an increase of 1.2 percent annually from the 2000 level of 443,449 employees. This growth in jobs was double that of the national annual average growth rate of 0.6 percent. **Table 3** presents employment in North Dakota categorized by industry for the year 2009.

Despite the recent economic woes that have driven the 2009 national unemployment rate to 9.3 percent, workers are in demand in North Dakota, as indicated by the state's 2009 unemployment rate of 4.3 percent, the lowest of any state in the country. The most recent data for November 2010 indicates that the hiring trend in North Dakota has continued, with the state's unemployment rate dropping to 3.8 percent, while the national unemployment rate rose to 9.8 percent.

Part of this growth is the result of North Dakota's focus on expanding agriculture, advanced manufacturing, technology-based businesses, energy, and tourism.[1] Aviation has a role in all of these industries, from crop dusting operations, to research and development of unmanned aerial systems (UAS), to providing transportation for everyone from oil exploration workers to tourists.

[1] *What's North Dakota's Secret*, June 30, 2009, Forbes.com

Table 3: North Dakota Employment by Industry For 2009

Industry	Employment	Percent
Agriculture, Forestry, Fishing, and Hunting	35,131	7.1%
Mining	9,531	1.9%
Utilities	3,481	0.7%
Construction	28,980	5.9%
Durable Goods Manufacturing	16,187	3.3%
Non-durable Goods Manufacturing	8,649	1.8%
Wholesale Trade	21,309	4.3%
Retail Trade	53,131	10.8%
Transportation and Warehousing	15,769	3.2%
Information	8,425	1.7%
Finance and Insurance	24,961	5.1%
Real Estate, Rental, and Leasing	15,571	3.2%
Professional and Technical Services	19,173	3.9%
Management of Companies	4,389	0.9%
Administrative and Waste Service	16,741	3.4%
Educational Services	5,178	1.1%
Health Care and Social Assistance	58,767	11.9%
Arts, Entertainment, and Recreation	7,138	1.5%
Accommodation and Food Services	32,871	6.7%
Other Services	24,701	5.0%
Government	81,806	16.6%
TOTAL	**491,889**	**100%**

Source: US Bureau of Economic Analysis, December 2010

Per Capita Personal Income

Personal income can be used as an indication of how much people will spend on the consumption of goods and services, including aviation. It can be assumed that the greater the amount of income, the greater the purchasing power one has. Per capita personal income for the state of North Dakota was approximately $25,100 in 2000, and grew to an estimated $40,800 by 2010. The change in this figure represents an annual growth rate of 5.0 percent. By comparison, per capita personal income for the U.S. as a whole grew at a 3.4 percent annual growth rate. The state's focus on developing and attracting industries with higher average pay, such as UAS firms, is largely responsible for the state's per capita income growing faster than the national average.

North Dakota's estimated per capita income of $40,800 in 2010 was slightly behind the national average of $41,800. This would indicate that continued emphasis on high tech business with above average paying jobs, many of which are found in the aviation industry, would result in North Dakota's per capita income continuing to grow faster than the national average.

In summary, North Dakota has a population that is growing slower than the national average. However, it is a population that is expected to have greater job opportunities than other states, and experience rising pay scales. This will likely result in an expanding economy for North Dakota and its citizens, one that can be expected to grow faster than the national average.

STUDY APPROACH

The total economic impact of each airport in this analysis is quantified in terms of employment, payroll, and output. Output represents total spending or economic activity and accounts for the total value of aviation-related activities supported by the airports included in this analysis. This section presents the economic impact of the airports in terms of three aviation-dependent groups:

- Airport operations and on-airport activities
- Visitors traveling to North Dakota via commercial airlines
- Visitors traveling to/within North Dakota via general aviation aircraft

Airport operations and on-airport activities, as well as North Dakota visitors, are responsible for a significant percentage of the economic activity or benefit associated with the airports. However, other aspects of aviation make significant contributions to the state's economy.

Several industry sectors that are not based on airports but still rely on aviation create economic benefits. These industries are off-airport aerospace manufacturing, off-airport aerial applicators, and travel agencies. Surveys were sent to these businesses to estimate the economic impact they provide in North Dakota.

Many hospitals routinely use aviation to provide health services. A survey of North Dakota hospitals was performed as part of this study to qualitatively assess how those hospitals use aviation, their local airports and any helipad associated with the hospital.

The Economic Modeling Process

All economic impacts from the 89 airports considered in this analysis were calculated using an input-output model. The input-output model considers economic benefits associated with on-airport activities, commercial service visitors, and general aviation visitors arriving at the airports. Impacts are discussed as:

First Round Impacts – First round impacts include benefits associated with businesses located at the airport, which are directly related to the provision of general aviation services. These impacts include the employment, payroll, and spending of businesses such as fixed base operators (FBOs), flight schools, aircraft repair facilities, and on-airport government entities, including airport management and operations staff. Capital expenditures are also included in first round impacts.

First round impacts also occur as a result of air travel (both scheduled commercial and general aviation), but generally take place off-airport. These impacts are attributed to the expenditures of visitors who arrive in North Dakota by air. Visitor expenditures support employment and payroll in service-related industries such as lodging, food and beverage, retail, and entertainment. Certain visitor spending for aviation-related goods and services (such as avgas purchases by visiting general aviation pilots) is not accounted for in the visitor expenses. Instead, it is included in the appropriate FBO's economic impacts.

Secondary Impacts – Secondary impacts consist of induced impacts. Induced impacts are the benefits resulting from the re-circulation of on-airport and visitor spending impacts within the economy. This re-circulation is typically referred to as the multiplier effect. For example, as airport employees spend their salary for housing, food, and services, those expenditures circulate through the economy resulting in increased spending, payroll, and employment throughout North Dakota. As this money is spent over and over again, some of it leaks beyond the boundaries of North

Dakota, and thus no longer benefits the state's citizens. The economic model uses parameters specific to North Dakota to estimate the leakage effect associated with these secondary impacts.

Total Impacts – Total impacts are the sum of all first round (on-airport and visitor spending) and secondary (induced) economic activities attributable to an airport or the system of airports.

The Regional Input-Output Modeling System (RIMS II) model was used to measure the multiplier effect and to quantify induced impacts. An input-output model, in its most basic form, is a linear model that estimates purchases and sales between various sectors of the economy. This modeling process is considered to be one of the leading methods available for estimating the total economic impact of an industry (in this case, airports). The U.S. Bureau of Economic Analysis (BEA) initially developed the RIMS system in the 1970s. BEA updated the model in the 1980s, calling it RIMS II. It is now considered one of the standard methods for evaluating the economic contribution of public facilities.

The RIMS II model contains a large economic database that is used to generate input-output tables. RIMS II multipliers and data tables specific to North Dakota's industrial sectors were obtained and used in this analysis. The RIMS II input-output model used for this analysis requires impact estimates for three separate components of the economy. These categories are:

Employment – Employment is based on the total of full-time jobs plus part-time jobs. In this analysis, two part-time positions are the equivalent of a single full-time position.

Payroll – Payroll represents the annual salary, wages, and benefits paid to all employees.

Economic Output (Spending) – Output for on-airport activities is typically assumed to be the sum of annual gross sales and average annual capital expenditures. While this assumption works well for profit-oriented tenants, it must be modified for organizations that do not generate sales, such as government tenants or corporate flight departments. In order to estimate the impact of these important tenant-related activities, output is assumed to be the sum of payroll, operating expenditures, and average annual capital improvement outlays. While airlines do generate sales, ticket revenue is usually transferred outside the area being modeled. This makes it difficult to assign that revenue to specific airports, so airlines are treated in a manner similar to organizations that do not generate sales. For visitors using an airport, output is assumed to equal visitor spending.

It is important to note that payroll and output cannot be combined because elements of economic benefit related to payroll are also contained, to some extent, in the output estimate. Each of the three impact components (employment, payroll, and output) stands alone as a measure of an airport's or the airport system's total economic impact.

Data Requirements For The Economic Modeling Process

A number of data collection efforts were undertaken to gather information related to economic activity occurring at the North Dakota airports considered in this analysis. These data were inputs to the modeling process to identify total economic impacts. The following groups were part of the data gathering effort to estimate first round impacts:

Airport Operations – This group includes airport tenants that are businesses with employees, such as airlines, FBOs, flight schools, concessionaires, airport restaurants, and governmental agencies. Governmental agencies include public airport sponsors, Federal Aviation Administration (FAA), as well as various other state and federal agencies.

Commercial Service Visitors – This group includes estimated non-local passengers (visitors) arriving via commercial airlines. Average visitor spending for this group was estimated from passenger surveys conducted for this analysis at all eight of North Dakota's commercial service airports, along with data from other economic impact studies.

General Aviation Visitors – Impacts from general aviation visitors are produced by non-local passengers arriving via private or business aircraft. General aviation visitors are associated with that portion of each airport's itinerant general aviation operations that are transient (or visiting) in nature. Itinerant operations are those that leave the airport's local airspace. Some itinerant operations at an airport are attributable to residents of the airport's market area who fly their planes to more distant locations and subsequently return to their home airport. The remaining itinerant operations are attributed to visitors. Itinerant operations performed by visitors are considered transient operations. Impacts for this group were estimated using survey data from airports across North Dakota.

Construction Impacts – Each year, airports undertake capital improvement projects (CIP), such as runway rehabilitation or terminal improvements. In addition, businesses and other agencies undertake capital improvement projects. These projects employ persons in jobs such as construction, architecture, engineering, and consulting. For this analysis, construction impacts are included in the first round impact category. The following steps were used to estimate construction impacts:

1. CIP data for 2008-2010 was gathered from airport managers as well as aviation-related businesses and government agencies located on each airport.
2. CIP data for the period was averaged to avoid showing peaks or troughs in construction activity.
3. The RIMS II model indicates that every $1 million spent annually on construction activity supports approximately 9.5 construction-related jobs in North Dakota. These jobs include construction workers, equipment operators, foremen, engineers, architects, and managers.
4. Data from the U.S. Bureau of Labor Statistics was used to determine average pay for construction workers in North Dakota, and this average was applied to each construction-related employee to determine payroll related to CIP activity.

First round economic impacts presented in this report were estimated primarily through surveys undertaken specifically to support this study. RIMS II multipliers were then applied to first round impacts to estimate subsequent secondary economic impacts.

Surveys, Data Collection Methods, And Model Assumptions

The model requires an extensive data gathering effort in order to estimate first round impacts. Those efforts and their results are explained, along with the assumptions needed to arrive at first round impacts.

The methods used to collect information from each group considered in the first round impacts are discussed in the ensuing sections, followed by an explanation of the secondary impacts resulting from the re-circulation of the first round impacts.

Airport Operations And On-Airport Activities

Airport sponsors/owners were contacted to provide names, mailing addresses, and telephone numbers for each airport tenant. All airport tenant/businesses having aviation-related employees on North Dakota airports during 2010 were contacted to collect information regarding their economic activity. Since the purpose of this study was to measure the economic impacts of each North Dakota airport, a distinction was made between those on-airport tenants that depended on the airport and those that did not. For example, an insurance business located on an airport would not be designated as aviation-related since an insurance business does not need an airport to operate. A survey was provided to each aviation-related tenant and follow-up calls were made to obtain responses and to verify information on returned surveys. Airport tenants at each airport were grouped into 24 categories to aid in analysis. These categories consisted of:

- Airlines (passenger only)
- Aerial applicators
- Air ambulances
- Air cargo
- Aircraft maintenance
- Airport management (subdivided into large and small airports based on employment)
- Air traffic control (this was subdivided into public, i.e., FAA, and private ATC)
- Charter
- Concessions
- Corporate flight departments
- FBOs (this was subdivided into small and large FBO categories based on employment)
- Federal government (not including ATC or TSA)
- Flight instruction (this was subdivided into independent flight schools and those associated with colleges/universities)
- Ground transportation
- Hangar rental/development
- Military
- Parking
- Rental car
- State/local government
- Transportation Security Administration

The survey sent to each airport tenant, including airport sponsors/managers, requested the following information:

- Type of aviation activity conducted by the business/tenant
- Number of full-time and part-time employees
- Estimated total annual wages and benefits paid to employees in 2010
- Estimated total capital improvement expenditures for each year, 2008 through 2010
- Estimated total operating expenses (excluding payroll and capital improvements previously

identified) for 2010

- Estimated total gross sales (where applicable) by the business on the airport in 2010

In addition, on-airport entities were asked to identify any businesses that sub-lease property from them so that they could be included in the analysis.

A high response rate was desired for the airport tenant/business survey. Several rounds of follow-up telephone calls were made to non-responding entities and to airport managers to obtain the greatest response rate possible for on-airport employment. For airport tenant/businesses who did not supply complete information on payroll, expenses, output, and CIP, estimates were developed using ratios of payroll, expenses, output, and CIP per employee. These ratios were developed from survey data obtained from those tenants and businesses who did respond to the survey. For those categories of tenants that did not have sufficient North Dakota data to provide reliable averages, additional data was used from economic studies conducted in nearby states.

For purposes of estimating secondary impacts, airport tenants were classified into one of three categories (aviation, concession, and government), based upon the nature of their business. This was done to facilitate subsequent RIMS II modeling of secondary impact multipliers. For this analysis, a set of aviation multipliers was used for airlines, aircraft maintenance, FBOs, air cargo, flight schools, and corporate flight departments. Retail, food and beverage, car rental, and parking tenants had a set of concession multipliers applied to estimate secondary impacts. Government related entities, including military units, received their own set of multipliers for estimating secondary impacts. Impacts stemming from construction projects were broken out from each tenant so a set of construction-related multipliers could be used before adding those impacts back into the on-airport benefits.

Commercial Service Visitors

Airline flights to and from North Dakota's commercial service airports provide access for business- and leisure-related visitors. Visitors using commercial service airports as a gateway to the state contribute to the economy through their expenditures for food, lodging, entertainment, transportation, retail sales, and other goods and services. Numerous service industries also benefit from the multiplier or spin-off effects stemming from visitor spending. North Dakota is home to eight commercial service airports. The busiest airports in Bismarck and Fargo provide air service to many destinations, such as major hubs in Denver and Minneapolis. The smaller communities of Devils Lake, Dickinson, and Jamestown have more limited airline service subsidized through the FAA's Essential Air Service program. The cities of Grand Forks, Minot, and Williston serve their region with commercial service, with Minot providing air transportation for many military members serving on the air force base.

The spending patterns of commercial service visitors to North Dakota were estimated based on the results of departing passenger surveys at each of the eight commercial service airports. More than 1,000 passengers were surveyed, with responses coming from each airport proportional to the number of enplaned passengers.

During passenger surveys, departing passengers were interviewed prior to boarding and asked several questions. Departing passengers were first asked to indicate whether they were a resident of the airport area or a visitor. Those passengers who indicated that they were visitors were asked several questions to determine the following:

- The purpose of their trip (e.g., business, personal, military)
- Duration of their stay
- Total expenditures during their stay in each of the following categories: lodging, food and beverage, rental car or taxi, retail, entertainment/recreation, and other
- The total number of people that accounted for the expenditure estimates they identified

For each commercial service airport, the following methodology was used to estimate commercial service visitor impacts.

Airport managers estimated enplanements for 2010 using data through July of 2010. The percentage of visiting passengers was estimated for each airport, using a sampling of FAA origin and destination data from 2009. This data for each airport is shown in **Table 4**. Visiting passengers ranged from 39 percent at Grand Forks International Airport to 59 percent at Dickinson-Theodore Roosevelt Regional Airport.

Table 4: Enplanements & Percent Visitors at North Dakota Commercial Service Airports - 2010

Associated City	Enplanements	Percent Visitors	Visitors
COMMERCIAL SERVICE AIRPORTS			
Bismarck	190,000	42%	79,040
Devils Lake Regional	4,300	52%	2,249
Dickinson-Theodore Roosevelt Regional	10,000	59%	5,910
Hector International	370,000	40%	147,630
Grand Forks International	113,280	39%	44,519
Jamestown Regional	4,300	41%	1,767
Minot International	74,500	46%	33,898
Sloulin Field International	14,439	55%	7,970
TOTAL	**780,819**	**41%**	**322,983**

Source: NDAC records and FAA O&D data.
Prepared: September 2010.

Using survey data gathered from departing airline passengers at each North Dakota commercial service airport, average length of stay and average daily expenditures (less rental car expenditures, which are captured in the on-airport impacts of the rental car companies) were estimated for each airport. These estimates were applied to the number of annual visitors for each airport to determine total economic activity (or output) generated by commercial airline visitors on an annual basis.

The following example demonstrates the calculations used to estimate commercial service visitor impacts. For ease of reading, rounded numbers are used and any variation in calculations are the result of rounding.

> An estimated 113,280 enplaned passengers flew out of Grand Forks International Airport during 2010. Passenger survey data indicates that 39.3 percent of these enplanements were visitors to the area, or approximately 44,520 visitors travelled through Grand Forks International Airport.

113,280 enplanements x 39.3 percent visitors = 44,520 visitors

Survey data from Grand Forks International Airport provided an estimated average spending of $220 per visitor during their stay. This average was used to calculate visitors' annual spending (or output) of approximately $9.8 million.

44,520 visitors x $220 per visitor per stay = $9.8 million

In order to estimate employment associated with commercial service visitor expenditures, North Dakota specific employment ratios per $1 million of visitor output were developed using the RIMS II model. It was estimated that approximately 19.4 persons were employed in North Dakota as result of every $1 million in commercial service visitor output. That results in an estimated 190 visitor-related jobs associated with the spending by visitors arriving via Grand Forks International Airport on commercial airlines.

$9.8 million x 19.4 ÷ $1,000,000 = 190 jobs

In order to estimate payroll impacts associated with employment supported by commercial service visitors, average state wages for appropriate industry sectors were applied to the estimated number of employees supported by commercial airline visitor spending. Most visitor expenditures take place in the hotel/motel, food/beverage, entertainment, retail, and transportation sectors. Based on data obtained from the U.S. Bureau of Labor Statistics, an average payroll of $21,400 per employee in North Dakota was assumed for these job categories.

190 jobs x $21,400 = $4.1 million annual payroll

The same calculation was used for each commercial service airport, using the average expenditure per visitor per trip as appropriate. Detailed tables showing the commercial service visitor impacts at each commercial service airport can be found in the appendix at the end of this report.

General Aviation Visitors

General aviation refers to all segments of aircraft activity that are not related to the commercial airlines or the military. Visitors to North Dakota use general aviation aircraft to enjoy both the leisure opportunities available in North Dakota as well as to conduct business.

The North Dakota Aeronautics Commission supports the Fly North Dakota Airports Passport Program that encourages pilots to visit all airports in the state while also promoting aviation safety and history.

The economic activity produced by general aviation visitors in North Dakota was determined by surveying transient pilots and passengers. Surveys were delivered to FBO managers throughout the state system of airports. The survey requested the following information:

- The airport where the survey was received
- The number of travelers in the aircraft

- The type of aircraft
- The purpose of the trip
- The length of stay in the airport area
- The estimated expenditures during the trip
- Where the aircraft is based
- The approximate number of annual trips in general aviation aircraft made by the pilot for business, pleasure, and training purposes
- Further comments regarding the value of the North Dakota aviation system to the pilot and his or her business

This survey data was used to develop an estimate of visitor expenditures. These estimates included the average number of visitors per aircraft, and the average expenditure per visitor per trip. Recognizing that these averages vary at different types of airports, North Dakota's airports were grouped into one of four categories based initially on the airport's classification in the state system plan. Survey data within each group of airports was used to estimate the average number of visitors per arriving aircraft, how long those visitors stayed, and how much each spent during their stay.

Some airports were then shifted to a category with higher spending averages based on the presence of significant oil, wind, or other energy enterprises in the area. Certain airports were identified as providing access to popular hunting areas or lodges and were shifted to categories with higher average visitor spending.

Data from the state's most recent system plan were used to develop estimates at each airport of itinerant aircraft operations, which are operations by aircraft coming from another airport. Since many of these operations are aircraft that are returning to their home base, an estimate of true transient aircraft was needed. It was assumed that between 33 percent and 50 percent of itinerant aircraft operations were true transients, depending upon the airport, based on reviews with NDAC staff. Together, all of these estimates were used to assess the level of general aviation visitor spending at each airport as illustrated in the following example.

> Harry Stern Airport in Wahpeton was estimated to have approximately 5,900 itinerant operations in 2010, or 2,950 annual itinerant arrivals (since it is assumed that all arrivals have a corresponding departure). Furthermore, it was assumed that 50 percent of these itinerant arrivals were true transient arrivals, or:
>
> 2,950 itinerant arrivals x 50 percent = 1,475 transient arrivals.
>
> Transient pilot survey data for the group of airports including Harry Stern provided estimates of the average number of visitors per aircraft, including the pilot (2.5 visitors), and the average spending ($50 per visitor per trip). These averages were used to calculate the total annual visitors (3,688 visitors) and the impacts of those visitors spending in the region around Harry Stern, or approximately $184,375 per year. It should be noted that visitor spending does not include purchases on the airport. For example, FBO services or fuel purchases are removed from this calculation. These are included in the direct impacts associated with each on-airport tenant.
>
> 1,475 transient arrivals x 2.5 visitors per arrival = 3,688 visitors
>
> 3,688 visitors x $50 per visitor = $184,375 annual spending by visitors to Harry Stern Airport

To determine payroll and employment impacts resulting from this visitor spending (or output), multiplier ratios based on $1 million of output were used. In other words, ratios developed by the input-output model indicate that for every $1 million of general aviation visitor output, approximately 23.0 full-time positions in other industries are created. Most of these jobs are in the service and retail sectors. Visitors using general aviation at Harry Stern Airport would then support approximately 4.2 full-time positions.

$184,375 x 23.0 jobs ÷ $1,000,000 = 4.2 jobs

The average annual statewide salary for service/retail industries ($21,400) was then applied to the estimate of employment to calculate the payroll impacts associated with general aviation visitors. In this example, visitor-related payroll created by the 4.2 full-time positions is estimated to total approximately $86,200

4.2 jobs x $21,400 = $90,600 annual payroll

The operational and visitor impact data for each study airport can be found in the appendix at the end of this report.

Study Multipliers – Secondary Impacts

Employment, payroll, and output impacts derived from on-airport businesses/tenants and activities, as well as visitors, comprise each airport's first round economic impacts. As these impacts enter the economy, they circulate among other sectors, creating a secondary impact of additional spending beyond the first round. This phenomenon is referred to the multiplier effect.

Multiplier effects arise from various interdependencies within an economic system. For example, the operation of an airport requires inputs in the form of supplies, equipment, and maintenance. These inputs generate a boost in sales for those businesses providing these services and products. Moreover, the goods and services themselves require inputs for their production. The process continues as a large number of impacts re-circulate through the economy. The total requirement for goods and services is the multiple of the initial needs of the airports considered in this analysis; hence it is referred to using the term "multiplier."

Multipliers for estimating secondary impacts were derived from the RIMS II model. The multipliers used in this analysis were developed specifically to measure the economic impacts that occur within different sectors of the North Dakota economy. **Table 5** summarizes the multipliers used for modeling the secondary impacts of on-airport activities and visitor spending.

Table 5: North Dakota RIMS II Multipliers by Economy Sector

Economy Sector	Employment Multiplier	Payroll Multiplier	Output Multiplier
Government	1.96	1.77	1.77
Construction C.I.P. (Note 1)	1.64	1.51	1.64
Concessions (Note 2)	1.28	1.52	1.61
Aviation (Note 3)	2.22	1.75	1.64
Commercial Service Visitor Expenditures (Note 4)	1.34	1.57	1.62
General Aviation Visitor Expenditures (Note 4)	1.27	1.57	1.65

Sources: Wilbur Smith Associates and RIMS II multipliers.
Notes:
1. Construction multipliers are the weighted average of the Construction; Architectural, Engineering, and Related Services; and Commercial and Industrial Machinery and Equipment Repair and Maintenance multipliers.
2. Concessions multipliers are the weighted average of the Retail Trade; Business Support Services; Hotels and Motels, including Casino Hotels; and Food Services and Drinking Places multipliers.
3. Aviation multipliers are the weighted average of the Aircraft Manufacturing; Aircraft Engine and Engine Parts Manufacturing; Other Aircraft Parts and Auxiliary Equipment Manufacturing; and Air Transportation multipliers.
4. Visitor expenditures multipliers are the weighted average of the Retail Trade; Automotive Equipment Rental and Leasing; Hotels and Motels, including Casino Hotels; and Food Services and Drinking Places multipliers. Weightings were different for commercial service and general aviation visitor multipliers to reflect the difference in their spending habits.

Prepared: December 2010.

The multipliers presented in Table 5 were used to estimate secondary impacts in this analysis. For example, $100 in first round expenditures (output) in the aviation sector supports a total output impact equivalent to $164. In this example, secondary impacts would be $64 ($164 minus $100).

The methodology discussed in this section was applied to each of the study airports. By following this methodology, estimates of total employment, annual payroll, and annual output/spending associated with each airport were developed.

EMPLOYMENT, PAYROLL, AND OUTPUT IMPACTS FOR STUDY AIRPORTS

The airports in this analysis help to accommodate the travel needs of business and leisure visitors to North Dakota. The airports themselves are also significant generators of economic activity. Airports help to support jobs, payroll, and output for North Dakota's economy. The following sections discuss economic impacts associated with employment, annual payroll, and total annual economic activity (output) for study airports. The combined impact of all of North Dakota's 89 airports is shown in each section. Detailed tables showing the impacts of each individual airport can be found in the appendix at the end of this report.

Employment Impacts

The findings of this analysis indicate that airports in North Dakota are an important source of jobs. Employment, as defined in this analysis, is based on estimates where part-time jobs are treated as half of a full-time job. Employment impacts are calculated for on-airport businesses/tenants and for visitor-related spending. On-airport activity includes private businesses and government agencies. For on-airport military units with an aviation-related mission, their employment was also considered. Spending for capital improvement projects (CIP) and other improvement and construction projects also contributes to on-airport employment.

Employment from On-Airport Activity

Table 6 identifies the total number of jobs supported by on-airport aviation-related tenants and businesses at system airports. These jobs comprise those people who are engaged in the provision of aviation-related services on the airport, such as aircraft fuel sales, aircraft maintenance, flight training, aircraft manufacturing, and charter services. In the case of the North Dakota Air National Guard at Hector International, the full and part-time military personnel associated with aviation-related activities were included, with the substantial number of drilling reservists treated as part-time employees. In addition, construction workers supported by airport CIPs were included in this analysis.

In total, there are 3,377 first round jobs supported by the operation of North Dakota's airports. It is important to note that this employment estimate does not include jobs associated with non-aviation businesses which, for various reasons, are located on an airport. For instance, some airports have industrial or business parks that include companies that are not related to the airport or aviation in any way. Additionally, businesses were not included if they were not on airport property. The most significant example of this is the Goodrich Cargo Systems facility in Jamestown, which is not inside the airport fence and not included among the on-airport impacts.[2] Employment related to these businesses is not included in the employment estimate shown in Table 6.

Table 6: North Dakota On-Airport Employment

	First Round Employment	Secondary Employment	Total Employment
Commercial Service Airports On-Airport Employment	2,945	2,796	5,741
General Aviation Airports On-Airport Employment	432	409	841
TOTAL ON-AIRPORT EMPLOYMENT	**3,377**	**3,205**	**6,582**

Source: Wilbur Smith Associates and RIMS II multipliers.
Prepared: December 2010.

Secondary impacts are those jobs that are created by multiplier effects stemming from first round jobs associated with tenants and businesses at North Dakota's airports. For example, an employee of a fuel distributor may owe a portion of his job to an airport since the distributor sells fuel to the airport's FBO. As a result of on-airport tenant activity, additional secondary employment is created. Secondary impacts associated with the day-to-day operation of North Dakota's airports add 3,205 positions to the economy. When first round and secondary employment is considered, North Dakota's airport tenants contributed 6,582 jobs to North Dakota's employment base. Of this total, 5,741 jobs are associated with the commercial service airports and 841 jobs are associated with the general aviation airports.

Employment from Commercial Service Visitor Spending

Visitors arriving via commercial airlines spend money, which supports jobs beyond those found at the airport. **Table 7** identifies the number of employees in North Dakota whose jobs are supported by the spending of visitors arriving on commercial airlines via North Dakota's eight airports with commercial service.

[2] The Goodrich Cargo Systems impacts are included in the off-airport aerospace manufacturing analysis, found later in this report.

Table 7: North Dakota Employment from Commercial Service Visitor Spending

	First Round Employment	Secondary Employment	Total Employment
Commercial Service Visitor Employment	2,033	684	2,717

Sources: Wilbur Smith Associates and RIMS II multipliers.
Prepared: December 2010.

As previously discussed, it is possible to calculate visitor spending, and subsequently, the number of jobs supported by visitors. First round jobs supported by visitor spending are attributed to a variety of sectors; however, most of the jobs are concentrated in the hotel/motel, restaurant, leisure and entertainment, and retail sectors.

There are an estimated 2,033 first round jobs directly supported by commercial service visitor spending. Secondary impacts include those jobs that exist due to the multiplier effect. Secondary impacts result in 684 additional positions supported by the spending of commercial service visitors. When first round and secondary visitor-related employment impacts are combined, approximately 2,717 jobs are supported by spending from visitors to North Dakota who arrive via the commercial airlines.

Employment from General Aviation Visitor Spending

Similar to visitors using commercial airline service, intra-state and inter-state visitors using general aviation aircraft typically spend money while visiting, thereby helping to support additional employment. **Table 8** identifies the number of North Dakota jobs supported by spending from visitors using general aviation aircraft to travel to the state.

Table 8: North Dakota Employment from General Aviation Visitor Spending

	First Round Employment	Secondary Employment	Total Employment
Commercial Service Airport General Aviation Visitor Employment	323	91	414
General Aviation Airport Visitor Employment	63	16	79
TOTAL GENERAL AVIATION VISITOR EMPLOYMENT	**386**	**107**	**493**

Source: Wilbur Smith Associates and RIMS II multipliers.
Prepared: December 2010.

First round jobs associated with general aviation visitor spending are usually found off-airport and are attributed to a variety of sectors; however, most of these jobs are concentrated in the hotel/motel, restaurant, recreational and entertainment, and retail sectors. As a result of general aviation visitor expenditures in North Dakota, there are 386 first round jobs supported in North Dakota.

Secondary employment includes those jobs that exist due to continued circulation (multiplier impact) of general aviation visitor expenditures. Secondary impacts result in 107 additional jobs. When first round and secondary general aviation visitor-related employment impacts are combined, 493 jobs are supported by the spending of visitors using general aviation aircraft in North Dakota.

Total Employment

Table 9 identifies the total number of jobs supported by activities at study airports. As a result of on-airport activities and spending by visitors using the study airports, there are 5,796 first round

jobs. The multiplier effect (secondary impact) adds 3,996 additional jobs. In total, 9,792 jobs are supported in North Dakota by aviation-related operators, businesses, and visitors to the study airports.

Table 9: North Dakota Total Airport Employment

	Total First Round Employment	Total Secondary Employment	Total Employment
Commercial Service Airport Employment	5,301	3,571	8,872
General Aviation Airport Employment	495	425	920
TOTAL EMPLOYMENT	**5,796**	**3,996**	**9,792**

Source: Wilbur Smith Associates and RIMS II multipliers.
Prepared: December 2010.

Payroll Impacts

Employment linked to study airports results in a significant annual payroll benefit to North Dakota's economy. Payroll impacts relate to the previously identified employment associated with on-airport businesses and their activities, commercial service visitor spending, and general aviation visitor spending.

Payroll from On-Airport Activity

Table 10 identifies annual payroll benefits associated with on-airport activity at each of the study airports.

Table 10: North Dakota On-Airport Activity Payroll

	First Round Payroll	Secondary Payroll	Total Payroll
Commercial Service Airports On-Airport Payroll	$ 151,254,500	$ 109,971,000	$ 261,225,500
General Aviation Airports On-Airport Payroll	$ 13,914,400	$ 9,412,300	$ 23,326,700
TOTAL ON-AIRPORT PAYROLL	**$ 165,168,900**	**$ 119,383,300**	**$ 284,552,200**

Sources: Wilbur Smith Associates and RIMS II multipliers.
Prepared: December 2010.

Payroll supported by airport construction projects, and on-airport payroll from the North Dakota Air National Guard at Hector International are also included.

This study shows that first round annual payroll impacts are nearly $165.2 million. This payroll impact ripples throughout the North Dakota economy, creating secondary payroll impacts that can be measured through the RIMS II model. The secondary annual payroll impact related to on-airport tenants and businesses at the study airports, estimated through the RIMS II multipliers, is approximately $119.4 million. Total payroll impacts produced by airports, which include first round and secondary annual payroll, are approximately $284.6 million annually.

Payroll from Commercial Service Visitor Spending

Table 11 identifies the annual payroll impact attributed to employees whose jobs are supported by spending by commercial service visitors using the study airports.

Table 11: North Dakota Annual Payroll from Commercial Service Visitor Spending

	First Round Payroll	Secondary Payroll	Total Payroll
Commercial Service Visitor Payroll	$43,506,200	$24,810,200	$68,316,400

Sources: Wilbur Smith Associates and RIMS II multipliers.
Prepared: December 2010.

First round payroll consists of wages and benefits paid to employees working at restaurants, hotels/motels, retail businesses, and other service industries that are used by commercial service visitors. First round annual payroll attributable to spending by commercial service visitors is estimated at more than $43.5 million.

As employees in the service industries spend their earnings, the money continues to circulate in North Dakota, generating additional employment and subsequent payroll. Annual secondary payroll impacts associated with commercial service visitor-supported employment are estimated at more than $24.8 million. When first round and secondary annual payroll impacts stemming from commercial service visitor spending in North Dakota are combined, a total annual payroll impact in excess of $68.3 million is produced.

Payroll from General Aviation Visitor Spending

Table 12 identifies the payroll impacts attributed to spending by visitors using general aviation to reach North Dakota.

Table 12: North Dakota Annual Payroll from General Aviation Visitor Spending

	First Round Payroll	Secondary Payroll	Total Payroll
Commercial Service Airport Payroll	$ 6,922,300	$ 3,921,900	$ 10,844,200
General Aviation Airport Payroll	$ 1,370,000	$ 776,600	$ 2,146,600
TOTAL GENERAL AVIATION VISITOR PAYROLL	**$ 8,292,300**	**$ 4,698,500**	**$ 12,990,800**

Sources: Wilbur Smith Associates and RIMS II multipliers.
Prepared: December 2010.

First round payroll includes salaries paid to employees working in visitor-related businesses and other service industries that are utilized by general aviation visitors. First round annual payroll attributable to spending by general aviation visitors is estimated at approximately $8.3 million.

As employees in the visitor-related industries spend their payroll, this spending continues to circulate, generating additional employment and subsequent payroll. The secondary annual payroll impact associated with general aviation visitor spending is estimated at approximately $4.7 million. When first round and secondary payroll impacts stemming from general aviation visitor spending are combined, a total payroll impact of approximately $13.0 million is produced.

Total Annual Payroll

The combined benefits of airport businesses/tenants, on-airport activities, commercial service visitor, and general aviation visitor-related payroll in North Dakota is identified in **Table 13**. The collective first round annual payroll impact supported by the study airports is nearly $217.0 million. With approximately $148.9 million in secondary annual payroll benefits, nearly $365.9 million in total annual payroll is realized in North Dakota as a result of visitor spending and on-airport activity associated with the study airports.

Table 13: North Dakota Airports Total Annual Payroll

	Total First Round Payroll	Total Secondary Payroll	Total Payroll
Commercial Service Airport Payroll	$201,683,000	$138,703,100	$340,386,100
General Aviation Airport Payroll	$15,284,400	$10,188,900	$25,473,300
TOTAL PAYROLL	**$216,967,400**	**$148,892,000**	**$365,859,400**

Sources: Wilbur Smith Associates and RIMS II multipliers.
Prepared: December 2010.

Output Impacts

Output, or economic activity, is defined as annual gross sales and average annual capital expenditures for on-airport businesses and activities. The exceptions are organizations such as corporate flight departments and government agencies that do not generate revenue. Airlines are also exceptions since it is difficult to attribute revenues to specific airports. Output for these types of organizations is defined as the sum of annual capital expenditures, payroll, and operating expenses. Output related to commercial service and general aviation visitors is defined as expenditures made during their visits. Annual economic output benefiting North Dakota's economy is discussed in this section.

Output from On-Airport Activity and Businesses

Table 14 identifies first round, secondary, and total annual output for all on-airport activities. As aviation-related businesses and government entities located on each study airport spend money, these expenditures ripple through North Dakota's economy. For example, if an airport were to improve or expand its terminal to provide additional services, money would be spent on construction materials, labor, and other services.

Table 14: North Dakota On-Airport Activity Output

	First Round Output	Secondary Output	Total Output
Commercial Service Airports On-Airport Output	$ 436,833,500	$ 300,567,100	$ 737,400,600
General Aviation Airports On-Airport Output	$ 77,169,900	$ 49,989,600	$ 127,159,500
TOTAL ON-AIRPORT OUTPUT	**$ 514,003,400**	**$ 350,556,700**	**$ 864,560,100**

Sources: Wilbur Smith Associates and RIMS II multipliers.
Prepared: December 2010.

Total first round annual output from on-airport businesses and activities is estimated in excess of $514.0 million. Secondary airport related output or spending impacts are estimated using RIMS II multipliers and the RIMS II model. Secondary annual output is estimated at $350.6 million. When first round and secondary impacts are combined, the total annual output for the study airports attributed to the airports approaches $864.6 million.

Output from Commercial Service Visitor Spending

Table 15 identifies the output attributed to commercial visitor spending.

Table 15: North Dakota Output from Commercial Service Visitor Spending

	First Round Output	Secondary Output	Total Output
Commercial Service Visitor Output	$104,954,600	$65,320,000	$170,274,600

Sources: Wilbur Smith Associates and RIMS II multipliers.
Prepared: December 2010.

First round output is comparable to total annual visitor expenditures. First round output from commercial service visitor spending is estimated at approximately $105.0 million. As the service industries re-spend this output, the spending continues to circulate resulting in secondary impacts. Secondary annual impacts related to commercial service visitor output or spending are estimated at more than $65.3 million. In total, the combined annual output from commercial service visitor spending approaches $170.3 million.

Output from General Aviation Visitor Spending

Table 16 identifies the output attributed to general aviation visitors flying in and out of airports in North Dakota. First round annual output is comparable to all general aviation visitor expenditures at these airports and is estimated at almost $16.9 million.

Table 16: North Dakota Output from General Aviation Visitor Spending

	First Round Output	Secondary Output	Total Output
Commercial Service Airport Output	$ 14,090,400	$ 9,218,300	$ 23,308,700
General Aviation Airport Output	$ 2,789,100	$ 1,824,000	$ 4,613,100
TOTAL GENERAL AVIATION VISITOR OUTPUT	**$ 16,879,500**	**$ 11,042,300**	**$ 27,921,800**

Sources: Wilbur Smith Associates and RIMS II multipliers.
Prepared: December 2010.

As the service industries re-spend first round output, money continues to circulate, resulting in secondary impacts. The secondary impacts related to general aviation visitor output are estimated at more than $11.0 million each year. The total annual output from spending by visitors arriving via general aviation visitors at North Dakota's airports is approximately $27.9 million.

Total Annual Output

The total combined annual output related to on-airport activities and commercial service and general aviation visitor spending is presented in **Table 17**. First round annual output measures more than $635.8 million. Secondary output impacts are estimated in excess of $426.9 million annually. Combined first round and secondary output from airport activities, visitors, and the multiplier effect produce a total annual output estimate of approximately $1.1 billion for North Dakota's economy which comprises 3.3 percent of North Dakota's estimated gross domestic product of $31.9 billion.

Table 17: North Dakota Airports Total Annual Output

	Total First Round Output	Total Secondary Output	Total Output
Commercial Service Airport Output	$555,878,500	$375,105,400	$930,983,900
General Aviation Airport Output	$79,959,000	$51,813,600	$131,772,600
TOTAL OUTPUT	**$635,837,500**	**$426,919,000**	**$1,062,756,500**

Sources: Wilbur Smith Associates and RIMS II multipliers.
Prepared: December 2010.

The $1.1 billion of economic output from North Dakota's airports are the result of a multitude of aviation market segments working together to provide the infrastructure and services needed to keep North Dakota's aviation operations working smoothly. The next section examines these aviation submarkets in more detail.

AVIATION MARKET SEGMENT ANALYSIS

The economic impacts found at each of North Dakota's airports come from a variety of sectors in the aviation industry. For purposes of analysis, the total impacts, including secondary impacts, for all of North Dakota's 89 airports were allocated to one of 13 market segments:

- Aerial Applicators
- Air Ambulance
- Air Cargo
- Aircraft Maintenance
- Airlines
- Airport Management
- Concession
- Corporate Flight Departments
- FBOs
- Flight Instruction
- Government
- Military
- Visitors

Table 18 shows the total impacts in terms of employment, payroll, and output for each of these market segments. These impacts include all first round and secondary impacts.

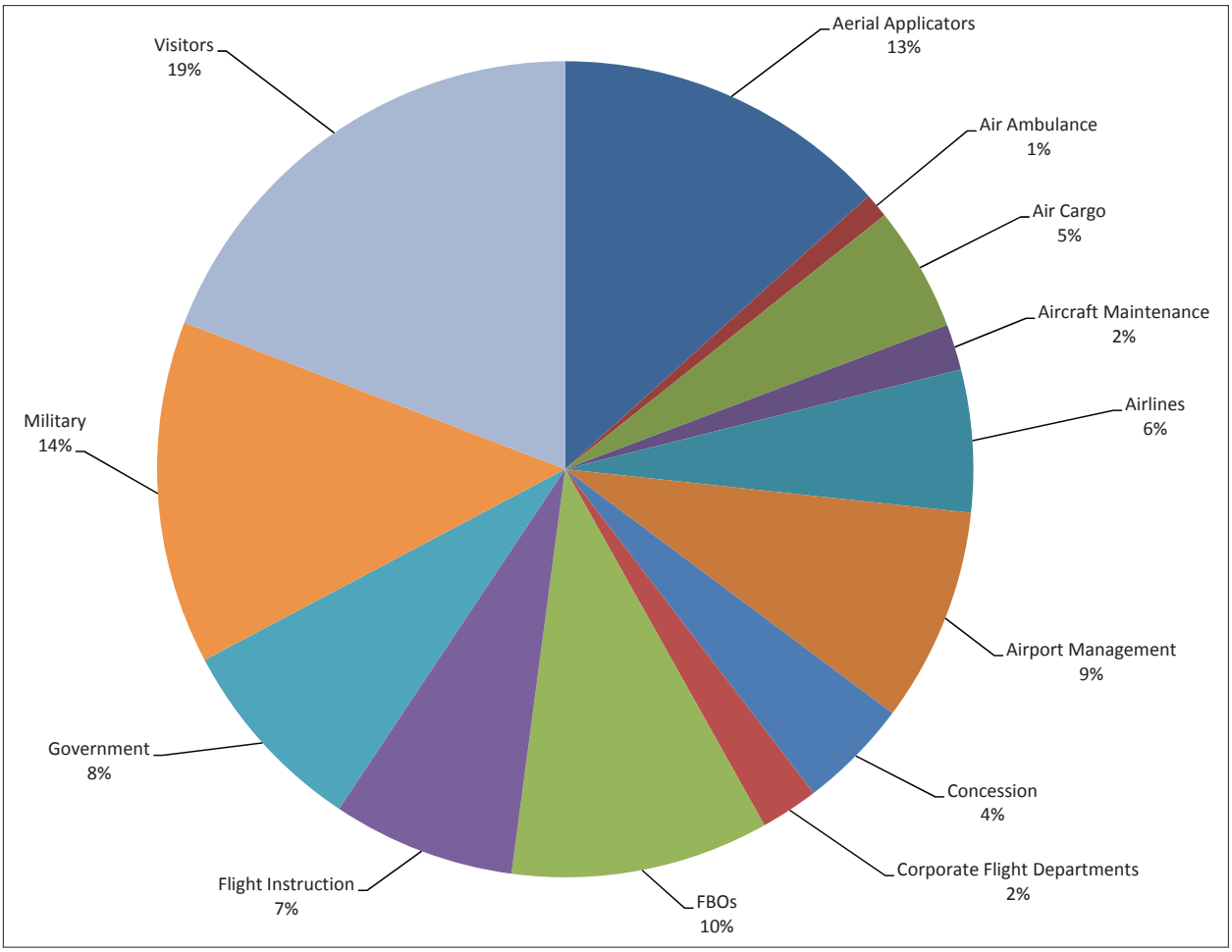
Table 18: North Dakota Airport Total Impacts by Market Segment

Market Segment	Total Employment[1]	Total Payroll	Total Output
Aerial Applicators	552	$24,491,400	$142,545,700
Air Ambulance	57	$2,522,100	$10,353,500
Air Cargo	339	$13,354,700	$52,935,400
Aircraft Maintenance	144	$5,358,300	$19,398,800
Airlines	429	$19,823,800	$60,296,400
Airport Management	803	$25,748,800	$90,757,400
Concession	228	$7,734,100	$47,037,800
Corporate Flight Departments	160	$7,363,500	$24,496,200
FBOs	673	$20,750,800	$109,271,700
Flight Instruction	711	$22,178,400	$77,527,300
Government	859	$48,499,500	$84,489,400
Military	1,627	$86,726,800	$145,450,500
Visitors	3,210	$81,307,200	$198,196,400
AIRPORT IMPACT TOTALS	**9,792**	**$365,859,400**	**$1,062,756,500**

Sources: Wilbur Smith Associates and RIMS II multipliers.
[1]Includes multiplier impacts.
Prepared: December 2010.

Overall, the aviation industry in North Dakota is fairly well diversified, with most segments comprising less than 10 percent of the total output, and the largest segment – Visitors – making up less than 20 percent of the total output, as shown in **Figure 4**.

Figure 4: Percentage of Airport Economic Output by Market Segment



Source: Wilbur Smith Associates; RIMS II multipliers. Prepared: December 2010.

A more detailed discussion of each segment follows.

Aerial Applicators

Data was gathered on the state's aerial applicators through both an on-airport survey effort and a review of the state's list of licensed aerial applicators. Comparing the results helped determine which aerial applicators operate from private airfields so that their off-airport impacts could be estimated separately, as detailed later in this report.

The data was also useful in corroborating how many acres of crops were sprayed by aerial applicators working in North Dakota. It is estimated that in 2010, approximately 2.8 million acres of crops in North Dakota had some type of aerial application applied. Every year, aerial applicators spray crops in North Dakota with pesticides to impede crop-damaging diseases, insects, and weeds. The expense associated with applying chemicals by air is usually substantial, which explains why aerial applicators contribute more than 13 percent to the total airport economic output, making it the third largest market segment, behind visitors and the military.

This category also includes the economic benefits associated with cloud seeding operations, such as Weather Modification, Inc. Cloud seeding companies benefit farmers by using aircraft to deliver

seeding agents to clouds that help to reduce hail and increase rainfall. Limiting hail reduces crop damage, while more rainfall, at the proper time during the growing season, helps crops grow and increases yields.

Air Ambulance

Out of all the aviation market segments in North Dakota, air ambulance services provide the smallest economic impact in terms of employment, payroll, and output. However, as shown later in this report, many of the benefits of aviation cannot be quantified in these terms. Air ambulances save lives by rapidly delivering critically injured patients to trauma centers. They make medical facilities available to patients that otherwise would be unable to get to them. Air ambulances deliver organs in a timely manner, making transplants possible for patients. These are benefits that go well beyond the jobs, payroll and output associated with North Dakota's air ambulance companies and greatly improve the quality of life of North Dakota's citizens.

Air Cargo

In today's global economy, the movement of raw materials, goods, and finished products is a critical component of a region's economy. Air cargo provides a vital link in this logistics chain. For example, businesses use air cargo to ship highly perishable consumer goods to outlying markets and factories rely on air cargo to rapidly bring in replacement parts needed to keep production lines operating. FedEx and UPS are the primary air cargo operators in North Dakota. They supplement their operations through third party contractors, such as Corporate Air and Integrated Airline Services, both of which operate out of Grand Forks International.

Aircraft Maintenance

Aircraft maintenance and repair shops are crucial for the upkeep of aircraft. North Dakota has a network of aircraft maintenance companies capable of providing a range of services for everything from small piston-powered aircraft to large turbine-powered jets. North Dakota's aircraft maintenance market is unique in that it has developed a reputation for quality work on warbird aircraft. Two companies – Odegaard Aviation at Hamry Field in Kindred and Tri-State Aviation at Harry Stern Airport in Wahpeton – have greatly contributed to that reputation through their restoration work on the famous P-51 Mustang.

This category also includes other businesses related to the upkeep of aircraft, including operations that sell, maintain, and repair aircraft avionics, and aircraft parts suppliers. Aircraft dealers are also included in this category.

Airlines

Commercial airlines make it possible for North Dakota travelers to reach all parts of the state from nearly anywhere in the U.S., or the world. They bring businessmen and tourists from outside the state. They enable North Dakotans to visit family and friends at far away destinations. In 2010, approximately 781,000 airline passengers flew from airports in North Dakota. In short, airlines are likely the most visible aspect of the aviation industry to the public, yet still account for less than 6 percent of all the economic activity associated with North Dakota's airports.

In addition to providing North Dakota's citizens access to the national air transportation system through eight airports with airline service, these airlines also move air cargo. This category also includes impacts from those companies that provide dedicated airline services, such as airline catering companies or ground handling businesses.

Airport Management

North Dakota's airport management accounts for more than $90 million of economic output. Much of that activity is from capital improvement projects, as airport staff work to maintain and improve their extensive infrastructure. A great deal of effort was put forth to gather all of the impacts associated with management of North Dakota's airports. Data was generally available for the larger airports. For the smaller airports, it was not uncommon to find a local business – often the airport FBO or an aerial applicator – in charge of running the airport. In such a case, efforts were made to separate what was business-related activity and what was airport management-related activity. For small airports that are not attended, efforts were made to estimate the full-time equivalent work that was collectively performed by various city or county employees to maintain the airport. For example, someone had to spend some amount of time paying the airport bills, someone else had to respond to FAA paperwork, etc. For this reason, even airports that are unattended have employment associated with their management.

Concessions

Concessions include all of the service businesses at airports, such as rental car companies and parking lots. It also includes airport restaurants, airport gift shops, and other airport retailers, like news-stands. In North Dakota, all of the concession businesses are found at commercial service airports, where the higher traffic helps support demand for these companies. The rental car companies tend to have the largest impact in terms of economic output, with parking management firms also contributing significantly to the economy.

Corporate Flight Departments

Corporate flight departments provide air travel flexibility to their passengers by making use of thousands of general aviation airports that typically get passengers closer to their destination than a commercial airport can. These departments range from small operations with a single piston-powered aircraft to large organizations with several jet aircraft and a staff of flight crews and maintenance personnel. Corporate flight departments can make it possible for large businesses

to manage and supervise facilities in remote areas that are not easily accessible by commercial airline travel.

In addition to private companies, the flight departments of government agencies, such as the North Dakota Highway Patrol and the North Dakota Department of Transportation, are also included in this category.

FBOs

Providing fuel is the main criteria for defining an aviation business as a fixed base operator (FBO), although they frequently provide other services, such as aircraft maintenance, a courtesy car, and aircraft catering. These operations often serve as the communities "air gateway" and can provide the first impression of the airport and community to visitors arriving by aircraft.

At the smaller airports, it is not unusual to have the FBO run the entire airport, making them responsible for the day-to-day management of the airport, providing services such as equipment and building maintenance, snow removal, and grounds upkeep. Larger airports may have more than one FBO providing fuel and other services, since the large volume of operations can support sufficient fuel sales to keep multiple FBOs in business. At the commercial service airports, FBOs may provide fueling services to the airlines. For these reasons, the FBO market segment accounted for more than $109 million in economic output, which is more than 10 percent of all airport economic output.

Charter operators and air taxi companies are also included in this market segment.

Flight Instruction

An essential component of any aviation system is a pipeline for providing the talent pool necessary to keep the complex machinery operating. Flight schools are the first step for developing pilots that keep aircraft flying. While the military provides some of the trained pilots found among the commercial and professional flyers in the U.S., the demand far outstrips what the military can provide, so civilian flight schools are needed to fill the gap.

Most flight schools are smaller businesses, often with part-time instructors providing lessons on the weekend or evenings. The notable exception is the University of North Dakota's John D. Odegard School of Aerospace Sciences. The school offers four-year programs of study in air traffic control, aviation management, commercial aviation, and unmanned aerial systems. With a large aircraft fleet based at Grand Forks International, flight instruction is a major part of the curriculum, making UND's John D. Odegard School of Aerospace Sciences the major contributor

in the flight instruction market segment. Graduates of the School of Aerospace Sciences frequently move on to professional pilot and other aviation-related careers.

Government

Government oversight is pervasive throughout aviation, with the Federal Aviation Administration's control over airspace, aircraft certification and pilot licensing being the most obvious. Add to that government security screening at commercial service airports, and U.S. Customs service at airports of entry, and it is clear that the federal government has an extensive role in the aviation industry. State and local governments also contribute to airport functions, providing management and staffing of airports, the firefighting and rescue services found at many airports, and local security services. This market segment also includes private businesses that perform quasi-government functions, such as private security firms, and private air traffic control service providers.

Military

The U.S. military has a significant aviation presence in North Dakota. In addition to Minot Air Force Base, which was not included as part of this study, there are three aviation-related National Guard units based at civilian airports. These units are based at the airports in Bismarck, Fargo, and Minot. By far the largest is the North Dakota Air National Guard unit at Fargo, with more than 350 airmen and officers on full-time active duty, and another 730 meeting part-time reservist obligations. Together, these three units account for more than $145 million in total economic output, or more than 13 percent of all airport output, second only to visitor impacts.

Visitors

The impact attributed to visitors was estimated as explained previously. Visitor expenditures, whether from those arriving via commercial airline or general aviation aircraft, go to support hotels/motels, rental car companies, restaurants, and other recreational and entertainment businesses. As a result, thousands of jobs and millions in payroll are attributed to visitor spending, and accounts for more than $198 million in output, or approximately 20 percent of all output attributed to North Dakota's airports.

The combined impacts of these on-airport industry segments are substantial. When first round and multiplier impacts are combined, these aviation market segments support a total of 9,792 jobs, with a combined payroll of $365.9 million. These market segments produce nearly $1.1 billion in economic output.

While the economic output of North Dakota's airports is significant, there are additional benefits that aviation provides North Dakota's citizens beyond those benefits associated with the state's public-use airports. The next sections describe some of these other benefits and the impacts they have on the state and its people.

ADDITIONAL AREAS OF ECONOMIC BENEFIT

As detailed previously, certain areas of aviation provide benefits to North Dakota that are not located at a public-use airport and are therefore not captured in the traditional economic model described above. These additional areas of economic benefit are:

- Off-Airport Aerospace Manufacturing
- Unmanned Aerial Systems
- Aerial applicators
- Travel agents
- Hospitals
- Qualitative airport benefits

This section describes the benefits associated with these specific areas and the methods used to estimate their nature and scope.

Off-Airport Aerospace Manufacturing Impacts

While the majority of economic benefits from aviation are found at North Dakota's airports, the state has a significant amount of aviation-related activity that takes place away from airports. This includes the development, production, and manufacturing of aircraft, aviation support systems, aircraft components, and unmanned aerial systems (discussed in a separate section of this report). Many companies that specialize in manufacturing aircraft parts and sub-assemblies do not need an airport location to operate, still it is important to include these businesses in an assessment of aviation's impact.

North Dakota is home to a number of significant aviation manufacturing firms. Notable aerospace firm Northrup Grumman operates two facilities in North Dakota, one in Grand Forks and the other in New Town. The state also contributes to the success of one of the newer general aviation aircraft manufacturers. Cirrus Design manufactures composite components at its Grand Forks factory for its popular SR-20, SR-22, and SR-22T single-engine aircraft.

Another major contributor to North Dakota's economy is the Goodrich Cargo Systems facility in Jamestown. The plant manufactures cargo systems for commercial airline freight and passenger aircraft and supports hundreds of jobs and millions in economic output.

Without these North Dakota-based businesses, numerous on-airport aviation-related businesses would not be able to operate as efficiently as they do, if at all. So, in addition to the workforce directly employed by these businesses, many other aviation workers in North Dakota depend upon these businesses. This section estimates the economic impacts of this important off-airport industry sector.

Estimating Impacts with an Input-Output Model

As with other economic impacts previously discussed in this report, total economic impacts associated with the aerospace manufacturing industry are quantified in terms of employment, payroll, and output. As before, employment is expressed in full-time equivalents (FTE), where each part-time job is treated as half a full-time job. First round and secondary impacts were estimated through the use of the RIMS II model, using North Dakota multipliers tailored for the typed of manufacturing each business conducted. More information on the modeling process used in this analysis can be found in the previous section entitled The Economic Modeling Process.

There are approximately 33 aerospace manufacturing businesses located off-airport in North Dakota. For the most part, these aerospace businesses are engaged in manufacturing aircraft parts, components, subsystems, or researching and developing unmanned aerial systems. The following section describes where the information used to estimate the impacts of these businesses was obtained.

Data Requirements for Aerospace Manufacturing Impact Estimates

Surveys were sent to all 33 off-airport aerospace manufacturers. For those that did not respond to the survey, employment data were obtained from sources such as the North Dakota Department of Commerce, local chambers of commerce and economic development corporations, Manta, and Dun and Bradstreet. This employment data was converted to a full-time equivalent employment number by treating each part-time employee as half of a full-time employee.

Estimates of payroll, sales and capital improvement projects were based on average per employee ratios reported by on-airport aircraft manufacturing and maintenance firms in North Dakota. These estimates of first round impacts were used in the model to produce estimates of secondary and total impacts.

Aerospace Manufacturing Impacts

The economic benefits associated with off-airport aerospace manufacturing in North Dakota are significant. As shown in **Table 19**, this sector of the North Dakota economy is directly responsible for more than 2,000 jobs.

Table 19: Total Economic Impact of Off-Airport Aerospace Manufacturing in North Dakota

	Employment	Payroll	Output
First Round Impacts	2,039	$ 110,283,900	$ 322,704,800
Secondary Impacts	2,395	$ 76,769,200	$ 163,855,500
TOTAL IMPACTS	**4,434**	**$ 187,053,100**	**$ 486,560,300**

Source: Dun & Bradstreet, RIMS II Multipliers, Manta, North Dakota Department of Commerce, and Wilbur Smith Associates.
Prepared: December 2010.

The 2,039 off-airport aerospace manufacturing first round jobs earned a combined payroll of nearly $110.3 million and generated an economic output of more than $322.7 million. Secondary impacts,

resulting from the re-circulation of the direct economic benefits, added another 2,395 jobs with nearly $76.8 million in payroll and $163.9 million in output.

Adding all these benefits together, off-airport aerospace manufacturing supports 4,434 jobs that earn almost $187.1 million in payroll and produce $486.6 million in economic output.

Unmanned Aerial Systems

One growing area of aerospace manufacturing warranted additional scrutiny. Unmanned aerial systems, or UAS, are becoming more prevalent throughout the U.S., in part because of efforts undertaken in North Dakota.

In the past decade, North Dakota has emerged as a burgeoning center for UAS research, development, and operation. In 2002, the Red River Research Corridor, located in the Red River Valley region of North Dakota and Minnesota, was established with the aim of increasing the economic competiveness of the region through innovations in science and technology. Research in the area of UAS is a big part of that effort. Since 2002, the number of jobs in the UAS and related fields has grown considerably. The Red River Research Corridor has helped foster the growth of UAS companies, as well as bring to the region major producers of unmanned aerial vehicles (UAVs).

In the Grand Forks area, UAS development has been spurred on by the Grand Forks Air Force Base and the University of North Dakota's John D. Odegard School of Aerospace Sciences. The base is transitioning to a mission involving the use of RQ-4 Global Hawk UAVs, with the first aircraft arriving in the summer of 2011.

The School of Aerospace Sciences, with its long history of aviation education, was designated in 2006 by the Department of Defense as a Center of Excellence for UAS Education. The school works closely with major UAS developers to improve the use of UAS. Lockheed Martin provides the school with access to an unmanned aerial vehicle as part of a $1 million in-kind support for UAS studies.

As part of the off-airport aerospace manufacturing analysis, an effort was made to assess how much impact UAS-related companies have had in North Dakota. One challenging aspect of such an analysis is determining how to evaluate companies that are only partially involved in UAS work. For example, a company may manufacture a line of servos, some of which are used in UAS. The difficulty is in judging how many of the company's employees and how much of the company's output should be attributed to UAS. In the end, this study attempted to use conservative estimates, so this estimate may understate the actual economic impact of UAS in North Dakota. As with the off-airport aerospace manufacturing economic impacts, the UAS economic impacts used North Dakota specific multipliers to estimate secondary impacts so that total impacts – both first round and secondary impacts – could be estimated. Keep in mind that the estimate of UAS impacts is a subset of the off-airport aerospace manufacturing and is included in that estimate.

The total impact from these UAS businesses is estimated at approximately $27.1 million. The UAS industry supports 231 jobs with a total payroll of $8.3 million.

Benefits from Agricultural Applicators

North Dakota has a large agriculture industry, producing some of the largest sunflower seed and wheat crops in the nation. Aviation has a significant role in supporting the North Dakota agricultural industry. As stated above, aerial applicators applied pesticides to nearly 3 million acres of North Dakota crops. Most of those aerial applicators operated from public airports. However, a comparison of state records with airport tenant lists reveals that a good number of aerial applicators operate from private airfields. Surveys were sent to these off-airport aerial applicators and impact estimates were made for those that didn't respond using average per capita payroll, gross sales and CIP expenditures based on data from on-airport aerial applicators.

Total impacts of off-airport aerial applicators were estimated using the RIMS II multipliers for North Dakota. As shown in **Table 20**, off-airport aerial applicators supported 36 first round jobs with a payroll of nearly $1.4 million and produced an economic output of approximately $11.1 million. When all impacts are taken into account, off-airport aerial applicators are responsible for 66 jobs, almost $2.4 million in payroll, and nearly $19.3 million in output in addition to the benefits discussed in the on-system airport section.

Table 20: Total Economic Impact of Off-Airport Aerial Applicators in North Dakota

	Employment	Payroll	Output
First Round Impacts	36	$ 1,358,600	$ 11,063,600
Secondary Impacts	30	$ 1,015,700	$ 8,231,300
TOTAL IMPACTS	**66**	**$ 2,374,300**	**$ 19,294,900**

Source: RIMS II Multipliers, and Wilbur Smith Associates.
Prepared: December 2010.

Travel Agencies

Travel agencies rely upon booking airline tickets for a large part of their business. These companies range from small home-based businesses to large corporations with dedicated call centers employing hundreds of agents. Unlike most industries in North Dakota, the travel agency industry has undergone a significant contraction. Industry consolidation coupled with a vibrant state economy that puts positive pressure on wages, has resulted in a number of large travel agency call centers shutting down. For example, American Express pulled out of Dickinson in 2009, taking hundreds of jobs. Nevertheless, travel agencies, as shown in **Table 21**, employ nearly 1,200 workers with a payroll of more than $34 million and produce a total economic output in excess of $54 million.

Table 21: Total Economic Impact of Travel Agencies in North Dakota

	Employment	Payroll	Output
First Round Impacts	865	$ 22,767,700	$ 33,773,600
Secondary Impacts	324	$ 11,399,800	$ 20,531,00
TOTAL IMPACTS	**1,189**	**$ 34,167,500**	**$ 54,304,600**

Source: RIMS II Multipliers, and Wilbur Smith Associates.
Prepared: December 2010.

Airport and Heliport Use by Hospitals

Aviation is used by hospitals throughout North Dakota. For most, that use comes in the form of rapidly transporting patients from accident scenes to emergency facilities or from one health care facility to another. The ability to rapidly and safely move patients and medical personnel throughout North Dakota is an aviation benefit whose value exceeds what can be measured in terms of jobs, payroll, and economic output. When a medivac flight transports a trauma patient to a hospital, possibly saving a life in the process, the benefit far exceeds the economic impact of operating the medivac flight.

Other hospitals use airports to bring specialists to the area to hold clinics. This section examines the ways that hospitals across North Dakota use aviation to support the healthcare system and improve lives.

To better understand the important roles that airports play in supporting medical care, 53 hospitals across North Dakota were sent surveys asking for information on their use of aircraft to transport patients, which airports their patients and medical teams use, the use of local airports to support clinics held at the hospital, and the use of hospital-operated helipads. Additional questions asked for information on the hospital's use of air cargo to ship items such as medical equipment, lab work, and documents.

During the survey effort, 33 hospitals submitted data, resulting in a response rate in excess of 62 percent. Hospitals from 30 different cities across North Dakota responded, providing a cross-section sampling of how hospitals throughout North Dakota, from rural regions to major metropolitan areas, make use of airports. Nearly 50 percent of responding hospitals indicated that they used some aspect of aviation in their operations.

Patient Transfers

Patient transfers were the most common use of aviation for North Dakota's hospitals. More than 45 percent reported using either fixed-wing aircraft or helicopters to move patients in and out of the area using their local airports. Fixed-wing aircraft were somewhat more popular, with more than 36 percent of responding hospitals indicating their use, while 28 percent reported using helicopters. Hospitals reported using aircraft for patient transfers anywhere from less than once per month to as many as 45 times per month, with a median use of twice per month.

Among the responding hospitals, 28 percent indicated that they operated a helipad at their facility. The frequency of use of helicopter patient transfers to and from hospitals ranged from less than once per month to as many as 50 times per month, with a median use of approximately three flights per month. Interestingly, patient transfer by helicopter is so critical to at least one hospital that it conducts these operations even without a helipad. Instead, the air ambulance lands on a nearby street with the assistance of local law enforcement personnel.

Hospitals transferred patients to many different cities, both in and out of North Dakota. Fargo was the most frequently reported city for transferring patients, followed by Bismarck and Minot. Several of the transfer locations were cities outside of North Dakota, such as Minneapolis. A number of patients were transferred to Rochester, Minnesota, where the famed Mayo Clinic was founded. These distant destinations are possible because of the access provided by general aviation.

Clinics

Specialty clinics are held at nearly half of the hospitals that responded to the survey.

These clinics provided needed health services that are not available at these hospitals outside of these clinics. Among the hospitals that hold clinics, nearly 80 percent said that specialists traveling to the hospital use a local airport. Often, these clinics are held in less populated areas of North Dakota, and general aviation airports make it possible for medical specialists from urban centers to attend these clinics. The long distances between the specialists hometowns and the hospital they support typically mean that air travel is the only viable option. One hospital reported a specialist making a round trip of 775 miles to attend a regular clinic. The schedule flexibility that general aviation offers makes this possible.

Air Cargo Uses

Hospitals not only use aircraft to move doctors and patients around the state, hospitals also use airports to move a variety of medical items and important paperwork via air cargo or overnight delivery services.

Some examples of how hospitals use air cargo include shipping pharmaceuticals and other medical supplies, sending blood, tissue and other samples to labs, receiving diagnostic test results, shipping medical equipment and overnighting medical documents. More than 20 percent of responding hospitals indicated that they make use of air cargo and express shipping services.

Other Comments

Hospitals noted numerous other benefits beyond those that help move patients, and medical staff. For example, a number of hospitals commented on how important local airports are for organ transplants and tissue donations.

> *"Red Cross tissue donation services have also used the airport."*

> *"The airport is occasionally used if a team comes to retrieve donor tissue or bones."*

Sometimes, the benefits of aviation are not appreciated until they are lost. One hospital learned what it would be like without their local airport on a temporary basis.

> *"Recently, the airport was closed for six months due to a lighting upgrade. This caused significant issues for transporting trauma and cardiac patients to Fargo."*

This hospital found that, in addition to the increased transport time resulting in increased risk to patients, it also resulted in increased costs because of the added expenses associated with medical staff that needed to accompany the patient and return when forced to use ground transportation.

Some hospitals commented on the advantages a local business can provide when transacting business.

> *"We have also had consultants fly in from Sioux Falls, SD, to our local airport."*

Finally, one hospital pointed out that the frequency of use of aviation is not nearly as important as simply having it available for when it makes a difference.

> *"Air Ambulance service is critical for those patients with this need, especially transplants."*

The benefits that airports and aviation provide hospitals throughout North Dakota are vital to those that need it. Without these airports and the air ambulances that serve them, the quality of life that North Dakotans enjoy would be diminished.

Qualitative Airport Benefits

Beyond the quantitative aspects of aviation benefits that have been discussed previously, there are also qualitative benefits that deserve consideration when the total value of an airport system is analyzed. Qualitative benefits are those activities which take place at an airport on a regular basis that add to the quality of life, but are difficult to assign a dollar value. Qualitative benefits typically enhance the health, welfare, or safety of individuals in the airport's market area. While it may be difficult to place a dollar value on such impacts, these benefits improve the quality of life of North Dakota's residents in a variety of ways.

The activities contributing to the qualitative benefits vary throughout the airport system, yet each airport contributes in some way to the quality of life of residents of North Dakota. Some examples of the qualitative benefits of aviation at North Dakota system airports include:

- Facilitating emergency medical transport
- Providing police support
- Conducting search-and-rescue operations
- Supporting the U.S. military and other government organizations
- Assisting with prisoner transport
- Serving as a staging area for community events
- Supporting statewide agricultural activities
- Providing entertainment opportunities (e.g., museums, air shows)
- Hosting school field trips and other educational events

Information supplied by the airports themselves has highlighted some of the more notable examples of the qualitative benefits derived from North Dakota's airport system. Numerous life-saving emergency medical evacuations and operations occur at airports throughout the state. In

addition, airports in North Dakota play an important role in agricultural production, as detailed previously.

Based on information provided by airports that responded to our survey efforts, **Table A-19** in the appendix attempts to tabulate the qualitative benefits each airport provides. The activities listed in Table A-19 are not all inclusive, but instead account for the most common types of aviation operations at these airports. Other additional aviation activity likely takes place at these airports beyond what is shown in Table A-19.

What is most notable is no matter how large or small the contributions, all airports contribute in some way to the quality of life of North Dakota residents.

TAX IMPACTS

In addition to generating economic benefits, airport activity produces tax revenues for North Dakota and local municipalities. This section explains the methodology for estimating tax revenues generated by airport activity and examines those estimated tax revenue impacts from airport activity. This analysis only examines the tax impacts from on-airport business and the spending by commercial service and general aviation visitors of the 89 study airports. It does not take into account tax impacts from off-airport aviation-related activities.

This tax analysis examined the estimated taxes generated through the state sales tax, local sales taxes, lodging taxes, rental car taxes, and aviation fuel taxes. This analysis made estimates of taxes paid by on-airport business tenants, taxes paid by visitors arriving by both commercial airlines and general aviation aircraft, and taxes paid by employees supported by airport-related activity. These employees included those working on the airport for business and government tenants and those off-airport supported by visitor spending.

Sales taxes in North Dakota are fairly straight forward and, for purposes of this analysis, consist of a state sales tax, a number of local sales taxes, lodging taxes, and rental car taxes. These are explained below in their individual sections.

State and Local Sales Tax Rates

North Dakota has a state sales tax of 5 percent that is directed to the state's general fund. In addition to the state sales tax, local governments also have the option of imposing a local option sales tax. Each of these additional taxes can be up to 1 percent for a total of 3 percent in additional sales taxes.

Lodging and Restaurant Tax Rates

Lodging taxes are used by counties and cities throughout North Dakota and are charged as a percent of the cost of guest accommodations. Lodging taxes are often used in areas that are destinations for tourist or business travel. The philosophy behind a lodging tax is that the tax helps to offset the cost of services provided to visitors versus residents and thus balances the tax burden more evenly across users. Lodging tax rates range from 1 percent to 3 percent, with 2 percent being the most common.

Cities are also permitted to levy a restaurant and lodging sales tax in addition to the lodging tax. Nearly all municipalities that levy this tax do so at the 1 percent level. Grand Forks is the notable exception with their 0.3 percent lodging and restaurant tax.

Rental Car Tax Rates

Visitors using rental cars pay sales tax on the cost of the rented vehicle. This sales tax includes North Dakota's 5 percent sales tax. In addition, rental car transactions are subject to a 3 percent rental surcharge tax over and above the sales taxes that are imposed. Certain jurisdictions impose an additional 1 percent sales tax on car rental transactions. Rental car companies may impose additional fees (such as energy recovery fees or concession fees) but these are additional costs of the transaction, not taxes.

Tax Estimation Methodology

This analysis began with establishing the sales tax rates to which each system airport was subjected. All airports are subject to North Dakota's 5 percent state sales tax. Most airports are subject to additional sales taxes. The North Dakota Office of State Tax Commissioner provided sales tax rates, effective as of October 1, 2010, for all North Dakota counties and, where applicable, municipalities. The tax rates for retail sales, lodging, restaurants, and rental cars, shown in **Table 22**, were assigned to each airport based upon the county it was located in, along with any city taxes, if applicable.

Using these tax rates, estimates of taxes paid by on-airport businesses, by visitors arriving by airport, by employees of the on-airport businesses, and by employees supported by visitor spending were determined.

Table 22: Sales Tax Rates for Regions Associated with North Dakota Airports - 2010

Associated City	Airport Name	Retail Tax	Restaurant Tax	Lodging Tax	Rental Car Tax
COMMERCIAL AIRPORTS					
Bismarck	Bismarck	6.0%	7.0%	9.0%	9.0%
Devils Lake	Devils Lake Regional	7.0%	9.0%	10.0%	8.0%
Dickinson	Dickinson-Theodore Roosevelt Regional	6.5%	9.0%	9.5%	8.0%
Fargo	Hector International	7.0%	8.0%	10.0%	8.0%
Grand Forks	Grand Forks International	6.8%	8.5%	10.0%	9.0%
Jamestown	Jamestown Regional	7.0%	9.0%	10.0%	8.0%
Minot	Minot International	7.0%	8.0%	10.0%	9.0%
Williston	Sloulin Field International	7.5%	7.5%	9.5%	8.0%
GENERAL AVIATION AIRPORTS					
Arthur	Arthur	5.0%	5.0%	5.0%	8.0%
Ashley	Ashley Municipal	6.0%	7.0%	8.0%	8.0%
Beach	Beach	6.0%	7.0%	8.0%	8.0%
Beulah	Beulah	6.0%	9.0%	9.0%	8.0%
Bottineau	Bottineau Municipal	7.0%	9.0%	10.0%	8.0%
Bowbells	Bowbells Municipal	5.0%	5.0%	5.0%	8.0%
Bowman	Bowman Municipal	6.0%	9.0%	9.0%	8.0%
Cando	Cando Municipal	7.0%	5.0%	7.0%	8.0%
Carrington	Carrington Municipal	6.0%	7.0%	8.0%	8.0%
Casselton	Casselton Robert Miller Regional	6.0%	5.0%	6.0%	8.0%
Cavalier	Cavalier Municipal	7.0%	5.0%	7.0%	8.0%
Columbus	Columbus Municipal	5.0%	5.0%	5.0%	8.0%
Cooperstown	Cooperstown Municipal	6.5%	6.0%	7.5%	8.0%
Crosby	Crosby Municipal	6.0%	5.0%	6.0%	8.0%
Drayton	Drayton Municipal	6.5%	9.0%	9.5%	8.0%
Edgeley	Edgeley Municipal	7.0%	7.0%	8.0%	8.0%
Elgin	Elgin Municipal	6.0%	5.0%	6.0%	8.0%
Ellendale	Ellendale Municipal	6.0%	7.0%	7.0%	8.0%
Enderlin	Sky Haven	6.0%	5.0%	6.0%	8.0%
Fessenden	Fessenden Municipal	5.0%	5.0%	5.0%	8.0%
Fort Yates	Standing Rock	5.0%	5.0%	5.0%	8.0%
Gackle	Gackle Municipal	5.0%	5.0%	5.0%	8.0%
Garrison	Garrison Municipal	5.0%	5.0%	5.0%	8.0%
Garrison Dam	Garrison Dam Recreational Airpark	5.0%	8.0%	7.0%	8.0%
Glen Ullin	Glen Ullin Regional	6.0%	5.0%	6.0%	8.0%
Grafton	Hutson Field	7.3%	7.3%	9.3%	8.0%
Gwinner	Gwinner-Roger Melroe Field	6.0%	5.0%	6.0%	8.0%
Harvey	Harvey Municipal	6.0%	7.0%	8.0%	8.0%
Hazelton	Hazelton Municipal	6.0%	5.0%	6.0%	8.0%

Associated City	Airport Name	Retail Tax	Restaurant Tax	Lodging Tax	Rental Car Tax
Hazen	Mercer County Regional	6.0%	9.0%	9.0%	8.0%
Hettinger	Hettinger Municipal	6.0%	7.0%	8.0%	8.0%
Hillsboro	Hillsboro Municipal	7.0%	5.0%	7.0%	8.0%
Intl. Peace Garden-Dunseith	International Peace Garden	6.0%	5.0%	6.0%	8.0%
Kenmare	Kenmare Municipal	7.0%	5.0%	7.0%	8.0%
Killdeer	Weydahl Field	6.5%	5.0%	6.5%	8.0%
Kindred	Hamry Field	5.0%	5.0%	5.0%	8.0%
Kulm	Kulm Municipal	7.0%	5.0%	7.0%	8.0%
Lakota	Lakota Municipal	6.0%	9.0%	9.0%	8.0%
LaMoure	LaMoure Rott Municipal	7.0%	5.0%	7.0%	8.0%
Langdon	Robertson Field	7.0%	7.0%	9.0%	8.0%
Larimore	Larimore Municipal	6.0%	5.0%	6.0%	8.0%
Leeds	Leeds Municipal	5.0%	5.0%	5.0%	8.0%
Lidgerwood	Lidgerwood Municipal	6.0%	5.0%	6.0%	8.0%
Linton	Linton Municipal	7.0%	5.0%	7.0%	8.0%
Lisbon	Lisbon Municipal	7.0%	9.0%	10.0%	8.0%
Maddock	Maddock Municipal	6.5%	5.0%	6.5%	8.0%
Mandan	Mandan Municipal	6.0%	9.0%	9.0%	8.0%
Mayville	Mayville Municipal	7.0%	5.0%	7.0%	8.0%
McClusky	McClusky Municipal	6.0%	5.0%	6.0%	8.0%
McVille	McVille Municipal	7.0%	9.0%	10.0%	8.0%
Milnor	Milnor Municipal	6.5%	5.0%	6.5%	8.0%
Minto	Minto Municipal	6.3%	5.3%	6.3%	8.0%
Mohall	Mohall Municipal	6.0%	5.0%	6.0%	8.0%
Mott	Mott Municipal	6.5%	5.0%	6.5%	8.0%
Napoleon	Napoleon Municipal	7.0%	5.0%	7.0%	8.0%
New Rockford	Tomlinson Field	7.0%	5.0%	7.0%	8.0%
New Town	New Town Municipal	5.0%	6.0%	6.0%	8.0%
Northwood	Northwood Municipal-Vince Field	7.0%	5.0%	7.0%	8.0%
Oakes	Oakes Municipal	7.0%	5.0%	7.0%	8.0%
Page	Page Regional	6.0%	5.0%	6.0%	8.0%
Park River	Park River-W C Skjerven Field	7.3%	5.3%	7.3%	8.0%
Parshall	Parshall-Hankins	5.0%	9.0%	8.0%	8.0%
Pembina	Pembina Municipal	7.5%	5.0%	7.5%	8.0%
Plaza	Trulson Field	5.0%	5.0%	5.0%	8.0%
Richardton	Richardton	7.0%	5.0%	7.0%	8.0%
Rolette	Rolette	6.0%	5.0%	6.0%	8.0%
Rolla	Rolla Municipal	7.0%	5.0%	7.0%	8.0%
Rugby	Rugby Municipal	7.0%	9.0%	10.0%	8.0%
St. Thomas	St. Thomas Municipal	5.0%	5.0%	5.0%	8.0%

Associated City	Airport Name	Retail Tax	Restaurant Tax	Lodging Tax	Rental Car Tax
Stanley	Stanley Municipal	5.0%	5.0%	5.0%	8.0%
Tioga	Tioga Municipal	6.5%	6.5%	7.5%	8.0%
Towner	Towner Municipal	6.0%	5.0%	6.0%	8.0%
Turtle Lake	Turtle Lake Municipal	7.0%	5.0%	7.0%	8.0%
Valley City	Barnes County Municipal	7.5%	9.0%	10.5%	8.0%
Wahpeton	Harry Stern	7.0%	8.0%	10.0%	8.0%
Walhalla	Walhalla Municipal	7.0%	6.0%	8.0%	8.0%
Washburn	Washburn Municipal	7.0%	5.0%	7.0%	8.0%
Watford City	Watford City Municipal	6.0%	7.0%	8.0%	8.0%
West Fargo	West Fargo Municipal	6.0%	8.0%	9.0%	8.0%
Westhope	Westhope Municipal	6.0%	5.0%	6.0%	8.0%
Wishek	Wishek Municipal	6.0%	7.0%	8.0%	8.0%

Source: North Dakota Office of State Tax Commissioner, October 2010

Taxes Generated by On-Airport Businesses

To estimate the sales taxes paid by on-airport businesses, each airport's direct payroll was subtracted from its direct output to obtain the taxable expenditures attributable to that airport. The applicable sales tax rate was then applied to obtain the sales taxes paid by the airport's on-airport businesses, using a generalized assumption that all of these expenditures occurred within the local tax district of the airport. It was also assumed that the taxable expenditures included the taxes paid and the calculation reflects that. For example:

- Minot International Airport had $25.2 million in first round on-airport output and $6.6 million in first round on-airport payroll. The tax rate for Minot International Airport is 7 percent (5 percent state sales tax, and 2 percent local sales tax). This yields approximately $1.2 million in sales taxes from Minot International Airport's on-airport businesses for 2010.
  - $25.2 million output - $6.6 million payroll = $18.6 million in taxable expenditures
  - $18.6 million in taxable expenditures x 7% ÷ (1 + 7%) = $1.2 million in sales taxes

All 89 of North Dakota's airports are estimated to have paid approximately $19.0 million in on-airport business sales taxes in 2010.

Taxes Paid by Commercial Service Visitors

To estimate the sales taxes paid by visitors arriving by commercial airline, it was necessary to estimate how visitor expenditures were allocated among lodging, restaurants, rental cars, and other purchases. Using survey data obtained for this study, each airport's visitor expenditures were split between these four categories and the appropriate tax rates were applied. It was assumed that all of these expenditures occurred within the tax district of the airport. It was also assumed that the taxable expenditures included the taxes paid and the calculation reflects that. For example:

- Bismarck Airport had $21.3 million in commercial service visitor expenditures. Survey data estimated that 18 percent of these expenditures were on retail, 26 percent on restaurants, 37 percent on lodging, and the remaining 19 percent on rental car. The tax rates for Bismarck

Airport for retail sales, restaurants, lodging, and rental car are 6 percent, 7 percent, 9 percent, and 9 percent, respectively. From this data, it was estimated that Bismarck Airport's commercial service visitors paid approximately $1.7 million in taxes in 2010.

- $21.3 million visitor expenditures x 18 percent = $3.5 million in retail sales
- $3.5 million in retail sales x 6% ÷ (1 + 6%) = $200,400 in retail sales taxes
- $21.3 million visitor expenditures x 26 percent = $7.8 million in restaurant expenditures
- $7.8 million in restaurant expenditures x 7% ÷ (1 + 7%) = $512,900 in restaurant taxes
- $21.3 million visitor expenditures x 37 percent = $7.8 million in lodging expenditures
- $7.8 million in lodging expenditures x 9% ÷ (1 + 9%) = $647,400 in lodging taxes
- $21.3 million visitor expenditures x 19 percent = $4.1 million in rental car expenditures
- $4.1 million in rental car expenditures x 9% ÷ (1 + 9%) = $338,700 in rental car taxes
- $200,400 in retail sales taxes + $512,900 in restaurant taxes + $647,400 in lodging taxes + $338,700 in rental car taxes = $1.7 million in commercial service visitor paid taxes

Commercial service visitors to North Dakota's eight commercial service airports are estimated to have paid nearly $8.8 million through their expenditures in 2010. Hector International contributed the greatest share of those taxes, with more than $4.0 million. Bismarck Airport and Minot International also contributed more than $1 million each in taxes.

Taxes Paid by General Aviation Visitors

To estimate the sales taxes paid by visitors arriving by general aviation aircraft, it was necessary to estimate how visitor expenditures were allocated among retail sales, restaurants, lodging, and rental cars. Expenditures were estimated using survey data obtained for this study, and the appropriate tax rates were applied. It was assumed that all of these expenditures occurred within the tax district of the airport. It was also assumed that the taxable expenditures included the taxes paid and the calculation reflects that. For example:

- Mandan Municipal Airport had $329,000 in general aviation visitor expenditures. Survey data estimated that 25 percent of these expenditures were on retail sales, 14 percent on restaurants, 48 percent on lodging, and 13 percent on rental car. The tax rates for Mandan Municipal for retail sales, restaurants, lodging, and rental cars, are 6 percent, 9 percent, 9 percent, and 8 percent, respectively. It was estimated that Mandan Municipal's general aviation visitors paid approximately $24,700 in taxes in 2010.
  - $329,000 visitor expenditures x 25 percent = $83,100 in retail sales
  - $83,100 in retail sales x 6% ÷ (1 + 6%) = $4,700 in retail sales taxes
  - $329,000 visitor expenditures x 14 percent = $45,900 in restaurant expenditures
  - $45,900 in restaurant expenditures x 9% ÷ (1 + 9%) = $3,800 in restaurant taxes
  - $329,000 visitor expenditures x 48 percent = $159,100 in lodging expenditures
  - $159,100 in lodging expenditures x 9% ÷ (1 + 9%) = $13,100 in lodging taxes
  - $329,000 visitor expenditures x 12 percent = $40,800 in rental car expenditures
  - $40,800 in rental car expenditures x 8% ÷ (1 + 8%) = $3,000 in rental car taxes
  - $4,700 in retail sales taxes + $3,800 in restaurant taxes + $13,100 in lodging taxes + $3,000 in rental car taxes = $24,700 in general aviation visitor paid taxes

General aviation visitors to North Dakota's airports are estimated to have paid approximately $1.3 million in taxes through their expenditures in 2010.

Taxes Paid by Employees of On-Airport Businesses

Employees that work at on-airport businesses pay sales taxes in their local community when they purchase items. The U.S. Internal Revenue Service (IRS) estimates how much in sales taxes are paid based on payroll for each state. Using this information, and the estimated average payroll for each airport, sales taxes paid by employees of on-airport businesses were estimated. These taxes were estimated at nearly $1.6 million in 2010.

Taxes Paid by Employees Supported by Visitor Spending

The employees related to visitor spending (both commercial service and general aviation visitors) also pay North Dakota sales taxes when they spend their income. As with the taxes paid by employees of on-airport businesses, these taxes were estimated using data from the IRS specific to North Dakota. Using the IRS data and an estimated annual payroll for employees supported by visitor spending, it was estimated that these employees paid $488,600 in taxes in 2010.

Aviation Fuel Taxes

The State of North Dakota imposes an 8 cents per gallon tax on both aviation gasoline and jet fuel. The proceeds of that aviation fuel tax help to fund the North Dakota Aeronautics Commission. In 2009, aviation fuel taxes amounted to $1,243,300. Data was not available at the individual airport level, so aviation fuel taxes are reported as a whole at the state level.

Total Airport-Related Taxes

Table 23 shows the taxes, by type, that commercial service and general aviation airports are estimated to have paid in 2010. Taxes paid by individual airports can be found in Table A-20 in the appendix.

Table 23: Airport-Related Taxes from North Dakota Airports - 2010

	Airport Tenant Taxes	CS Visitor Taxes	GA Visitor Taxes	Employee Taxes from Airport Tenants	Employee Taxes from Visitors	Total Taxes
Commercial Airports	$15,814,400	$8,766,900	$1,115,300	$1,472,500	$410,700	$27,645,100
GA Airports	$3,188,000	$0	$188,700	$120,100	$77,900	$3,509,400
TOTAL TAXES	**$19,002,400**	**$8,766,900**	**$1,304,000**	**$1,592,600**	**$488,600**	**$31,154,500**

Source: Wilbur Smith Associates and North Dakota Office of State Tax Commissioner, October 2010.

Aviation fuel taxes added another $1.2 million, bringing total airport taxes to nearly $32.4 million. The majority of these taxes were generated by on-airport businesses, with more than $19 million in collected taxes. Commercial service visitors were also a significant contributor to the tax base, paying nearly $8.8 million in retail sales, restaurant, lodging, and rental car taxes.

Tax Summary

The State of North Dakota, its counties, and municipalities collect money from taxes levied on activities tied, either directly or indirectly, to North Dakota's airports. These include taxes on visitor

and tenant expenditures, fuel sales, and expenditures by employees that are supported by aviation. In 2010, these taxes totaled nearly $32.4 million.

The majority of these taxes are the result of operations at commercial service airports, driven largely by the spending of visitors coming through commercial service airports. However, for regions without commercial service airports, the tax contribution from operations at general aviation operations can be significant.

As noted, airport-related taxes shown in this section are related to airport and CIP expenditures and visitor spending only. Tax benefits from induced or multiplier impacts were not included in this analysis, but would make the impact larger.

ECONOMIC IMPACT SUMMARY

The 89 airports considered in this analysis are a major catalyst for North Dakota's economy. In 2010, the annual economic activity of the airports was estimated at $1.1 billion. This includes expenditures and operations associated with on-airport businesses and activities and spending by thousands of visitors using general aviation and commercial airlines to reach North Dakota. This estimate also includes secondary impacts measured using study multipliers from the economic input-output model. This economic activity is fairly well diversified, with no market segment consisting of more than 20 percent of the overall total.

Aviation benefits do not stop at the airport fence. This study also examined the benefits associated with three industries that exist because of airports but do not operate on them. Off-airport aerospace manufacturers, travel agencies, and aerial applicators operating from private airfields provide additional significant economic benefits.

Table 24 provides a summary of economic impacts for the 89 North Dakota airports analyzed in this study and the off-airport industries examined. As shown, North Dakota's airports help to support a total of 9,792 jobs that have an annual payroll of nearly $366 million. The airports in North Dakota account for a total of approximately $1.1 billion in total annual economic output. The off-airport industries add another 5,688 jobs with a combined payroll of $224 million. The output from these industries exceeds $560 million. When the benefits of all aviation in North Dakota are added together, it accounts for 15,480 jobs, a $560 million payroll, and economic output of approximately $1.6 billion.

In addition to these quantifiable benefits, there are numerous quality of life benefits, such as medical flights, that North Dakota's airports provide.

Table 24: Economic Impact Summary for Aviation in North Dakota

	First Round Impacts	Secondary Impacts	Total Impacts
Employment			
Airport Impacts	5,796	3,996	9,792
Off-Airport Impacts	2,940	2,748	5,688
TOTAL EMPLOYMENT	**8,736**	**6,744**	**15,480**
Payroll			
Airport Impacts	$216,967,400	$148,892,000	$365,859,400
Off-Airport Impacts	$134,410,200	$89,184,700	$223,594,900
TOTAL PAYROLL	**$351,377,600**	**$238,076,700**	**$589,454,300**
Output			
Airport Impacts	$635,837,500	$426,919,000	$1,062,756,500
Off-Airport Impacts	$367,542,100	$192,617,700	$560,159,800
TOTAL OUTPUT	**$1,003,379,600**	**$619,536,700**	**$1,622,916,300**

Sources: Wilbur Smith Associates and RIMS II multipliers.
Prepared: December 2010.

Key study findings are as follows:

- The aviation industry in North Dakota is well diversified, with none of the 13 market segments analyzed consisting of more than 20 percent of total economic output.
- The 15,480 jobs tied to aviation in North Dakota have an estimated annual payroll of $560 million.
- The total economic impact identified in this analysis ($1.6 billion) comprises 5.1 percent of North Dakota's estimated gross domestic product of $31.9 billion.[3]

As this economic impact analysis has shown, airports in North Dakota are major economic catalysts for the state and for the communities they serve. In addition to economic benefits, airports provide communities with links to the national air transportation system, and they support many health, welfare, and safety services which improve the quality of life for all residents, businesses, and visitors.

[3] U.S. Bureau of Economic Analysis

APPENDIX A: ECONOMIC IMPACT TABLES

This section of the North Dakota airports economic impact appendix contains tables providing details of the 2010 economic impact for each individual North Dakota airport that was part of the study. The tables present information on the number of jobs, payroll, and economic output associated with each airport's tenants, general aviation visitors, and, where appropriate, commercial service visitors. Summary tables provide a combined total for jobs, payroll and economic output. Additional details are provided for the estimates of visitor expenditures.

Table A-1: Estimates of General Aviation Itinerant Arrivals at North Dakota Airports

Associated City	Airport	Total GA Operations	GA Itinerant Percent	GA Itinerant Operations	True Transient Percent	GA True Transient Arrivals
COMMERCIAL SERVICE AIRPORTS						
Bismarck	Bismarck	52,000	78%	40,320	50%	10,080
Devils Lake	Devils Lake Regional	23,000	31%	7,130	50%	1,783
Dickinson	Dickinson-Theodore Roosevelt Regional	12,500	31%	3,875	50%	969
Fargo	Hector International	74,000	65%	48,100	50%	12,025
Grand Forks	Grand Forks International	225,000	38%	85,500	33%	14,108
Jamestown	Jamestown Regional	37,000	30%	11,100	50%	2,775
Minot	Minot International	39,800	56%	22,288	50%	5,572
Williston	Sloulin Field International	23,000	52%	12,048	50%	3,012
COMMERCIAL SERVICE AIRPORTS TOTAL		**486,300**	**47%**	**230,361**		**50,323**
GENERAL AVIATION AIRPORTS						
Arthur	Arthur	300	5%	15	33%	2
Ashley	Ashley Municipal	1,200	70%	840	50%	210
Beach	Beach	1,400	40%	560	50%	140
Beulah	Beulah	2,400	56%	1,344	50%	336
Bottineau	Bottineau Municipal	4,000	31%	1,240	33%	205
Bowbells	Bowbells Municipal	400	0%	0	33%	0
Bowman	Bowman Municipal	2,400	47%	1,128	50%	282
Cando	Cando Municipal	3,300	10%	330	50%	83
Carrington	Carrington Municipal	2,000	48%	966	50%	242
Casselton	Casselton Robert Miller Regional	13,000	32%	4,160	50%	1,040
Cavalier	Cavalier Municipal	3,300	20%	660	33%	109
Columbus	Columbus Municipal	100	100%	100	33%	17
Cooperstown	Cooperstown Municipal	4,100	39%	1,596	33%	263
Crosby	Crosby Municipal	1,600	14%	229	50%	57
Drayton	Drayton Municipal	600	0%	0	33%	0
Edgeley	Edgeley Municipal	1,600	3%	54	50%	14
Elgin	Elgin Municipal	100	46%	46	33%	8
Ellendale	Ellendale Municipal	2,200	40%	880	50%	220
Enderlin	Sky Haven	2,800	43%	1,217	33%	201

Associated City	Airport	Total GA Operations	GA Itinerant Percent	GA Itinerant Operations	True Transient Percent	GA True Transient Arrivals
Fessenden	Fessenden Municipal	700	0%	0	33%	0
Fort Yates	Standing Rock	200	100%	200	33%	33
Gackle	Gackle Municipal	100	4%	4	33%	1
Garrison	Garrison Municipal	2,700	51%	1,377	50%	344
Garrison Dam	Garrison Dam Recreational Airpark	100	100%	100	33%	17
Glen Ullin	Glen Ullin Regional	100	100%	100	50%	25
Grafton	Hutson Field	5,000	71%	3,560	50%	890
Gwinner	Gwinner-Roger Melroe Field	3,700	60%	2,220	50%	555
Harvey	Harvey Municipal	1,500	8%	120	33%	20
Hazelton	Hazelton Municipal	200	100%	200	33%	33
Hazen	Mercer County Regional	600	100%	600	50%	150
Hettinger	Hettinger Municipal	2,200	100%	2,200	50%	550
Hillsboro	Hillsboro Municipal	3,600	95%	3,420	33%	564
Intl. Peace Garden-Dunseith	International Peace Garden	300	69%	207	33%	34
Kenmare	Kenmare Municipal	2,400	30%	720	50%	180
Killdeer	Weydahl Field	200	0%	0	33%	0
Kindred	Hamry Field	5,000	35%	1,750	33%	289
Kulm	Kulm Municipal	100	0%	0	33%	0
Lakota	Lakota Municipal	3,000	46%	1,380	33%	228
LaMoure	LaMoure Rott Municipal	2,200	29%	638	50%	160
Langdon	Robertson Field	2,000	0%	0	50%	0
Larimore	Larimore Municipal	7,000	71%	4,970	33%	820
Leeds	Leeds Municipal	1,600	0%	0	33%	0
Lidgerwood	Lidgerwood Municipal	100	100%	100	33%	17
Linton	Linton Municipal	1,800	24%	432	50%	108
Lisbon	Lisbon Municipal	1,800	32%	584	33%	96
Maddock	Maddock Municipal	2,200	4%	88	33%	15
Mandan	Mandan Municipal	10,000	47%	4,700	50%	1,175
Mayville	Mayville Municipal	6,500	55%	3,575	50%	894
McClusky	McClusky Municipal	200	0%	0	33%	0
McVille	McVille Municipal	500	41%	205	33%	34
Milnor	Milnor Municipal	200	10%	20	33%	3
Minto	Minto Municipal	1,800	22%	396	33%	65
Mohall	Mohall Municipal	1,100	20%	220	33%	36
Mott	Mott Municipal	1,100	19%	209	50%	52
Napoleon	Napoleon Municipal	300	40%	120	50%	30
New Rockford	Tomlinson Field	1,300	38%	494	33%	82
New Town	New Town Municipal	700	73%	511	50%	128
Northwood	Northwood Municipal-Vince Field	6,000	51%	3,043	33%	502

Associated City	Airport	Total GA Operations	GA Itinerant Percent	GA Itinerant Operations	True Transient Percent	GA True Transient Arrivals
Oakes	Oakes Municipal	1,600	10%	160	33%	26
Page	Page Regional	3,500	10%	350	33%	58
Park River	Park River-W C Skjerven Field	3,200	14%	448	33%	74
Parshall	Parshall-Hankins	800	15%	120	50%	30
Pembina	Pembina Municipal	1,300	44%	578	50%	144
Plaza	Trulson Field	100	100%	100	33%	17
Richardton	Richardton	100	0%	0	33%	0
Rolette	Rolette	400	72%	288	33%	48
Rolla	Rolla Municipal	2,400	40%	960	50%	240
Rugby	Rugby Municipal	2,000	18%	360	33%	59
St. Thomas	St. Thomas Municipal	1,000	24%	240	33%	40
Stanley	Stanley Municipal	1,000	31%	310	50%	78
Tioga	Tioga Municipal	9,000	50%	4,500	50%	1,125
Towner	Towner Municipal	800	10%	80	33%	13
Turtle Lake	Turtle Lake Municipal	800	39%	310	33%	51
Valley City	Barnes County Municipal	4,600	54%	2,470	50%	618
Wahpeton	Harry Stern	12,900	46%	5,900	50%	1,475
Walhalla	Walhalla Municipal	1,300	39%	507	33%	84
Washburn	Washburn Municipal	1,200	67%	804	33%	133
Watford City	Watford City Municipal	2,100	40%	840	50%	210
West Fargo	West Fargo Municipal	8,300	21%	1,743	50%	436
Westhope	Westhope Municipal	400	51%	204	33%	34
Wishek	Wishek Municipal	1,000	10%	100	50%	25
GENERAL AVIATION AIRPORTS TOTAL		**186,700**	**40%**	**75,201**		**16,571**
ALL AIRPORTS TOTAL		**673,000**	**45%**	**305,562**	**22%**	**66,894**

Source: Wilbur Smith Associates and FAA 5010 data.

Prepared: December 2010.

Table A-2: Estimates of General Aviation Visitors at North Dakota Airports

Associated City	Airport	GA True Transient Arrivals	Visitors per Arrival	Estimated GA Visitors
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	10,080	3.5	35,280
Devils Lake	Devils Lake Regional	1,783	3.5	6,239
Dickinson	Dickinson-Theodore Roosevelt Regional	969	3.5	3,391
Fargo	Hector International	12,025	3.5	42,088
Grand Forks	Grand Forks International	14,108	3.5	49,376
Jamestown	Jamestown Regional	2,775	3.5	9,713
Minot	Minot International	5,572	3.5	19,502
Williston	Sloulin Field International	3,012	3.5	10,542
COMMERCIAL SERVICE AIRPORTS TOTAL		**50,323**	**3.5**	**176,129**
GENERAL AVIATION AIRPORTS				
Arthur	Arthur	2	1.5	4
Ashley	Ashley Municipal	210	2.5	525
Beach	Beach	140	3.5	490
Beulah	Beulah	336	3.5	1,176
Bottineau	Bottineau Municipal	205	2.0	409
Bowbells	Bowbells Municipal	0	1.5	0
Bowman	Bowman Municipal	282	2.5	705
Cando	Cando Municipal	83	3.5	289
Carrington	Carrington Municipal	242	2.5	604
Casselton	Casselton Robert Miller Regional	1,040	3.5	3,640
Cavalier	Cavalier Municipal	109	2.0	218
Columbus	Columbus Municipal	17	1.5	25
Cooperstown	Cooperstown Municipal	263	2.0	527
Crosby	Crosby Municipal	57	3.5	200
Drayton	Drayton Municipal	0	2.0	0
Edgeley	Edgeley Municipal	14	3.5	48
Elgin	Elgin Municipal	8	1.5	11
Ellendale	Ellendale Municipal	220	3.5	770
Enderlin	Sky Haven	201	2.0	402
Fessenden	Fessenden Municipal	0	1.5	0
Fort Yates	Standing Rock	33	2.0	66
Gackle	Gackle Municipal	1	1.5	1
Garrison	Garrison Municipal	344	3.5	1,205
Garrison Dam	Garrison Dam Recreational Airpark	17	1.5	25
Glen Ullin	Glen Ullin Regional	25	3.5	88
Grafton	Hutson Field	890	2.5	2,225
Gwinner	Gwinner-Roger Melroe Field	555	2.5	1,388
Harvey	Harvey Municipal	20	2.0	40

Associated City	Airport	GA True Transient Arrivals	Visitors per Arrival	Estimated GA Visitors
Hazelton	Hazelton Municipal	33	1.5	50
Hazen	Mercer County Regional	150	3.5	525
Hettinger	Hettinger Municipal	550	2.5	1,375
Hillsboro	Hillsboro Municipal	564	2.0	1,129
Intl. Peace Garden-Dunseith	International Peace Garden	34	2.0	68
Kenmare	Kenmare Municipal	180	3.5	630
Killdeer	Weydahl Field	0	2.0	0
Kindred	Hamry Field	289	2.0	578
Kulm	Kulm Municipal	0	1.5	0
Lakota	Lakota Municipal	228	2.0	455
LaMoure	LaMoure Rott Municipal	160	3.5	558
Langdon	Robertson Field	0	3.5	0
Larimore	Larimore Municipal	820	2.0	1,640
Leeds	Leeds Municipal	0	2.0	0
Lidgerwood	Lidgerwood Municipal	17	1.5	25
Linton	Linton Municipal	108	3.5	378
Lisbon	Lisbon Municipal	96	2.0	193
Maddock	Maddock Municipal	15	1.5	22
Mandan	Mandan Municipal	1,175	3.5	4,113
Mayville	Mayville Municipal	894	3.5	3,128
McClusky	McClusky Municipal	0	1.5	0
McVille	McVille Municipal	34	1.5	51
Milnor	Milnor Municipal	3	1.5	5
Minto	Minto Municipal	65	2.0	131
Mohall	Mohall Municipal	36	2.0	73
Mott	Mott Municipal	52	3.5	183
Napoleon	Napoleon Municipal	30	3.5	105
New Rockford	Tomlinson Field	82	2.0	163
New Town	New Town Municipal	128	3.5	447
Northwood	Northwood Municipal-Vince Field	502	2.0	1,004
Oakes	Oakes Municipal	26	2.0	53
Page	Page Regional	58	2.0	116
Park River	Park River-W C Skjerven Field	74	2.0	148
Parshall	Parshall-Hankins	30	3.5	105
Pembina	Pembina Municipal	144	2.5	361
Plaza	Trulson Field	17	1.5	25
Richardton	Richardton	0	1.5	0
Rolette	Rolette	48	2.0	95
Rolla	Rolla Municipal	240	2.5	600
Rugby	Rugby Municipal	59	2.0	119
St. Thomas	St. Thomas Municipal	40	2.0	79

Associated City	Airport	GA True Transient Arrivals	Visitors per Arrival	Estimated GA Visitors
Stanley	Stanley Municipal	78	3.5	271
Tioga	Tioga Municipal	1,125	3.5	3,938
Towner	Towner Municipal	13	1.5	20
Turtle Lake	Turtle Lake Municipal	51	1.5	77
Valley City	Barnes County Municipal	618	2.5	1,544
Wahpeton	Harry Stern	1,475	2.5	3,688
Walhalla	Walhalla Municipal	84	2.0	167
Washburn	Washburn Municipal	133	2.0	265
Watford City	Watford City Municipal	210	3.5	735
West Fargo	West Fargo Municipal	436	3.5	1,525
Westhope	Westhope Municipal	34	2.0	67
Wishek	Wishek Municipal	25	3.5	88
GENERAL AVIATION AIRPORTS TOTAL		**16,571**	**2.8**	**46,189**
ALL AIRPORTS TOTAL		**66,894**	**3.3**	**222,318**

Source: Wilbur Smith Associates.

Prepared: December 2010.

Table A-3: Estimates of Annual Expenditures by General Aviation Visitors to North Dakota Airports

Associated City	Airport	Estimated GA Visitors	Avg. Visitor Spending per Trip	Annual GA Visitor Expenditures
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	35,280	$ 80	$2,822,400
Devils Lake	Devils Lake Regional	6,239	$ 80	$ 499,100
Dickinson	Dickinson-Theodore Roosevelt Regional	3,391	$ 80	$ 271,300
Fargo	Hector International	42,088	$ 80	$3,367,000
Grand Forks	Grand Forks International	49,376	$ 80	$3,950,100
Jamestown	Jamestown Regional	9,713	$ 80	$ 777,000
Minot	Minot International	19,502	$ 80	$1,560,200
Williston	Sloulin Field International	10,542	$ 80	$ 843,300
COMMERCIAL SERVICE AIRPORTS TOTAL		**176,129**	**$ 80**	**$14,090,400**
GENERAL AVIATION AIRPORTS				
Arthur	Arthur	4	$ 10	$ 0
Ashley	Ashley Municipal	525	$ 50	$ 26,300
Beach	Beach	490	$ 80	$ 39,200
Beulah	Beulah	1,176	$ 80	$ 94,100
Bottineau	Bottineau Municipal	409	$ 20	$ 8,200
Bowbells	Bowbells Municipal	0	$ 10	$ 0
Bowman	Bowman Municipal	705	$ 50	$ 35,300
Cando	Cando Municipal	289	$ 80	$ 23,100
Carrington	Carrington Municipal	604	$ 50	$ 30,200
Casselton	Casselton Robert Miller Regional	3,640	$ 80	$ 291,200
Cavalier	Cavalier Municipal	218	$ 20	$ 4,400
Columbus	Columbus Municipal	25	$ 10	$ 200
Cooperstown	Cooperstown Municipal	527	$ 20	$ 10,500
Crosby	Crosby Municipal	200	$ 80	$ 16,000
Drayton	Drayton Municipal	0	$ 20	$ 0
Edgeley	Edgeley Municipal	48	$ 80	$ 3,800
Elgin	Elgin Municipal	11	$ 10	$ 100
Ellendale	Ellendale Municipal	770	$ 80	$ 61,600
Enderlin	Sky Haven	402	$ 20	$ 8,000
Fessenden	Fessenden Municipal	0	$ 10	$ 0
Fort Yates	Standing Rock	66	$ 20	$ 1,300
Gackle	Gackle Municipal	1	$ 10	$ 0
Garrison	Garrison Municipal	1,205	$ 80	$ 96,400
Garrison Dam	Garrison Dam Recreational Airpark	25	$ 10	$ 200
Glen Ullin	Glen Ullin Regional	88	$ 80	$ 7,000
Grafton	Hutson Field	2,225	$ 50	$ 111,300
Gwinner	Gwinner-Roger Melroe Field	1,388	$ 50	$ 69,400
Harvey	Harvey Municipal	40	$ 20	$ 800

Associated City	Airport	Estimated GA Visitors	Avg. Visitor Spending per Trip	Annual GA Visitor Expenditures
Hazelton	Hazelton Municipal	50	$ 10	$ 500
Hazen	Mercer County Regional	525	$ 80	$ 42,000
Hettinger	Hettinger Municipal	1,375	$ 50	$ 68,800
Hillsboro	Hillsboro Municipal	1,129	$ 20	$ 22,600
Intl. Peace Garden-Dunseith	International Peace Garden	68	$ 20	$ 1,400
Kenmare	Kenmare Municipal	630	$ 80	$ 50,400
Killdeer	Weydahl Field	0	$ 20	$ 0
Kindred	Hamry Field	578	$ 20	$ 11,600
Kulm	Kulm Municipal	0	$ 10	$ 0
Lakota	Lakota Municipal	455	$ 20	$ 9,100
LaMoure	LaMoure Rott Municipal	558	$ 80	$ 44,700
Langdon	Robertson Field	0	$ 80	$ 0
Larimore	Larimore Municipal	1,640	$ 20	$ 32,800
Leeds	Leeds Municipal	0	$ 20	$ 0
Lidgerwood	Lidgerwood Municipal	25	$ 10	$ 200
Linton	Linton Municipal	378	$ 80	$ 30,200
Lisbon	Lisbon Municipal	193	$ 20	$ 3,900
Maddock	Maddock Municipal	22	$ 10	$ 200
Mandan	Mandan Municipal	4,113	$ 80	$ 329,000
Mayville	Mayville Municipal	3,128	$ 80	$ 250,300
McClusky	McClusky Municipal	0	$ 10	$ 0
McVille	McVille Municipal	51	$ 10	$ 500
Milnor	Milnor Municipal	5	$ 10	$ 0
Minto	Minto Municipal	131	$ 20	$ 2,600
Mohall	Mohall Municipal	73	$ 20	$ 1,500
Mott	Mott Municipal	183	$ 80	$ 14,600
Napoleon	Napoleon Municipal	105	$ 80	$ 8,400
New Rockford	Tomlinson Field	163	$ 20	$ 3,300
New Town	New Town Municipal	447	$ 80	$ 35,800
Northwood	Northwood Municipal-Vince Field	1,004	$ 20	$ 20,100
Oakes	Oakes Municipal	53	$ 20	$ 1,100
Page	Page Regional	116	$ 20	$ 2,300
Park River	Park River-W C Skjerven Field	148	$ 20	$ 3,000
Parshall	Parshall-Hankins	105	$ 80	$ 8,400
Pembina	Pembina Municipal	361	$ 50	$ 18,100
Plaza	Trulson Field	25	$ 10	$ 200
Richardton	Richardton	0	$ 10	$ 0
Rolette	Rolette	95	$ 20	$ 1,900
Rolla	Rolla Municipal	600	$ 50	$ 30,000
Rugby	Rugby Municipal	119	$ 20	$ 2,400
St. Thomas	St. Thomas Municipal	79	$ 20	$ 1,600

Associated City	Airport	Estimated GA Visitors	Avg. Visitor Spending per Trip	Annual GA Visitor Expenditures
Stanley	Stanley Municipal	271	$ 80	$ 21,700
Tioga	Tioga Municipal	3,938	$ 80	$ 315,000
Towner	Towner Municipal	20	$ 10	$ 200
Turtle Lake	Turtle Lake Municipal	77	$ 10	$ 800
Valley City	Barnes County Municipal	1,544	$ 50	$ 77,200
Wahpeton	Harry Stern	3,688	$ 50	$ 184,400
Walhalla	Walhalla Municipal	167	$ 20	$ 3,300
Washburn	Washburn Municipal	265	$ 20	$ 5,300
Watford City	Watford City Municipal	735	$ 80	$ 58,800
West Fargo	West Fargo Municipal	1,525	$ 80	$ 122,000
Westhope	Westhope Municipal	67	$ 20	$ 1,300
Wishek	Wishek Municipal	88	$ 80	$ 7,000
GENERAL AVIATION AIRPORTS TOTAL		**46,189**	**$ 60**	**$2,789,100**
ALL AIRPORTS TOTAL		**222,318**	**$ 76**	**$16,879,500**

Source: Wilbur Smith Associates.

Prepared: December 2010.

Note: Expenditures rounded to nearest hundred.

Table A-4: Estimates of Commercial Service Visitors at North Dakota Airports

Airport	2010 Enplaned Passengers	Percent Visitors	Visitors
COMMERCIAL SERVICE AIRPORTS			
Bismarck	190,000	41.6%	79,040
Devils Lake Regional	4,300	52.3%	2,249
Dickinson-Theodore Roosevelt Regional	10,000	59.1%	5,910
Hector International	370,000	39.9%	147,630
Grand Forks International	113,280	39.3%	44,519
Jamestown Regional	4,300	41.1%	1,767
Minot International	74,500	45.5%	33,898
Sloulin Field International	14,439	55.2%	7,970
COMMERCIAL SERVICE AIRPORTS TOTAL	**780,819**	**41.4%**	**322,983**

Source: Wilbur Smith Associates.

Prepared: December 2010.

Table A-5: Estimates of Commercial Service Visitor Expenditures at North Dakota Airports

Airport	Visitors	Spending per Traveler	Visitor Expenditures
COMMERCIAL SERVICE AIRPORTS			
Bismarck	79,040	$270	$21,340,800
Devils Lake Regional	2,249	$240	$539,736
Dickinson-Theodore Roosevelt Regional	5,910	$765	$4,521,150
Hector International	147,630	$335	$49,456,050
Grand Forks International	44,519	$220	$9,794,189
Jamestown Regional	1,767	$290	$512,517
Minot International	33,898	$425	$14,406,438
Sloulin Field International	7,970	$550	$4,383,680
COMMERCIAL SERVICE AIRPORTS TOTAL	**322,983**	**$325**	**$104,954,560**

Source: Wilbur Smith Associates.

Prepared: December 2010.

Table A-6: North Dakota On-Airport Employment

Associated City	Airport Name	First Round Employment	Secondary Employment	Total Employment
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	490	447	937
Devils Lake	Devils Lake Regional	38	33	71
Dickinson	Dickinson-Theodore Roosevelt Regional	38	40	78
Fargo	Hector International	1,369	1,254	2,623
Grand Forks	Grand Forks International	749	769	1,518
Jamestown	Jamestown Regional	42	43	85
Minot	Minot International	159	154	313
Williston	Sloulin Field International	60	56	116
COMMERCIAL SERVICE AIRPORTS TOTAL		**2,945**	**2,796**	**5,741**
GENERAL AVIATION AIRPORTS				
Arthur	Arthur	Less than 1	0	Less than 1
Ashley	Ashley Municipal	5	4	9
Beach	Beach	0	0	0
Beulah	Beulah	14	15	29
Bottineau	Bottineau Municipal	6	7	13
Bowbells	Bowbells Municipal	Less than 1	0	Less than 1
Bowman	Bowman Municipal	8	7	15
Cando	Cando Municipal	2	3	5
Carrington	Carrington Municipal	5	5	10
Casselton	Casselton Robert Miller Regional	18	20	38
Cavalier	Cavalier Municipal	8	8	16
Columbus	Columbus Municipal	Less than 1	0	Less than 1
Cooperstown	Cooperstown Municipal	3	3	6
Crosby	Crosby Municipal	6	6	12
Drayton	Drayton Municipal	4	3	7
Edgeley	Edgeley Municipal	4	2	6
Elgin	Elgin Municipal	Less than 1	0	Less than 1
Ellendale	Ellendale Municipal	1	0	1
Enderlin	Sky Haven	1	1	2
Fessenden	Fessenden Municipal	7	7	14
Fort Yates	Standing Rock	6	4	10
Gackle	Gackle Municipal	Less than 1	0	Less than 1
Garrison	Garrison Municipal	2	1	3
Garrison Dam	Garrison Dam Recreational Airpark	1	0	1
Glen Ullin	Glen Ullin Regional	Less than 1	0	Less than 1
Grafton	Hutson Field	17	16	33
Gwinner	Gwinner-Roger Melroe Field	9	8	17
Harvey	Harvey Municipal	13	13	26

Associated City	Airport Name	First Round Employment	Secondary Employment	Total Employment
Hazelton	Hazelton Municipal	6	6	12
Hazen	Mercer County Regional	4	3	7
Hettinger	Hettinger Municipal	10	9	19
Hillsboro	Hillsboro Municipal	14	15	29
Intl. Peace Garden-Dunseith	International Peace Garden	1	1	2
Kenmare	Kenmare Municipal	3	3	6
Killdeer	Weydahl Field	Less than 1	0	Less than 1
Kindred	Hamry Field	18	17	35
Kulm	Kulm Municipal	Less than 1	0	Less than 1
Lakota	Lakota Municipal	3	1	4
LaMoure	LaMoure Rott Municipal	5	5	10
Langdon	Robertson Field	6	8	14
Larimore	Larimore Municipal	11	14	25
Leeds	Leeds Municipal	Less than 1	0	Less than 1
Lidgerwood	Lidgerwood Municipal	Less than 1	0	Less than 1
Linton	Linton Municipal	4	3	7
Lisbon	Lisbon Municipal	6	6	12
Maddock	Maddock Municipal	6	5	11
Mandan	Mandan Municipal	11	10	21
Mayville	Mayville Municipal	5	4	9
McClusky	McClusky Municipal	1	0	1
McVille	McVille Municipal	Less than 1	0	Less than 1
Milnor	Milnor Municipal	Less than 1	0	Less than 1
Minto	Minto Municipal	Less than 1	0	Less than 1
Mohall	Mohall Municipal	11	11	22
Mott	Mott Municipal	10	7	17
Napoleon	Napoleon Municipal	3	3	6
New Rockford	Tomlinson Field	4	4	8
New Town	New Town Municipal	0	0	0
Northwood	Northwood Municipal-Vince Field	4	2	6
Oakes	Oakes Municipal	4	3	7
Page	Page Regional	8	9	17
Park River	Park River-W C Skjerven Field	12	12	24
Parshall	Parshall-Hankins	2	2	4
Pembina	Pembina Municipal	3	2	5
Plaza	Trulson Field	Less than 1	0	Less than 1
Richardton	Richardton	0	0	0
Rolette	Rolette	Less than 1	0	Less than 1
Rolla	Rolla Municipal	7	8	15
Rugby	Rugby Municipal	9	7	16
St. Thomas	St. Thomas Municipal	3	3	6

Associated City	Airport Name	First Round Employment	Secondary Employment	Total Employment
Stanley	Stanley Municipal	3	1	4
Tioga	Tioga Municipal	4	4	8
Towner	Towner Municipal	2	1	3
Turtle Lake	Turtle Lake Municipal	Less than 1	0	Less than 1
Valley City	Barnes County Municipal	15	14	29
Wahpeton	Harry Stern	45	44	89
Walhalla	Walhalla Municipal	7	6	13
Washburn	Washburn Municipal	3	3	6
Watford City	Watford City Municipal	10	9	19
West Fargo	West Fargo Municipal	9	11	20
Westhope	Westhope Municipal	Less than 1	0	Less than 1
Wishek	Wishek Municipal	Less than 1	0	Less than 1
GENERAL AVIATION AIRPORTS TOTAL		**432**	**409**	**841**
ALL AIRPORTS TOTAL		**3,377**	**3,205**	**6,582**

Source: Wilbur Smith Associates and RIMS II Multipliers.

Prepared: December 2010.

Table A-7: North Dakota General Aviation Visitor-Related Employment

Associated City	Airport Name	First Round Employment	Secondary Employment	Total Employment
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	65	18	83
Devils Lake	Devils Lake Regional	11	4	15
Dickinson	Dickinson-Theodore Roosevelt Regional	6	2	8
Fargo	Hector International	77	21	98
Grand Forks	Grand Forks International	91	25	116
Jamestown	Jamestown Regional	18	5	23
Minot	Minot International	36	10	46
Williston	Sloulin Field International	19	6	25
COMMERCIAL SERVICE AIRPORTS TOTAL		**323**	**91**	**414**
GENERAL AVIATION AIRPORTS				
Arthur	Arthur	0	0	0
Ashley	Ashley Municipal	1	0	1
Beach	Beach	1	0	1
Beulah	Beulah	2	1	3
Bottineau	Bottineau Municipal	0	0	0
Bowbells	Bowbells Municipal	0	0	0
Bowman	Bowman Municipal	1	0	1
Cando	Cando Municipal	1	0	1
Carrington	Carrington Municipal	1	0	1
Casselton	Casselton Robert Miller Regional	7	2	9
Cavalier	Cavalier Municipal	0	0	0
Columbus	Columbus Municipal	0	0	0
Cooperstown	Cooperstown Municipal	0	0	0
Crosby	Crosby Municipal	0	0	0
Drayton	Drayton Municipal	0	0	0
Edgeley	Edgeley Municipal	0	0	0
Elgin	Elgin Municipal	0	0	0
Ellendale	Ellendale Municipal	1	1	2
Enderlin	Sky Haven	0	0	0
Fessenden	Fessenden Municipal	0	0	0
Fort Yates	Standing Rock	0	0	0
Gackle	Gackle Municipal	0	0	0
Garrison	Garrison Municipal	2	1	3
Garrison Dam	Garrison Dam Recreational Airpark	0	0	0
Glen Ullin	Glen Ullin Regional	0	0	0
Grafton	Hutson Field	3	0	3
Gwinner	Gwinner-Roger Melroe Field	2	0	2
Harvey	Harvey Municipal	0	0	0

Associated City	Airport Name	First Round Employment	Secondary Employment	Total Employment
Hazelton	Hazelton Municipal	0	0	0
Hazen	Mercer County Regional	1	0	1
Hettinger	Hettinger Municipal	2	0	2
Hillsboro	Hillsboro Municipal	1	0	1
Intl. Peace Garden-Dunseith	International Peace Garden	0	0	0
Kenmare	Kenmare Municipal	1	0	1
Killdeer	Weydahl Field	0	0	0
Kindred	Hamry Field	0	0	0
Kulm	Kulm Municipal	0	0	0
Lakota	Lakota Municipal	0	0	0
LaMoure	LaMoure Rott Municipal	1	0	1
Langdon	Robertson Field	0	0	0
Larimore	Larimore Municipal	1	0	1
Leeds	Leeds Municipal	0	0	0
Lidgerwood	Lidgerwood Municipal	0	0	0
Linton	Linton Municipal	1	0	1
Lisbon	Lisbon Municipal	0	0	0
Maddock	Maddock Municipal	0	0	0
Mandan	Mandan Municipal	8	2	10
Mayville	Mayville Municipal	6	1	7
McClusky	McClusky Municipal	0	0	0
McVille	McVille Municipal	0	0	0
Milnor	Milnor Municipal	0	0	0
Minto	Minto Municipal	0	0	0
Mohall	Mohall Municipal	0	0	0
Mott	Mott Municipal	0	0	0
Napoleon	Napoleon Municipal	0	0	0
New Rockford	Tomlinson Field	0	0	0
New Town	New Town Municipal	1	0	1
Northwood	Northwood Municipal-Vince Field	0	1	1
Oakes	Oakes Municipal	0	0	0
Page	Page Regional	0	0	0
Park River	Park River-W C Skjerven Field	0	0	0
Parshall	Parshall-Hankins	0	0	0
Pembina	Pembina Municipal	0	1	1
Plaza	Trulson Field	0	0	0
Richardton	Richardton	0	0	0
Rolette	Rolette	0	0	0
Rolla	Rolla Municipal	1	0	1
Rugby	Rugby Municipal	0	0	0
St. Thomas	St. Thomas Municipal	0	0	0

Associated City	Airport Name	First Round Employment	Secondary Employment	Total Employment
Stanley	Stanley Municipal	0	1	1
Tioga	Tioga Municipal	7	2	9
Towner	Towner Municipal	0	0	0
Turtle Lake	Turtle Lake Municipal	0	0	0
Valley City	Barnes County Municipal	2	0	2
Wahpeton	Harry Stern	4	1	5
Walhalla	Walhalla Municipal	0	0	0
Washburn	Washburn Municipal	0	0	0
Watford City	Watford City Municipal	1	1	2
West Fargo	West Fargo Municipal	3	1	4
Westhope	Westhope Municipal	0	0	0
Wishek	Wishek Municipal	0	0	0
GENERAL AVIATION AIRPORTS TOTAL		**63**	**16**	**79**
ALL AIRPORTS TOTAL		**386**	**107**	**493**

Source: Wilbur Smith Associates and RIMS II Multipliers.

Prepared: December 2010.

Table A-8: North Dakota Commercial Service Visitor-Related Employment

Associated City	Airport Name	First Round Employment	Secondary Employment	Total Employment
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	413	139	552
Devils Lake	Devils Lake Regional	10	3	13
Dickinson	Dickinson-Theodore Roosevelt Regional	88	30	118
Fargo	Hector International	958	322	1,280
Grand Forks	Grand Forks International	190	64	254
Jamestown	Jamestown Regional	10	3	13
Minot	Minot International	279	94	373
Williston	Sloulin Field International	85	29	114
COMMERCIAL SERVICE AIRPORTS TOTAL		**2,033**	**684**	**2,717**

Source: Wilbur Smith Associates and RIMS II Multipliers.

Prepared: December 2010.

Table A-9: North Dakota Airport's Total Employment

Associated City	Airport Name	Total First Round Employment	Total Secondary Employment	Total Employment
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	968	604	1,572
Devils Lake	Devils Lake Regional	59	40	99
Dickinson	Dickinson-Theodore Roosevelt Regional	132	72	204
Fargo	Hector International	2,404	1,597	4,001
Grand Forks	Grand Forks International	1,030	858	1,888
Jamestown	Jamestown Regional	70	51	121
Minot	Minot International	474	258	732
Williston	Sloulin Field International	164	91	255
COMMERCIAL SERVICE AIRPORTS TOTAL		**5,301**	**3,571**	**8,872**
GENERAL AVIATION AIRPORTS				
Arthur	Arthur	Less than 1	0	Less than 1
Ashley	Ashley Municipal	6	4	10
Beach	Beach	1	0	1
Beulah	Beulah	16	16	32
Bottineau	Bottineau Municipal	6	7	13
Bowbells	Bowbells Municipal	Less than 1	0	Less than 1
Bowman	Bowman Municipal	9	7	16
Cando	Cando Municipal	3	3	6
Carrington	Carrington Municipal	6	5	11
Casselton	Casselton Robert Miller Regional	25	22	47
Cavalier	Cavalier Municipal	8	8	16
Columbus	Columbus Municipal	Less than 1	0	Less than 1
Cooperstown	Cooperstown Municipal	3	3	6
Crosby	Crosby Municipal	6	6	12
Drayton	Drayton Municipal	4	3	7
Edgeley	Edgeley Municipal	4	2	6
Elgin	Elgin Municipal	Less than 1	0	Less than 1
Ellendale	Ellendale Municipal	2	1	3
Enderlin	Sky Haven	1	1	2
Fessenden	Fessenden Municipal	7	7	14
Fort Yates	Standing Rock	6	4	10
Gackle	Gackle Municipal	Less than 1	0	Less than 1
Garrison	Garrison Municipal	4	2	6
Garrison Dam	Garrison Dam Recreational Airpark	1	0	1
Glen Ullin	Glen Ullin Regional	Less than 1	0	Less than 1
Grafton	Hutson Field	20	16	36
Gwinner	Gwinner-Roger Melroe Field	11	8	19
Harvey	Harvey Municipal	13	13	26

Associated City	Airport Name	Total First Round Employment	Total Secondary Employment	Total Employment
Hazelton	Hazelton Municipal	6	6	12
Hazen	Mercer County Regional	5	3	8
Hettinger	Hettinger Municipal	12	9	21
Hillsboro	Hillsboro Municipal	15	15	30
International Peace Garden-Dunseith	International Peace Garden	1	1	2
Kenmare	Kenmare Municipal	4	3	7
Killdeer	Weydahl Field	Less than 1	0	Less than 1
Kindred	Hamry Field	18	17	35
Kulm	Kulm Municipal	Less than 1	0	Less than 1
Lakota	Lakota Municipal	3	1	4
LaMoure	LaMoure Rott Municipal	6	5	11
Langdon	Robertson Field	6	8	14
Larimore	Larimore Municipal	12	14	26
Leeds	Leeds Municipal	Less than 1	0	Less than 1
Lidgerwood	Lidgerwood Municipal	Less than 1	0	Less than 1
Linton	Linton Municipal	5	3	8
Lisbon	Lisbon Municipal	6	6	12
Maddock	Maddock Municipal	6	5	11
Mandan	Mandan Municipal	19	12	31
Mayville	Mayville Municipal	11	5	16
McClusky	McClusky Municipal	1	0	1
McVille	McVille Municipal	Less than 1	0	Less than 1
Milnor	Milnor Municipal	Less than 1	0	Less than 1
Minto	Minto Municipal	Less than 1	0	Less than 1
Mohall	Mohall Municipal	11	11	22
Mott	Mott Municipal	10	7	17
Napoleon	Napoleon Municipal	3	3	6
New Rockford	Tomlinson Field	4	4	8
New Town	New Town Municipal	1	-	1
Northwood	Northwood Municipal-Vince Field	4	3	7
Oakes	Oakes Municipal	4	3	7
Page	Page Regional	8	9	17
Park River	Park River-W C Skjerven Field	12	12	24
Parshall	Parshall-Hankins	2	2	4
Pembina	Pembina Municipal	3	3	6
Plaza	Trulson Field	Less than 1	0	Less than 1
Richardton	Richardton	0	0	0
Rolette	Rolette	Less than 1	0	Less than 1
Rolla	Rolla Municipal	8	8	16
Rugby	Rugby Municipal	9	7	16

Associated City	Airport Name	Total First Round Employment	Total Secondary Employment	Total Employment
St. Thomas	St. Thomas Municipal	3	3	6
Stanley	Stanley Municipal	3	2	5
Tioga	Tioga Municipal	11	6	17
Towner	Towner Municipal	2	1	3
Turtle Lake	Turtle Lake Municipal	Less than 1	0	Less than 1
Valley City	Barnes County Municipal	17	14	31
Wahpeton	Harry Stern	49	45	94
Walhalla	Walhalla Municipal	7	6	13
Washburn	Washburn Municipal	3	3	6
Watford City	Watford City Municipal	11	10	21
West Fargo	West Fargo Municipal	12	12	24
Westhope	Westhope Municipal	Less than 1	0	Less than 1
Wishek	Wishek Municipal	Less than 1	0	Less than 1
GENERAL AVIATION AIRPORTS TOTAL		**495**	**425**	**920**
ALL AIRPORTS TOTAL		**5,796**	**3,996**	**9,792**

Source: Wilbur Smith Associates and RIMS II Multipliers.

Prepared: December 2010.

Table A-10: North Dakota On-Airport Payroll

Associated City	Airport Name	First Round Payroll	Secondary Payroll	Total Payroll
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	$ 24,675,400	$ 17,560,900	$ 42,236,300
Devils Lake	Devils Lake Regional	$ 1,462,500	$ 975,000	$ 2,437,500
Dickinson	Dickinson-Theodore Roosevelt Regional	$ 1,569,900	$ 1,131,800	$ 2,701,700
Fargo	Hector International	$ 77,707,100	$ 57,512,300	$ 135,219,400
Grand Forks	Grand Forks International	$ 34,611,400	$ 24,834,600	$ 59,446,000
Jamestown	Jamestown Regional	$ 1,608,400	$ 1,134,000	$ 2,742,400
Minot	Minot International	$ 7,094,100	$ 5,087,600	$ 12,181,700
Williston	Sloulin Field International	$ 2,525,700	$ 1,734,800	$ 4,260,500
COMMERCIAL SERVICE AIRPORTS TOTAL		**$ 151,254,500**	**$ 109,971,000**	**$ 261,225,500**
GENERAL AVIATION AIRPORTS				
Arthur	Arthur	$2,900	$2,300	$5,200
Ashley	Ashley Municipal	$ 156,000	$ 96,100	$ 252,100
Beach	Beach	$8,400	$5,000	$ 13,400
Beulah	Beulah	$ 531,600	$ 377,300	$ 908,900
Bottineau	Bottineau Municipal	$ 215,500	$ 144,300	$ 359,800
Bowbells	Bowbells Municipal	$2,900	$2,300	$5,200
Bowman	Bowman Municipal	$ 136,300	$ 97,600	$ 233,900
Cando	Cando Municipal	$ 75,300	$ 52,800	$ 128,100
Carrington	Carrington Municipal	$ 155,400	$ 102,900	$ 258,300
Casselton	Casselton Robert Miller Regional	$ 659,700	$ 453,500	$ 1,113,200
Cavalier	Cavalier Municipal	$ 234,600	$ 160,800	$ 395,400
Columbus	Columbus Municipal	$2,900	$2,300	$5,200
Cooperstown	Cooperstown Municipal	$ 92,600	$ 57,300	$ 149,900
Crosby	Crosby Municipal	$ 208,200	$ 149,200	$ 357,400
Drayton	Drayton Municipal	$ 116,300	$ 78,100	$ 194,400
Edgeley	Edgeley Municipal	$ 84,400	$ 49,000	$ 133,400
Elgin	Elgin Municipal	$2,900	$2,300	$5,200
Ellendale	Ellendale Municipal	$ 23,600	$ 12,800	$ 36,400
Enderlin	Sky Haven	$ 43,800	$ 23,000	$ 66,800
Fessenden	Fessenden Municipal	$ 240,300	$ 174,300	$ 414,600
Fort Yates	Standing Rock	$ 191,600	$ 98,100	$ 289,700
Gackle	Gackle Municipal	$2,900	$2,300	$5,200
Garrison	Garrison Municipal	$ 97,700	$ 64,000	$ 161,700
Garrison Dam	Garrison Dam Recreational Airpark	$1,000	$ 800	$1,800
Glen Ullin	Glen Ullin Regional	$ 11,700	$6,700	$ 18,400
Grafton	Hutson Field	$ 532,100	$ 379,300	$ 911,400
Gwinner	Gwinner-Roger Melroe Field	$ 148,600	$ 87,000	$ 235,600
Harvey	Harvey Municipal	$ 468,900	$ 328,100	$ 797,000

Associated City	Airport Name	First Round Payroll	Secondary Payroll	Total Payroll
Hazelton	Hazelton Municipal	$ 198,300	$ 143,800	$ 342,100
Hazen	Mercer County Regional	$ 74,800	$ 43,100	$ 117,900
Hettinger	Hettinger Municipal	$ 317,900	$ 227,000	$ 544,900
Hillsboro	Hillsboro Municipal	$ 405,500	$ 291,000	$ 696,500
Intl. Peace Garden-Dunseith	International Peace Garden	$ 17,000	$9,200	$ 26,200
Kenmare	Kenmare Municipal	$ 90,200	$ 62,700	$ 152,900
Killdeer	Weydahl Field	$3,600	$2,600	$6,200
Kindred	Hamry Field	$ 705,200	$ 494,600	$ 1,199,800
Kulm	Kulm Municipal	$4,600	$3,200	$7,800
Lakota	Lakota Municipal	$ 64,600	$ 34,300	$ 98,900
LaMoure	LaMoure Rott Municipal	$ 186,400	$ 133,400	$ 319,800
Langdon	Robertson Field	$ 236,500	$ 168,200	$ 404,700
Larimore	Larimore Municipal	$ 439,700	$ 318,800	$ 758,500
Leeds	Leeds Municipal	$3,200	$2,400	$5,600
Lidgerwood	Lidgerwood Municipal	$1,500	$ 700	$2,200
Linton	Linton Municipal	$ 123,300	$ 83,000	$ 206,300
Lisbon	Lisbon Municipal	$ 233,200	$ 160,000	$ 393,200
Maddock	Maddock Municipal	$ 212,800	$ 154,700	$ 367,500
Mandan	Mandan Municipal	$ 445,800	$ 304,600	$ 750,400
Mayville	Mayville Municipal	$ 143,900	$ 93,100	$ 237,000
McClusky	McClusky Municipal	$8,800	$6,800	$ 15,600
McVille	McVille Municipal	$ 900	$ 400	$1,300
Milnor	Milnor Municipal	$3,800	$2,700	$6,500
Minto	Minto Municipal	$3,500	$2,500	$6,000
Mohall	Mohall Municipal	$ 402,800	$ 261,300	$ 664,100
Mott	Mott Municipal	$ 273,200	$ 148,300	$ 421,500
Napoleon	Napoleon Municipal	$ 106,400	$ 64,200	$ 170,600
New Rockford	Tomlinson Field	$ 134,100	$ 96,500	$ 230,600
New Town	New Town Municipal	$9,200	$4,700	$ 13,900
Northwood	Northwood Municipal-Vince Field	$ 108,300	$ 70,000	$ 178,300
Oakes	Oakes Municipal	$ 117,500	$ 83,300	$ 200,800
Page	Page Regional	$ 285,800	$ 213,500	$ 499,300
Park River	Park River-W C Skjerven Field	$ 402,000	$ 277,200	$ 679,200
Parshall	Parshall-Hankins	$ 56,700	$ 34,400	$ 91,100
Pembina	Pembina Municipal	$ 98,000	$ 49,800	$ 147,800
Plaza	Trulson Field	$2,900	$2,300	$5,200
Richardton	Richardton	$0	$0	$0
Rolette	Rolette	$1,700	$ 900	$2,600
Rolla	Rolla Municipal	$ 347,200	$ 249,900	$ 597,100
Rugby	Rugby Municipal	$ 215,300	$ 134,300	$ 349,600
St. Thomas	St. Thomas Municipal	$ 100,000	$ 70,500	$ 170,500

Associated City	Airport Name	First Round Payroll	Secondary Payroll	Total Payroll
Stanley	Stanley Municipal	$ 70,500	$ 46,700	$ 117,200
Tioga	Tioga Municipal	$ 129,800	$ 91,100	$ 220,900
Towner	Towner Municipal	$ 65,800	$ 47,500	$ 113,300
Turtle Lake	Turtle Lake Municipal	$1,300	$ 700	$2,000
Valley City	Barnes County Municipal	$ 360,200	$ 217,100	$ 577,300
Wahpeton	Harry Stern	$ 1,488,600	$ 985,200	$ 2,473,800
Walhalla	Walhalla Municipal	$ 180,800	$ 115,100	$ 295,900
Washburn	Washburn Municipal	$ 89,900	$ 51,200	$ 141,100
Watford City	Watford City Municipal	$ 275,500	$ 190,800	$ 466,300
West Fargo	West Fargo Municipal	$ 213,300	$ 150,400	$ 363,700
Westhope	Westhope Municipal	$ 800	$ 400	$1,200
Wishek	Wishek Municipal	$3,700	$2,700	$6,400
GENERAL AVIATION AIRPORTS TOTAL		**$13,914,400**	**$ 9,412,300**	**$23,326,700**
ALL AIRPORTS TOTAL		**$ 165,168,900**	**$ 119,383,300**	**$ 284,552,200**

Source: Wilbur Smith Associates and RIMS II Multipliers.

Prepared: December 2010.

Table A-11: North Dakota General Aviation Visitor-Related Payroll

Associated City	Airport Name	First Round Payroll	Secondary Payroll	Total Payroll
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	$ 1,386,600	$785,600	$2,172,200
Devils Lake	Devils Lake Regional	$245,200	$138,900	$ 384,100
Dickinson	Dickinson-Theodore Roosevelt Regional	$133,300	$75,500	$ 208,800
Fargo	Hector International	$ 1,654,100	$937,200	$2,591,300
Grand Forks	Grand Forks International	$ 1,940,600	$ 1,099,500	$3,040,100
Jamestown	Jamestown Regional	$381,700	$216,300	$ 598,000
Minot	Minot International	$766,500	$434,200	$1,200,700
Williston	Sloulin Field International	$414,300	$234,700	$ 649,000
COMMERCIAL SERVICE AIRPORTS TOTAL		**$ 6,922,300**	**$ 3,921,900**	**$ 10,844,200**
GENERAL AVIATION AIRPORTS				
Arthur	Arthur	$0	$0	$ 0
Ashley	Ashley Municipal	$12,900	$ 7,300	$20,200
Beach	Beach	$19,300	$10,900	$30,200
Beulah	Beulah	$46,200	$26,200	$72,400
Bottineau	Bottineau Municipal	$4,000	$ 2,300	$ 6,300
Bowbells	Bowbells Municipal	$0	$0	$ 0
Bowman	Bowman Municipal	$17,300	$ 9,800	$27,100
Cando	Cando Municipal	$11,300	$ 6,500	$17,800
Carrington	Carrington Municipal	$14,800	$ 8,400	$23,200
Casselton	Casselton Robert Miller Regional	$143,100	$81,000	$ 224,100
Cavalier	Cavalier Municipal	$2,100	$ 1,300	$ 3,400
Columbus	Columbus Municipal	$ 100	$ 100	$200
Cooperstown	Cooperstown Municipal	$5,200	$ 2,900	$ 8,100
Crosby	Crosby Municipal	$7,900	$ 4,400	$12,300
Drayton	Drayton Municipal	$0	$0	$ 0
Edgeley	Edgeley Municipal	$1,900	$ 1,000	$ 2,900
Elgin	Elgin Municipal	$ 100	$0	$100
Ellendale	Ellendale Municipal	$30,300	$17,100	$47,400
Enderlin	Sky Haven	$3,900	$ 2,300	$ 6,200
Fessenden	Fessenden Municipal	$0	$0	$ 0
Fort Yates	Standing Rock	$ 600	$ 400	$ 1,000
Gackle	Gackle Municipal	$0	$0	$ 0
Garrison	Garrison Municipal	$47,400	$26,800	$74,200
Garrison Dam	Garrison Dam Recreational Airpark	$ 100	$ 100	$200
Glen Ullin	Glen Ullin Regional	$3,400	$ 2,000	$ 5,400
Grafton	Hutson Field	$54,700	$30,900	$85,600
Gwinner	Gwinner-Roger Melroe Field	$34,100	$19,300	$53,400
Harvey	Harvey Municipal	$ 400	$ 200	$600

Associated City	Airport Name	First Round Payroll	Secondary Payroll	Total Payroll
Hazelton	Hazelton Municipal	$ 200	$ 200	$400
Hazen	Mercer County Regional	$20,600	$11,700	$32,300
Hettinger	Hettinger Municipal	$33,800	$19,100	$52,900
Hillsboro	Hillsboro Municipal	$11,100	$ 6,300	$17,400
Intl. Peace Garden-Dunseith	International Peace Garden	$ 700	$ 400	$ 1,100
Kenmare	Kenmare Municipal	$24,800	$14,000	$38,800
Killdeer	Weydahl Field	$0	$0	$ 0
Kindred	Hamry Field	$5,700	$ 3,200	$ 8,900
Kulm	Kulm Municipal	$0	$0	$ 0
Lakota	Lakota Municipal	$4,500	$ 2,500	$ 7,000
LaMoure	LaMoure Rott Municipal	$21,900	$12,500	$34,400
Langdon	Robertson Field	$0	$0	$ 0
Larimore	Larimore Municipal	$16,100	$ 9,100	$25,200
Leeds	Leeds Municipal	$0	$0	$ 0
Lidgerwood	Lidgerwood Municipal	$ 100	$ 100	$200
Linton	Linton Municipal	$14,900	$ 8,400	$23,300
Lisbon	Lisbon Municipal	$1,900	$ 1,100	$ 3,000
Maddock	Maddock Municipal	$ 100	$ 100	$200
Mandan	Mandan Municipal	$161,600	$91,600	$ 253,200
Mayville	Mayville Municipal	$122,900	$69,700	$ 192,600
McClusky	McClusky Municipal	$0	$0	$ 0
McVille	McVille Municipal	$ 200	$ 200	$400
Milnor	Milnor Municipal	$0	$0	$ 0
Minto	Minto Municipal	$1,300	$ 700	$ 2,000
Mohall	Mohall Municipal	$ 700	$ 400	$ 1,100
Mott	Mott Municipal	$7,200	$ 4,100	$11,300
Napoleon	Napoleon Municipal	$4,100	$ 2,400	$ 6,500
New Rockford	Tomlinson Field	$1,600	$ 900	$ 2,500
New Town	New Town Municipal	$17,600	$ 9,900	$27,500
Northwood	Northwood Municipal-Vince Field	$9,900	$ 5,600	$15,500
Oakes	Oakes Municipal	$ 500	$ 300	$800
Page	Page Regional	$1,100	$ 700	$ 1,800
Park River	Park River-W C Skjerven Field	$1,500	$ 800	$ 2,300
Parshall	Parshall-Hankins	$4,100	$ 2,400	$ 6,500
Pembina	Pembina Municipal	$8,900	$ 5,000	$13,900
Plaza	Trulson Field	$ 100	$ 100	$200
Richardton	Richardton	$0	$0	$ 0
Rolette	Rolette	$ 900	$ 600	$ 1,500
Rolla	Rolla Municipal	$14,700	$ 8,400	$23,100
Rugby	Rugby Municipal	$1,200	$ 600	$ 1,800
St. Thomas	St. Thomas Municipal	$ 800	$ 400	$ 1,200

Associated City	Airport Name	First Round Payroll	Secondary Payroll	Total Payroll
Stanley	Stanley Municipal	$10,700	$ 6,000	$16,700
Tioga	Tioga Municipal	$154,800	$87,600	$ 242,400
Towner	Towner Municipal	$ 100	$ 100	$200
Turtle Lake	Turtle Lake Municipal	$ 400	$ 200	$600
Valley City	Barnes County Municipal	$37,900	$21,500	$59,400
Wahpeton	Harry Stern	$90,600	$51,300	$ 141,900
Walhalla	Walhalla Municipal	$1,600	$ 1,000	$ 2,600
Washburn	Washburn Municipal	$2,600	$ 1,500	$ 4,100
Watford City	Watford City Municipal	$28,900	$16,400	$45,300
West Fargo	West Fargo Municipal	$59,900	$34,000	$93,900
Westhope	Westhope Municipal	$ 700	$ 300	$ 1,000
Wishek	Wishek Municipal	$3,400	$ 2,000	$ 5,400
GENERAL AVIATION AIRPORTS TOTAL		**$ 1,370,000**	**$ 776,600**	**$ 2,146,600**
ALL AIRPORTS TOTAL		**$ 8,292,300**	**$ 4,698,500**	**$ 12,990,800**

Source: Wilbur Smith Associates and RIMS II Multipliers.

Prepared: December 2010.

Table A-12: North Dakota Commercial Service Visitor-Related Payroll

Associated City	Airport Name	First Round Payroll	Secondary Payroll	Total Payroll
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	$8,838,200	$5,040,200	$13,878,400
Devils Lake	Devils Lake Regional	$214,000	$122,000	$336,000
Dickinson	Dickinson-Theodore Roosevelt Regional	$1,883,200	$1,073,900	$2,957,100
Fargo	Hector International	$20,501,200	$11,691,200	$32,192,400
Grand Forks	Grand Forks International	$4,066,000	$2,318,700	$6,384,700
Jamestown	Jamestown Regional	$214,000	$122,000	$336,000
Minot	Minot International	$5,970,600	$3,404,900	$9,375,500
Williston	Sloulin Field International	$1,819,000	$1,037,300	$2,856,300
COMMERCIAL SERVICE AIRPORTS TOTAL		**$43,506,200**	**$24,810,200**	**$68,316,400**

Source: Wilbur Smith Associates and RIMS II Multipliers.

Prepared: December 2010.

Table A-13: North Dakota Airport's Total Payroll

Associated City	Airport Name	Total First Round Payroll	Total Secondary Payroll	Total Payroll
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	$34,900,200	$23,386,700	$58,286,900
Devils Lake	Devils Lake Regional	$1,921,700	$1,235,900	$3,157,600
Dickinson	Dickinson-Theodore Roosevelt Regional	$3,586,400	$2,281,200	$5,867,600
Fargo	Hector International	$99,862,400	$70,140,700	$170,003,100
Grand Forks	Grand Forks International	$40,618,000	$28,252,800	$68,870,800
Jamestown	Jamestown Regional	$2,204,100	$1,472,300	$3,676,400
Minot	Minot International	$13,831,200	$8,926,700	$22,757,900
Williston	Sloulin Field International	$4,759,000	$3,006,800	$7,765,800
COMMERCIAL SERVICE AIRPORTS TOTAL		**$201,683,000**	**$138,703,100**	**$340,386,100**
GENERAL AVIATION AIRPORTS				
Arthur	Arthur	$2,900	$2,300	$5,200
Ashley	Ashley Municipal	$168,900	$103,400	$272,300
Beach	Beach	$27,700	$15,900	$43,600
Beulah	Beulah	$577,800	$403,500	$981,300
Bottineau	Bottineau Municipal	$219,500	$146,600	$366,100
Bowbells	Bowbells Municipal	$2,900	$2,300	$5,200
Bowman	Bowman Municipal	$153,600	$107,400	$261,000
Cando	Cando Municipal	$86,600	$59,300	$145,900
Carrington	Carrington Municipal	$170,200	$111,300	$281,500
Casselton	Casselton Robert Miller Regional	$802,800	$534,500	$1,337,300
Cavalier	Cavalier Municipal	$236,700	$162,100	$398,800
Columbus	Columbus Municipal	$3,000	$2,400	$5,400
Cooperstown	Cooperstown Municipal	$97,800	$60,200	$158,000
Crosby	Crosby Municipal	$216,100	$153,600	$369,700
Drayton	Drayton Municipal	$116,300	$78,100	$194,400
Edgeley	Edgeley Municipal	$86,300	$50,000	$136,300
Elgin	Elgin Municipal	$3,000	$2,300	$5,300
Ellendale	Ellendale Municipal	$53,900	$29,900	$83,800
Enderlin	Sky Haven	$47,700	$25,300	$73,000
Fessenden	Fessenden Municipal	$240,300	$174,300	$414,600
Fort Yates	Standing Rock	$192,200	$98,500	$290,700
Gackle	Gackle Municipal	$2,900	$2,300	$5,200
Garrison	Garrison Municipal	$145,100	$90,800	$235,900
Garrison Dam	Garrison Dam Recreational Airpark	$1,100	$900	$2,000
Glen Ullin	Glen Ullin Regional	$15,100	$8,700	$23,800
Grafton	Hutson Field	$586,800	$410,200	$997,000
Gwinner	Gwinner-Roger Melroe Field	$182,700	$106,300	$289,000
Harvey	Harvey Municipal	$469,300	$328,300	$797,600

Associated City	Airport Name	Total First Round Payroll	Total Secondary Payroll	Total Payroll
Hazelton	Hazelton Municipal	$198,500	$144,000	$342,500
Hazen	Mercer County Regional	$95,400	$54,800	$150,200
Hettinger	Hettinger Municipal	$351,700	$246,100	$597,800
Hillsboro	Hillsboro Municipal	$416,600	$297,300	$713,900
International Peace Garden-Dunseith	International Peace Garden	$17,700	$9,600	$27,300
Kenmare	Kenmare Municipal	$115,000	$76,700	$191,700
Killdeer	Weydahl Field	$3,600	$2,600	$6,200
Kindred	Hamry Field	$710,900	$497,800	$1,208,700
Kulm	Kulm Municipal	$4,600	$3,200	$7,800
Lakota	Lakota Municipal	$69,100	$36,800	$105,900
LaMoure	LaMoure Rott Municipal	$208,300	$145,900	$354,200
Langdon	Robertson Field	$236,500	$168,200	$404,700
Larimore	Larimore Municipal	$455,800	$327,900	$783,700
Leeds	Leeds Municipal	$3,200	$2,400	$5,600
Lidgerwood	Lidgerwood Municipal	$1,600	$800	$2,400
Linton	Linton Municipal	$138,200	$91,400	$229,600
Lisbon	Lisbon Municipal	$235,100	$161,100	$396,200
Maddock	Maddock Municipal	$212,900	$154,800	$367,700
Mandan	Mandan Municipal	$607,400	$396,200	$1,003,600
Mayville	Mayville Municipal	$266,800	$162,800	$429,600
McClusky	McClusky Municipal	$8,800	$6,800	$15,600
McVille	McVille Municipal	$1,100	$600	$1,700
Milnor	Milnor Municipal	$3,800	$2,700	$6,500
Minto	Minto Municipal	$4,800	$3,200	$8,000
Mohall	Mohall Municipal	$403,500	$261,700	$665,200
Mott	Mott Municipal	$280,400	$152,400	$432,800
Napoleon	Napoleon Municipal	$110,500	$66,600	$177,100
New Rockford	Tomlinson Field	$135,700	$97,400	$233,100
New Town	New Town Municipal	$26,800	$14,600	$41,400
Northwood	Northwood Municipal-Vince Field	$118,200	$75,600	$193,800
Oakes	Oakes Municipal	$118,000	$83,600	$201,600
Page	Page Regional	$286,900	$214,200	$501,100
Park River	Park River-W C Skjerven Field	$403,500	$278,000	$681,500
Parshall	Parshall-Hankins	$60,800	$36,800	$97,600
Pembina	Pembina Municipal	$106,900	$54,800	$161,700
Plaza	Trulson Field	$3,000	$2,400	$5,400
Richardton	Richardton	$0	$0	$0
Rolette	Rolette	$2,600	$1,500	$4,100
Rolla	Rolla Municipal	$361,900	$258,300	$620,200
Rugby	Rugby Municipal	$216,500	$134,900	$351,400
St. Thomas	St. Thomas Municipal	$100,800	$70,900	$171,700

Associated City	Airport Name	Total First Round Payroll	Total Secondary Payroll	Total Payroll
Stanley	Stanley Municipal	$81,200	$52,700	$133,900
Tioga	Tioga Municipal	$284,600	$178,700	$463,300
Towner	Towner Municipal	$65,900	$47,600	$113,500
Turtle Lake	Turtle Lake Municipal	$1,700	$900	$2,600
Valley City	Barnes County Municipal	$398,100	$238,600	$636,700
Wahpeton	Harry Stern	$1,579,200	$1,036,500	$2,615,700
Walhalla	Walhalla Municipal	$182,400	$116,100	$298,500
Washburn	Washburn Municipal	$92,500	$52,700	$145,200
Watford City	Watford City Municipal	$304,400	$207,200	$511,600
West Fargo	West Fargo Municipal	$273,200	$184,400	$457,600
Westhope	Westhope Municipal	$1,500	$700	$2,200
Wishek	Wishek Municipal	$7,100	$4,700	$11,800
GENERAL AVIATION AIRPORTS TOTAL		**$15,284,400**	**$10,188,900**	**$25,473,300**
ALL AIRPORTS TOTAL		**$216,967,400**	**$148,892,000**	**$365,859,400**

Source: Wilbur Smith Associates and RIMS II Multipliers.

Prepared: December 2010.

Table A-14: North Dakota On-Airport Output

Associated City	Airport Name	First Round Output	Secondary Output	Total Output
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	$ 72,624,100	$ 49,410,500	$ 122,034,600
Devils Lake	Devils Lake Regional	$ 4,817,900	$ 3,158,300	$7,976,200
Dickinson	Dickinson-Theodore Roosevelt Regional	$ 5,641,300	$ 3,713,800	$9,355,100
Fargo	Hector International	$ 197,959,400	$ 141,366,500	$ 339,325,900
Grand Forks	Grand Forks International	$ 111,138,000	$ 73,703,300	$ 184,841,300
Jamestown	Jamestown Regional	$ 6,642,900	$ 4,344,600	$ 10,987,500
Minot	Minot International	$ 26,958,000	$ 17,647,800	$ 44,605,800
Williston	Sloulin Field International	$ 11,051,900	$ 7,222,300	$ 18,274,200
COMMERCIAL SERVICE AIRPORTS TOTAL		**$ 436,833,500**	**$ 300,567,100**	**$737,400,600**
GENERAL AVIATION AIRPORTS				
Arthur	Arthur	$ 15,200	$ 11,800	$27,000
Ashley	Ashley Municipal	$ 684,100	$ 440,900	$1,125,000
Beach	Beach	$ 34,000	$ 23,700	$57,700
Beulah	Beulah	$ 2,668,000	$ 1,720,400	$4,388,400
Bottineau	Bottineau Municipal	$ 1,325,500	$ 854,600	$2,180,100
Bowbells	Bowbells Municipal	$ 15,200	$ 11,800	$27,000
Bowman	Bowman Municipal	$ 587,500	$ 381,700	$ 969,200
Cando	Cando Municipal	$ 498,500	$ 321,800	$ 820,300
Carrington	Carrington Municipal	$ 1,025,000	$ 672,000	$1,697,000
Casselton	Casselton Robert Miller Regional	$ 3,634,700	$ 2,341,200	$5,975,900
Cavalier	Cavalier Municipal	$ 2,007,000	$ 1,292,500	$3,299,500
Columbus	Columbus Municipal	$ 15,200	$ 11,800	$27,000
Cooperstown	Cooperstown Municipal	$ 482,000	$ 312,000	$ 794,000
Crosby	Crosby Municipal	$ 1,430,800	$ 922,400	$2,353,200
Drayton	Drayton Municipal	$ 723,100	$ 466,200	$1,189,300
Edgeley	Edgeley Municipal	$ 467,000	$ 301,900	$ 768,900
Elgin	Elgin Municipal	$ 15,200	$ 11,800	$27,000
Ellendale	Ellendale Municipal	$ 86,700	$ 57,700	$ 144,400
Enderlin	Sky Haven	$ 156,200	$ 102,400	$ 258,600
Fessenden	Fessenden Municipal	$ 1,694,300	$ 1,090,400	$2,784,700
Fort Yates	Standing Rock	$ 666,700	$ 430,600	$1,097,300
Gackle	Gackle Municipal	$ 15,200	$ 11,800	$27,000
Garrison	Garrison Municipal	$ 578,900	$ 376,000	$ 954,900
Garrison Dam	Garrison Dam Recreational Airpark	$2,000	$1,500	$3,500
Glen Ullin	Glen Ullin Regional	$ 45,400	$ 31,200	$76,600
Grafton	Hutson Field	$ 2,144,300	$ 1,412,600	$3,556,900
Gwinner	Gwinner-Roger Melroe Field	$ 516,000	$ 339,200	$ 855,200
Harvey	Harvey Municipal	$ 3,161,000	$ 2,039,900	$5,200,900

Associated City	Airport Name	First Round Output	Secondary Output	Total Output
Hazelton	Hazelton Municipal	$ 1,388,400	$ 893,800	$2,282,200
Hazen	Mercer County Regional	$ 440,300	$ 297,200	$ 737,500
Hettinger	Hettinger Municipal	$ 1,271,600	$ 873,000	$2,144,600
Hillsboro	Hillsboro Municipal	$ 2,407,200	$ 1,557,400	$3,964,600
Intl. Peace Garden-Dunseith	International Peace Garden	$ 52,500	$ 34,100	$86,600
Kenmare	Kenmare Municipal	$ 576,100	$ 372,500	$ 948,600
Killdeer	Weydahl Field	$ 17,500	$ 13,200	$30,700
Kindred	Hamry Field	$ 2,645,800	$ 1,705,900	$4,351,700
Kulm	Kulm Municipal	$ 21,100	$ 15,500	$36,600
Lakota	Lakota Municipal	$ 233,200	$ 153,700	$ 386,900
LaMoure	LaMoure Rott Municipal	$ 1,277,000	$ 823,600	$2,100,600
Langdon	Robertson Field	$ 1,606,900	$ 1,035,700	$2,642,600
Larimore	Larimore Municipal	$ 3,093,700	$ 1,992,500	$5,086,200
Leeds	Leeds Municipal	$ 16,200	$ 12,300	$28,500
Lidgerwood	Lidgerwood Municipal	$5,500	$3,600	$9,100
Linton	Linton Municipal	$ 749,900	$ 486,200	$1,236,100
Lisbon	Lisbon Municipal	$ 1,223,200	$ 788,700	$2,011,900
Maddock	Maddock Municipal	$ 1,239,000	$ 799,100	$2,038,100
Mandan	Mandan Municipal	$ 2,316,500	$ 1,530,200	$3,846,700
Mayville	Mayville Municipal	$ 812,400	$ 522,600	$1,335,000
McClusky	McClusky Municipal	$9,200	$7,000	$16,200
McVille	McVille Municipal	$4,200	$2,900	$7,100
Milnor	Milnor Municipal	$ 18,200	$ 13,700	$31,900
Minto	Minto Municipal	$ 17,000	$ 12,900	$29,900
Mohall	Mohall Municipal	$ 2,340,700	$ 1,506,700	$3,847,400
Mott	Mott Municipal	$ 820,600	$ 528,600	$1,349,200
Napoleon	Napoleon Municipal	$ 522,100	$ 336,900	$ 859,000
New Rockford	Tomlinson Field	$ 946,200	$ 610,300	$1,556,500
New Town	New Town Municipal	$ 91,800	$ 66,600	$ 158,400
Northwood	Northwood Municipal-Vince Field	$ 614,600	$ 397,200	$1,011,800
Oakes	Oakes Municipal	$ 818,100	$ 528,800	$1,346,900
Page	Page Regional	$ 2,516,700	$ 1,620,500	$4,137,200
Park River	Park River-W C Skjerven Field	$ 1,199,800	$ 773,300	$1,973,100
Parshall	Parshall-Hankins	$ 279,500	$ 181,700	$ 461,200
Pembina	Pembina Municipal	$ 344,500	$ 222,200	$ 566,700
Plaza	Trulson Field	$ 15,200	$ 11,800	$27,000
Richardton	Richardton	$1,900	$1,500	$3,400
Rolette	Rolette	$6,300	$4,200	$10,500
Rolla	Rolla Municipal	$ 1,498,400	$ 967,800	$2,466,200
Rugby	Rugby Municipal	$ 1,726,800	$ 1,115,900	$2,842,700
St. Thomas	St. Thomas Municipal	$ 664,600	$ 429,400	$1,094,000

Associated City	Airport Name	First Round Output	Secondary Output	Total Output
Stanley	Stanley Municipal	$ 410,500	$ 267,900	$ 678,400
Tioga	Tioga Municipal	$ 851,000	$ 551,300	$1,402,300
Towner	Towner Municipal	$ 462,600	$ 297,600	$ 760,200
Turtle Lake	Turtle Lake Municipal	$4,500	$3,000	$7,500
Valley City	Barnes County Municipal	$ 2,517,900	$ 1,628,400	$4,146,300
Wahpeton	Harry Stern	$ 6,855,900	$ 4,424,300	$ 11,280,200
Walhalla	Walhalla Municipal	$ 2,252,300	$ 1,451,600	$3,703,900
Washburn	Washburn Municipal	$ 392,600	$ 254,200	$ 646,800
Watford City	Watford City Municipal	$ 1,763,600	$ 1,142,700	$2,906,300
West Fargo	West Fargo Municipal	$ 1,092,100	$ 710,200	$1,802,300
Westhope	Westhope Municipal	$3,800	$2,500	$6,300
Wishek	Wishek Municipal	$ 18,000	$ 13,400	$31,400
GENERAL AVIATION AIRPORTS TOTAL		**$77,169,900**	**$49,989,600**	**$127,159,500**
ALL AIRPORTS TOTAL		**$ 514,003,400**	**$ 350,556,700**	**$864,560,100**

Source: Wilbur Smith Associates and RIMS II Multipliers.

Prepared: December 2010.

Table A-15: North Dakota General Aviation Visitor-Related Output

Associated City	Airport Name	First Round Output	Secondary Output	Total Output
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	$ 2,822,400	$ 1,846,500	$4,668,900
Devils Lake	Devils Lake Regional	$499,100	$326,500	$ 825,600
Dickinson	Dickinson-Theodore Roosevelt Regional	$271,300	$177,400	$ 448,700
Fargo	Hector International	$ 3,367,000	$ 2,202,800	$5,569,800
Grand Forks	Grand Forks International	$ 3,950,100	$ 2,584,300	$6,534,400
Jamestown	Jamestown Regional	$777,000	$508,300	$1,285,300
Minot	Minot International	$ 1,560,200	$ 1,020,700	$2,580,900
Williston	Sloulin Field International	$843,300	$551,800	$1,395,100
COMMERCIAL SERVICE AIRPORTS TOTAL		**$14,090,400**	**$ 9,218,300**	**$ 23,308,700**
GENERAL AVIATION AIRPORTS				
Arthur	Arthur	$0	$ 100	$100
Ashley	Ashley Municipal	$26,300	$17,100	$43,400
Beach	Beach	$39,200	$25,600	$64,800
Beulah	Beulah	$94,100	$61,500	$ 155,600
Bottineau	Bottineau Municipal	$8,200	$ 5,300	$13,500
Bowbells	Bowbells Municipal	$0	$0	$ 0
Bowman	Bowman Municipal	$35,300	$23,000	$58,300
Cando	Cando Municipal	$23,100	$15,100	$38,200
Carrington	Carrington Municipal	$30,200	$19,700	$49,900
Casselton	Casselton Robert Miller Regional	$291,200	$190,500	$ 481,700
Cavalier	Cavalier Municipal	$4,400	$ 2,800	$ 7,200
Columbus	Columbus Municipal	$ 200	$ 200	$400
Cooperstown	Cooperstown Municipal	$10,500	$ 6,900	$17,400
Crosby	Crosby Municipal	$16,000	$10,500	$26,500
Drayton	Drayton Municipal	$0	$0	$ 0
Edgeley	Edgeley Municipal	$3,800	$ 2,500	$ 6,300
Elgin	Elgin Municipal	$ 100	$ 100	$200
Ellendale	Ellendale Municipal	$61,600	$40,300	$ 101,900
Enderlin	Sky Haven	$8,000	$ 5,300	$13,300
Fessenden	Fessenden Municipal	$0	$0	$ 0
Fort Yates	Standing Rock	$1,300	$ 900	$ 2,200
Gackle	Gackle Municipal	$0	$0	$ 0
Garrison	Garrison Municipal	$96,400	$63,100	$ 159,500
Garrison Dam	Garrison Dam Recreational Airpark	$ 200	$ 200	$400
Glen Ullin	Glen Ullin Regional	$7,000	$ 4,600	$11,600
Grafton	Hutson Field	$111,300	$72,700	$ 184,000
Gwinner	Gwinner-Roger Melroe Field	$69,400	$45,400	$ 114,800
Harvey	Harvey Municipal	$ 800	$ 500	$ 1,300

Associated City	Airport Name	First Round Output	Secondary Output	Total Output
Hazelton	Hazelton Municipal	$ 500	$ 300	$800
Hazen	Mercer County Regional	$42,000	$27,500	$69,500
Hettinger	Hettinger Municipal	$68,800	$44,900	$ 113,700
Hillsboro	Hillsboro Municipal	$22,600	$14,700	$37,300
Intl. Peace Garden-Dunseith	International Peace Garden	$1,400	$ 900	$ 2,300
Kenmare	Kenmare Municipal	$50,400	$33,000	$83,400
Killdeer	Weydahl Field	$0	$0	$ 0
Kindred	Hamry Field	$11,600	$ 7,500	$19,100
Kulm	Kulm Municipal	$0	$0	$ 0
Lakota	Lakota Municipal	$9,100	$ 6,000	$15,100
LaMoure	LaMoure Rott Municipal	$44,700	$29,200	$73,900
Langdon	Robertson Field	$0	$0	$ 0
Larimore	Larimore Municipal	$32,800	$21,500	$54,300
Leeds	Leeds Municipal	$0	$0	$ 0
Lidgerwood	Lidgerwood Municipal	$ 200	$ 200	$400
Linton	Linton Municipal	$30,200	$19,800	$50,000
Lisbon	Lisbon Municipal	$3,900	$ 2,500	$ 6,400
Maddock	Maddock Municipal	$ 200	$ 200	$400
Mandan	Mandan Municipal	$329,000	$215,200	$ 544,200
Mayville	Mayville Municipal	$250,300	$163,700	$ 414,000
McClusky	McClusky Municipal	$0	$0	$ 0
McVille	McVille Municipal	$ 500	$ 300	$800
Milnor	Milnor Municipal	$0	$ 100	$100
Minto	Minto Municipal	$2,600	$ 1,700	$ 4,300
Mohall	Mohall Municipal	$1,500	$ 900	$ 2,400
Mott	Mott Municipal	$14,600	$ 9,600	$24,200
Napoleon	Napoleon Municipal	$8,400	$ 5,500	$13,900
New Rockford	Tomlinson Field	$3,300	$ 2,100	$ 5,400
New Town	New Town Municipal	$35,800	$23,400	$59,200
Northwood	Northwood Municipal-Vince Field	$20,100	$13,100	$33,200
Oakes	Oakes Municipal	$1,100	$ 600	$ 1,700
Page	Page Regional	$2,300	$ 1,500	$ 3,800
Park River	Park River-W C Skjerven Field	$3,000	$ 1,900	$ 4,900
Parshall	Parshall-Hankins	$8,400	$ 5,500	$13,900
Pembina	Pembina Municipal	$18,100	$11,800	$29,900
Plaza	Trulson Field	$ 200	$ 200	$400
Richardton	Richardton	$0	$0	$ 0
Rolette	Rolette	$1,900	$ 1,200	$ 3,100
Rolla	Rolla Municipal	$30,000	$19,600	$49,600
Rugby	Rugby Municipal	$2,400	$ 1,500	$ 3,900
St. Thomas	St. Thomas Municipal	$1,600	$ 1,000	$ 2,600

Associated City	Airport Name	First Round Output	Secondary Output	Total Output
Stanley	Stanley Municipal	$21,700	$14,200	$35,900
Tioga	Tioga Municipal	$315,000	$206,100	$ 521,100
Towner	Towner Municipal	$ 200	$ 100	$300
Turtle Lake	Turtle Lake Municipal	$ 800	$ 500	$ 1,300
Valley City	Barnes County Municipal	$77,200	$50,500	$ 127,700
Wahpeton	Harry Stern	$184,400	$120,600	$ 305,000
Walhalla	Walhalla Municipal	$3,300	$ 2,200	$ 5,500
Washburn	Washburn Municipal	$5,300	$ 3,500	$ 8,800
Watford City	Watford City Municipal	$58,800	$38,500	$97,300
West Fargo	West Fargo Municipal	$122,000	$79,800	$ 201,800
Westhope	Westhope Municipal	$1,300	$ 900	$ 2,200
Wishek	Wishek Municipal	$7,000	$ 4,600	$11,600
GENERAL AVIATION AIRPORTS TOTAL		**$ 2,789,100**	**$ 1,824,000**	**$ 4,613,100**
ALL AIRPORTS TOTAL		**$16,879,500**	**$ 11,042,300**	**$ 27,921,800**

Source: Wilbur Smith Associates and RIMS II Multipliers.

Prepared: December 2010.

Table A-16: North Dakota Commercial Service Visitor-Related Output

Associated City	Airport Name	First Round Output	Secondary Output	Total Output
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	$21,340,800	$13,281,800	$34,622,600
Devils Lake	Devils Lake Regional	$539,700	$335,900	$875,600
Dickinson	Dickinson-Theodore Roosevelt Regional	$4,521,200	$2,813,800	$7,335,000
Fargo	Hector International	$49,456,100	$30,779,700	$80,235,800
Grand Forks	Grand Forks International	$9,794,200	$6,095,500	$15,889,700
Jamestown	Jamestown Regional	$512,500	$319,000	$831,500
Minot	Minot International	$14,406,400	$8,966,100	$23,372,500
Williston	Sloulin Field International	$4,383,700	$2,728,200	$7,111,900
COMMERCIAL SERVICE AIRPORTS TOTAL		**$104,954,600**	**$65,320,000**	**$170,274,600**

Source: Wilbur Smith Associates and RIMS II Multipliers.

Prepared: December 2010.

Table A-17: North Dakota Airport's Total Output

Associated City	Airport Name	Total First Round Output	Total Secondary Output	Total Output
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	$96,787,300	$64,538,800	$161,326,100
Devils Lake	Devils Lake Regional	$5,856,700	$3,820,700	$9,677,400
Dickinson	Dickinson-Theodore Roosevelt Regional	$10,433,800	$6,705,000	$17,138,800
Fargo	Hector International	$250,782,500	$174,349,000	$425,131,500
Grand Forks	Grand Forks International	$124,882,300	$82,383,100	$207,265,400
Jamestown	Jamestown Regional	$7,932,400	$5,171,900	$13,104,300
Minot	Minot International	$42,924,600	$27,634,600	$70,559,200
Williston	Sloulin Field International	$16,278,900	$10,502,300	$26,781,200
COMMERCIAL SERVICE AIRPORTS TOTAL		**$555,878,500**	**$375,105,400**	**$930,983,900**
GENERAL AVIATION AIRPORTS				
Arthur	Arthur	$15,200	$11,900	$27,100
Ashley	Ashley Municipal	$710,400	$458,000	$1,168,400
Beach	Beach	$73,200	$49,300	$122,500
Beulah	Beulah	$2,762,100	$1,781,900	$4,544,000
Bottineau	Bottineau Municipal	$1,333,700	$859,900	$2,193,600
Bowbells	Bowbells Municipal	$15,200	$11,800	$27,000
Bowman	Bowman Municipal	$622,800	$404,700	$1,027,500
Cando	Cando Municipal	$521,600	$336,900	$858,500
Carrington	Carrington Municipal	$1,055,200	$691,700	$1,746,900
Casselton	Casselton Robert Miller Regional	$3,925,900	$2,531,700	$6,457,600
Cavalier	Cavalier Municipal	$2,011,400	$1,295,300	$3,306,700
Columbus	Columbus Municipal	$15,400	$12,000	$27,400
Cooperstown	Cooperstown Municipal	$492,500	$318,900	$811,400
Crosby	Crosby Municipal	$1,446,800	$932,900	$2,379,700
Drayton	Drayton Municipal	$723,100	$466,200	$1,189,300
Edgeley	Edgeley Municipal	$470,800	$304,400	$775,200
Elgin	Elgin Municipal	$15,300	$11,900	$27,200
Ellendale	Ellendale Municipal	$148,300	$98,000	$246,300
Enderlin	Sky Haven	$164,200	$107,700	$271,900
Fessenden	Fessenden Municipal	$1,694,300	$1,090,400	$2,784,700
Fort Yates	Standing Rock	$668,000	$431,500	$1,099,500
Gackle	Gackle Municipal	$15,200	$11,800	$27,000
Garrison	Garrison Municipal	$675,300	$439,100	$1,114,400
Garrison Dam	Garrison Dam Recreational Airpark	$2,200	$1,700	$3,900
Glen Ullin	Glen Ullin Regional	$52,400	$35,800	$88,200
Grafton	Hutson Field	$2,255,600	$1,485,300	$3,740,900
Gwinner	Gwinner-Roger Melroe Field	$585,400	$384,600	$970,000
Harvey	Harvey Municipal	$3,161,800	$2,040,400	$5,202,200

Associated City	Airport Name	Total First Round Output	Total Secondary Output	Total Output
Hazelton	Hazelton Municipal	$1,388,900	$894,100	$2,283,000
Hazen	Mercer County Regional	$482,300	$324,700	$807,000
Hettinger	Hettinger Municipal	$1,340,400	$917,900	$2,258,300
Hillsboro	Hillsboro Municipal	$2,429,800	$1,572,100	$4,001,900
International Peace Garden-Dunseith	International Peace Garden	$53,900	$35,000	$88,900
Kenmare	Kenmare Municipal	$626,500	$405,500	$1,032,000
Killdeer	Weydahl Field	$17,500	$13,200	$30,700
Kindred	Hamry Field	$2,657,400	$1,713,400	$4,370,800
Kulm	Kulm Municipal	$21,100	$15,500	$36,600
Lakota	Lakota Municipal	$242,300	$159,700	$402,000
LaMoure	LaMoure Rott Municipal	$1,321,700	$852,800	$2,174,500
Langdon	Robertson Field	$1,606,900	$1,035,700	$2,642,600
Larimore	Larimore Municipal	$3,126,500	$2,014,000	$5,140,500
Leeds	Leeds Municipal	$16,200	$12,300	$28,500
Lidgerwood	Lidgerwood Municipal	$5,700	$3,800	$9,500
Linton	Linton Municipal	$780,100	$506,000	$1,286,100
Lisbon	Lisbon Municipal	$1,227,100	$791,200	$2,018,300
Maddock	Maddock Municipal	$1,239,200	$799,300	$2,038,500
Mandan	Mandan Municipal	$2,645,500	$1,745,400	$4,390,900
Mayville	Mayville Municipal	$1,062,700	$686,300	$1,749,000
McClusky	McClusky Municipal	$9,200	$7,000	$16,200
McVille	McVille Municipal	$4,700	$3,200	$7,900
Milnor	Milnor Municipal	$18,200	$13,800	$32,000
Minto	Minto Municipal	$19,600	$14,600	$34,200
Mohall	Mohall Municipal	$2,342,200	$1,507,600	$3,849,800
Mott	Mott Municipal	$835,200	$538,200	$1,373,400
Napoleon	Napoleon Municipal	$530,500	$342,400	$872,900
New Rockford	Tomlinson Field	$949,500	$612,400	$1,561,900
New Town	New Town Municipal	$127,600	$90,000	$217,600
Northwood	Northwood Municipal-Vince Field	$634,700	$410,300	$1,045,000
Oakes	Oakes Municipal	$819,200	$529,400	$1,348,600
Page	Page Regional	$2,519,000	$1,622,000	$4,141,000
Park River	Park River-W C Skjerven Field	$1,202,800	$775,200	$1,978,000
Parshall	Parshall-Hankins	$287,900	$187,200	$475,100
Pembina	Pembina Municipal	$362,600	$234,000	$596,600
Plaza	Trulson Field	$15,400	$12,000	$27,400
Richardton	Richardton	$1,900	$1,500	$3,400
Rolette	Rolette	$8,200	$5,400	$13,600
Rolla	Rolla Municipal	$1,528,400	$987,400	$2,515,800
Rugby	Rugby Municipal	$1,729,200	$1,117,400	$2,846,600
St. Thomas	St. Thomas Municipal	$666,200	$430,400	$1,096,600

Associated City	Airport Name	Total First Round Output	Total Secondary Output	Total Output
Stanley	Stanley Municipal	$432,200	$282,100	$714,300
Tioga	Tioga Municipal	$1,166,000	$757,400	$1,923,400
Towner	Towner Municipal	$462,800	$297,700	$760,500
Turtle Lake	Turtle Lake Municipal	$5,300	$3,500	$8,800
Valley City	Barnes County Municipal	$2,595,100	$1,678,900	$4,274,000
Wahpeton	Harry Stern	$7,040,300	$4,544,900	$11,585,200
Walhalla	Walhalla Municipal	$2,255,600	$1,453,800	$3,709,400
Washburn	Washburn Municipal	$397,900	$257,700	$655,600
Watford City	Watford City Municipal	$1,822,400	$1,181,200	$3,003,600
West Fargo	West Fargo Municipal	$1,214,100	$790,000	$2,004,100
Westhope	Westhope Municipal	$5,100	$3,400	$8,500
Wishek	Wishek Municipal	$25,000	$18,000	$43,000
GENERAL AVIATION AIRPORTS TOTAL		**$79,959,000**	**$51,813,600**	**$131,772,600**
ALL AIRPORTS TOTAL		**$635,837,500**	**$426,919,000**	**$1,062,756,500**

Source: Wilbur Smith Associates and RIMS II Multipliers.

Prepared: December 2010.

Table A-18: North Dakota Airport's Total Economic Impacts

Associated City	Airport Name	Total Employment	Total Payroll	Total Output
COMMERCIAL SERVICE AIRPORTS				
Bismarck	Bismarck	1,572	$58,286,900	$161,326,100
Devils Lake	Devils Lake Regional	99	$3,157,600	$9,677,400
Dickinson	Dickinson-Theodore Roosevelt Regional	204	$5,867,600	$17,138,800
Fargo	Hector International	4,001	$170,003,100	$425,131,500
Grand Forks	Grand Forks International	1,888	$68,870,800	$207,265,400
Jamestown	Jamestown Regional	121	$3,676,400	$13,104,300
Minot	Minot International	732	$22,757,900	$70,559,200
Williston	Sloulin Field International	255	$7,765,800	$26,781,200
COMMERCIAL SERVICE AIRPORTS TOTAL		**8,872**	**$340,386,100**	**$930,983,900**
GENERAL AVIATION AIRPORTS				
Arthur	Arthur	Less than 1	$5,200	$27,100
Ashley	Ashley Municipal	10	$272,300	$1,168,400
Beach	Beach	1	$43,600	$122,500
Beulah	Beulah	32	$981,300	$4,544,000
Bottineau	Bottineau Municipal	13	$366,100	$2,193,600
Bowbells	Bowbells Municipal	Less than 1	$5,200	$27,000
Bowman	Bowman Municipal	16	$261,000	$1,027,500
Cando	Cando Municipal	6	$145,900	$858,500
Carrington	Carrington Municipal	11	$281,500	$1,746,900
Casselton	Casselton Robert Miller Regional	47	$1,337,300	$6,457,600
Cavalier	Cavalier Municipal	16	$398,800	$3,306,700
Columbus	Columbus Municipal	Less than 1	$5,400	$27,400
Cooperstown	Cooperstown Municipal	6	$158,000	$811,400
Crosby	Crosby Municipal	12	$369,700	$2,379,700
Drayton	Drayton Municipal	7	$194,400	$1,189,300
Edgeley	Edgeley Municipal	6	$136,300	$775,200
Elgin	Elgin Municipal	Less than 1	$5,300	$27,200
Ellendale	Ellendale Municipal	3	$83,800	$246,300
Enderlin	Sky Haven	2	$73,000	$271,900
Fessenden	Fessenden Municipal	14	$414,600	$2,784,700
Fort Yates	Standing Rock	10	$290,700	$1,099,500
Gackle	Gackle Municipal	Less than 1	$5,200	$27,000
Garrison	Garrison Municipal	6	$235,900	$1,114,400
Garrison Dam	Garrison Dam Recreational Airpark	1	$2,000	$3,900
Glen Ullin	Glen Ullin Regional	Less than 1	$23,800	$88,200
Grafton	Hutson Field	36	$997,000	$3,740,900
Gwinner	Gwinner-Roger Melroe Field	19	$289,000	$970,000
Harvey	Harvey Municipal	26	$797,600	$5,202,200

Associated City	Airport Name	Total Employment	Total Payroll	Total Output
Hazelton	Hazelton Municipal	12	$342,500	$2,283,000
Hazen	Mercer County Regional	8	$150,200	$807,000
Hettinger	Hettinger Municipal	21	$597,800	$2,258,300
Hillsboro	Hillsboro Municipal	30	$713,900	$4,001,900
International Peace Garden-Dunseith	International Peace Garden	2	$27,300	$88,900
Kenmare	Kenmare Municipal	7	$191,700	$1,032,000
Killdeer	Weydahl Field	Less than 1	$6,200	$30,700
Kindred	Hamry Field	35	$1,208,700	$4,370,800
Kulm	Kulm Municipal	Less than 1	$7,800	$36,600
Lakota	Lakota Municipal	4	$105,900	$402,000
LaMoure	LaMoure Rott Municipal	11	$354,200	$2,174,500
Langdon	Robertson Field	14	$404,700	$2,642,600
Larimore	Larimore Municipal	26	$783,700	$5,140,500
Leeds	Leeds Municipal	Less than 1	$5,600	$28,500
Lidgerwood	Lidgerwood Municipal	Less than 1	$2,400	$9,500
Linton	Linton Municipal	8	$229,600	$1,286,100
Lisbon	Lisbon Municipal	12	$396,200	$2,018,300
Maddock	Maddock Municipal	11	$367,700	$2,038,500
Mandan	Mandan Municipal	31	$1,003,600	$4,390,900
Mayville	Mayville Municipal	16	$429,600	$1,749,000
McClusky	McClusky Municipal	1	$15,600	$16,200
McVille	McVille Municipal	Less than 1	$1,700	$7,900
Milnor	Milnor Municipal	Less than 1	$6,500	$32,000
Minto	Minto Municipal	Less than 1	$8,000	$34,200
Mohall	Mohall Municipal	22	$665,200	$3,849,800
Mott	Mott Municipal	17	$432,800	$1,373,400
Napoleon	Napoleon Municipal	6	$177,100	$872,900
New Rockford	Tomlinson Field	8	$233,100	$1,561,900
New Town	New Town Municipal	1	$41,400	$217,600
Northwood	Northwood Municipal-Vince Field	7	$193,800	$1,045,000
Oakes	Oakes Municipal	7	$201,600	$1,348,600
Page	Page Regional	17	$501,100	$4,141,000
Park River	Park River-W C Skjerven Field	24	$681,500	$1,978,000
Parshall	Parshall-Hankins	4	$97,600	$475,100
Pembina	Pembina Municipal	6	$161,700	$596,600
Plaza	Trulson Field	Less than 1	$5,400	$27,400
Richardton	Richardton	0	$0	$3,400
Rolette	Rolette	Less than 1	$4,100	$13,600
Rolla	Rolla Municipal	16	$620,200	$2,515,800
Rugby	Rugby Municipal	16	$351,400	$2,846,600
St. Thomas	St. Thomas Municipal	6	$171,700	$1,096,600

Associated City	Airport Name	Total Employment	Total Payroll	Total Output
Stanley	Stanley Municipal	5	$133,900	$714,300
Tioga	Tioga Municipal	17	$463,300	$1,923,400
Towner	Towner Municipal	3	$113,500	$760,500
Turtle Lake	Turtle Lake Municipal	Less than 1	$2,600	$8,800
Valley City	Barnes County Municipal	31	$636,700	$4,274,000
Wahpeton	Harry Stern	94	$2,615,700	$11,585,200
Walhalla	Walhalla Municipal	13	$298,500	$3,709,400
Washburn	Washburn Municipal	6	$145,200	$655,600
Watford City	Watford City Municipal	21	$511,600	$3,003,600
West Fargo	West Fargo Municipal	24	$457,600	$2,004,100
Westhope	Westhope Municipal	Less than 1	$2,200	$8,500
Wishek	Wishek Municipal	Less than 1	$11,800	$43,000
GENERAL AVIATION AIRPORTS TOTAL		**920**	**$25,473,300**	**$131,772,600**
ALL AIRPORTS TOTAL		**9,792**	**$365,859,400**	**$1,062,756,500**

Source: Wilbur Smith Associates and RIMS II Multipliers.

Prepared: December 2010.

Table A-19: Qualitative Benefits of North Dakota Airports

Key:
D = Daily
W = Weekly
M = Monthly
S = Seasonal
- = No activity

Associated City	Airport Name	Recreational flying	Agricultural spraying	Corporate/business activity	Aerial inspections	Air cargo	Flight training	Gateway for resort visitors	Staging area for community events	Police/law enforcement	Prisoner transport	Military exercises/training	Career training/education	Search & rescue	Civil Air Patrol	Environmental patrol	Emergency medical evacuation/patient transfer	Medical doctor transport	Forest/rangeland firefighting	Aerial photography/surveying	Real estate tours	Aerial advertising/banner towing	Youth outreach (Young Eagles, scouting, etc.)
COMMERCIAL SERVICE AIRPORTS																							
Bismarck	Bismarck	D	N	D	D	D	D	-	M	D	W	D	N	W	D	D	D	D	M	S	N	N	S
Devils Lake	Devils Lake Regional	D	S	D	M	D	W	S	M	M	M	W	N	S	W	W	W	W	-	S	W	N	S
Dickinson	Dickinson-Theodore Roosevelt Regional	D	S	D	S	D	W	M	N	N	N	M	N	N	W	M	M	M	S	N	N	N	W
Fargo	Hector International	D	N	D	N	D	D	D	M	D	M	D	D	S	W	N	D	W	N	S	W	S	W
Grand Forks	Grand Forks International	D	N	D	W	D	D	S	S	D	M	W	D	N	W	M	D	D	N	W	N	S	S
Jamestown	Jamestown Regional	D	S	D	S	D	S	N	S	D	N	S	N	N	W	N	D	W	N	N	N	N	S
Minot	Minot International	D	S	D	M	D	W	S	S	D	N	W	N	N	M	S	D	N	N	N	N	S	S
Williston	Sloulin Field International	D	S	D	N	D	D	W	N	M	N	N	N	N	N	N	D	-	N	N	N	N	-
GENERAL AVIATION AIRPORTS																							
Arthur	Arthur	W	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ashley	Ashley Municipal	W	S	W	N	N	N	N	S	M	N	N	M	N	N	M	M	W	N	S	N	N	N
Beach	Beach	D	S	D	M	M	-	M	-	M	-	M	-	M	M	M	M	M	-	M	-	-	-
Beulah	Beulah	D	D	W	W	M	-	M	-	M	-	M	-	-	M	M	M	M	-	M	-	-	-
Bottineau	Bottineau Municipal	D	S	D	W	N	D	D	S	D	M	W	M	S	S	S	M	W	N	S	M	S	S
Bowbells	Bowbells Municipal	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowman	Bowman Municipal	D	D	M	S	M	W	-	-	-	-	-	-	-	-	-	-	M	-	S	-	-	-
Cando	Cando Municipal	W	S	M	N	N	S	N	S	S	N	N	S	N	N	S	M	M	N	S	S	M	N
Carrington	Carrington Municipal	D	S	W	S	N	M	S	N	S	N	N	N	N	S	S	W	W	N	S	N	N	S
Casselton	Casselton Robert Miller Regional	D	D	W	S	S	D	N	S	D	N	M	N	S	S	N	M	N	N	S	S	N	S
Cavalier	Cavalier Municipal	D	S	M	S	N	N	N	S	M	N	S	N	N	S	S	M	W	N	S	N	N	M
Columbus	Columbus Municipal	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Key:
D = Daily
W = Weekly
M = Monthly
S = Seasonal
- = No activity

Associated City	Airport Name	Recreational flying	Agricultural spraying	Corporate/business activity	Aerial inspections	Air cargo	Flight training	Gateway for resort visitors	Staging area for community events	Police/law enforcement	Prisoner transport	Military exercises/training	Career training/education	Search & rescue	Civil Air Patrol	Environmental patrol	Emergency medical evacuation/patient transfer	Medical doctor transport	Forest/rangeland firefighting	Aerial photography/surveying	Real estate tours	Aerial advertising/banner towing	Youth outreach (Young Eagles, scouting, etc.)
Cooperstown	Cooperstown Municipal	W	S	-	-	-	M	-	-	-	-	-	-	-	-	-	M	M	-	-	-	-	-
Crosby	Crosby Municipal	W	S	W	-	-	-	-	-	M	-	-	-	-	-	M	M	-	-	M	-	-	-
Drayton	Drayton Municipal	S	S	S	S	N	-	S	S	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Edgeley	Edgeley Municipal	M	D	S	M	S	S	N	S	S	N	N	N	N	N	S	S	N	N	S	N	N	N
Elgin	Elgin Municipal	W	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ellendale	Ellendale Municipal	D	S	M	M	M	M	-	-	M	-	-	-	-	-	-	-	M	-	-	-	-	-
Enderlin	Sky Haven	D	W	M	W	-	D	W	S	-	-	-	-	-	-	W	-	-	-	M	-	-	-
Fessenden	Fessenden Municipal	M	S	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Fort Yates	Standing Rock	D	S	W	W	-	D	M	S	M	M	M	S	N	S	N	M	S	N	S	N	S	S
Gackle	Gackle Municipal	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Garrison	Garrison Municipal	D	D	W	-	N	M	M	S	M	N	M	N	S	M	W	M	S	N	M	-	S	S
Garrison Dam	Garrison Dam Recreational Airpark	S	-	-	S	-	M	S	-	-	-	-	-	-	-	W	-	-	-	-	-	-	-
Glen Ullin	Glen Ullin Regional	W	S	-	-	-	-	M	-	-	-	M	-	-	-	-	-	-	-	-	-	-	-
Grafton	Hutson Field	D	D	W	W	S	M	N	S	W	S	M	N	S	W	S	M	M	N	M	N	N	S
Gwinner	Gwinner-Roger Melroe Field	D	S	D	S	W	W	M	S	M	N	N	S	S	S	S	S	S	S	S	S	N	N
Harvey	Harvey Municipal	D	D	W	M	-	W	M	-	-	-	-	-	-	M	M	M	M	-	M	-	-	-
Hazelton	Hazelton Municipal	S	S	S	S	N	M	N	N	N	N	S	N	N	N	N	N	N	N	S	N	N	N
Hazen	Mercer County Regional	D	S	W	S	-	-	S	S	-	-	S	-	-	-	S	M	W	-	M	-	-	-
Hettinger	Hettinger Municipal	W	S	W	W	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hillsboro	Hillsboro Municipal	D	D	M	N	N	D	N	S	D	N	S	S	S	N	N	S	N	N	N	N	S	S
Intl. Peace Garden-Dunseith	International Peace Garden	D	-	W	-	-	W	D	S	W	-	W	-	-	-	M	-	-	-	M	-	-	-
Kenmare	Kenmare Municipal	D	D	D	-	-	-	D	-	-	-	-	-	-	-	W	M	-	-	-	-	-	-
Killdeer	Weydahl Field	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Key:
D = Daily
W = Weekly
M = Monthly
S = Seasonal
- = No activity

Associated City	Airport Name	Recreational flying	Agricultural spraying	Corporate/business activity	Aerial inspections	Air cargo	Flight training	Gateway for resort visitors	Staging area for community events	Police/law enforcement	Prisoner transport	Military exercises/training	Career training/education	Search & rescue	Civil Air Patrol	Environmental patrol	Emergency medical evacuation/patient transfer	Medical doctor transport	Forest/rangeland firefighting	Aerial photography/surveying	Real estate tours	Aerial advertising/banner towing	Youth outreach (Young Eagles, scouting, etc.)
Kindred	Hamry Field	D	S	D	-	-	D	-	S	-	-	S	-	-	M	-	M	-	-	M	-	-	-
Kulm	Kulm Municipal	W	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lakota	Lakota Municipal	W	S	S	M	-	D	M	-	-	-	-	-	-	-	M	-	-	-	M	-	-	-
LaMoure	LaMoure Rott Municipal	W	D	W	M	-	D	M	-	-	-	-	-	-	-	M	M	M	-	M	-	-	-
Langdon	Robertson Field	D	D	-	M	-	M	-	-	-	-	-	-	-	-	-	M	M	-	M	-	-	-
Larimore	Larimore Municipal	D	D	W	M	-	D	M	M	M	-	M	-	-	M	M	-	-	-	M	-	-	-
Leeds	Leeds Municipal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lidgerwood	Lidgerwood Municipal	N	S	N	N	N	N	N	N	N	N	N	N	N	N	N	N	S	N	N	N	N	N
Linton	Linton Municipal	D	D	M	M	-	W	W	-	W	-	D	-	-	M	W	M	M	-	W	-	-	-
Lisbon	Lisbon Municipal	D	D	M	M	M	W	M	M	W	-	M	-	W	W	W	W	W	-	M	-	-	-
Maddock	Maddock Municipal	D	D	D	-	-	W	D	-	W	-	-	-	-	-	W	W	W	-	W	-	-	-
Mandan	Mandan Municipal	D	S	D	N	D	D	S	N	N	N	W	N	N	N	D	N	N	N	S	N	S	S
Mayville	Mayville Municipal	D	S	M	S	N	N	N	S	S	N	S	D	S	S	S	S	S	N	S	N	N	S
McClusky	McClusky Municipal	N	S	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
McVille	McVille Municipal	W	S	N	N	N	S	N	S	N	N	N	N	N	N	N	S	N	N	N	N	N	N
Milnor	Milnor Municipal	W	-	-	-	-	-	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minto	Minto Municipal	W	S	-	-	-	W	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mohall	Mohall Municipal	D	S	-	-	-	-	-	-	-	-	W	-	-	-	-	-	-	-	-	-	-	-
Mott	Mott Municipal	D	S	M	W	N	M	N	N	S	N	W	N	S	N	N	S	N	N	N	N	N	S
Napoleon	Napoleon Municipal	S	S	-	-	-	S	-	-	-	-	-	-	-	-	-	-	-	-	S	-	-	-
New Rockford	Tomlinson Field	-	D/S	-	-	-	-	-	-	-	-	M	-	-	-	S	-	-	-	-	-	-	-
New Town	New Town Municipal	D	S	W	W	N	M	S	S	M	N	W	N	N	N	N	N	W	S	S	N	N	S
Northwood	Northwood Municipal-Vince Field	W	S	M	-	-	-	-	-	-	-	-	-	-	S	-	-	-	-	-	-	-	-
Oakes	Oakes Municipal	D	D	W	M	-	-	-	-	-	-	-	-	M	M	-	M	-	-	M	-	-	-

Key:
D = Daily
W = Weekly
M = Monthly
S = Seasonal
- = No activity

Associated City	Airport Name	Recreational flying	Agricultural spraying	Corporate/business activity	Aerial inspections	Air cargo	Flight training	Gateway for resort visitors	Staging area for community events	Police/law enforcement	Prisoner transport	Military exercises/training	Career training/education	Search & rescue	Civil Air Patrol	Environmental patrol	Emergency medical evacuation/patient transfer	Medical doctor transport	Forest/rangeland firefighting	Aerial photography/surveying	Real estate tours	Aerial advertising/banner towing	Youth outreach (Young Eagles, scouting, etc.)
Page	Page Regional	W	D	S	M	-	-	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Park River	Park River-W C Skjerven Field	W	S	M	-	-	-	-	-	-	-	-	-	-	-	-	-	W	-	-	-	-	-
Parshall	Parshall-Hankins	D	S	M	S	N	W	N	N	N	N	N	S	S	S	S	M	N	S	S	N	N	S
Pembina	Pembina Municipal	W	S	W	M	N	M	M	M	D	N	N	W	N	S	N	S	N	N	N	N	N	N
Plaza	Trulson Field	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Richardton	Richardton	S	N	S	S	N	N	N	N	N	N	N	N	S	S	S	N	N	N	S	N	N	N
Rolette	Rolette	W	W	W	S	N	S	S	S	W	N	W	S	S	M	S	M	S	N	S	S	N	S
Rolla	Rolla Municipal	S	S	D/W	N	N	W	M	N	M	M	N	N	N	N	N	W	W	N	N	N	N	N
Rugby	Rugby Municipal	W	D	W	W	N	N	M	N	W	S	S	N	S	S	M	S	W	N	S	N	N	N
St. Thomas	St. Thomas Municipal	W	S	M	-	-	D	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stanley	Stanley Municipal	D	S	M	-	-	M	-	-	-	-	M	-	-	-	M	-	M	-	-	-	-	-
Tioga	Tioga Municipal	D	D	D	D	W	D	W	-	W	-	W	-	M	M	M	W	W	-	-	-	-	-
Towner	Towner Municipal	N	S	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Turtle Lake	Turtle Lake Municipal	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Valley City	Barnes County Municipal	D	S	D	W	S	D	N	S	D	M	M	N	N	N	M	W	W	N	S	S	N	S
Wahpeton	Harry Stern	W	D/S	W	M	S	M	M	S	S	S	N	S	S	S	S	M	M	N	S	N	N	M
Walhalla	Walhalla Municipal	-	D	W	M	N	N	W	-	-	N	N	N	N	N	S	N	N	N	S	N	N	N
Washburn	Washburn Municipal	W	S	M	-	N	N	S	N	S	N	S	N	N	N	S	N	N	N	M	N	N	N
Watford City	Watford City Municipal	D	S	W	-	-	D	-	-	-	-	-	-	-	-	-	-	W	-	M	-	S	-
West Fargo	West Fargo Municipal	W	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Westhope	Westhope Municipal	W	S	M	M	N	N	N	N	S	N	M	N	N	S	N	N	N	N	N	N	N	N
Wishek	Wishek Municipal	D	D	-	-	-	-	W	-	-	-	M	-	-	-	-	M	W	-	-	-	-	-

Source: Wilbur Smith Associates.

Prepared: December 2010.

Table A-20: Sales Tax Contributions of North Dakota Airports

Associated City	Airport Name	Airport Tenant Taxes	Visitor Taxes	Employee Taxes from Airport Tenants	Employee Taxes from Visitors	Total Taxes
COMMERCIAL SERVICE AIRPORTS						
Bismarck	Bismarck	$2,209,100	$1,907,200	$213,400	$96,500	$4,426,200
Devils Lake	Devils Lake Regional	$135,800	$88,000	$10,500	$4,300	$238,600
Dickinson	Dickinson-Theodore Roosevelt Regional	$219,900	$423,200	$16,500	$19,100	$678,700
Fargo	Hector International	$7,128,100	$4,315,000	$779,500	$209,100	$12,431,700
Grand Forks	Grand Forks International	$4,128,700	$1,149,100	$345,300	$56,700	$5,679,800
Jamestown	Jamestown Regional	$283,700	$108,200	$14,600	$5,600	$412,100
Minot	Minot International	$1,218,500	$1,504,600	$72,300	$63,600	$2,859,000
Williston	Sloulin Field International	$490,600	$386,900	$20,400	$21,100	$919,000
COMMERCIAL SERVICE AIRPORTS TOTAL		**$15,814,400**	**$9,882,200**	**$1,472,500**	**$476,000**	**$27,645,100**
GENERAL AVIATION AIRPORTS						
Arthur	Arthur	$600	$0	$100	$0	$700
Ashley	Ashley Municipal	$17,900	$1,800	$900	$100	$20,700
Beach	Beach	$700	$2,700	$100	$200	$3,700
Beulah	Beulah	$109,000	$7,100	$5,600	$400	$122,100
Bottineau	Bottineau Municipal	$61,400	$700	$1,800	$0	$63,900
Bowbells	Bowbells Municipal	$600	$0	$100	$0	$700
Bowman	Bowman Municipal	$22,800	$2,600	$1,300	$200	$26,900
Cando	Cando Municipal	$25,400	$1,500	$900	$100	$27,900
Carrington	Carrington Municipal	$41,500	$2,100	$1,300	$100	$45,000
Casselton	Casselton Robert Miller Regional	$145,300	$16,700	$5,700	$1,400	$169,100
Cavalier	Cavalier Municipal	$106,200	$300	$2,100	$0	$108,600
Columbus	Columbus Municipal	$600	$0	$100	$0	$700
Cooperstown	Cooperstown Municipal	$16,200	$700	$500	$0	$17,400
Crosby	Crosby Municipal	$65,300	$900	$2,100	$100	$68,400
Drayton	Drayton Municipal	$31,400	$0	$1,100	$0	$32,500
Edgeley	Edgeley Municipal	$15,500	$300	$300	$0	$16,100
Elgin	Elgin Municipal	$700	$0	$100	$0	$800
Ellendale	Ellendale Municipal	$700	$4,000	$100	$300	$5,100
Enderlin	Sky Haven	$700	$500	$100	$0	$1,300
Fessenden	Fessenden Municipal	$66,600	$0	$2,600	$0	$69,200
Fort Yates	Standing Rock	$600	$100	$100	$0	$800

Associated City	Airport Name	Airport Tenant Taxes	Visitor Taxes	Employee Taxes from Airport Tenants	Employee Taxes from Visitors	Total Taxes
Gackle	Gackle Municipal	$600	$0	$100	$0	$700
Garrison	Garrison Municipal	$18,500	$4,900	$400	$400	$24,200
Garrison Dam	Garrison Dam Recreational Airpark	$0	$0	$100	$0	$100
Glen Ullin	Glen Ullin Regional	$700	$400	$100	$0	$1,200
Grafton	Hutson Field	$93,200	$8,500	$5,900	$500	$108,100
Gwinner	Gwinner-Roger Melroe Field	$6,500	$4,000	$1,100	$300	$11,900
Harvey	Harvey Municipal	$139,300	$100	$4,200	$0	$143,600
Hazelton	Hazelton Municipal	$64,700	$0	$2,300	$0	$67,000
Hazen	Mercer County Regional	$13,100	$3,100	$400	$200	$16,800
Hettinger	Hettinger Municipal	$46,300	$4,700	$3,500	$300	$54,800
Hillsboro	Hillsboro Municipal	$122,400	$1,400	$4,300	$100	$128,200
International Peace Garden-Dunseith	International Peace Garden	$0	$100	$200	$0	$300
Kenmare	Kenmare Municipal	$28,600	$3,200	$1,000	$200	$33,000
Killdeer	Weydahl Field	$800	$0	$100	$0	$900
Kindred	Hamry Field	$76,300	$600	$6,500	$100	$83,500
Kulm	Kulm Municipal	$800	$0	$100	$0	$900
Lakota	Lakota Municipal	$1,400	$700	$100	$0	$2,200
LaMoure	LaMoure Rott Municipal	$67,200	$2,900	$1,900	$200	$72,200
Langdon	Robertson Field	$83,800	$0	$2,300	$0	$86,100
Larimore	Larimore Municipal	$144,300	$1,900	$4,500	$200	$150,900
Leeds	Leeds Municipal	$600	$0	$100	$0	$700
Lidgerwood	Lidgerwood Municipal	$0	$0	$0	$0	$0
Linton	Linton Municipal	$34,800	$1,900	$1,100	$100	$37,900
Lisbon	Lisbon Municipal	$55,100	$300	$2,200	$0	$57,600
Maddock	Maddock Municipal	$59,800	$0	$2,400	$0	$62,200
Mandan	Mandan Municipal	$88,400	$24,700	$3,300	$1,500	$117,900
Mayville	Mayville Municipal	$34,000	$16,000	$1,100	$1,200	$52,300
McClusky	McClusky Municipal	$0	$0	$200	$0	$200
McVille	McVille Municipal	$100	$0	$0	$0	$100
Milnor	Milnor Municipal	$800	$0	$100	$0	$900
Minto	Minto Municipal	$700	$200	$100	$0	$1,000
Mohall	Mohall Municipal	$86,600	$100	$2,600	$0	$89,300

Associated City	Airport Name	Airport Tenant Taxes	Visitor Taxes	Employee Taxes from Airport Tenants	Employee Taxes from Visitors	Total Taxes
Mott	Mott Municipal	$0	$900	$400	$100	$1,400
Napoleon	Napoleon Municipal	$16,900	$500	$500	$0	$17,900
New Rockford	Tomlinson Field	$50,600	$200	$1,300	$0	$52,100
New Town	New Town Municipal	$2,900	$2,000	$0	$200	$5,100
Northwood	Northwood Municipal-Vince Field	$25,700	$1,300	$800	$100	$27,900
Oakes	Oakes Municipal	$42,800	$100	$1,100	$0	$44,000
Page	Page Regional	$126,000	$100	$3,300	$0	$129,400
Park River	Park River-W C Skjerven Field	$37,700	$200	$3,700	$0	$41,600
Parshall	Parshall-Hankins	$6,600	$600	$300	$0	$7,500
Pembina	Pembina Municipal	$400	$1,200	$0	$100	$1,700
Plaza	Trulson Field	$600	$0	$100	$0	$700
Richardton	Richardton	$100	$0	$0	$0	$100
Rolette	Rolette	$0	$100	$0	$0	$100
Rolla	Rolla Municipal	$68,700	$1,900	$3,500	$100	$74,200
Rugby	Rugby Municipal	$80,900	$200	$1,600	$0	$82,700
St. Thomas	St. Thomas Municipal	$24,700	$100	$1,000	$0	$25,800
Stanley	Stanley Municipal	$13,300	$1,100	$700	$100	$15,200
Tioga	Tioga Municipal	$40,200	$21,100	$1,300	$1,500	$64,100
Towner	Towner Municipal	$21,500	$0	$700	$0	$22,200
Turtle Lake	Turtle Lake Municipal	$0	$0	$0	$0	$0
Valley City	Barnes County Municipal	$112,800	$6,500	$1,600	$400	$121,300
Wahpeton	Harry Stern	$265,300	$14,800	$11,800	$900	$292,800
Walhalla	Walhalla Municipal	$122,000	$200	$1,200	$0	$123,400
Washburn	Washburn Municipal	$9,000	$300	$300	$0	$9,600
Watford City	Watford City Municipal	$75,300	$4,000	$2,700	$300	$82,300
West Fargo	West Fargo Municipal	$44,100	$9,000	$2,800	$600	$56,500
Westhope	Westhope Municipal	$100	$100	$0	$0	$200
Wishek	Wishek Municipal	$700	$500	$100	$0	$1,300
GENERAL AVIATION AIRPORTS TOTAL		**$3,188,000**	**$188,700**	**$120,100**	**$12,600**	**$3,509,400**
ALL AIRPORTS TOTAL		**$19,002,400**	**$10,070,900**	**$1,592,600**	**$488,600**	**$31,154,500**

Source: Wilbur Smith Associates and RIMS II Multipliers.

Prepared: December 2010.