

9. South Dakota Aviation Economic Impact Study

In conjunction with the 2020 South Dakota Aviation System Plan (2020 SDSASP), the 2020 South Dakota Aviation Economic Impact Study (2020 AEIS) was conducted. The 2020 AEIS is an important component of the system planning efforts as it provides a detailed understanding of the quantitative value that system airports bring to South Dakota and its economy. While the following report focuses largely on the quantitative value of system airports, it is important to understand the qualitative impacts of aviation to South Dakota and its residents. See **Appendix H – Aviation Experiences in South Dakota** for more information about the unique value of airports to South Dakota communities and residents.

Airports facilitate the movement of people, goods, and services throughout the nation and the world, allowing the economy to operate more efficiently. South Dakota’s airports provide a range of services and public benefits to residents and visitors. Airports support scheduled commercial air service for the traveling public, freight transportation, medical flights, aerial firefighting, disaster relief, pilot training, general recreational flying, agricultural support, and more. In doing so, airports are important sources of economic activity in the communities and regions they serve. Many people are familiar with commercial aviation, having flown for personal or business reasons. But even experienced travelers often do not fully understand the enormous range of activities that occur for airports to function, since so many are “behind the scenes.” These could be air traffic control, security, engineering, health and safety, or even food preparation. In addition, the general population may not be very familiar with general aviation (GA) and how these airports operate and contribute to the economy and the public welfare.

South Dakota’s system of airports includes commercial and GA facilities that span a range of sizes and functions, each facilitating local economies. In 2018, commercial airlines operated at five airports in the state, carrying hundreds of thousands of passengers traveling for business or leisure purposes to the state. In addition, the state’s GA airports support business, recreation, tourism, and other significant and important activities. The commercial service and GA airports not only facilitate economic activity but are also centers of local and regional employment. When those employees spend their earnings, that activity also ripples through the local, regional, and statewide economy. Economic activity associated with airports also make substantial contributions to state and local governments via taxes and fees. The contributions that the airports, airlines operating at those facilities, GA users, and related employment make to the state’s economy are quantified in the following *economic impact analysis*.

This chapter explains the fundamental concepts in an economic impact analysis of commercial service and GA airports. It describes the type of employment supported by airports, much of which is not seen or recognized by the general public. Each section also includes a description of the methodology applied so that readers have a better understanding of how the estimates were generated. The chapter describes the airports’ various impacts, separating those that stem from airport operations and capital improvements from those associated with spending by travelers who visit the state for business or leisure purposes. Additionally, this chapter quantifies the contribution that all related activities make to local and state governments via taxes and fees, and highlights the ways system airports contribute to specific “signature events” unique to South Dakota, such as the Sturgis Motorcycle Rally, the pheasant hunting season, and how airports support the state’s agricultural industry by enabling spraying

operations. Finally, the chapter summarizes the changes in estimated economic activity since the previous 2010 SDSASP was published and explains the major factors that underlie those changes.

9.1. Purpose

Airports and state aviation departments sponsor economic impact studies so that airports, the communities they serve, and the state can better understand the substantial and far-reaching contributions that civil aviation makes to the local, regional, and statewide economies. In addition to serving as local bases of employment and economic activity, airports facilitate the movement of people, goods, and services throughout the nation and the world, allowing the economy to operate more efficiently. The current study updates the last economic impact study (EIS), which was published in 2010 based on airport operations and other data from 2010.

9.2. Background

South Dakota’s airports are an integral part of the state’s transportation system, the larger U.S. air transportation system, as well as intrastate and interstate commerce. In addition to the five airports with scheduled commercial airline service, South Dakota’s system of public use airports includes 51 additional airports that serve GA. Those GA airports are spread around the state and provide an array of services in the areas they serve. Those 51 have been designated by the Federal Aviation Administration (FAA) as part of its National Plan of Integrated Airport Systems (NPIAS), which makes them eligible to receive federal funding for airport infrastructure development and improvements. The 2020 SDSASP classifies system airports based on certain on-airport characteristics, and whether the airport is served by commercial airlines. The criteria used to designate an airport role and definitions of each role can be found in **Chapter 3. Airport Roles. Table 9-1** summarizes the airport roles, the number of airports in each role, and provides an example for each.

Table 9-1: South Dakota's Airports by SDSASP Classifications

Airport Role	Example Airport	Number of Airports
Commercial Service	Watertown Regional	5
Large General Aviation	Brookings Regional	7
Medium General Aviation	Milbank Municipal	16
Small General Aviation	McLaughlin Municipal	27
Basic Service	Howard Municipal	1
Total		56

Source: Kimley-Horn, 2020

9.2.1. Overview of Airport Activity and Employment

At commercial service airports, every arrival of a commercial flight generates employment hours for individuals with jobs involved in handling passengers, their baggage, cargo, and the aircraft. This employment includes customer service, airline crew, ground handling, cleaning, maintenance functions, and more. In 2018, nearly 16,000 commercial flights departed from the state’s commercial service airports, carrying nearly 1 million enplaned passengers.

GA flights at either commercial service or GA airports are supported by employees of other airport businesses, which may manage fueling, repairs, parking or hangaring, flight instruction, or other

services. South Dakota’s commercial service airports experienced 179,000 GA flights and the GA airports hosted more than 250,000 flights. **Table 9-2** summarizes the flight activity in 2018 at the commercial service airports. **Table 9-3** summarizes the 2018 flights at GA airports in the system.

Table 9-2: Summary of Operations at South Dakota's Commercial Service Airports, 2018

Associated City	Airport Name	FAA ID	Scheduled Departures	Enplaned Passengers	Cargo Tonnage	GA Flights
Aberdeen	Aberdeen Regional	ABR	747	28,421	-	39,180
Pierre	Pierre Regional	PIR	1,092	30,230	583	29,800
Rapid City	Rapid City Regional	RAP	5,574	303,659	23,817	40,796
Sioux Falls	Sioux Falls Regional/Joe Foss Field	FSD	7,979	529,895	21,180	58,050
Watertown	Watertown Regional	ATY	545	11,499	313	11,600
Total			15,936	903,704	45,893	179,426

Sources: InterVISTAS analysis of data from Diio-Mi online portal, FAA enplanement data, and FAA Terminal Area Forecast (TAF)
 Notes: Data for departures, passengers, and cargo are from commercial operations only. An “enplaned passenger” is an individual boarding an aircraft for departure. Cargo tonnage includes freight and mail. GA flights (arrivals and departures) include local and itinerant operations by GA aircraft and air taxis.

Table 9-3: Flight Activity at South Dakota's GA Airports, 2018

Airport Role	Number of Airports	Estimated Flights	Average Flights by Airport
Large General Aviation	7	142,625	20,375
Medium General Aviation	16	57,694	3,606
Small General Aviation	27	55,885	2,070
Basic Service	1	720	720
Total	51	256,924	5,038

Source: InterVISTAS analysis of data from the FAA TAF

Most people have had the experience of flying on commercial aircraft and have encountered employees at the airport who make that possible. But many other positions are also required for the industry to function. In general, these include:

- **Airline services** includes employment of pilots and flight attendants who fly into South Dakota’s airports. Airlines also employ many other individuals, including check-in agents, gate agents, customer service, supervisors, dispatchers, and the airline’s overhead staff. Depending on the airport, airlines might also have maintenance staff and mechanics on site.
 - Ground support includes jobs in aircraft ground handling, bag room, fueling, and aircraft cabin cleaning and catering.
 - An often-overlooked aspect of airline operations are cargo and freight services. Airlines move air freight from one airport to another using available cargo space on passenger aircraft (“belly space”) or on dedicated all-cargo freighters. This takes place on regularly scheduled flights and on charter services. Some airlines also offer pickup and delivery services. “Integrated” carriers like FedEx and UPS provide door-to-door pickup and delivery services for packages, sometimes including heavy cargo. These companies operate integrated aircraft and ground transportation services.

- **Airport support** is employment of other non-airline workers within the terminal. These include government and private sector employment.
 - Federal government employees commonly working at domestic and international airports including FAA air traffic controllers, aircraft and airport inspectors, and security officers of the U.S. Transportation Security Administration (TSA). At airports with international service, the federal presence also includes U.S. Customs and Border Protection (CBP) officers, Immigrations and Customs Enforcement (ICE) officers, agricultural inspectors, and health officers.
 - Local and state government employees are critical to airport operations. Since public use airports are typically instruments of a local government, many airport employees are members of the local city or county government. Airport management might include not only clerical, administrative, and management staff, but also information technology, maintenance and engineering, grounds keeping, waste management, and other miscellaneous jobs. In addition, local and state law enforcement officers regularly patrol airports.
 - Airports also support many retail and restaurant operations, car rental, and other private firms that cater to air travelers. Some airports include privately contracted janitorial, maintenance, and security employees.
- **GA operations**, especially at commercial service airports, are typically managed by private companies called “fixed base operators” (FBOs). An FBO is a commercial business authorized by the airport sponsor to operate on an airport and provide aeronautical services such as fueling, hangaring, tie-down and parking, aircraft rental, aircraft maintenance, flight instruction, etc. FBOs serve functions similar to terminals for commercial airline passengers. In addition to the functions directly related to servicing aircraft, they may include meeting spaces and food service. At smaller GA airports, these functions might be handled by the airport’s management. Larger commercial service airports may have more than one FBO, and they compete for customers based on service offerings, amenities and prices.
- **Off-site employment** accounts for all employees located off-airport working within the accommodation or ground transportation industries directly associated with airport and airline operations. These cover facilities that sometimes are located on airport properties (e.g., some rental car centers) but are often off-property. Off-site employment and economic activity also covers activities clearly and directly associated with airline operations (e.g., where flight crew arriving on late flights must spend the night before working another flight in the morning or commuting elsewhere in an airline’s system).
 - In some areas, airlines may have corporate support employment that is not located on-airport.
 - Many activities relating to airport cargo and freight operations may be located off-site. These can include air freight forwarders and “third party logistics providers,” which act as intermediaries between the firms shipping the product or good and the transportation provider. They negotiate with carriers to find available space and arrange pricing, handle the documentation services, arrange storage, consolidate small shipments into larger (less costly) shipments, and provide other services. Other firms in the sector include trucking firms that specialize in road transportation services for air freight shipments and professional service providers like brokers, who buy capacity from airlines and sell it to small- and medium-sized forwarders.

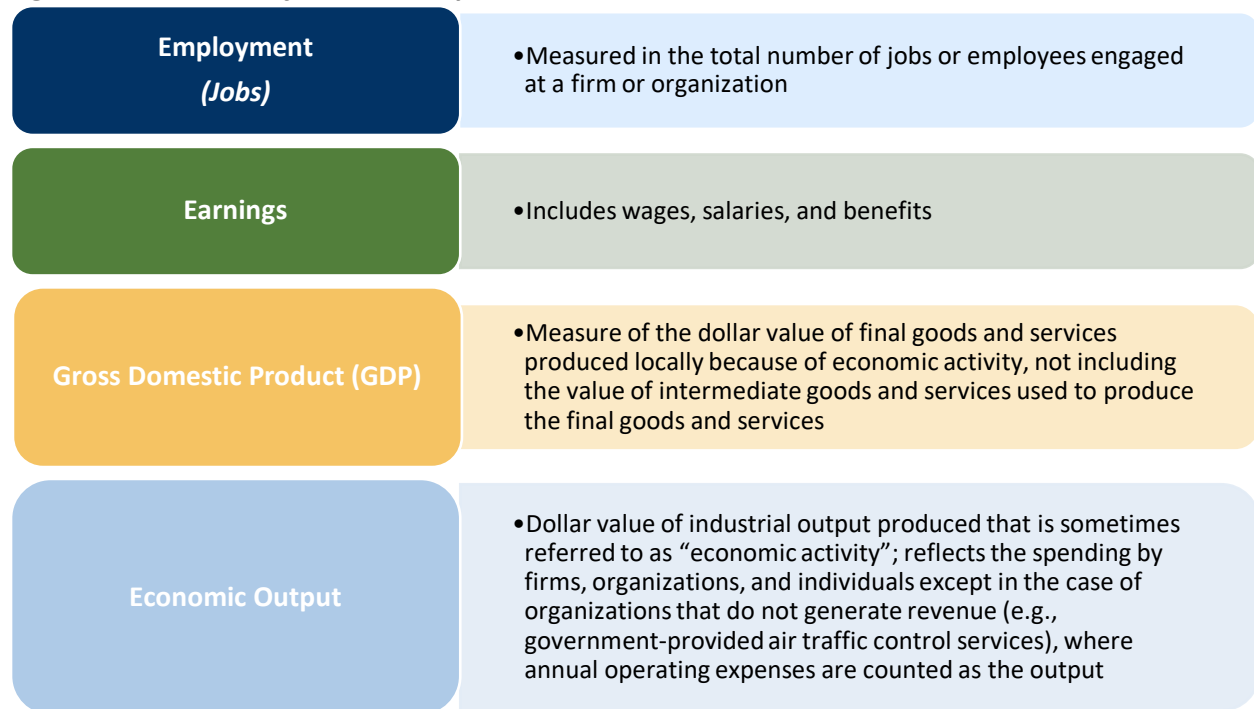
To maintain safe operations and meet evolving needs, airports invest in capital improvements. These construction efforts also contribute to local and regional economic activity, as hundreds of employees work on these capital improvements each year.

In addition, aviation is also critical for local and regional tourism. Spending by visitors who arrive in South Dakota by commercial or GA flights also supports local employment, especially in the hospitality sector (including food, hotel, ground transportation, entertainment, and retail).

9.2.2. Overview of the Economic Impact Process

Economic impact is a measure of the spending and employment associated with a sector of the economy, a specific project, or a change in government policy or regulation. The 2020 SDSASP AEIS focuses on the employment and spending associated with the civil air transportation sector in the state. Economic impact is most commonly measured in several ways, including employment, earnings or income, gross domestic product (GDP) and economic output. These measures are outlined in **Figure 9-1**.

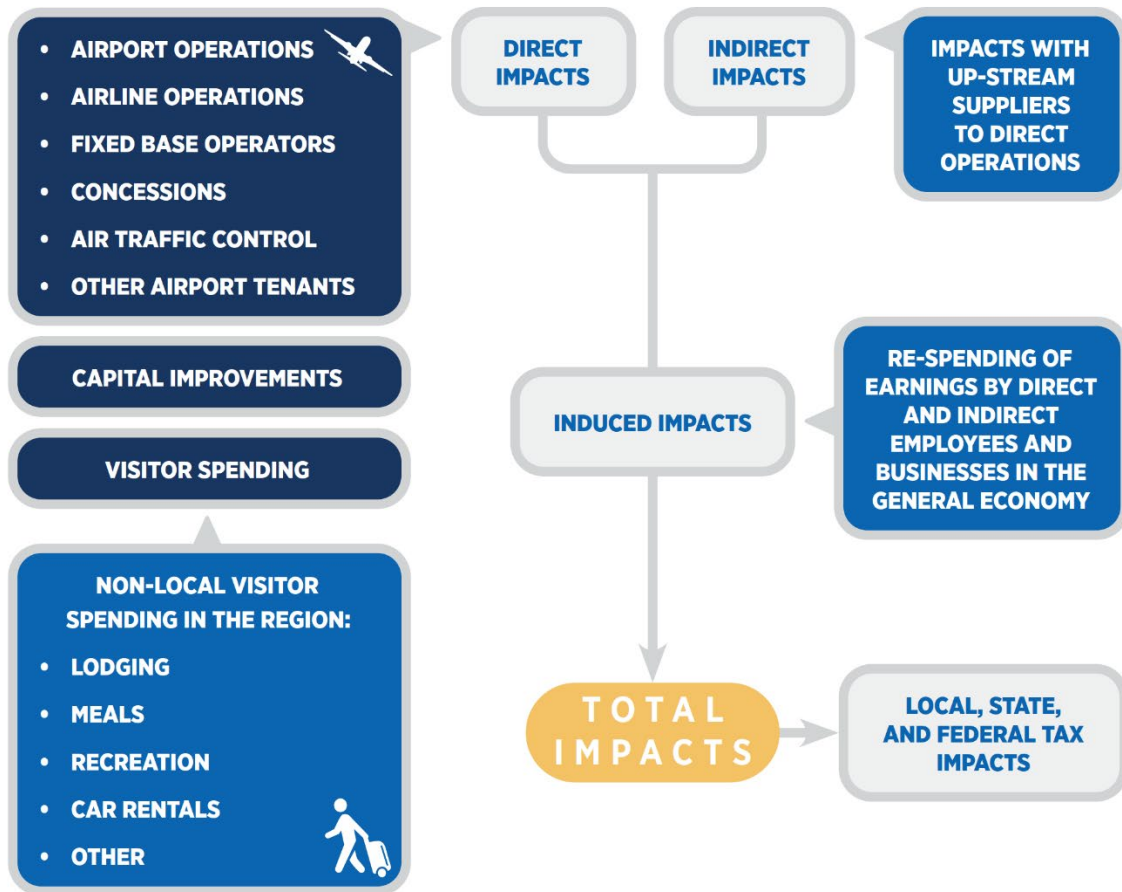
Figure 9-1: Measures of Economic Impact



Source: InterVISTAS, 2020

The three major components of economic impact are classified as direct, indirect, and induced impacts. These classifications are used as a base for the estimation of total economic impact of South Dakota’s civil air transportation sector. Each of these three components require different analyses. Employment impact analysis determines the economic impact in terms of jobs created and salaries and wages paid out. The direct, indirect, induced, and total number of persons employed in South Dakota’s civil air transportation sector is examined to produce a snapshot of the sector’s operations (see Error! Reference source not found.).

Figure 9-2: Economic Impact - What Gets Counted



Sources: InterVISTAS, 2020; Kimley-Horn, 2020

- **Direct impacts** account for the economic activity of the aviation sector itself. Direct employment impacts are measured by counting those individuals who work in this sector of the economy. In the case of an airport, all of those people who work in an aviation-related capacity either on-site or off-site would be considered direct employment (e.g., airline ticket or gate agents, fixed base operators, maintenance, airport staff members, etc.). For ease of labeling, these impacts are sometimes categorized as “airport operations” even if the employment occurs off airport properties.
 - **Capital development** at airports also drives some of the direct economic impact of the airport. The economic effects of an airport’s capital development are considered separately from an airport’s ongoing operations because airports’ capital spending tends to vary significantly over time on a project-by-project basis.
- **Indirect impacts** are the “upstream” impacts that arise because of the direct impacts. For an airport, indirect impacts originate from off-site firms that serve airport users. Indirect employment includes the portion of employment in supplier industries which are dependent on sales to the air transport sector. An example would be food wholesalers that supply food for catering on flights. Another example would be building suppliers that sell materials used for the construction of capital improvements at the airport (e.g., a renovated terminal or parking structure).

- **Induced impacts** are economic impacts created by the spending of wages, salaries, and profits earned in the course of the direct and indirect economic activities. Induced employment is employment generated from expenditures by individuals employed indirectly or directly. For instance, if an airline maintenance firm employee decides to re-model his/her home, this would result in additional (induced) employment hours in the general economy. The home renovation project would support hours of induced employment in the construction industry, the construction materials industry, etc.
- **Visitor spending impacts.** Another related economic impact that arises from the airport's operations flows from visitors to a region who arrive and depart via the airport rather than by other means (e.g., auto). The hospitality industry in particular benefits greatly from these visitors, who spend money on lodging, meals, entertainment, car rentals, and retail. Direct employment associated with those industries is counted as part of the economic impacts of the airport. The economic impacts associated with visitor spending are separately identified in this report. Some economic impact studies may incorporate these impacts into "indirect impacts," however the 2020 AEIS accounts for them separately for technical economic reasons.
- **Total impacts** are the sum of direct, indirect, induced, and visitor spending impacts. It should be noted that indirect and induced impacts are sometimes collectively referred to as "multiplier impacts."

9.2.3. *Overview of the 2020 SDSASP AEIS Approach*

This section provides a summary of the methodology used to estimate the economic impact of South Dakota's airports. Each major section below includes a more detailed discussion of the methods used.

Studies of the economic impact of airports start with building on data of the total number of employees who work at airports. As part of the 2020 SDSASP inventory data collection process, each airport was surveyed and asked about employment at the facility. Each airport manager was consulted with to identify all the public organizations (e.g., the FAA) and private firms (e.g., airlines or FBOs) that have employees working at each airport. Each of those organizations and firms were then surveyed to gather data on total employment and compensation paid to their workforce. Non-responsive companies and organizations were followed up with multiple times in an attempt to gather firsthand employment data.

Capital improvement programs at airports can generate and sustain significant economic impacts. While routine maintenance of an airport's assets is a part of ordinary operations, major capital improvement programs are not. Major capital improvements differ fundamentally in scope, scale, cost and time. The impact of airports' spending on capital improvement was estimated based on data from the South Dakota Department of Transportation (SDDOT), the FAA, and individual airports. Because the annual amount of spending on capital improvement can vary considerably over time, the average amount of spending for the latest four-year period was used as representative of "normal" or average annual spending.

Different approaches were used to develop estimates of the amount and distribution of spending by travelers who visited South Dakota via commercial airports and GA airports. For the state's five commercial airports, the total number of travelers who visited the state for business or personal reasons was estimated using data on airline bookings from two different sources. South Dakota's commercial service airports vary in the extent to which their traffic tends to originate locally or externally (i.e., outside of the state). Next, an estimate of how much those travelers spent on their trips was made. An online survey of travelers using the airport's Wi-Fi system to gather information on average spending

was deployed at Rapid City Regional Airport. During the Sturgis Motorcycle Rally, in-terminal interviews with travelers allowed for the gathering of spending data for those attending the event. In-terminal surveys of travelers at Sioux Falls Regional/Joe Foss Field were also conducted. For other commercial airports, estimates of spending developed by the South Dakota Department of Tourism were adopted.

Visitors who fly into South Dakota's airports via GA also contribute to the economy. Estimates of the amount and type of spending by visitors who arrived in the state via GA were developed. Because of the inherent nature of GA travel (i.e., little or no hard data are available on GA operations and travelers, etc.), the number of travelers and amounts that they spend in a location must be estimated through statistical techniques or other modeling efforts. The number of visitors who arrived by GA was based on data from the FAA and airports on the number of itinerant operations at each airport, estimates of the percent of those operations made by "true visitors" rather than aircraft based at the airport, and estimates of the average number of individuals onboard each of those transient aircraft. To estimate spending by GA visitors, the average visitor spending amounts used in the prior report were inflated to constant 2018 dollars and compared against spending estimates applied by other state economic impact studies issued since 2013 for several states. The new spending estimates for the system's GA airports were based on that analysis. The final estimates of visitor spending were reviewed and accepted by SDDOT. The estimates of aircraft operations, passenger traffic, and visitor activities are based on 2018 flight activities.

The most commonly accepted mechanism for estimating indirect economic impacts is via econometric modeling that is based upon national economic data and analyses. These data quantify the linkages between industries and economic sectors – between the sales of one and the purchases of another. The linkages between firms are referred to as "input-output" tables, because the output (product) of one firm becomes the input (supply) to another. The data are available on national, state, regional, and county levels. Input-output models thus create "multipliers" used to calculate the indirect effect on jobs, income and output generated per dollar of spending on various types of goods and services. The IMPLAN model was applied to generate the estimates of the indirect aviation-related economic activity associated with the public use airports.¹ The same model is used to estimate the induced effect of activity in the sector.

The findings of the economic impact analysis are rounded into tens of thousands of dollars to avoid giving readers a false sense of precision about the results. Readers should remember that, except for the data on commercial aircraft operations and passenger traffic, the figures presented are estimates generated by econometric models and not the result of an audit or accounting exercise. The intent is not to obscure, but to provide maximum reliability without misleading readers as to the overall level of precision.

9.3. Impacts of Airport Operations

This section describes the direct, indirect, induced and total impacts of the operations of South Dakota's commercial service and GA airports. The section also discusses the impacts of capital development.

¹ IMPLAN is an economic impact assessment software system. The system traces its roots to the U.S. Forest Service, which needed an analytic tool to better understand the resource outputs of alternative land management strategies. Responsibility for IMPLAN (short for "impact analysis for planning") eventually shifted to the University of Minnesota before it was established as an independent corporation (then known as the Minnesota IMPLAN Group, or MIG) for developing and selling all future iterations of the IMPLAN database and software. The name changed to IMPLAN in 2013.

Capital improvements occur on airport property but are fundamentally different from regular airport operations, being more heavily construction in nature. Major capital development spending programs also tend to occur on a less regular basis than ordinary airport operations.

9.3.1. *Direct Impacts*

The direct impacts are those attributed to employment directly on airport properties or nearby but directly related to airport or airline operations.

9.3.1.1. *Data Collected*

Commercial Airport Managers. The largest sources of economic impact in South Dakota’s aviation system are the commercial service airports. As part of the system update, airports’ managers were surveyed to obtain information on the total number of people employed at the airport directly and by tenant companies and organizations that operate on airport property. These include but were not limited to:

- Airport management, which often is part of the local municipal or county government;
- Airlines;
- Other government agencies (including the FAA’s air traffic controllers, the TSA, or local law enforcement);
- Fixed Base Operators (FBOs);
- Maintenance, repair, and overhaul (MRO) firms;
- Concessionaires and other retail;
- Rental car companies and other ground transportation operators;
- Flight schools; and
- Air ambulance operators.

Commercial Airport Tenants. Surveys were sent to each company or organization identified by airport management as operating on their properties. The surveys were designed to gather data on employment (measured in jobs) and total wages. Additional information was collected on full-time versus part-time, and permanent versus seasonal jobs to gain a better understanding of employment at the airports.² The survey also solicited information on whether firms contract out certain functions or services to guard against undercounting or double counting. To identify potential impacts related to air cargo at the airports, the survey included questions of the airports’ tenants on their business operations related to air cargo movements. Depending on the type of information sought, different surveys were sent to different types of airport tenants. All of the surveys – which were conducted via an online platform -- included cover letters explaining the project and requesting the tenants’ cooperation. After the surveys were emailed to the points of contact for each organization, surveys were re-sent to those who had not responded within the defined response period. Each company and/or organization was also called, often multiple times, to ask them to participate in the project by responding to the survey. The emphasis was on obtaining survey responses from the largest organizations on airport properties, as identified by airport management. The overall goal was to maximize the total number of responses obtained for each airport.

² All employment figures in the analysis and report are measured in jobs or headcount.

GA Airport Managers. In comparison to the size, scope, and complexity of the commercial service airports, most GA facilities in South Dakota are more modest in terms of operations, with fewer tenants and less flight activity. This is not always the case; some GA airports in South Dakota support very large numbers of aircraft operations, sometimes more than some of the smaller commercial service airports. Separate surveys were sent to all the GA airports in the system. They sought basic information from airport management on the numbers of employees, their total wages, the number and type of based aircraft, and the names of the tenants, including FBOs but not names of individuals who might rent a hangar for their personal aircraft.

Repeated attempts were made to obtain responses from all airports. Follow-up requests to complete the surveys were sent multiple times, and non-responding airports were called to ask them to return the surveys. In addition, the SDDOT also asked GA airport directors to encourage tenants to participate in the study. After the preliminary results were presented to the SDDOT conference in March 2020, airports were given one last opportunity to offer revisions to their direct employment estimates. Those that did not respond were among the smallest in the state and had experienced changes in personnel who had been responsible for the airport.

GA Airport Tenants. Surveys were sent to each company or organization identified by GA airport managers as operating on their properties. The surveys were designed to gather data on employment (measured in jobs) and total wages. Additional information was collected on full-time versus part-time, and permanent versus seasonal jobs to gain a better understanding of employment at the airports.³ Multiple follow-up attempts were made to collect data from GA airport tenants that did not respond within the defined response period.

9.3.1.2. *Inferring Employment*

If firms or organizations would not respond to repeated requests for their participation, direct employment at both commercial service and GA airports was estimated by making professional inferences based on other indicators. Other available sources of information, such as the number of employees given badges to work on the airport's property, previous survey responses, public information such as annual reports, and information from similar firms were also evaluated. The employment estimate applied was the mean total employment of the responding firms excluding the highest and lowest employers to avoid the mean being skewed by outliers. Non-responsive GA airports were benchmarked against others that had responded, controlling for the number and type of based aircraft, total estimated or reported operations, and the presence of an FBO and other on-airport facilities (e.g., a café).

9.3.1.3. *Estimating Other Direct Impacts*

Using the direct employment figures from the surveys as inputs, the *direct* wage, GDP and economic output impacts are estimated using economic multipliers from the IMPLAN model. The IMPLAN model is an industry-recognized economic model, which is used to identify interrelationships in a regional economy and estimate the impacts of changes on that economy. The IMPLAN model is developed from hundreds of data sources, most notably the Bureau of Economic Analysis's (BEA) Benchmark input-

³ All employment figures in the analysis and report are measured in jobs or headcount.

output (I-O) tables, the Bureau of Labor Statistics (BLS) Quarterly Census of Earnings and Wages, the Census Bureau, and the U.S. Department of Agriculture.⁴

9.3.1.4. Direct Impacts of Airport Operations

Table 9-4 summarizes the direct impacts of South Dakota’s airports. The commercial service airports supported almost 2,300 jobs that paid over \$125 million in earnings in 2018, the average of which is approximately \$55,300/job. This compares to \$42,920 per job across all industries in South Dakota.⁵ The total economic output associated with these activities was over \$250 million. The GA airports supported over 300 jobs paying about \$17 million, with total economic output of over \$30 million. Combined, South Dakota’s airports accounted for 2,600 direct jobs with earnings of over \$140 million, GDP of \$173 million, and nearly \$290 million in total economic activity.

Table 9-4: Direct Impacts of Airport Operations

Category of Airport	Jobs	Earnings	GDP	Output
Commercial Service	2,290	\$126,640,000	\$153,560,000	\$257,960,000
General Aviation	305	\$16,730,000	\$19,110,000	\$31,360,000
Total	2,595	\$143,360,000	\$172,670,000	\$289,320,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

An appendix to this chapter, **Appendix I – Airport Economic Impact Profiles**, includes more detailed tables that show the economic impacts attributable to each airport.

9.3.1.5. Direct Impacts of Airport Capital Improvements

Capital improvement programs at airports can generate and sustain significant economic impacts. These impacts are treated separately from those associated with the normal or ordinary course of business. While routine maintenance of an airport’s assets is a part of ordinary operations, major capital improvement programs are not. Major capital improvements differ fundamentally in scope, scale, cost, and time.

Because the annual amount of spending on capital improvement can vary considerably over time, the average amount of spending for the latest four-year period as representative of “normal” or average was used. The four years included 2015 through 2018. The IMPLAN estimates of employment and related economic activity were based on those averages.

Data on airport capital improvement programs was obtained from the FAA, the SDDOT, and the system airports. The FAA requires airports to report their annual capital expenditures and construction in progress for projects involving the airfield, terminal, parking structures, roadways, rail, transit, and more.⁶ These figures were checked against the airports’ own estimates, and airport reported data was ultimately selected.

⁴ More specific information on the model’s data sources can be found on its website, <https://implan.com/wp-content/uploads/IMPLAN-Data-Overview-and-Sources.pdf>.

⁵ Source: https://www.bls.gov/oes/current/oes_sd.htm#00-0000 (data as of May 2019). In constant 2018 dollars, the average was \$42,165.

⁶ FAA Advisory Circular No. 150/5100-19D, June 23, 2011, *Guide for Airport Financial Reports Filed by Airport Sponsors*.

The five commercial service airports spent \$17 million in capital development in 2018 and an average of \$23 million annually over the four-year period. In addition, the GA airports also made capital improvements in their facilities. On average, the GA airports, as a group, spent \$10 million annually on capital improvements. Combined, this capital spending supported 265 direct jobs that generated about \$15 million in total wages. The capital investments added \$16 million to South Dakota’s GDP and supported nearly \$34 million in total direct economic output. **Table 9-5** shows the direct impact of capital improvements for both commercial service and GA system airports. Table 9-5

Table 9-5: Direct Impact of Airport Capital Improvements

Category of Airport	Jobs	Earnings	GDP	Output
Commercial Service	185	\$10,060,000	\$11,280,000	\$23,430,000
General Aviation	80	\$4,440,000	\$4,990,000	\$10,350,000
Total	265	\$14,500,000	\$16,270,000	\$33,780,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

9.3.2. Indirect Impacts

Indirect economic impacts are those that result from the direct impacts. For an airport, indirect impacts encompass the economic activities of off-site firms that serve airport users. Indirect employment includes the portion of employment in supplier industries dependent on sales to the air transport sector. An example would be food wholesalers supplying food for catering on flights.

While the direct employment and earnings impacts of South Dakota’s airports were based on survey information, the same approach is not practical for estimating indirect and induced economic impacts. It might be possible to conduct a survey of businesses impacted indirectly, but the survey would need to cover thousands of companies. Economic multipliers and ratios derived from “input-output” tables to generate estimates of the indirect aviation-related economic activity associated with the public use airports was used. The input-output tables are derived from national and regional economic data that quantify the relationships between industrial sectors, including those between supplier industries and final producers. They show the intermediate goods and services used by an industry to produce its output.⁷ In other words, for airlines and airports, they document the relationship between the final demand for air service (by passengers or shippers) upon users (airports and airlines) and the suppliers (e.g., aircraft manufacturers, fuel wholesalers). Changes in the level of air services demanded and consumed (e.g., increases or decreases in airline passenger traffic and aircraft arrivals and departures) lead to changes in the amount of inputs (supplies) required. Each industry that produces goods and services generates demands for other goods and services and so on.

To generate estimates of the indirect economic impacts of South Dakota’s airports, the IMPLAN Model was applied. At the heart of the IMPLAN model is an input-output table. For a specified region (e.g., South Dakota), the input-output table accounts for all dollar flows between different sectors of the economy. Using this information, IMPLAN models the way a dollar injected into one sector is spent and re-spent in other sectors of the economy, generating waves of economic activity, or “economic

⁷ Readers interested in more background on the national input-output tables are encouraged to review U.S. Department of Commerce, Bureau of Economic Analysis, *Concepts and Methods of the U.S. Input-Output Accounts*, Sept. 2006, updated April 2009. <https://www.bea.gov/resources/methodologies/concepts-methods-io-accounts>.

multiplier” effects. The model uses national industry data and county-level economic data to generate a series of multipliers used to estimate the total economic implications of economic activity.

The multipliers and ratios used in this study were based on the 2018 Input-Output multipliers maintained by IMPLAN. These were the most current I-O multipliers available at the time of the study. The economic ratios and multipliers have been updated to reflect current price levels, but no structural changes have been assumed. As the indirect impacts of an airport extend beyond an airport’s catchment area, IMPLAN’s Multi-Regional Input-Output (MRIO) analysis is used to determine the total impacts of each airport within the entire state.

9.3.2.1. Indirect Impacts of Airport Operations

For 2018, the operations of South Dakota’s commercial service airports supported about 500 jobs that paid \$27 million in earnings. This activity generated over \$40 million in GDP and over \$70 million in total economic activity. The GA airports’ operations supported another 70 jobs that paid over \$30 million and generated another \$80 million in total economic activity. The indirect impact of airport operations in South Dakota are shown in **Table 9-6**.

Table 9-6: Indirect Impact of Airport Operations

Category of Airport	Jobs	Earnings	GDP	Output
Commercial Service	505	\$27,000,000	\$40,830,000	\$72,880,000
General Aviation	70	\$3,630,000	\$5,180,000	\$ 9,260,000
Total	575	\$30,630,000	\$46,010,000	\$82,140,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

9.3.2.2. Indirect Impacts of Airport Capital Improvement Initiatives

Table 9-7 summarizes the indirect impacts of the spending that South Dakota’s airports devoted to capital improvements. These impacts reflect the employment and economic activity associated with supplier industries to the capital development projects and would include, for example, employment associated with suppliers to the building construction industry or suppliers of pavement materials. In total, South Dakota airports’ capital improvement efforts supported 60 jobs with earnings of about \$3 million in supplier industries. Total GDP generated exceeded \$5 million, and total economic output approached \$10 million.

Table 9-7: Indirect Impact of Airport Capital Improvements

Category of Airport	Jobs	Earnings	GDP	Output
Commercial Service	40	\$2,200,000	\$3,600,000	\$6,700,000
General Aviation	20	\$1,000,000	\$1,600,000	\$3,000,000
Total	60	\$3,200,000	\$5,200,000	\$9,700,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

9.3.3. Induced Economic Impacts

Induced impacts are those created by the spending of wages, salaries and profits earned in direct and indirect economic activities. These are the “ripple effects” of successive rounds of spending through the economy. Induced employment is employment generated from expenditures by individuals employed

indirectly or directly. For instance, if an airline maintenance firm employee decides to remodel his/her home, this would result in additional (induced) employment hours in the general economy. The home renovation project would support hours of induced employment in the construction industry, the construction materials industry, etc. Induced impact is often called the household-spending effect. Induced effects typically reflect changes in spending from households as income increases or decreases due to the changes in production (in this case, air service).

To generate estimates of the induced economic impacts of South Dakota’s airports, the IMPLAN model was applied. Not only does IMPLAN’s model recognize the dollar flows among the aviation sector and its suppliers (the indirect impacts), the model also estimates how employees in the direct and indirect industries spend their earnings in the local economies, thus generating additional waves or “ripple effects” of spending. The model uses national industry data and county-level economic data to generate a series of multipliers used to estimate the total economic implications of economic activity.

9.3.3.1. Induced Impacts from Airport Operations

As shown in **Table 9-8**, in total, the operations of South Dakota’s commercial service and GA airports supported another 940 jobs that paid over \$42 million in earnings. This activity amounted to over \$70 million in GDP and nearly \$126 million in total economic activity.

Table 9-8: Induced Impacts from Airport Operations

Category of Airport	Jobs	Earnings	GDP	Output
Commercial Service	830	\$37,140,000	\$62,240,000	\$111,160,000
General Aviation	110	\$4,915,000	\$8,490,000	\$14,710,000
Total	940	\$42,055,000	\$70,735,000	\$125,870,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

9.3.3.2. Induced Impacts of Airport Capital Improvement Initiatives

Table 9-9 summarizes the induced impacts of spending on capital improvements. In total, economic activity attributable to the direct and indirect effects of capital improvements induced another 95 jobs that paid over \$4 million. Another \$7 million in GDP was supported along with nearly \$13 million in total economic output.

Table 9-9: Induced Impacts from Capital Improvements

Category of Airport	Jobs	Earnings	GDP	Output
Commercial Service	65	\$3,000,000	\$5,000,000	\$8,800,000
General Aviation	30	\$1,300,000	\$2,200,000	\$3,900,000
Total	95	\$4,300,000	\$7,200,000	\$12,700,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

9.3.4. Combined Direct Impacts of South Dakota Airports’ Operations and Capital Improvements

Taken as a whole, South Dakota’s airport operations contributed significantly to the state’s overall economy. Taking into account the direct, indirect, and induced impacts, the airports’ operations supported about \$290 million to the state’s GDP and supported almost \$500 million in total economic

output. The airports' operations supported over 4,100 jobs that paid about \$216 million in earnings. **Table 9-10** shows the total impacts from airport operations.

Table 9-10: Total Impacts from Airport Operations

Category of Airport	Jobs	Earnings	GDP	Output
Commercial Service	3,630	\$190,780,000	\$256,640,000	\$442,000,000
General Aviation	480	\$25,270,000	\$32,780,000	\$55,330,000
Total	4,110	\$216,050,000	\$289,420,000	\$497,320,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

In addition, the spending from the airports' capital improvements supported more employment directly working on projects on airport properties, indirectly through supplier sales, and through the ripple effects of those workers spending their wages in the local, regional, and statewide economy. The total impact of the capital improvement spending exceeded 400 jobs that paid about \$22 million in wages, generating almost \$30 million in GDP and supporting over \$55 million in total economic output, as shown in **Table 9-11**.

Table 9-11: Total Impacts of Airport Capital Improvements

Category of Airport	Jobs	Earnings	GDP	Output
Commercial Service	290	\$15,200,000	\$19,800,000	\$39,000,000
General Aviation	130	\$6,700,000	\$8,800,000	\$17,200,000
Total	420	\$21,900,000	\$28,600,000	\$56,200,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

Table 9-12 shows that the combined total impacts of airport operations and capital improvement activities exceeded 4,500 jobs, paying almost \$240 million in wages, and generating nearly \$320 million in GDP and over \$550 million in total economic activity.

Table 9-12: Total Impacts of Airport Operations & Capital Improvement Activities

Category of Airport	Jobs	Earnings	GDP	Output
Commercial Service	3,920	\$205,980,000	\$276,440,000	\$481,000,000
General Aviation	610	\$31,970,000	\$41,580,000	\$72,530,000
Total	4,530	\$237,950,000	\$318,020,000	\$553,520,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

9.4. Economic Impact from Visitor Spending

A separate but related element of airport operations that generates employment impacts in South Dakota flows from the spending by the business and leisure visitors who arrive in the state at these airports. Those visitors' spending supports employment in the hospitality industry: accommodations, restaurants, retail, local transportation, recreation, and entertainment industries. The economic impact of visitor spending is calculated separately.

A variety of approaches were used to develop estimates of the amount and distribution of spending by travelers who visited South Dakota via airports. The methods applied at commercial service airports differed somewhat from those used at GA airports.

A considerable body of background research was reviewed on the economic impact of visitor spending in the US in general and the state of South Dakota in particular, including the estimates produced by the South Dakota Department of Tourism and those associated with the Sturgis Motorcycle Rally.⁸ The review focused on spending associated with travelers who arrive by air as opposed to those who arrive via ground transportation. Travelers who visit an area via commercial airlines tend to spend more on average than those who visit using their personal vehicles.

The economic impact of visitor spending can be analyzed by generating estimates on average spending by visitors at each airport. The impact of visitor spending depends on the amount the visitors spend daily, the length of stay, and the different categories of spending, mostly in the hospitality sector: hotels, restaurants, retail, local transportation and entertainment. Econometric models (like IMPLAN) applied to data on visitor spending convert those data into estimated employment and wage levels.

9.4.1. Estimating Spending by Visitors Using Commercial Aviation

Fundamentally, there are two variables that need to be estimated to determine the amount of spending that visitors make: 1) the number of “true visitors” who come to the state through the airports and 2) the average amount of spending from each.

Airports differ in the nature of their passenger traffic. At South Dakota’s airports, passenger traffic tends mostly to be local residents flying to other destinations for business or personal reasons. To estimate the number of visitors who arrived in South Dakota via the commercial service airports, data from two sources was analyzed. Airline booking data was used to calculate the number of passengers traveling to and from the airports. Termed MIDT for “marketing information data tapes,” the booking data is derived from several Global Distribution Systems (GDS) and other intermediaries. MIDT provides the point of origin and destination for airports, along with travel dates. MIDT Global Demand Data is sourced via Sabre Airlines Solutions. Airlines Reporting Corp. (ARC) is the second source. ARC data show airline bookings that are made through online travel agencies. It provides passenger’s origin and destination airports, travel dates and the zip codes of a purchaser.

Using these data, estimates of the volume of traffic originating outside of South Dakota were generated, compared to travel that originates at one of the State’s airports. For example, for all flights between Rapid City and Chicago, the analysis distinguishes passengers whose trip originated in Chicago from those whose trip originated in Rapid City. The Chicago-based passengers are counted as “true visitors” to South Dakota. **Table 9-13** summarizes the percentage of 2018 passenger traffic at each airport that originated away from each airport (“non-local” traffic). Overall, in 2018, approximately 41 percent of total enplanements at South Dakota airports were visitors to the state.

⁸ <https://sdvisit.com/research-reports/economic-impact>.
<https://sturgismotorcyclerrally.com/summits/SDT-Rally-Summit-2019.pdf>.

Table 9-13: Estimated Non-Local Originating Traffic by Airport (Visitors)

Associated City	Airport	FAA ID	2018 Enplanements	Non-local %	Estimated Visitors
Aberdeen	Aberdeen Regional	ABR	28,421	39%	11,080
Pierre	Pierre Regional	PIR	30,230	49%	14,810
Rapid City	Rapid City Regional	RAP	303,659	50%	151,830
Sioux Falls	Sioux Falls Regional/Joe Foss Field	FSD	529,895	35%	185,460
Watertown	Watertown Regional	ATY	11,499	39%	4,480
Total			903,704	41%	367,660

Source: InterVISTAS analysis of FAA enplanement data and industry ticketing data

Due to budget constraints, in-person surveying was not conducted at all five commercial airports. However, passengers were surveyed at the two largest and busiest commercial airports in the state, Rapid City Regional Airport and Sioux Falls Regional/Joe Foss Field. The surveys included screening questions to ensure that only responses from visitors were obtained, and then questions asking respondents to identify whether their trip was for business or leisure purposes (or a combination of the two), how many people were in the traveling party (e.g., an individual business travelers or a family on vacation or visiting relatives), how many nights they spent in South Dakota, and how much they spent in total on lodging, meals, entertainment, retail, ground transportation, or other items.

The survey of passengers at Rapid City Regional Airport was conducted using two methods. The first method included deploying an electronic version of the visitor survey as a prerequisite for using the airport’s free Wi-Fi. This survey ran for approximately three months and produced over 1,700 responses covering spending by nearly 4,700 non-local travelers. The second method used a traditional in-person approach and was conducted exclusively during the 2019 Sturgis Motorcycle Rally (more information on the impacts of this special event can be found in **Section 9.5**). At Sioux Falls Regional/Joe Foss Field, an in-terminal passenger intercept survey was conducted in September 2019, gathering over 350 surveys covering nearly 500 non-local travelers. Although fewer surveys were gathered at Sioux Falls Regional/Joe Foss Field, both it and the effort at Rapid City Regional Airport were sufficiently large to produce estimates that are statistically reliable at a 95 percent confidence interval with a margin of error of plus or minus five percent.

At the three other commercial service airports in South Dakota, alternative techniques were applied to generate estimates of visitor spending. The estimates of visitor spending provided by Visit South Dakota were compared and the average spending amount was calculated based on the figures used in the prior report, expressed in constant 2018 dollars.⁹ For Aberdeen and Watertown, the estimates from Visit South Dakota were higher than the adjusted 2010 estimates, so those figures were accepted. At Pierre, the opposite was true, so the adjusted 2010 estimates were applied. **Table 9-14** summarizes the average spending estimates for visitors at each airport on a per trip basis.

⁹ The 2018 estimate of spending by visitors to South Dakota is available from the South Dakota Department of Tourism: <https://sdvisit.com/research-reports/economic-impact>.

Table 9-14: Average Visitor Spending Amounts, per Trip, by Airport

Associated City	Airport	FAA ID	Average Spending per Visitor
Aberdeen	Aberdeen Regional	ABR	\$282
Pierre	Pierre Regional	PIR	\$345
Rapid City	Rapid City Regional	RAP	\$615
Sioux Falls	Sioux Falls Regional/Joe Foss Field	FSD	\$476
Watertown	Watertown Regional	ATY	\$282

Source: InterVISTAS, 2020

It is important to note that the average spending amounts reflect a mix of travelers: business and leisure travelers, those visiting friends or family (and thus less likely to incur lodging expenses), and those not doing so. Leisure travelers tend to spend less per person per day but stay longer compared to business travelers.

9.4.2. Estimating Spending by Visitors Using General Aviation

Although most people associate only the commercial service airports with generating visitors to an area, the GA airports also are a source of visitor traffic in South Dakota. Reports from several airports reveal that those facilities serve as key points of arrival for high-end resorts, university sporting and cultural activities, business functions, and other events. In addition to airports that might host aircraft arrivals for special events, other GA airports host visitors who arrive by private aircraft for personal or business reasons. Because of the inherent nature of GA travel (i.e., travelers value confidentiality and anonymity, little or no hard data are available on GA operations and travelers, etc.), the number of travelers and amounts that they spend in a location must be estimated through statistical techniques or other modeling efforts.

The number of visitors who arrived at the GA airports was estimated based on three critical variables: 1) data from the FAA on the number of itinerant operations at each airport, 2) estimates of the percent of those operations made by “true visitors” rather than aircraft based at the airport (i.e., transient operations), and 3) estimates of the average number of individuals onboard each of those transient aircraft. The following summarizes the general steps that were used to derive the number of GA visitors per airport:

1. The FAA’s TAF data was used as the basis of the number of itinerant operations at each GA airport. The estimated numbers of operations were revised as appropriate using data from GA airports’ management. The TAF data for the commercial airports is based on actual counts provided by air traffic control personnel at the airports.
2. The 2010 study assumed that 50 percent of the itinerant operations at the airport were from true visitors. That percentage is high compared to most other estimates used in other statewide studies of the economic impact of aviation. This study applied lower percentage estimates of either 30 or 35 percent, which is consistent with most other states’ estimates. At the commercial service airports, 40 percent of the itinerant GA operations were estimated as true visitors.
3. Estimates of the number of people onboard aircraft varied by category of airport. Certain airports tend to have more traffic from larger, high performance GA aircraft. Other airports may have runway limitations that preclude use by such aircraft. An average number of visitors per

aircraft was estimated and SDDOT reviewed and revised these estimates as appropriate. The average number of individual visitors per aircraft was subsequently set at between 1.5 and 6.0, varying by airport. The airports in the lower roles tended to have smaller numbers of visitors: Medium GA, Small GA, and Basic Service airports were assigned 1.5 or 2.0 visitors per aircraft on average. The average number of visitors on board GA aircraft using the commercial service airports was 4.0, and the average number of visitors on board GA aircraft using the large GA airports was 6.0.

Using these assumptions, the commercial service airports were estimated to have hosted almost 110,000 GA visitors in 2018, and the GA airports to have hosted almost 33,000 visitors.

Spending by visitors who arrive on GA aircraft is notoriously difficult to estimate. Many travelers who use GA for business purposes intentionally want to maintain anonymity or confidentiality. These travelers may be engaged in sensitive business matters that demand their movements are unnoticed. Similarly, high-profile individuals traveling for personal reasons may also want to avoid public attention and may use GA to do so. Many large corporations insist their executives travel on company-owned or -chartered GA aircraft for security and schedule reasons. In these cases, it is impractical (and insensitive) to attempt to obtain survey data on their spending in an area.

To estimate spending by GA visitors, travelers who flew to the state's GA airports were surveyed. All GA facilities in the state were sent GA visitor survey packages and asked that the airport office and/or FBO prominently display a poster informing travelers about the project and asking that they participate in the study by completing a short questionnaire about the time and money they spent while there. The survey was available at airport offices throughout the summer and early fall of 2019. Disappointingly, responses were received from only five airports with a total of 22 surveys, despite follow-up attempts. The information was deemed not useable for statistical purposes.

As an alternative, a secondary approach was employed that offers reasonable estimates vis-à-vis recent estimates of spending by GA visitors in other states. First, the average visitor spending amounts used in the prior report were reviewed and inflated to constant 2018 dollars. Then, visitor spending reported by state economic impact studies issued for several states since 2013 were reviewed as a basis of comparison. Those states were Oregon, Wyoming, Montana, Colorado, and North Dakota. These states were selected because they are the only nearby states with system plan updates and/or economic impact studies completed in the recent past. Other states have updated their system plans and economic impact studies, but geographic considerations, population densities, economies, and highway infrastructure/travel times differ significantly.

The review examined the average visitor spending at all airports in those states. To provide some commonality, airports were grouped by the classifications that the FAA applied to GA airports in its report, *General Aviation Airports: A National Asset* (known as the ASSET study): National, Regional, Local, Basic, or Unclassified.¹⁰ The review analyzed the maximum, minimum, and median amounts of visitor spending estimates reported by category of airport. This method was ultimately used to estimate the visitor spending amounts by airport classification. **Table 9-15** summarizes the average estimated spending by visitors who flew to South Dakota by GA. It is important to note that these estimates do not

¹⁰ https://www.faa.gov/airports/planning_capacity/ga_study/.

apply to visitors who flew into the state for the Sturgis Motorcycle Rally or the pheasant hunting season. Those estimates are discussed separately in **Section 9.5**.

Table 9-15: Average Spending by Visitors Using GA

Airport Role	Average GA Visitor Spending
Commercial Service	\$200
Large General Aviation	\$125
Medium General Aviation	\$65
Small General Aviation	\$40
Basic Service	\$25

Source: InterVISTAS, 2020

9.4.3. Economic Impacts of Visitor Spending

Table 9-16 through **Table 9-19** summarize the economic impacts associated with spending by visitors that arrive in South Dakota via either the commercial service or GA airports. As previously mentioned, these tables exclude the impacts of visitors who flew into the state to participate in the Sturgis Motorcycle Rally and pheasant hunting season; the results attributable to those events are reported separately in **Section 9.5**. The tables in this section summarize only the impacts of “regular” tourism spending.

Table 9-16 highlights the direct impacts of this visitor spending. These are the jobs, wages, and economic activity directly tied to spending by those who fly into the state. They include jobs in businesses like hotels, campgrounds, restaurants, ground transportation (e.g., rental cars), entertainment, and retail that are attributable to visitor spending. Most of the impact is attributable to visitors who arrived via commercial airlines at the five commercial service airports, which handled an estimated 368,000 visitors. In 2018, their spending supported nearly 2,900 direct jobs that paid almost \$71 million and generated over \$100 million in South Dakota’s GDP and nearly \$200 million in total economic output. **Appendix I – Airport Economic Impact Profiles** includes additional information on the economic impacts of visitor spending at each airport, as a supplement to this chapter.

Table 9-16 Summary of Direct Impacts of Visitor Spending

Category of Airport	Jobs	Earnings	GDP	Output
Commercial Service	2,825	\$70,250,000	\$101,670,000	\$186,610,000
General Aviation	30	\$695,000	\$1,005,000	\$1,845,000
Total	2,855	\$70,945,000	\$ 102,675,000	\$188,455,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

The indirect jobs are those in firms that supply products to the firms and organizations that directly serve the state’s visitors. These would include restaurant and hotel supply companies, logistics providers, and professional and legal services needed for the direct firms to operate.

As shown in **Table 9-17**, these supplier firms employed about 330 workers and paid wages of nearly \$16 million, generating nearly \$30 million in state GDP and over \$50 million in economic output.

Table 9-17: Summary of Indirect Impacts of Visitor Spending

Category of Airport	Jobs	Earnings	GDP	Output
Commercial Service	325	\$15,450,000	\$28,355,000	\$51,755,000
General Aviation	5	\$155,000	\$280,000	\$510,000
Total	330	\$15,605,000	\$28,635,000	\$52,265,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

The induced impacts are those that flow from those (direct and indirect impact) employees spending their wages in the local economy. These are the “ripple effects” of economic activity. When those employees purchase groceries, clothing, or entertainment they support economic activity in local grocery stores, retailers, and entertainment venues. When the employees maintain or renovate their homes, that spending supports employment in hardware and building supply stores. **Table 9-18** shows that this induced spending supported another 380 jobs that paid nearly \$17 million. The GDP from this ripple effect was nearly \$30 million and the total economic output exceeded \$50 million.

Table 9-18: Summary of Induced Economic Impacts of Visitor Spending

Category of Airport	Jobs	Earnings	GDP	Output
Commercial Service	375	\$16,725,000	\$28,035,000	\$50,060,000
General Aviation	5	\$165,000	\$275,000	\$495,000
Total	380	\$16,890,000	\$28,310,000	\$50,555,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

Table 9-19 summarizes the total economic impact from visitor spending in South Dakota. In total, by facilitating travel to the state, South Dakota’s airports supported another 3,600 jobs that paid over \$100 million in wages. Total statewide GDP attributable to this approached \$160 million, with total economic output of over \$290 million.

Table 9-19: Summary of Economic Impacts of Visitor Spending

Category of Airport	Jobs	Earnings	GDP	Output
Commercial Service	3,540	\$102,430,000	\$158,055,000	\$288,425,000
General Aviation	35	\$1,010,000	\$1,560,000	\$2,850,000
Total	3,575	\$103,440,000	\$159,615,000	\$291,275,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

9.5. Other Economic Impacts of South Dakota’s Airports

South Dakota’s airports are also critical contributors to other significant aspects of the state’s economy: The Sturgis Motorcycle Rally (Rally), the world-famous pheasant hunting season, and the aerial spraying industry that is important to the state’s agricultural industry. Since the Sturgis and pheasant hunting events attract visitors from around the United States as well as the world to South Dakota, a large amount of money is spent on lodging, transportation, food, and retail purchases by visitors. These two

events are looked at separately from the “regular” visitor spending analysis so that the true value of each event can be realized. As noted earlier, the impact of visitor spending from these events were excluded in the summaries of visitor spending reviewed in the prior section. The discussion here notes the *additional* impact from these events.

9.5.1. *Sturgis Motorcycle Rally*

Thousands of travelers come to South Dakota via the airports to participate in the annual Rally. In 2019, the Rally was held over a 10-day period from August 2nd to August 11th. Unfortunately, it is not possible to get an exact count of visitors who arrive by air for the Rally. Airline operations and enplanement data are not available on a weekly basis, and publicly available data on passengers does not indicate the purpose of their travel. As a result, the number of visitors who attended the Rally via commercial operations at Rapid City Regional Airport were estimated by examining the monthly traffic at the airport to reveal the seasonality of travel. That indicated that the total estimated visitors to Rapid City Regional during the peak three-month June-Aug period was 55,500, or just over 600 per day.¹¹

Two nearby GA airports – Black Hills-Clyde Ice Field in Spearfish and the Sturgis Municipal Airport – also receive air traffic associated with the Rally. For travelers who arrive by GA, FAA data was used to estimate total (annual) estimates of GA visitors at each airport and assumed that GA travelers have the same patterns of seasonality as commercial travelers. Thus, the number of GA travelers arriving daily for the Rally at Rapid City Regional, Black Hills-Clyde Ice Field, and Sturgis Municipal Airport were estimated to be 91, 12, and four, respectively.

To estimate the percent of all travelers at Rapid City Regional who attended the Rally and their spending, in-person passenger surveys were conducted at Rapid City Regional during the event. Special types of purchases of Rally attendees that fall outside of the usual visitor spending profile include motorcycle maintenance and repairs, new purchases of gear (including motorcycles) and shipping bikes to and from Sturgis by air. Passengers arriving via GA at Rapid City Regional, Black Hills-Clyde Ice Field, and Sturgis Municipal were not interviewed as those passengers can be reluctant to share information and by the consensus that any information provided by the few travelers willing to speak is not representative of all GA travelers.

Of all travelers interviewed at Rapid City Regional, 42 percent said they attended the Rally and stayed an average of 5.2 days.¹² However, not all travelers answered the question of whether they attended the Rally. Of the subset of travelers who answered the question, about 60 percent indicated that they had attended the Rally and stayed an average of 5.3 days. Based on these results, ranges were developed for the number of “visitor days” that visitors spent at the Rally and the total amount of spending that these visitors made during their time in South Dakota.¹³ **Table 9-20** shows the range of estimates of visitor days for travelers from each airport along with the midpoint estimate.

¹¹ Only data on attendance at the 2018 Rally was available at the time this report was produced. July rather than August is the month with the highest average number of travelers at RAP. Nevertheless, seasonal averages were developed to estimate daily passenger traffic during the Rally.

¹² The Sturgis Rally Summit “official” estimate of length of stay based on 3,363 surveys was 5.15 days (see p. 70).

¹³ A “visitor day” is a single day spent by one traveler. A traveler that stays the entire length of the Rally would equal 10 visitor days. Visitor days are relevant because spending is calculated on a per person per day basis.

Table 9-20: Estimates of Rally-Related “Visitor Days” by Airport

Associated City	Airport Name	FAA ID	Airport Type	Visitor Days at Rally		
				High Estimate	Low Estimate	Midpoint
Rapid City	Rapid City Regional	RAP	Commercial	18,944	7,878	13,411
			GA	2,860	1,189	2,024
Spearfish	Black Hills-Clyde Ice Field	SPF	GA	383	159	271
Sturgis	Sturgis Municipal	49B	GA	170	70	120
Total				22,356	9,297	15,826

Source: InterVISTAS, 2020

Separately, the 2018 and 2019 Sturgis Rally Recap or Summit included estimates of the number of visitors who came to the Rally by air. It is a small percentage of the total and appeared to be two or three percent.¹⁴

Once the number of visitor days were determined, the spending information from the Rapid City Regional surveys was used to produce estimates of average daily spending for those respondents traveling commercially who indicated that their stay was related to “festival or event,” which equaled approximately \$283 per person per day. That estimate is consistent with the figures published by the Sturgis Rally Summit for 2018.¹⁵ To estimate the average spending for passengers arriving via GA at the three airports, annual averages were first examined and compared against estimates developed from the surveys of visitors arriving by commercial airlines. Because of the unique nature of the Rally and expectations of spending by those coming to the region via GA, the annual average of spending was rejected as likely too low. As a result, new estimates of spending were developed, based on the average spending by commercial service passengers. That estimated figure (\$283) was set as a minimum. As a higher amount, the estimate was doubled (\$566).

Combining the range of visitor days and the range of average daily spending produces a range of total spending associated with visitors who arrive by air to attend the Rally. **Table 9-21** summarizes those ranges, including a total combined midpoint estimate of \$4.8 million.

¹⁴ <https://sturgismotorcyclerrally.com/City-of-Sturgis-Holds-Post-Rally-Summit>.

¹⁵ The Summit did not publish a single “grand total” estimate of average spend per visitor; it provided average spending based on age categories of respondents. Those varied from \$201.47 to \$313.75.

Table 9-21: Range of Estimates of Visitor Spending at Rally by Airport

Spending Assumption	Associated City	Airport Name	FAA ID	Mode	Visitor Spending		
					Low Estimate	High Estimate	Midpoint
Spending by GA visitors <i>same as</i> commercial visitors (\$283/person/day)	Rapid City	Rapid City Regional	RAP	Commercial	\$2,230,000	\$5,360,000	\$3,795,000
				GA	\$335,000	\$810,000	\$575,000
	Spearfish	Black Hills-Clyde Ice Field	SPF	GA	\$45,000	\$110,000	\$75,000
	Sturgis	Sturgis Municipal	49B	GA	\$20,000	\$50,000	\$35,000
Total					\$2,630,000	\$6,330,000	\$4,480,000
Spending by GA visitors <i>greater than</i> commercial visitors (\$566/person/day)	Rapid City	Rapid City Regional	RAP	Commercial	\$2,230,000	\$5,360,000	\$3,795,000
				GA	\$665,000	\$1,600,000	\$1,135,000
	Spearfish	Black Hills-Clyde Ice Field	SPF	GA	\$90,000	\$215,000	\$150,000
	Sturgis	Sturgis Municipal	49B	GA	\$40,000	\$95,000	\$65,000
Total					\$3,025,000	\$7,275,000	\$5,150,000
Combined Midpoint							\$4,815,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

That estimate was subsequently distributed among the different aspects of visitor spending (e.g., lodging, restaurants, etc.) and used as inputs to the IMPLAN model to calculate the total economic impact of aviation-related visitors to the Rally. **Table 9-22** summarizes the total (direct, indirect, and induced) jobs supported, earnings, GDP, and economic activity as a result of the event in August 2019. The total calculated impact of airports to the Sturgis Motorcycle Rally was 80 jobs, paying nearly \$2.4 million, and adding \$3.6 million in statewide GDP and \$6.6 million in total economic output.

Table 9-22: Summary of Aviation's Economic Contribution to the Sturgis Motorcycle Rally

Impact	Jobs	Earnings	GDP	Output
Direct	65	\$1,615,000	\$2,335,000	\$4,290,000
Indirect	10	\$355,000	\$650,000	\$1,190,000
Induced	10	\$385,000	\$645,000	\$1,150,000
Total	80	\$2,355,000	\$3,635,000	\$6,630,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

Because most of the travelers attending the Rally arrived via Rapid City Regional, the majority of the economic impact is tied to that airport. However, as shown in **Table 9-23**, GA travelers using Black Hills-Clyde Ice Field and Sturgis Municipal also contributed to the state's total economic activity.

Table 9-23: Sturgis Rally-Related Economic Impacts by Category of Airport

Category of Airport	Impact	Jobs	Earnings	GDP	Output
Commercial Service	Direct	65	\$1,560,000	\$2,255,000	\$4,140,000
	Indirect	5	\$345,000	\$630,000	\$1,150,000
	Induced	10	\$370,000	\$620,000	\$1,110,000
	Total	80	\$2,275,000	\$3,510,000	\$6,400,000
General Aviation	Direct	*	\$55,000	\$80,000	\$150,000
	Indirect	*	\$10,000	\$20,000	\$40,000
	Induced	*	\$15,000	\$25,000	\$40,000
	Total	*	\$80,000	\$125,000	\$230,000

Source: IntervISTAS, 2020

Notes: * indicates that the estimated number of jobs was less than five. Totals may not sum due to rounding.

9.5.2. Pheasant Hunting Season

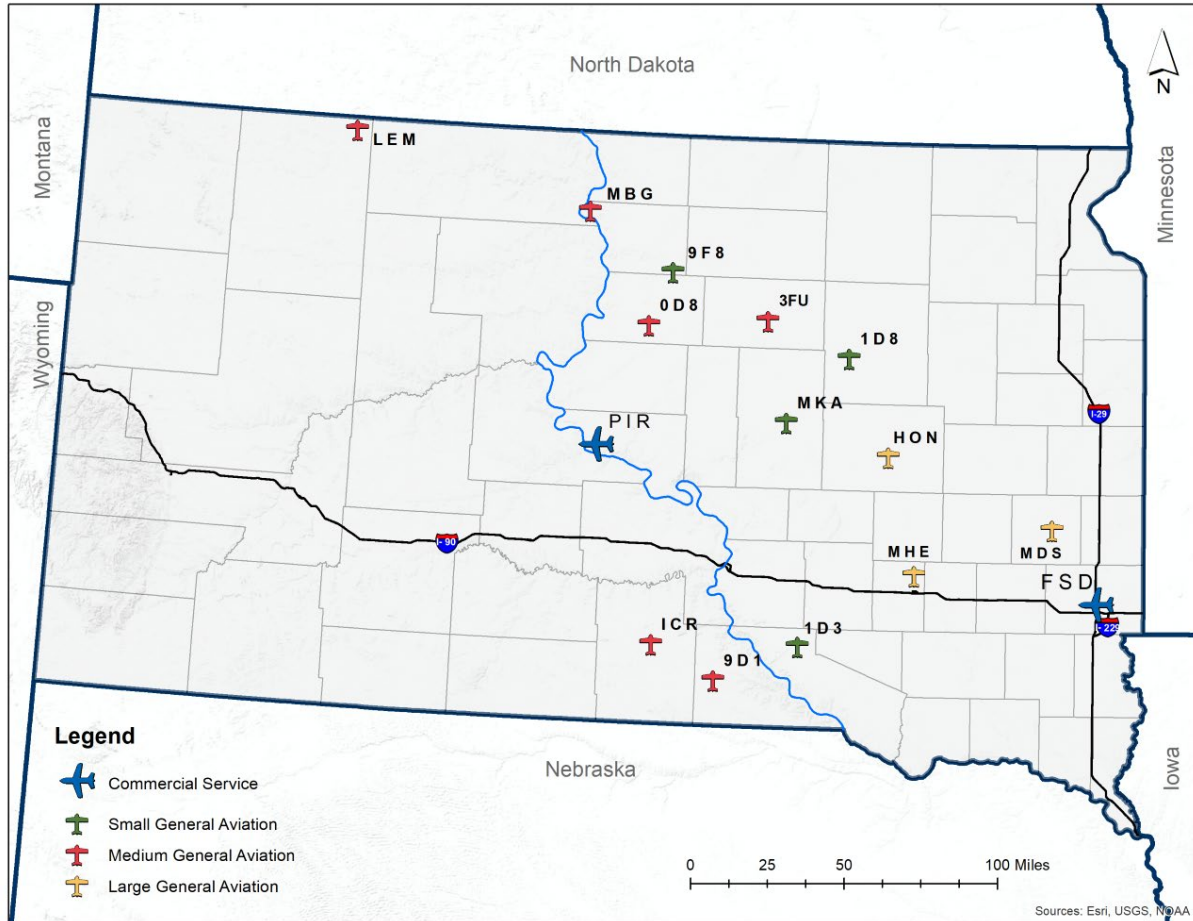
The pheasant hunting season typically runs from early October to the end of January in South Dakota, during which time thousands of hunters travel to the state to partake in the hunting opportunities. The 2019 season ran from October 19th to January 5th (79 days).

Data from the South Dakota Department of Games, Fish, and Parks (SDGFP) show that in 2018 (the latest year for which information was available), it issued approximately 69,000 licenses to non-residents to hunt pheasants. Most non-residents come into South Dakota from neighboring states, but over 40 percent of non-resident licenses were issued to hunters from states more than 500 miles away from South Dakota. Hunters enjoy the sport on pheasant preserves as well other private and public lands. Money is spent not only on lodging, travel expenses, and food but also guns, guides, and other hunting gear. SDGFP data indicate that the total number of licenses issued to non-resident hunters declined since the last statewide economic impact study was completed. From 2010 to 2018, the number of non-resident hunters fell from 100,189 to 69,018 (-31 percent).¹⁶

According to SDDOT, there are 15 airports that serve as the principal points of entry for out-of-state visitors to fly into the state during pheasant hunting season. These airports were identified in the prior report, and SDDOT added four airports to that list. In addition to the commercial service airports at Pierre and Sioux Falls, 13 GA airports serve as gateways, as shown in **Figure 9-3**.

¹⁶ <https://gfp.sd.gov/pheasant/>.

Figure 9-3: Airports Supporting the Pheasant Hunting Season



Source: Kimley-Horn, 2020

Because exact counts of passengers at these airports is not possible, the number of visitors who flew into those airports during the 79-day pheasant season was estimated. The estimate took into account the possible seasonality of travel but attributed the “high season” at the GA airports to the pheasant season instead of the June-August peak season for travel seen at the commercial service airports. It was assumed that all GA visitor traffic coming into these airports during the season was attributable to pheasant hunting.

Multiple pheasant hunting resorts and guides were contacted during the project in an effort to develop estimates on the percent of their guests who arrived by air, their length of stay, and the average amount spent. The resorts and guides declined to provide any information. The SDGFP estimated that on average, non-resident hunters spent approximately \$2,000 per trip, each.¹⁷ Press reports discussed spending by some hunters for hunting packages that were twice that amount. For this study, it was assumed that non-resident hunters who flew into the state spent about \$3,000 per trip. The higher average spending rate for this subset of hunters is consistent with widely accepted principles that visitors who fly into a destination tend to stay longer and spend more on average than those who drive into a destination.

¹⁷ Ibid.

Table 9-24 summarizes the jobs, earnings, GDP, and total economic activity attributable to airports' contributions to South Dakota's pheasant hunting season. The total economic output from the use of aviation during the pheasant hunting season is estimated at nearly \$56 million for 2018.

Table 9-24: Summary of Airports' Economic Impact Contributions to South Dakota's Pheasant Hunting Industry

Impact	Jobs	Earnings	GDP	Output
Direct	545	\$13,635,000	\$19,730,000	\$36,220,000
Indirect	65	\$3,000,000	\$5,505,000	\$10,045,000
Induced	75	\$3,245,000	\$5,440,000	\$9,715,000
Total	695	\$19,880,000	\$30,680,000	\$55,980,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

Table 9-25 summarizes the total (direct, indirect, and induced) impacts by airport. Because most hunters arrive by commercial airlines at Pierre Regional Airport, the majority of the economic impact is associated with that location. The table highlights however that the GA airports are also important points of arrival for many hunters and contribute to total state economic activity.

Table 9-25: Total Economic Impact Contribution of Airports to SD's Pheasant Hunting Industry

City	Airport Name	FAA ID	Jobs	Earnings	GDP	Output
Commercial Service						
Pierre	Pierre Regional	PIR	405	\$11,665,000	\$18,000,000	\$32,845,000
Sioux Falls	Sioux Falls Regional/Joe Foss Field	FSD	15	\$375,000	\$580,000	\$1,060,000
General Aviation						
Gregory	Gregory Municipal-Flynn Field	9D1	45	\$1,235,000	\$1,900,000	\$3,470,000
Huron	Huron Regional	HON	95	\$2,695,000	\$4,160,000	\$7,595,000
Madison	Madison Municipal	MDS	25	\$735,000	\$1,135,000	\$2,075,000
Mitchell	Mitchell Municipal	MHE	60	\$1,730,000	\$2,670,000	\$4,875,000
Winner	Winner Regional	ICR	35	\$1,040,000	\$1,600,000	\$2,920,000
All Other GA Airports*			15	\$405,000	\$635,000	\$1,140,000
Total			695	\$19,880,000	\$30,680,000	\$55,980,000

Source: InterVISTAS, 2020

Notes: Totals may not sum due to rounding. *"All Other GA Airports" aggregates the remaining eight GA airports serving hunting traffic (3FU, OD8, 9F8, LEM, MKA, MBG, 1D3, and 1D8). Each of these airports recorded an estimated 5 or fewer jobs. Estimates of impacts from those airports were aggregated due to concerns about disclosing sensitive personal financial information.

The economic contribution of airports to South Dakota's pheasant hunting industry is estimated to be much greater than the Rally impact due to the longer duration of the event, upscale resort spending by hunters, and the greater number of airport locations involved compared to the three airports that support Sturgis activity.

9.5.3. *Aerial Agricultural Application*

One of the largest industries within South Dakota is agriculture. According to the 2017 Census of Agriculture published by the U.S. Department of Agriculture, South Dakota was home to nearly 30,000 farms, with nearly 20 million acres in use as cropland and 22 million acres in pastureland.¹⁸ The South Dakota Department of Agriculture reported that agricultural and related jobs contributed over 132,000 jobs (22 percent of all jobs in the state) and \$32 billion in sales.¹⁹

For this industry to survive, the application of pesticides and fertilizer to large crop areas is critical. The National Agricultural Aviation Association defines aerial application as the “use of airplanes and helicopters to seed, fertilize, and treat crops with protective products to control weeds, insects and fungi.” It is used on both organic and conventional cropland. Aerial application is also used to treat forestland, rangeland and pastureland for livestock and to control disease-carrying insects like mosquitoes and other health-threatening pests. It is an important part of food, fiber and bio-fuel production. The aerial application industry uses both rotorcraft and fixed-wing aircraft, and now frequently uses advanced technology for precision agriculture. The use of aircraft for agricultural spraying affects local economies across the state as well as South Dakota’s economy as a whole, through the provision of jobs, fuel, and larger crop yields.

The number of airports and businesses involved in agricultural spraying were estimated using multiple methodologies. First, aerial spraying companies were contacted at meetings and conventions in the state to ask them to provide information. More importantly, airport managers were asked to provide contact information for all of their tenants, and they were then surveyed about their involvement in agricultural operations. That effort revealed that agricultural operations were present at 17 airports – three commercial service airports and 14 GA airports.

Table 9-26 identifies the impact of agricultural spraying on economic output and resulting jobs and personal income at the statewide level on an annual basis. This information is based upon data from 22 agricultural sprayers that are dispersed across the State, as well as additional responses from other businesses located off-airport. The agricultural spraying industry directly supports a total of 105 jobs, paying almost \$5 million, and supporting almost \$5 million in GDP and over \$5 million in total economic activity. When the multiplier impacts are included, the total amount of supported employment includes 130 jobs, paying \$6 million, and generating almost \$9 million in total economic activity.

¹⁸ https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/South_Dakota/cp99046.pdf.

¹⁹ 2019 South Dakota Agriculture Economic Contribution Study, South Dakota Department of Agriculture, July 2019.

Table 9-26: South Dakota's Agricultural Spraying Industry at Airports

Airport Type	Impact	Jobs	Earnings	GDP	Output
Commercial Service	Direct	20	\$865,000	\$865,000	\$935,000
	Indirect	-	\$10,000	\$15,000	\$30,000
	Induced	5	210,000	\$355,000	\$635,000
	Subtotal	25	\$1,085,000	\$1,235,000	\$1,600,000
General Aviation	Direct	85	\$3,910,000	\$3,910,000	\$4,235,000
	Indirect	-	\$45,000	\$75,000	\$130,000
	Induced	20	\$955,000	\$1,605,000	\$2,865,000
	Subtotal	110	\$4,915,000	\$5,590,000	\$7,235,000
All Airport Totals	Direct	105	\$4,775,000	\$4,770,000	\$5,175,000
	Indirect	-	\$55,000	\$90,000	\$160,000
	Induced	25	\$1,170,000	\$1,960,000	\$3,500,000
	Total	130	\$6,000,000	\$6,825,000	\$8,830,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

This study does not include information on agricultural spraying activities at individual airports because it would violate needs to protect sensitive income and business activity data of individual firms. This estimate of total impact does not include any estimate of increases in economic value from crop yield attributable to aerial seeding, fertilizing, and pest control.

9.6. Consolidated Economic Impact of South Dakota's Airports

South Dakota's airports are important economic engines for the state. Taken as a whole, the total economic impacts are impressive. The consolidated totals incorporate the economic impacts of on-airport operations (including capital improvements and agricultural spraying activities), the effects those operations exert on the supply chain, induced spending effects, and the impacts that visitors to the state create by their spending. The visitor spending totals include those associated with the Sturgis Motorcycle Rally and the state's pheasant hunting season.

As shown in **Table 9-27**, the total economic impact, including multiplier impacts, of the state's airports approached 9,000 jobs that paid nearly \$364 million in earnings. The sector contributes about \$449 million in GDP and \$907 million in total economic output.

Employment tied to the commercial service airports approached 8,000 jobs with wages of almost \$323 million. Total GDP was nearly \$512 million, and total economic output was slightly over \$907 million. The GA airports' activities supported another 920 jobs with wages of around \$41 million. The GA airports also support approximately \$55 million in GDP and almost \$98 million in total economic output.

Table 9-27: Consolidated Economic Impact of South Dakota's Airports

Airport Type	Jobs	Earnings	GDP	Output
Airport Operations (incl. Capital Improvements)				
Commercial Service	3,920	\$206,000,000	\$276,400,000	\$481,000,000
General Aviation	610	\$32,000,000	\$41,600,000	\$72,600,000
Subtotal	4,530	\$238,000,000	\$318,000,000	\$553,500,000
Visitor Spending				
Commercial Service	4,040	\$116,700,000	\$180,100,000	\$328,700,000
General Aviation	310	\$8,900,000	\$13,800,000	\$25,200,000
Subtotal	4,350	\$125,700,000	\$193,900,000	\$353,900,000
Combined Impacts				
Commercial Service	7,960	\$322,700,000	\$456,500,000	\$809,700,000
General Aviation	920	\$40,900,000	\$55,400,000	\$97,700,000
Total	8,880	\$363,700,000	\$511,900,000	\$907,400,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

9.7. Commercial Aviation Supports Other Industry Sectors in South Dakota

Commercial aviation is an important facilitator of economic activity in many industry sectors in South Dakota. The value of air transportation to different industry sectors in the state can be seen by reviewing the flow of transactions between sectors within a region. Economic input-output tables show the linkages between sectors. Such tables capture what each business or sector must purchase from every other sector in order to produce a dollar's worth of goods or services. **Table 9-28** summarizes the 20 largest users of commercial air transportation in South Dakota based on payments made to the air transport sector. Businesses in the state spent over \$40 million in commercial air transportation in 2017 (the latest year available at the time of this report). The meat processing sector spent over \$2.9 million in commercial aviation services, followed by the wholesale trade sector at \$2.6 million. This highlights the essential role of aviation in facilitating the transportation of goods and products.

Table 9-28: Spending on Commercial Air Transportation by Industry Sector, 2017

Rank	Industry Sector	Value
1	Animal, except poultry, slaughtering	\$2,900,000
2	Wholesale trade	\$2,600,000
3	Monetary authorities and depository credit intermediation	\$2,200,000
4	Nondepository credit intermediation and related activities	\$1,900,000
5	Truck transportation	\$1,600,000
6	Other financial investment activities	\$1,300,000
7	Insurance agencies, brokerages, and related activities	\$900,000
8	Grain farming	\$900,000
9	Real estate	\$800,000
10	Junior colleges, colleges, universities, and professional schools	\$700,000
11	Other basic organic chemical manufacturing	\$700,000
12	Other federal government enterprises	\$700,000
13	Surgical appliance and supplies manufacturing	\$600,000
14	Gambling industries (except casino hotels)	\$600,000
15	Offices of physicians	\$600,000
16	Architectural, engineering, and related services	\$500,000
17	Hospitals	\$500,000
18	Oilseed farming	\$400,000
19	Construction of other new residential structures	\$400,000
20	Ready-mix concrete manufacturing	\$400,000
N/A	All Other Sectors	\$19,300,000
	Total	\$40,600,000

Source: InterVISTAS analysis of IMPLAN data

9.8. Airports Support Federal, State and Local Government Revenues

Another separate but related part of the economic impact of airports is the significant volume of tax revenue they generate for federal, state, and local governments. Direct employment in the state’s aviation industry provides millions of dollars of tax revenue to public treasuries, and there are numerous other state and local taxes levied that contribute to overall revenues. The supply chain also contributes to government revenues, as does employment supported via the ripple effects of indirect and induced economic activity.

The tax impacts of the airports’ operations, capital improvements, and visitor spending activity on the federal government and South Dakota’s state and local governments were generated from the IMPLAN model.²⁰

²⁰ IMPLAN makes use of regional averages per industry to estimate tax impacts.

Revenue contributions are divided into the following groupings, based on the origins of the resulting impacts:

- **Personal Taxes.** This category contains the personal income tax impacts generated by households related to aviation in South Dakota payable at the federal level, as well as estate and gift taxes. The state and local impacts contain taxes and fees paid by households, such as sales taxes, motor vehicle licensing fees, property taxes and other applicable taxes.
- **Goods and Services Taxes.** This category includes taxes on productions and imports, net of subsidies, paid by businesses rather than households. It consists of taxes payable on goods and services at the federal level, such as excise taxes and custom duties. At the state and local levels, this category of taxes includes business sales taxes, property taxes, motor vehicle licensing fees, severance taxes, as well as other taxes and special assessments.
- **Other Taxes and Fees.** These relate to taxes and fees that are paid by corporations to the federal, state, and local governments. They include employee and employer contributions to social insurance taxes.

Table 9-29 summarizes the estimated federal, state and local tax revenues generated via airport operations, while the tax revenues associated with capital expenditures are shown in **Table 9-30**. Government revenues contributed to the federal, state and local levels by visitor spending are provided in **Table 9-31**.

Altogether, as shown in **Table 9-32**, total tax revenues attributable to the airports exceeded \$80 million to the federal government and \$32 million to state and local governments. The commercial airports' economic activity supported close to \$72 million and \$29 million in taxes and fees to the federal and state/local governments, respectively. Taxes and fees generated by activities at the GA airports amounted to almost \$9 million to the federal government and \$3 million to state/local governments.

Table 9-29: Summary of Taxes Generated by Airport Operations

Airport Type	Impact	Federal Taxes				State/Local Taxes			
		Personal Taxes	Other Federal Taxes/Fees	Good & Services Taxes	Total Federal	Personal Taxes	Other State & Local Taxes/Fees	Good & Services Taxes	Total State & Local
Commercial Service	Direct	\$10,630,000	\$14,420,000	\$170,000	\$25,220,000	\$350,000	\$40,000	\$4,000,000	\$4,400,000
	Indirect	\$2,240,000	\$3,470,000	\$90,000	\$5,800,000	\$70,000	\$20,000	\$2,200,000	\$2,290,000
	Induced	\$3,100,000	\$4,920,000	\$210,000	\$8,230,000	\$100,000	\$40,000	\$4,900,000	\$5,040,000
	Subtotal	\$15,970,000	\$22,810,000	\$480,000	\$39,260,000	\$530,000	\$100,000	\$11,100,000	\$11,730,000
General Aviation	Direct	\$1,450,000	\$1,270,000	\$450,000	\$3,170,000	\$50,000	\$80,000	\$450,000	\$580,000
	Indirect	\$290,000	\$370,000	\$90,000	\$750,000	\$10,000	\$40,000	\$170,000	\$220,000
	Induced	\$410,000	\$530,000	\$150,000	\$1,080,000	\$10,000	\$160,000	\$490,000	\$660,000
	Subtotal	\$2,150,000	\$2,160,000	\$680,000	\$5,000,000	\$70,000	\$290,000	\$1,110,000	\$1,460,000
All Airport Totals	Direct	\$12,080,000	\$15,690,000	\$620,000	\$28,390,000	\$400,000	\$120,000	\$4,450,000	\$4,970,000
	Indirect	\$2,530,000	\$3,840,000	\$180,000	\$6,550,000	\$80,000	\$60,000	\$2,370,000	\$2,510,000
	Induced	\$3,510,000	\$5,450,000	\$360,000	\$9,320,000	\$120,000	\$200,000	\$5,390,000	\$5,700,000
	Total	\$18,120,000	\$24,970,000	\$1,160,000	\$44,260,000	\$600,000	\$390,000	\$12,210,000	\$13,190,000

Source: InterVISTAS analysis of IMPLAN data
 Note: Totals may not sum due to rounding.

Table 9-30: Summary of Taxes Generated by Capital Expenditures

Airport Type	Impact	Federal Taxes				State/Local Taxes			
		Personal Taxes	Other Federal Taxes/Fees	Good & Services Taxes	Total Federal	Personal Taxes	Other State & Local Taxes/Fees	Good & Services Taxes	Total State & Local
Commercial Service	Direct	\$880,000	\$1,030,000	\$10,000	\$1,910,000	\$30,000	\$2,000	\$150,000	\$180,000
	Indirect	\$190,000	\$290,000	\$10,000	\$490,000	\$10,000	\$2,000	\$310,000	\$320,000
	Induced	\$250,000	\$390,000	\$20,000	\$660,000	\$10,000	\$3,000	\$390,000	\$400,000
	Subtotal	\$1,310,000	\$1,710,000	\$40,000	\$3,060,000	\$40,000	\$10,000	\$850,000	\$900,000
General Aviation	Direct	\$390,000	\$450,000	\$3,000	\$840,000	\$10,000	\$1,000	\$70,000	\$80,000
	Indirect	\$80,000	\$130,000	\$10,000	\$210,000	\$3,000	\$1,000	\$140,000	\$140,000
	Induced	\$110,000	\$170,000	\$10,000	\$290,000	\$4,000	\$1,000	\$170,000	\$180,000
	Subtotal	\$580,000	\$760,000	\$20,000	\$1,350,000	\$20,000	\$3,000	\$380,000	\$400,000
All Airport Totals	Direct	\$1,260,000	\$1,480,000	\$10,000	\$2,760,000	\$40,000	\$3,000	\$220,000	\$260,000
	Indirect	\$270,000	\$410,000	\$20,000	\$700,000	\$10,000	\$3,000	\$450,000	\$460,000
	Induced	\$360,000	\$570,000	\$20,000	\$950,000	\$10,000	\$4,000	\$570,000	\$580,000
	Total	\$1,890,000	\$2,460,000	\$50,000	\$4,410,000	\$60,000	\$10,000	\$1,230,000	\$1,300,000

Source: InterVISTAS analysis of IMPLAN data

Note: Totals may not sum due to rounding.

Table 9-31: Summary of Taxes Generated by Visitor Spending

Airport Type	Impact	Federal Taxes				State/Local Taxes			
		Personal Taxes	Other Federal Taxes/Fees	Good & Services Taxes	Total Federal	Personal Taxes	Other State & Local Taxes/Fees	Good & Services Taxes	Total State & Local
Commercial Service	Direct	\$7,130,000	\$10,670,000	\$430,000	\$18,230,000	\$240,000	\$40,000	\$9,900,000	\$10,180,000
	Indirect	\$1,920,000	\$3,070,000	\$110,000	\$5,100,000	\$60,000	\$30,000	\$2,630,000	\$2,720,000
	Induced	\$2,220,000	\$3,520,000	\$150,000	\$5,890,000	\$70,000	\$30,000	\$3,500,000	\$3,600,000
	Subtotal	\$11,270,000	\$17,260,000	\$690,000	\$29,220,000	\$380,000	\$90,000	\$16,040,000	\$16,510,000
General Aviation	Direct	\$550,000	\$820,000	\$30,000	\$1,390,000	\$20,000	\$3,000	\$760,000	\$780,000
	Indirect	\$150,000	\$230,000	\$10,000	\$390,000	\$5,000	\$2,000	\$200,000	\$210,000
	Induced	\$170,000	\$270,000	\$10,000	\$450,000	\$10,000	\$2,000	\$270,000	\$280,000
	Subtotal	\$860,000	\$1,320,000	\$50,000	\$2,240,000	\$30,000	\$10,000	\$1,230,000	\$1,260,000
All Airport Totals	Direct	\$7,680,000	\$11,480,000	\$460,000	\$19,620,000	\$260,000	\$40,000	\$10,660,000	\$10,960,000
	Indirect	\$2,060,000	\$3,300,000	\$120,000	\$5,490,000	\$70,000	\$30,000	\$2,830,000	\$2,930,000
	Induced	\$2,390,000	\$3,790,000	\$160,000	\$6,350,000	\$80,000	\$30,000	\$3,770,000	\$3,880,000
	Total	\$12,130,000	\$18,580,000	\$740,000	\$31,450,000	\$410,000	\$100,000	\$17,260,000	\$17,770,000

Source: InterVISTAS analysis of IMPLAN data

Note: Totals may not sum due to rounding.

Table 9-32: Summary of Total Taxes Generated

Airport Type	Source	Federal Taxes				State/Local Taxes			
		Personal Taxes	Other Federal Taxes/Fees	Good & Services Taxes	Total Federal	Personal Taxes	Other State & Local Taxes/Fees	Good & Services Taxes	Total State & Local
Commercial Service	Airport Operations	\$15,970,000	\$22,810,000	\$480,000	\$39,260,000	\$530,000	\$100,000	\$11,100,000	\$11,730,000
	Capital Expenditures	\$1,310,000	\$1,710,000	\$40,000	\$3,060,000	\$40,000	\$10,000	\$850,000	\$900,000
	Visitor Spending	\$11,270,000	\$17,260,000	\$690,000	\$29,220,000	\$380,000	\$90,000	\$16,040,000	\$16,510,000
	Subtotal	\$28,550,000	\$41,780,000	\$1,210,000	\$71,540,000	\$950,000	\$200,000	\$27,990,000	\$29,140,000
General Aviation	Airport Operations	\$2,150,000	\$2,160,000	\$680,000	\$5,000,000	\$70,000	\$290,000	\$1,110,000	\$1,460,000
	Capital Expenditures	\$580,000	\$760,000	\$20,000	\$1,350,000	\$20,000	\$3,000	\$380,000	\$400,000
	Visitor Spending	\$860,000	\$1,320,000	\$50,000	\$2,240,000	\$30,000	\$10,000	\$1,230,000	\$1,260,000
	Subtotal	\$3,590,000	\$4,240,000	\$750,000	\$8,590,000	\$120,000	\$303,000	\$2,720,000	\$3,120,000
All Airport Totals	Airport Operations	\$18,120,000	\$24,970,000	\$1,160,000	\$44,260,000	\$600,000	\$390,000	\$12,210,000	\$13,190,000
	Capital Expenditures	\$1,890,000	\$2,470,000	\$60,000	\$4,410,000	\$60,000	\$13,000	\$1,230,000	\$1,300,000
	Visitor Spending	\$12,130,000	\$18,580,000	\$740,000	\$31,460,000	\$410,000	\$100,000	\$17,270,000	\$17,770,000
	Total	\$32,140,000	\$46,020,000	\$1,960,000	\$80,130,000	\$1,070,000	\$503,000	\$30,710,000	\$32,260,000

Source: InterVISTAS analysis of IMPLAN data

Note: Totals may not sum due to rounding.

9.9. Changes in the Economic Impact of South Dakota’s Airports Since 2010

In the eight years that have passed since the last economic impact study was issued, there have been significant changes in the aviation industry. Commercial air traffic nationally has grown steadily after recovering from the Great Recession of 2008-2009. The commercial sector has undergone additional consolidation, and regional airlines have struggled to address a pilot shortage. GA has also changed significantly, with some aspects of the industry contracting while other portions – especially business aviation and rotorcraft operations – increasing. Employment and economic activity generally follow those trends. This section summarizes the changes in the industry and the economic impact in South Dakota.

9.9.1. Changes in Commercial Aviation Activity

In total, passenger traffic at South Dakota’s commercial airports has grown over the past eight years, increasing by nearly a quarter million passengers (an increase of 32 percent). The largest increase was at Sioux Falls Regional/Joe Foss Field, which saw passenger traffic rise by nearly 175,000 (+49 percent). Changes in commercial enplanements between 2010 and 2018 are shown in **Table 9-33**. It is important to note that while Huron Regional Airport is considered a Large GA airport in the 2020 SDSASP, it once provided scheduled air service as part of the Essential Air Service (EAS) program and is therefore included in **Table 9-33**. Huron Regional lost EAS service in 2017 and therefore experienced a complete loss of commercial enplanements.

Table 9-33: Change in Commercial Enplanements Since 2010

Associated City	Airport Name	FAA ID	Commercial Enplanements			
			2010	2018	Change	%
Aberdeen	Aberdeen Regional	ABR	20,089	28,421	8,332	41%
Huron	Huron Regional	HON	2,016	-	-2,016	-100%
Pierre	Pierre Regional	PIR	14,686	30,230	15,544	106%
Rapid City	Rapid City Regional	RAP	284,126	303,659	19,533	7%
Sioux Falls	Sioux Falls Regional/Joe Foss Field	FSD	355,939	529,895	173,956	49%
Watertown	Watertown Regional	ATY	7,814	11,499	3,685	47%
Total			684,670	903,704	219,034	32%

Source: InterVISTAS analysis of FAA Passenger Boarding Data

Although passenger traffic increased at the other airports, total commercial aircraft operations dropped dramatically. Over the past 10 years, commercial airline operations have evolved away from multiple daily routes with smaller aircraft toward fewer operations with larger aircraft. Doing so allows airlines to serve the same number of passengers (or more) with fewer flights, achieving better cost efficiencies. With the exception of Sioux Falls Regional/Joe Foss Field, South Dakota’s other airports handled fewer commercial flights in 2018 compared to 2010. At each airport, the average number of seats available on those flights were greater in 2018. At Pierre Regional, the average size of commercial aircraft operating at the airport doubled, rising from 24 to 50 seats per aircraft. **Table 9-34** summarizes the change in commercial aircraft operations from 2008 to 2018.

Table 9-34: Change in Scheduled Departures at SD Airports

Associated City	Airport Name	FAA ID	Scheduled Departures			
			2010	2018	Change	%
Aberdeen	Aberdeen Regional	ABR	965	747	-218	-23%
Huron	Huron Regional	HON	626	-	-626	-100%
Pierre	Pierre Regional	PIR	1,718	1,092	-626	-36%
Rapid City	Rapid City Regional	RAP	6,489	5,574	-915	-14%
Sioux Falls	Sioux Falls Regional/Joe Foss Field	FSD	7,543	7,979	437	6%
Watertown	Watertown Regional	ATY	916	545	-371	-41%
Total			18,255	15,936	-2,320	-13%

Source: InterVISTAS analysis of DOT Form T-100 data via the Diio-Mi online portal

Consolidation in the airline industry altered the number of markets served and frequencies offered at South Dakota’s commercial service airports. A comparison of scheduled flights during the period covering the last week of July through the first week of August 2010 versus the same time period in 2018 reveals subtle but significant changes, in addition to the total loss of service at Huron Regional. A summary of the changes in unique destinations for commercial service airports is shown in **Table 9-35**.

- Pierre Regional lost nonstop service to Minneapolis-St. Paul International Airport, Alliance Municipal Airport in Nebraska, and Huron Regional Airport but gained service to Watertown Regional Airport (since lost, after Great Lakes Aviation went out of business). In the same time period in 2020, Pierre Regional has only nonstop service to Denver.
- Rapid City Regional gained seasonal service (one or two departures weekly) to Atlanta, Charlotte, New York Newark Liberty International, and Houston Bush Intercontinental airports.
- At Sioux Falls Regional/Joe Foss Field, Delta dropped regular operations to Detroit Wayne County International but added daily service to Atlanta. Frontier Airlines began service to Denver in competition with United Airlines. Allegiant Air added twice-weekly service to Clearwater, Florida.

Table 9-35: Changes in Unique Destinations Served by Airport 2010 vs. 2018

Associated City	Airport Name	FAA ID	Destinations Served*		
			2010	2018	Change
Aberdeen	Aberdeen Regional	ABR	1	1	-
Huron	Huron Regional	HON	2	-	-2
Pierre	Pierre Regional	PIR	4	2	-2
Rapid City	Rapid City Regional	RAP	7	11	4
Sioux Falls	Sioux Falls Regional/Joe Foss Field	FSD	9	10	1
Watertown	Watertown Regional	ATY	1	1	-

Source: InterVISTAS analysis of airline schedule data via the Diio-Mi online portal

Notes: *"Unique destinations" are counted as served only if a carrier operated two or more departures to the destination each week. Phoenix Mesa Gateway Airport and Phoenix Sky Harbor International were treated as the same destination (greater Phoenix metropolitan area).

9.9.1.1. Change in Cargo Operations

There has been relatively little change in the total volume of freight and mail shipped from South Dakota’s airports between 2010 and 2018. The total tonnage of freight dropped less than 1 percent. Combined, total tonnage fell from 26.1 thousand tons to 25.9 thousand tons. Most of the freight is carried on either UPS or FedEx, with most tonnage flown to and from Sioux Falls Regional/Joe Foss Field.

9.9.1.2. Change in GA Operations at Commercial Airports

According to data from the FAA, the total number of itinerant flight operations (takeoffs and landings combined) made by GA aircraft and air taxis experienced a small change between 2010 and 2018.²¹ For all the commercial service airports together, the total number of itinerant GA operations dropped by only 20. Only Aberdeen Regional and Watertown Regional saw decreases, while GA operations increased at Pierre Regional, Rapid City Regional, and Sioux Falls Regional/Joe Foss Field. The analysis focuses on itinerant operations because of the connection to potential visitors arriving by GA. **Table 9-36** shows the changes in GA and taxi operations between 2010 and 2018 for commercial service airports.

Table 9-36: Change in GA and Air Taxi Operations by Airport, Commercial Service Airports Only

Associated City	Airport Name	FAA ID	Itinerant Operations			
			2010	2018	Change	%
Aberdeen	Aberdeen Regional	ABR	40,016	31,870	-8,146	-20%
Pierre	Pierre Regional	PIR	18,390	22,300	3,910	21%
Rapid City	Rapid City Regional	RAP	27,479	28,664	1,185	4%
Sioux Falls	Sioux Falls Regional/Joe Foss Field	FSD	44,962	50,093	5,131	11%
Watertown	Watertown Regional	ATY	5,700	3,600	-2,100	-37%
Total			136,547	136,527	-20	0%

Source: InterVISTAS analysis of data from the FAA TAF

Notes: Operations include those by both air taxi and GA aircraft. GA operations at Huron are accounted for in Table 9-37 as it is considered a GA airport for the 2020 SDSASP.

Locally-based aircraft at commercial service airports are also a relevant input because they have an influence on airport finance, specifically via hangar rentals and fuel. According to the FAA, the number of GA aircraft based at the commercial service airports increased by 11 percent between 2010 and 2018, increasing from 384 to 430.

9.9.2. Changes in Activities at GA Airports

According to data from the FAA, GA flight operations have declined at South Dakota’s GA airports over time. **Table 9-37** summarizes the changes in itinerant aircraft operations made by air taxis and GA aircraft at GA airports. The number of itinerant operations provides some insight into the volume of travelers who may visit the state with GA aircraft. Itinerant operations at South Dakota’s airports decreased dramatically from 2010 to 2018, falling by nearly 50 percent (by almost 56,000 total operations). Estimated itinerant operations increased at only 12 airports, stayed the same at two, and dropped at the other 37 airports.

²¹ The FAA defines itinerant operations as those performed by an aircraft that lands at an airport, arriving from outside the airport area, or departs an airport and leaves the airport area. By contrast, “local operations” are those performed by an aircraft that remains in the local traffic pattern.

Some of the apparent decrease may be due to changes in how the FAA estimated operations at the airports. Because these airports do not have air traffic control towers, the counts or estimates of flight activity are often imprecise.

Table 9-37: Changes in GA Activity 2010 vs. 2018

City	Airport Name	FAA ID	Itinerant Operations			
			2010	2018	Change	Percent
Belle Fourche	Belle Fourche Municipal	EFC	1,800	738	-1,062	-59%
Bison	Bison Municipal	6V5	240	180	-60	-25%
Britton	Britton Municipal	BTN	750	240	-510	-68%
Brookings	Brookings Regional	BKX	4,650	2,900	-1,750	-38%
Buffalo	Harding County	9D2	240	250	10	4%
Canton	Canton Municipal	7G9	900	190	-710	-79%
Chamberlain	Chamberlain Municipal	9V9	3,824	1,006	-2,818	-74%
Clark	Clark County	8D7	144	100	-44	-31%
Custer	Custer County	CUT	3,200	3,940	740	23%
De Smet	Wilder Field	6E5	240	-	-240	-100%
Eagle Butte	Cheyenne Eagle Butte	84D	2,000	2,200	200	10%
Edgemont	Edgemont Municipal	6V0	24	28	4	17%
Eureka	Eureka Municipal	3W8	36	80	44	122%
Faith	Faith Municipal	D07	700	80	-620	-89%
Faulkton	Faulkton Municipal	3FU	600	160	-440	-73%
Flandreau	Flandreau Municipal	4P3	800	178	-622	-78%
Gettysburg	Gettysburg Municipal	0D8	1,700	500	-1,200	-71%
Gregory	Gregory Municipal-Flynn Field	9D1	3,024	3,600	576	19%
Highmore	Highmore Municipal	9D0	500	5	-495	-99%
Hot Springs	Hot Springs Municipal	HSR	1,400	881	-519	-37%
Hoven	Hoven Municipal	9F8	60	120	60	100%
Howard	Howard Municipal	8D9	250	60	-190	-76%
Huron	Huron Regional	HON	7,000	4,500	-2,500	-36%
Lemmon	Lemmon Municipal	LEM	1,800	240	-1,560	-87%
Madison	Madison Municipal	MDS	9,000	2,460	-6,540	-73%
Martin	Martin Municipal	9V6	500	670	170	34%
McLaughlin	McLaughlin Municipal	5P2	60	60	-	0%
Milbank	Milbank Municipal	1D1	1,000	240	-760	-76%
Miller	Miller Municipal	MKA	780	600	-180	-23%
Mitchell	Mitchell Municipal	MHE	10,200	5,780	-4,420	-43%

City	Airport Name	FAA ID	Itinerant Operations			
			2010	2018	Change	Percent
Mobridge	Mobridge Municipal	MBG	6,240	40	-6,200	-99%
Murdo	Murdo Municipal	8F6	300	300	-	0%
Onida	Onida Municipal	98D	900	300	-600	-67%
Parkston	Parkston Municipal	8V3	400	160	-240	-60%
Philip	Philip	PHP	424	148	-276	-65%
Pine Ridge	Pine Ridge	IEN	1,000	2,400	1,400	140%
Platte	Platte Municipal	1D3	500	96	-404	-81%
Redfield	Redfield Municipal	1D8	1,000	500	-500	-50%
Rosebud	Rosebud Sioux Tribal	SUO	700	1,200	500	71%
Sisseton	Sisseton Municipal	8D3	144	120	-24	-17%
Spearfish	Black Hills-Clyde Ice Field	SPF	12,200	4,401	-7,799	-64%
Springfield	Springfield Municipal	Y03	300	200	-100	-33%
Sturgis	Sturgis Municipal	49B	5,120	2,500	-2,620	-51%
Tea	Marv Skie-Lincoln County	Y14	13,480	5,900	-7,580	-56%
Vermillion	Harold Davidson Field	VMR	2,400	598	-1,802	-75%
Wagner	Wagner Municipal	AGZ	300	-	-300	-100%
Wall	Wall Municipal	6V4	1,024	2,240	1,216	119%
Webster	The Sigurd Anderson	1D7	200	60	-140	-70%
Wessington Springs	Wessington Springs	4X4	80	30	-50	-63%
Winner	Winner Regional	ICR	240	2,020	1,780	742%
Yankton	Chan Gurney Municipal	YKN	8,000	1,600	-6,400	-80%
Total			112,374	56,799	-55,575	-49%

Source: InterVISTAS analysis of FAA data

Such decreases in operations are large even in comparison with national trends in GA activity, which has also declined over time. According to data from the FAA, the total number of active aircraft decreased by about 12,000 between 2010 and 2018. The number of fixed-wing piston aircraft dropped by over 12,000. The number of active rotorcraft and experimental aircraft also declined. Conversely, the number of active fixed-wing turboprop and turbojet aircraft rose by 3,700. **Table 9-38** shows the changes in active aircraft between 2010 and 2018.

Table 9-38: Change in U.S. Active Aircraft 2010 vs. 2018

Category	2010	2018	Change	%
Fixed Wing Piston: Total	155,419	143,040	-12,379	-8%
Fixed Wing Turboprop: Total	9,369	9,925	556	6%
Fixed Wing Turbojet: Total	11,484	14,596	3,112	27%

Category	2010	2018	Change	%
Rotorcraft: Total	10,102	9,990	-112	-1%
Other	36,996	34,198	-2,798	-8%
All Aircraft	223,370	211,749	-11,621	-5%

Source: InterVISTAS analysis of data from the FAA

Standing in opposition to those trends, other data indicates a more resilient GA community in South Dakota. The FAA’s National Based Aircraft Inventory Program via basedaircraft.com does not offer historical based aircraft counts back to 2010; however, the FAA’s TAF does include historical data for this comparison. Those data show that the total number of aircraft based at South Dakota’s airports increased by 336 between 2010 and 2018.

One other indicator of the change in GA activities at South Dakota’s airports is the number of individuals who hold pilot licenses in the state. The FAA also keeps data on the number of licensed pilots. **Table 9-39** summarizes the change in the number of active private pilots in South Dakota and in the US as a whole, separately showing the number of private pilots, student pilots, and total pilots (other types of licensed pilots, such as pilots with commercial licenses, are included in the total). This reveals that although the number of licensed private pilots has fallen nationally and in South Dakota, a surge in individuals training to be pilots is occurring both in the state and the nation.

Table 9-39: Changes in Active Pilots, US vs. South Dakota, 2010 vs. 2018

Category	U.S. Total				South Dakota			
	2010	2018	Change	%	2010	2018	Change	%
Students	110,025	156,216	46,191	42%	393	562	169	43%
Private	210,728	168,049	(42,679)	-20%	906	790	-116	-13%
Commercial	122,298	100,793	(21,505)	-18%	604	524	-80	-13%
Airline Transport	137,502	159,764	22,262	16%	316	459	143	45%
Rotor, Glider, & Balloon	215	77,259	77,044	N/M	1	289	288	N/M
Remote Pilot	3,669	105,419	101,750	N/M	42	387	345	N/M
Instructor	94,119	105,642	11,523	12%	377	442	65	17%
Total Pilots	584,437	591,189	6,752	1%	2262	2392	130	6%

Source: InterVISTAS analysis of data from the FAA

Note: “N/M” = not meaningful.

9.9.3. Changes in the Economic Impact of Airport Operations

Table 9-40 summarizes the changes in the direct estimated economic impacts of the operations at the commercial service and GA airports between 2010 and 2018. The direct activities are considered for those on-airport or off-airport, but are directly associated with airport operations (such as off-airport rental car operations). Comparisons of GDP are excluded as the 2010 study did not report those data. Dollar values from the prior report have been converted to constant 2018 dollars.²² With the data shown from the 2010 study, the impacts attributable to Huron Regional Airport have been removed to

²² Inflatons based on U.S. Bureau of Labor Statistics data.

make the comparison of results against the current list of commercial service airports appropriate. Note that direct on-airport operations include impacts of the agricultural spraying industry and all figures are rounded.

The increase in commercial passenger traffic contributed to an increase in employment and economic activity at the commercial service airports. Total direct employment at the commercial service airports relating to regular airport operations increased by nearly 800 jobs, with additional earnings of more than \$30 million. Total direct output for the commercial service airports increased by about \$10 million. For the GA airports, total direct employment remained flat, with no real change in earnings. Total output, however, decreased by nearly \$30 million. Together, total direct employment increased by about 800 jobs and total earnings rose by \$30 million.

Table 9-41 summarizes the changes in the total economic impact of the operations at the commercial service and GA airports between 2010 and 2018. This incorporates the “multiplier” effects -- the indirect and induced effects. These changes generally track those from the direct impacts – increased passenger traffic created more total employment and economic activity at the commercial airports. Total employment associated with South Dakota’s airports increased by over 1,100 and total payroll grew by \$55 million, despite the decrease in impacts from the GA airports. Total economic output increased by nearly \$14 million from the 2010 study.

9.9.4. *Changes in Capital Improvements*

The 2010 study and the 2020 AEIS used similar approaches to accounting for capital development spending, however, the prior report used the average of three years of capital spending (2008-2010), and the current report used the average of four years of capital spending (2015-2018). One key difference is that the 2010 study incorporated the results of its estimates of related economic impact into the direct airport operations category and did not separately report the figures for either individual airports or by airport roles (i.e., commercial service vs. GA), like this 2020 AEIS does, and therefore comparisons on an airport by airport level are not possible.

The 2010 study reported that total spending on airport construction projects was about \$39 million (\$44 million in constant 2018 dollars). The amount of capital improvement spending estimated for the 2020 AEIS is nearly \$34 million, a decrease of approximately \$11 million. **Table 9-42** summarizes the differences in the direct impacts of capital improvement from 2010 to 2018. It reveals that there was little change in employment that resulted from the capital improvement efforts, but that workers earned about \$1 million more (in constant dollars). Total economic output in South Dakota dropped by \$11 million, likely due to the drop in absolute dollar amounts spent on capital improvements generally.

Table 9-43 summarizes the differences in the total impacts of capital improvement from 2010 to 2018. **Table 9-42** shows little change in total attributable employment, but that workers earned more. Total economic output in South Dakota fell, again because total spending on capital improvement efforts were roughly \$10 million less in the current analysis compared to the 2010 study.

Table 9-40: Changes in Direct On-Airport Economic Impacts 2010 vs. 2018

Airport Type	2010 Results (constant 2018 \$)			Current Results			Change		
	Jobs	Earnings	Output	Jobs	Earnings	Output	Jobs	Earnings	Output
Commercial Service	1,495	\$96,400,000	\$249,700,000	2,290	\$126,600,000	\$258,000,000	795	\$30,200,000	\$8,200,000
General Aviation	305	\$16,700,000	\$60,300,000	305	\$16,700,000	\$31,400,000	-	\$-	-\$29,000,000
Total	1,800	\$113,100,000	\$310,100,000	2,595	\$143,400,000	\$289,300,000	790	\$30,200,000	-\$20,700,000

Source: InterVISTAS analysis of information from current and 2010 reports

Notes: Table shows direct impacts only. Totals may not sum due to rounding.

Table 9-41: Changes in Total Airport Economic Impacts 2010 vs. 2018

Airport Type	2010 Results (constant 2018 \$)			Current Results			Change		
	Jobs	Earnings	Output	Jobs	Earnings	Output	Jobs	Earnings	Output
Commercial Service	2,490	\$135,700,000	\$395,700,000	3,630	\$190,800,000	\$442,000,000	1,140	\$55,100,000	\$46,300,000
General Aviation	510	\$25,400,000	\$87,700,000	480	\$25,300,000	\$55,300,000	-30	-\$100,000	-\$32,300,000
Total	2,995	\$161,100,000	\$483,400,000	4,110	\$216,000,000	\$497,300,000	1,115	\$55,000,000	\$13,900,000

Source: InterVISTAS analysis of information from current and 2010 reports

Note: Totals may not sum due to rounding.

Table 9-42: Changes in the Direct Economic Impacts from Airport Capital Spending 2010 vs. 2018

Airport Type	2010 Results (constant 2018 \$)			Current Results			Change		
	Jobs	Earnings	Output	Jobs	Earnings	Output	Jobs	Earnings	Output
Commercial Service	N/A	N/A	N/A	185	\$10,060,000	\$23,430,000	N/A	N/A	N/A
General Aviation	N/A	N/A	N/A	80	\$4,440,000	\$10,350,000	N/A	N/A	N/A
Total	260	\$13,560,000	\$44,810,000	265	\$14,500,000	\$33,780,000	5	\$940,000	-\$11,030,000

Source: InterVISTAS analysis of information from current and 2010 reports

Notes: The 2010 report did not provide detailed information on capital spending at commercial service vs. GA airports. Totals may not sum due to rounding.

Table 9-43: Changes in the Total Economic Impacts from Airport Capital Spending 2010 vs. 2018

Airport Type	2010 Results (constant 2018 \$)			Current Results			Change		
	Jobs	Earnings	Output	Jobs	Earnings	Output	Jobs	Earnings	Output
Commercial Service	N/A	N/A	N/A	290	\$15,220,000	\$38,990,000	N/A	N/A	N/A
General Aviation	N/A	N/A	N/A	130	\$6,720,000	\$17,230,000	N/A	N/A	N/A
Total	430	\$20,765,000	\$66,825,000	420	\$21,940,000	\$56,220,000	-10	\$1,175,000	-\$10,605,000

Source: InterVISTAS analysis of information from current and 2010 reports

Notes: The 2010 report did not provide detailed information on capital spending at commercial service vs. GA airports. Totals may not sum due to rounding.

9.9.5. *Changes in Impacts of Visitor Spending*

The economic impacts of spending by visitors who fly into South Dakota for “regular” tourism (excluding those coming to the state for the Sturgis Motorcycle Rally or pheasant hunting season) also changed from 2010 to 2018. Some of the changes evident in the economic impacts are due to changes in the commercial airline industry’s operations and passenger traffic, and some is due to changes in GA flight activity. However, it is important to note that other changes are attributable to differences in the assumptions that the studies adopted.

Because the 2010 study included little specific information on the number of visitors who flew into South Dakota at each airport and how the amount of spending by visitors was estimated, it is not possible to compare how the 2010 study and the 2020 AEIS estimates differ. The 2020 AEIS methodology for estimating the number of visitors who traveled into the state via commercial airlines and GA is discussed in detail previously in **Section 9.4**.

The 2020 AEIS estimates of spending by visitors who arrived in South Dakota via the GA airports is significantly lower than the prior report. There are multiple reasons for the downward revision:

- The volume of GA operations in general and the number of itinerant operations specifically at the system airports has declined over the past 10 years, as shown in **Table 9-37**.
- The percentage of estimated itinerant operations that represent “true visitors” is lower. Although the prior analysis did not report the estimate specifically, mathematically it appears that it was estimated that 50 percent of the itinerant operations at the airport were from true visitors. That percentage is high compared to most other estimates used in other statewide studies of the economic impact of aviation. The analysis for the 2020 AEIS adopted estimates commonly applied in other statewide airport economic impact studies. Those studies typically apply estimates ranging from 30 percent to 40 percent of itinerant operations as representing flights by true visitors. This report applied the 30 percent estimate to the smaller GA airports and 40 percent for larger GA airports.
- The 2020 SDSASP estimated lower average amounts of spending per visitor than the prior report. The 2010 report used estimates that varied based on whether a visitor arrived from in state or out of state. Out of state visitors were estimated to spend between \$117 and \$184 per person (or between \$135 and \$213 in constant 2018 dollars), with in-state visitor spending ranging from \$26 to \$64 per person (or between \$30 and \$74 in constant 2018 dollars). As described above in **Section 9.4.2**, the 2020 AEIS analysis applied estimates used in other statewide economic impact studies that ranged from \$25 to \$125 per person (\$200 per person for visitors arriving by GA at the commercial service airports).

Consequently, the combination of fewer visitors spending less per person resulted in lower estimates of total visitor spending, which in turn supported fewer jobs and total economic activity. The difference between the 2010 and 2018 reports is most clearly seen in the visitor spending impacts at the GA airports, as spending by larger numbers of visitors arriving by commercial airlines at the commercial service airports more than offset any dampening effect associated with changes in GA traffic at those facilities. **Table 9-44** summarizes the change in direct economic impacts attributable to spending by visitors.

Table 9-44: Changes in Direct Visitor Spending Impacts 2010 vs. 2018

Airport Type	2010 Results (constant 2018 \$)			Current Results			Change		
	Jobs	Earnings	Output	Jobs	Earnings	Output	Jobs	Earnings	Output
Commercial Service	1,175	\$26,600,000	\$78,000,000	2,825	\$70,300,000	\$186,600,000	1,650	\$43,700,000	\$108,600,000
General Aviation	285	\$6,100,000	\$19,600,000	30	\$700,000	\$1,800,000	-260	-\$5,400,000	-\$17,700,000
Total	1,460	\$32,700,000	\$97,600,000	2,855	\$70,900,000	\$188,500,000	1,390	\$38,300,000	\$90,900,000

Source: InterVISTAS analysis of information from current and 2010 reports

Note: Totals may not sum due to rounding.

Table 9-45: Changes in Total Visitor Spending Economic Impacts 2010 vs. 2018

Airport Type	2010 Results (constant 2018 \$)			Current Results			Change		
	Jobs	Earnings	Output	Jobs	Earnings	Output	Jobs	Earnings	Output
Commercial Service	1,625	\$42,800,000	\$129,000,000	3,540	\$102,400,000	\$288,400,000	1,915	\$59,600,000	\$159,500,000
General Aviation	385	\$9,700,000	\$31,300,000	35	\$1,000,000	\$2,900,000	-350	-\$8,700,000	-\$28,500,000
Total	2,010	\$52,500,000	\$160,300,000	3,575	\$103,400,000	\$291,300,000	1,565	\$50,900,000	\$131,000,000

Source: InterVISTAS analysis of information from current and 2010 reports

Note: Totals may not sum due to rounding.

Table 9-45 summarizes the total impacts from visitor spending, which includes the “multiplier” effects. Operations at South Dakota’s airports combined to add nearly 1,600 visitor-related jobs, paying an increased \$51 million in earnings, with more than an additional \$131 million in total economic output when compared to the 2010 study.

9.9.6. Changes in Visitor Spending Impacts Associated with Major Events and Activities

In addition to changes in “regular” visitor spending, the 2010 and updated 2018 reports differ in the estimates of the economic impacts of aviation’s contributions to the Sturgis Motorcycle Rally and the pheasant hunting season.

9.9.6.1. Sturgis Motorcycle Rally

As noted previously, the prior report did not provide much detail on how its estimates of visitor spending impacts were generated. It noted only that estimates of average spending by visitors were developed by interviewing departing passengers not only at Rapid City Regional Airport (as did this analysis) but also at Sturgis Municipal and Black Hills-Clyde Ice Field. The report did not include information on the total number of visitors arriving by air at any of the airports. The methods used in the current analysis were described in **Section 9.5.1**.

Table 9-46 compares the total impacts estimated in 2010 against the 2020 AEIS estimated impacts. Total employment, earnings, and economic activity are higher in 2018, and the increase is centered on changes attributable to passenger traffic at Rapid City Regional Airport rather than changes at Sturgis Municipal or Black Hills-Clyde Ice Field. Because of the lack of detail in the prior report, it is unclear whether the changes estimated at the GA airports is due to differences in estimated passenger activity or average spending.

9.9.6.2. Pheasant Hunting Season

As noted previously, the prior report did not provide much detail on how the estimates of visitor spending impacts were generated. Neither the estimated number of hunters nor the average amount of spending per person were specifically noted. The state’s total estimated aviation-related pheasant hunting economic impact was \$83 million for the 2010-2011 season (about \$96 million in constant 2018 dollars).

The economic impact estimate from the 2020 AEIS is lower. The methodology used to develop the total economic impact was described in **Section 9.2.3**. However, because the 2020 AEIS used lower estimates of the number of itinerant GA operations at those airports, the estimated number of hunters decreased. In addition, the current study used a lower estimate of average spending per hunter than the 2010 estimate, based on a calculated estimate of what the prior study appeared to have used as its estimated average spending amount. As noted earlier, the estimate for this analysis was based on figures published by the SDGFP of \$2,000 per hunter but increased to \$3,000 per hunter.

As a result, the total estimated contribution of South Dakota’s airports to the state’s pheasant hunting economy decreased. Compared to the 2010 estimate expressed in constant dollars, the economic impact declined by \$40 million (about -42%).

A significant portion of the decrease in related economic activity is likely due to declines in the number of hunters coming to South Dakota from out of state. According to the SDGFP, the total number of hunting licenses issued to non-residents fell from 100,189 to 69,018 (-31 percent) from 2010 to 2018.

Data from SDGFP show that, of the approximately 69,000 licenses issued to non-residents to hunt pheasants in 2018, most non-residents come into South Dakota from neighboring states. Over 40 percent of nonresident licenses were issued to hunters from states more than 500 miles away from South Dakota, but it is not known how those hunters travel to the state – by air or ground transport.

Results of the changes in economic impacts attributable to pheasant hunting activities is shown in **Table 9-47**.

9.9.6.3. *Agricultural Spraying*

Compared to the results from the prior report, South Dakota’s agricultural spraying sector declined in size in 2018 versus 2010. The data on the amount of employment involved with the spraying industry is from surveys of airports and tenants, which indicated a decline in size of the sector. In 2018, in total, the sector supported about 130 jobs that generated over \$6 million in earnings and nearly \$9 million in total economic activity. This represents a decrease of about 130 jobs, nearly \$5 million in earnings, and over \$25 million in total economic activity compared to the (constant dollar) results from 2010.

However, information from the National Association of Agricultural Aviation (NAAA) shows that nationally, the number of agricultural aviation operators increased by 16 percent between 2012 and 2019. The NAAA's findings are counter to the results of the 2020 AEIS survey of airports' management and tenants. The discrepancy could be real (i.e., the number of agricultural sprayers decreased in South Dakota while increasing elsewhere) or it could be an artifact of survey response rates. If the latter, it is equally possible that (1) the NAAA's 2012 survey under-reported the true number of operators (which would mean that the true number of operators has declined or remained about the same over time) or (2) the number of agricultural sprayers based in South Dakota in 2019 is higher than that estimated because many operators did not respond to the survey. Multiple follow up attempts were made to airports and their tenants to obtain information that is as complete as possible.

As shown in **Table 9-48**, while related employment dropped at the commercial service airports in aggregate, most of these impacts are associated with activity at and around the state’s GA airports. Of the 15 airports for which employment was reported in 2010, the number of direct employees in the sector dropped at 11. At two GA airports alone, the number of employees dropped from 44 to 4. At Huron (which had commercial service in 2012 but not in 2019), the estimated number of direct employees working in the sector fell from 54 to nine. On the other hand, agricultural spraying employment increased at two GA airports, rising from 10 to 33. Additional details on the activities associated with any single airport are not provided, as doing so may compromise the privacy of sensitive information from individual businesses.

Table 9-46: Changes in Total Economic Activity Associated with the Sturgis Motorcycle Rally, 2010 vs. 2018

Airport Type	2010 Results (constant 2018 \$)			Current Results			Change		
	Jobs	Earnings	Output	Jobs	Earnings	Output	Jobs	Earnings	Output
Commercial Service	40	\$1,100,000	\$3,455,000	80	\$2,275,000	\$6,400,000	40	\$1,175,000	\$2,945,000
General Aviation	10	\$265,000	\$860,000	-	\$80,000	\$230,000	-10	-\$185,000	-\$630,000
Total	45	\$1,365,000	\$4,310,000	80	\$2,355,000	\$6,630,000	35	\$990,000	\$2,320,000

Source: InterVISTAS analysis of information from current and 2010 reports

Note: Totals may not sum due to rounding.

Table 9-47: Change in Total Economic Impacts Attributable to Pheasant Hunting Activities

Airport Type	2010 Results (constant 2018 \$)			Current Results			Change		
	Jobs	Earnings	Output	Jobs	Earnings	Output	Jobs	Earnings	Output
Commercial Service	635	\$15,035,000	\$49,535,000	420	\$12,040,000	\$33,905,000	-215	-\$2,995,000	-\$15,630,000
General Aviation	560	\$14,605,000	\$46,310,000	275	\$7,840,000	\$22,075,000	-285	-\$6,765,000	-\$24,235,000
Total	1,200	\$29,635,000	\$95,845,000	695	\$19,880,000	\$55,980,000	-505	-\$9,755,000	-\$39,865,000

Source: InterVISTAS analysis of information from current and 2010 reports

Note: Totals may not sum due to rounding.

Table 9-48: Change in Total Economic Impact Attributable to Agricultural Spraying

Airport Type	2010 Results (constant 2018 \$)			Current Results			Change		
	Jobs	Earnings	Output	Jobs	Earnings	Output	Jobs	Earnings	Output
Commercial Service	50	\$1,500,000	\$5,000,000	25	\$1,085,000	\$1,600,000	-25	-\$415,000	-\$3,765,000
General Aviation	220	\$9,100,000	\$26,900,000	110	\$4,915,000	\$7,235,000	-110	-\$4,185,000	-\$21,310,000
Total	260	\$10,600,000	\$31,900,000	130	\$6,000,000	\$8,830,000	-130	-\$4,600,000	-\$25,075,000

Source: InterVISTAS analysis of information from current and 2010 reports

Note: Totals may not sum due to rounding.

9.9.7. *Changes in Total Consolidated Economic Impact*

Table 9-49 highlights the consolidated total impact of the operations of South Dakota’s airports, including on-airport operations and visitor spending. The airport operations subtotals include the impacts of capital improvement efforts. The visitor spending subtotals include the effects of “regular” visitor spending in addition to those from the Sturgis Motorcycle Rally and the state’s pheasant hunting season. The table summarizes the direct, indirect, and induced impacts. The results from the prior study are shown in constant 2018 dollars.

In total, the economic impact of South Dakota’s airports grew by over 3,000 jobs, paying an additional \$130 million in earnings, creating an additional \$195 million in total economic output. Almost all of the estimated growth is related to operations at South Dakota’s commercial service airports, both from activity relating to airport operations and that stemming from visitor spending.

The 2020 AEIS results suggest a decrease in economic impact associated with GA airports, although most of that decrease is attributable to visitor spending. Moreover, most of the estimated loss of GA-related visitor spending impacts – in terms of jobs, wages, and output – is associated with lower estimates of the contributions of the GA airports to the pheasant season. As noted earlier, the 2010 report’s estimates of impacts from visitor spending at GA airports appear to be unusually high. As a consequence, it is possible that the true change in GA-related economic activity is relatively small.

Table 9-49: Change in Total Economic Impacts 2018 vs. 2010

Airport Type	2010 Results (constant 2018 \$)			Current Results			Change		
	Jobs	Earnings	Output	Jobs	Earnings	Output	Jobs	Earnings	Output
Airport Operations (incl. Capital Improvements)									
Commercial Service	2,920	\$155,000,000	\$465,000,000	3,920	\$205,000,000	\$480,000,000	1,000	\$50,000,000	\$20,000,000
General Aviation	510	\$25,000,000	\$90,000,000	610	\$30,000,000	\$75,000,000	100	\$5,000,000	-\$15,000,000
Subtotal	3,430	\$180,000,000	\$550,000,000	4,530	\$240,000,000	\$555,000,000	1,100	\$55,000,000	\$5,000,000
Visitor Spending									
Commercial Service	1,620	\$45,000,000	\$130,000,000	4,040	\$115,000,000	\$330,000,000	2,420	\$75,000,000	\$200,000,000
General Aviation	390	\$10,000,000	\$30,000,000	310	\$10,000,000	\$25,000,000	-70	\$ -	-\$5,000,000
Subtotal	2,010	\$55,000,000	\$160,000,000	4,350	\$125,000,000	\$355,000,000	2,340	\$75,000,000	\$195,000,000
Combined Impacts									
Commercial Service	4,540	\$200,000,000	\$590,000,000	7,960	\$325,000,000	\$810,000,000	3,420	\$125,000,000	\$220,000,000
General Aviation	890	\$35,000,000	\$120,000,000	920	\$40,000,000	\$100,000,000	30	\$5,000,000	-\$20,000,000
Total	5,430	\$235,000,000	\$710,000,000	8,880	\$365,000,000	\$905,000,000	3,450	\$130,000,000	\$195,000,000

Source: InterVISTAS analysis of information from current and 2010 reports

Note: Totals may not sum due to rounding.

9.10. Economic Impact Summary

South Dakota’s commercial service and GA airports are important centers of economic activity in the state. In 2018, the commercial service airports hosted nearly 70,000 total commercial flights (takeoffs and landings) and another 460,000 GA flights. The airports handled about 4.8 million total commercial passengers (arriving and departing). That represents about a 25 percent increase in total passengers since the prior economic impact report was published. The GA airports handled about 780,000 flights, which represented a slight decrease from the 850,000 flights estimated in 2008.

In addition to supporting South Dakota’s business by linking it to suppliers and buyers, the airports facilitate tourism to the state. Almost 370,000 visitors came to South Dakota via commercial service flights in 2018, and an estimated additional 140,000 visitors came via GA. A summary of the economic impacts associated with South Dakota’s aviation system is shown in **Table 9-50**.

Table 9-50: Summary of South Dakota Airports' Economic Impacts

Airport Type	Jobs	Earnings	GDP	Output
Airport Operations				
Commercial Service	3,920	\$206,000,000	\$256,600,000	\$481,000,000
General Aviation	610	\$32,000,000	\$32,800,000	\$72,600,000
Subtotal	4,530	\$238,000,000	\$289,400,000	\$553,500,000
Visitor Spending				
Commercial Service	4,040	\$116,700,000	\$180,100,000	\$328,700,000
General Aviation	310	\$8,900,000	\$13,800,000	\$25,200,000
Subtotal	4,350	\$125,700,000	\$159,600,000	\$353,900,000
Combined Impacts				
Commercial Service	7,960	\$322,700,000	\$436,800,000	\$809,700,000
General Aviation	920	\$40,900,000	\$46,600,000	\$97,700,000
Total	8,880	\$363,700,000	\$449,000,000	\$907,400,000

Source: InterVISTAS, 2020

Note: Totals may not sum due to rounding.

The total economic impact of the state’s airports approached 9,000 jobs that paid nearly \$364 million in wages. The sector contributes nearly \$450 million in GDP and over \$900 million in total economic output.

Including the effects of the on-airport activity, supply chain, induced spending by employees, and tourism impacts, the airports contribute substantial sums to South Dakota’s state and local governments. It is estimated that the airports contribute \$80 million to the federal government and \$32 million to state and local governments.