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The Economic Impact of the Rapid City Regional Airport - Rapid City, South Dakota

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All pictures in this report were sourced from Rapid City Regional Airport's Facebook page.

1.0 OVERVIEW

1.1 SUMMARY OF ECONOMIC IMPACT

Highlights from Rapid City Regional Airport's economic impact study include:

- Support for an estimated 2,877 jobs in Pennington County.
- The airport generates $456 million in economic activity for Pennington County.
- The economic activity creates a fiscal impact of $2.2 million for Pennington County.

The table below summarizes the economic impact of two key measures and their source.

Impact Measure	Source	Total Impact Pennington County
Employment	Commercial visitors	1,439
	General aviation	543
	Airport operations	46
	Airport capital investments	56
	Airport business tenants	796
	Total Employment	**2,877**
Annual Economic Activity	Commercial visitors	$188M
	General aviation	$58M
	Airport operations	$6M
	Airport capital investments	$8M
	Airport business tenants	$196M
	Total Annual Economic Activity	**$456M**

1.2 SCOPE OF WORK

This 2023 study assesses the economic impact of the Rapid City Regional Airport (RAP). This study was funded by the RAP and the City of Rapid City. The economic assessment will include:

- The economic impact of RAP on Pennington County.
- A comparison to the 2020 South Dakota Economic Impact Study for RAP
- A comparison to the impact of other airports on their respective communities.
- A definition of the geographic extent of the economic impact.
- A measure of significance to specific industries.

1.3 METHODOLOGY

This study will attempt to emulate and expand upon the State Aviation System Plan (AEIS) study conducted in 2020. The steps to achieve this are as follows:

1. Gather data on visitor spending.
2. Survey businesses directly (tenants) involved with RAP.
3. Gather data from RAP on airport spending, aviation statistics, construction spending, general aviation spending, and other data as needed.

For this analysis of RAP, annual economic impacts were estimated for each of the following:

- Commercial visitors
- General aviation visitors
- Airport operations
- Airport capital investment
- Airport business tenants

COMMERCIAL VISITORS

Commercial visitors are defined as those who arrive at the airport on commercial airlines. To collect commercial spending data, an intercept survey was used.[1] The survey was administered via Qualtrics from October 2022 through October 2023. Airport visitors were asked to complete the survey to gain access to free Wi-Fi. Data gathered includes zip code, length of visits, party size, spending patterns, and general demographics. Data from this survey was used to calculate the economic impact of commercial visitor spending and the catalytic effect of RAP on household incomes.

In calculating the economic impact of commercial visitors, only spending associated with nonlocal commercial visitors, that is visitors who live outside the defined local region, is included. This nonlocal spending is considered 'new' money to the local economy. For this study, the local economy is defined as Pennington County.

[1] Copies of all surveys can be found in Appendix A2: Survey Details.

General Aviation Visitors

General aviation (GA) encompasses a wide range of aviation activities and aircraft types, with a focus on non-commercial, non-scheduled operations. Many GA visitors arrive and depart within a single day, thus having minimal economic impact. There are GA visitors who stay for one or more nights. These overnight GA visitors have a greater economic impact on the local economy. Overnight visitors often have the same spending patterns as commercial visitors.

GA visitors were not surveyed, instead, this study relied on the benefit transfer model. This model involves identifying previous studies that have valued similar airports, adjusting those values to account for contextual differences, and applying them to the new location. This approach is helpful when data collection is impractical.

Airport Operations

RAP is a public airport owned by the City of Rapid City. The analysis will rely on the 2023 financial budget and the 2022 aviation statistics (last full fiscal year). This data was used to estimate the economic impact of RAP operations.

Airport Capital Investment

In February 2023, RAP was granted $10.9 million from the Bipartisan Infrastructure Law Grant. These funds will be used for phase one of the $52 million airport renovation and expansion. This renovation project is scheduled to be completed over the next 10 years. Phase one of the project is focused on the expansion of the main terminal, baggage drop off, and relocation of the TSA checkpoint. Phase two will be focused on expanding the concourse and gate areas, and phase three will be focused on the car rental and baggage claim areas.

Due to volatility in airport capital investment spending, this study will use a five-year annual average to estimate the economic impact.

It is worth noting that, unlike other annual economic impacts, the economic impact associated with capital investment only occurs when the spending associated with the project is taking place. Once the project-related spending is over, the economic impact associated with the project also ends. Economic impacts in this category are not ongoing and can change annually.

Airport Business Tenants

Business tenants are defined as businesses located directly on airport grounds. These businesses provide aviation-related services or support for airport customers. Examples include fixed base operators (FBOs), aircraft maintenance, commercial airlines, concessions, etc.

Airport business tenants were surveyed via a Qualtrics email survey. Data gathered included the size of their labor force, annual wage expenses, past construction projects, future construction projects, dependence on airports, and other important questions. Data from this survey was used to calculate the economic impact of business tenants.

Economic Modeling

The economic impact is estimated using the IMPLAN model. IMPLAN is a regional economic analysis software application that is designed to estimate the impact or ripple effect (specifically backward linkages) of a given economic activity within a specific geographic area through the implementation of its Input-Output model.[2] This modeling system uses multipliers that provide a way to measure the complete economic impact that the initial change in demand has on the local economy. The results of an input-output model are broken down into three effects:[3]

Direct Effects — A set of expenditures applied to the input-output multipliers. The direct effect is often referred to as direct spending or initial change in demand. This direct spending, or initial change in demand, is determined by the researcher or analyst. Applying these initial changes to the multipliers in IMPLAN will then display how a region will respond economically to them.

Indirect Effects — Indirect effects are the business-to-business purchases in the supply chain taking place in the economic region that stem from the initial change in demand or direct spending (direct effects). In other words, this is the increase in sales by businesses that are suppliers to restaurants, hotels, retail stores, etc.

[2] Full IMPLAN disclaimer can be found in Appendix A1: IMPLAN Disclaimer
[3] https://blog.implan.com/understanding-implan-effects

Induced Effects: Increased economic activity from household spending of labor income, after the removal of taxes and savings. The induced effects are generated by the spending of employees within the business' supply chain.

The IMPLAN model will report economic impact in four ways:[4]

Output **Gross output** is the total economic activity, including the sum of intermediate inputs and the value they add to the final good or service. The intermediate inputs are the resources used in the production of final goods and services. It should be noted that gross output can be overstated if the intermediate inputs are used multiple times in the production of other goods and services.

Labor Income The increase in wages, salaries, and proprietors' income as a result of the initial change in demand (direct effects).

Employment The total number of jobs supported by direct spending or initial change in demand. This measurement does not distinguish between a full-time or part-time employee. It also does not account for employees who moved from one job to another within the defined economic region. Thus it does tend to overstate the number of jobs created.

Value Added The contribution to the economic region's gross domestic product (GDP).

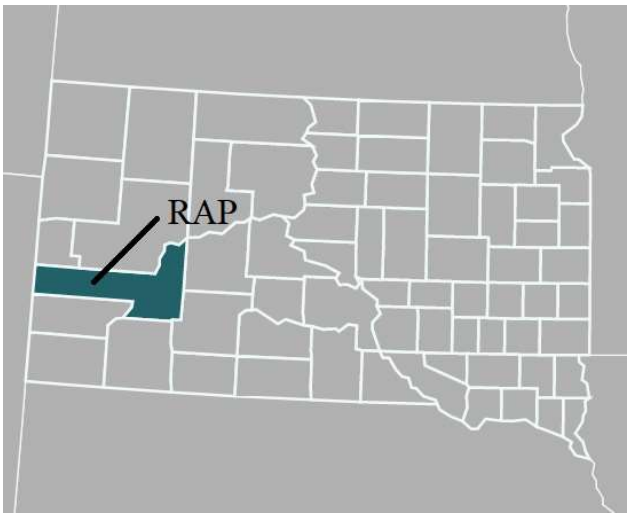
In many cases, the findings of the economic impact analysis are rounded to the nearest million to avoid giving the reader a false sense of precision about the results. Readers should keep in mind the figures presented are estimates generated by economic models and not the result of an audit. The intent is not to obscure, but to provide reliable results without misleading the readers as to the overall level of precision.

1.4 DEFINING THE ECONOMIC REGION

To properly determine who is a visitor to RAP, one must first define the local region. For this study, the local economy is defined as Pennington County, SD. The economic details of Pennington County are available in Appendix A5: The Economic Region. Figure 1 displays the map of Pennington County.

[4] Expanded definitions can be found in Appendix A1: IMPLAN Disclaimer

Figure 1: The defined economic region: Pennington County



1.5 ABOUT THE RAPID CITY REGIONAL AIRPORT

The Rapid City Regional Airport (RAP) is the second busiest airport in South Dakota and is managed and operated by the Rapid City Regional Airport Board. The airport is located nine miles east of the Rapid City business district. The Bureau of Transportation ranks RAP as the 149th busiest airport in the country.[5] RAP serves business and leisure travelers with seven nonstop routes on five airlines (see Figure 2).

Figure 2: Nonstop flight destinations from RAP

Nonstop Routes	Airline
Charlotte, NC	American Airlines
Chicago, IL	American Airlines and United Airlines
Dallas-Fort Worth, TX	American Airlines
Denver, CO	United Airlines
Las Vegas, NV	Allegiant Airlines
Minneapolis, MN	Delta Airlines and Sun County Airlines
Phoenix, AZ	Allegiant Airlines

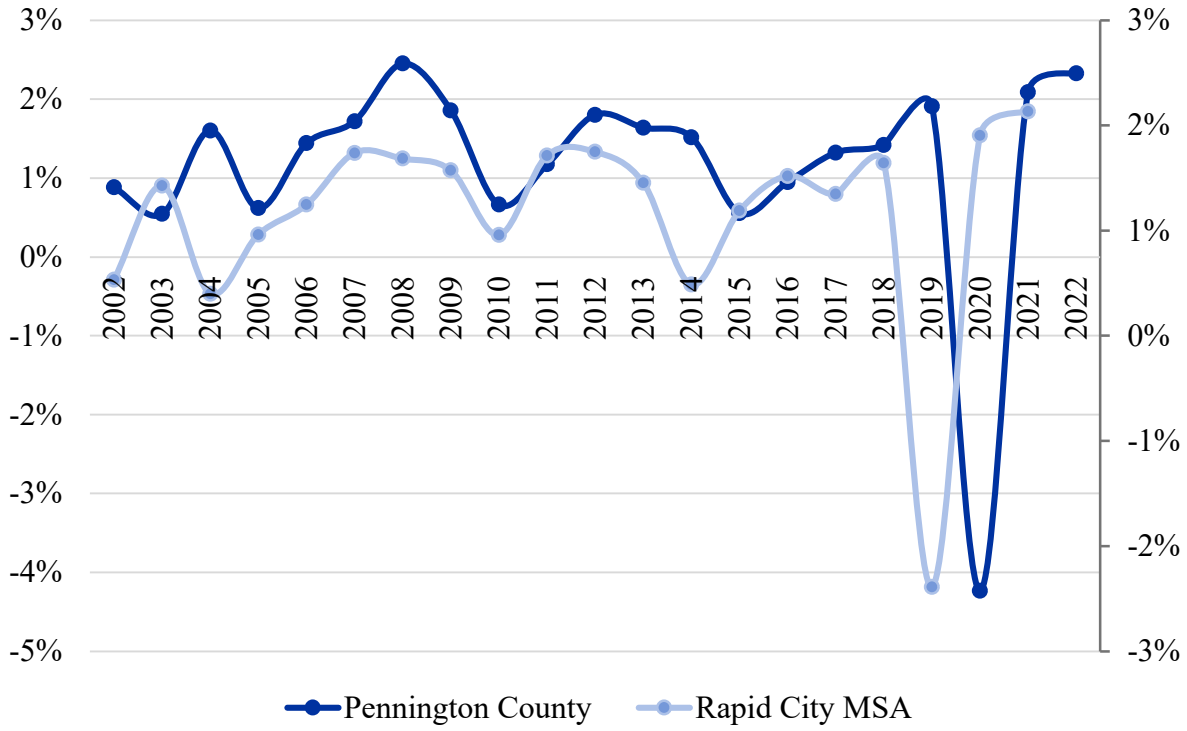
[5] Based on 2022 statistics. https://www.bts.gov/topics/annual-airport-rankings

1.6 AIRPORT TRENDS

RAP is a growing airport that serves a steadily increasing regional population. Over the past twenty years, Pennington County has experienced an average annual growth rate of 1.16% and the Rapid City Metropolitan Statistical Area grew at a slightly faster rate with an average annual growth rate of 1.17%.[6]

[6] U.S. Census Bureau. Data retrieved from the Federal Reserve Economic Data (FRED) November 2023.

Figure 3: Annual percentage change in population for Pennington County and Rapid City MSA



The growth in population and the addition of nonstop routes have led to an increase in passenger traffic. There were 338,458 enplaned passengers in 2022, which is still below the pre-COVID high of 351,096 in 2019.[7] RAP did report a record-breaking first quarter in 2023, with a 13.9% increase in enplaned passengers and YTD (through October 2023) is up 3% compared to 2022.[8]

[7] Informally defined, an enplaned passenger is one boarding a plane. Formally defined by the Federal Aviation Administration (FAA), an enplaned passenger means a domestic, territorial, or international revenue passenger enplaned in the States in scheduled or nonscheduled service on aircraft in intrastate, interstate, or foreign commerce.
[8] https://rapairport.com/rapid-city-regional-airport-reports-a-record-breaking-first-quarter/

Figure 4: Enplaned and total passengers at RAP 1990 to 2022

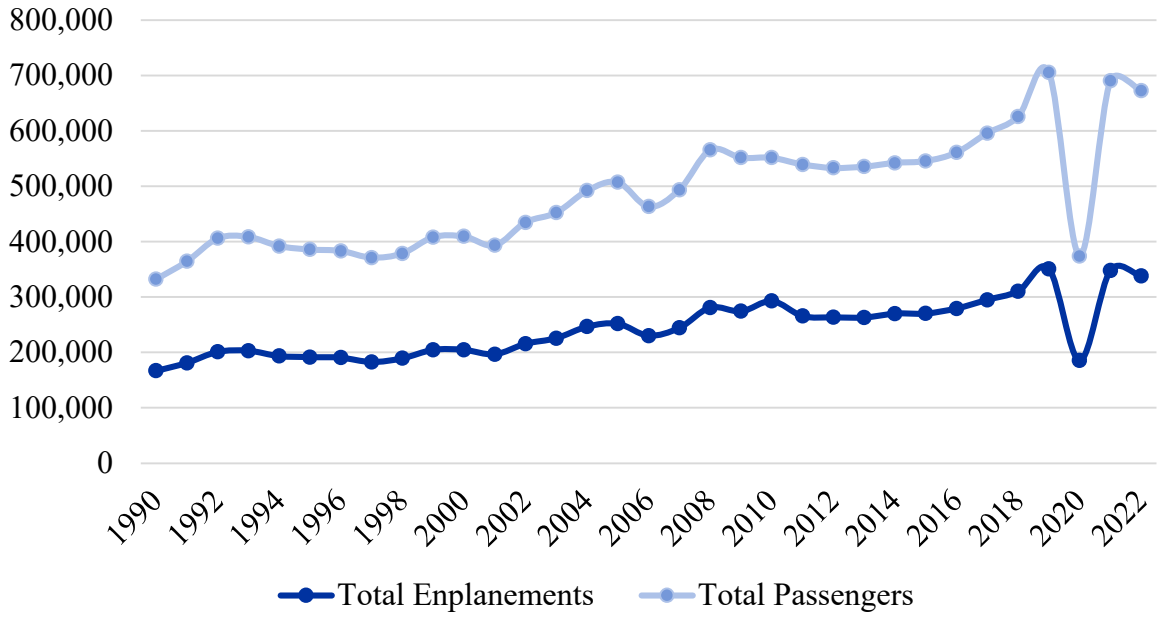


Figure 5: 2022 and YTD 2023 enplaned passengers by month, stated as a percentage.

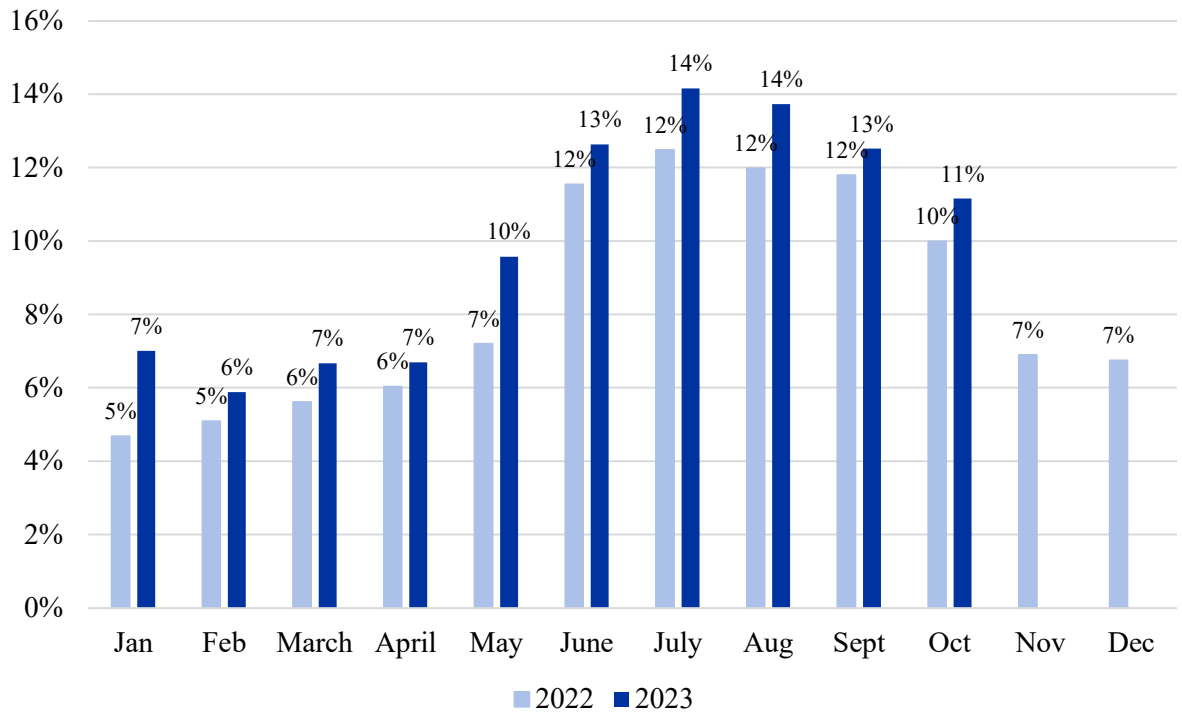
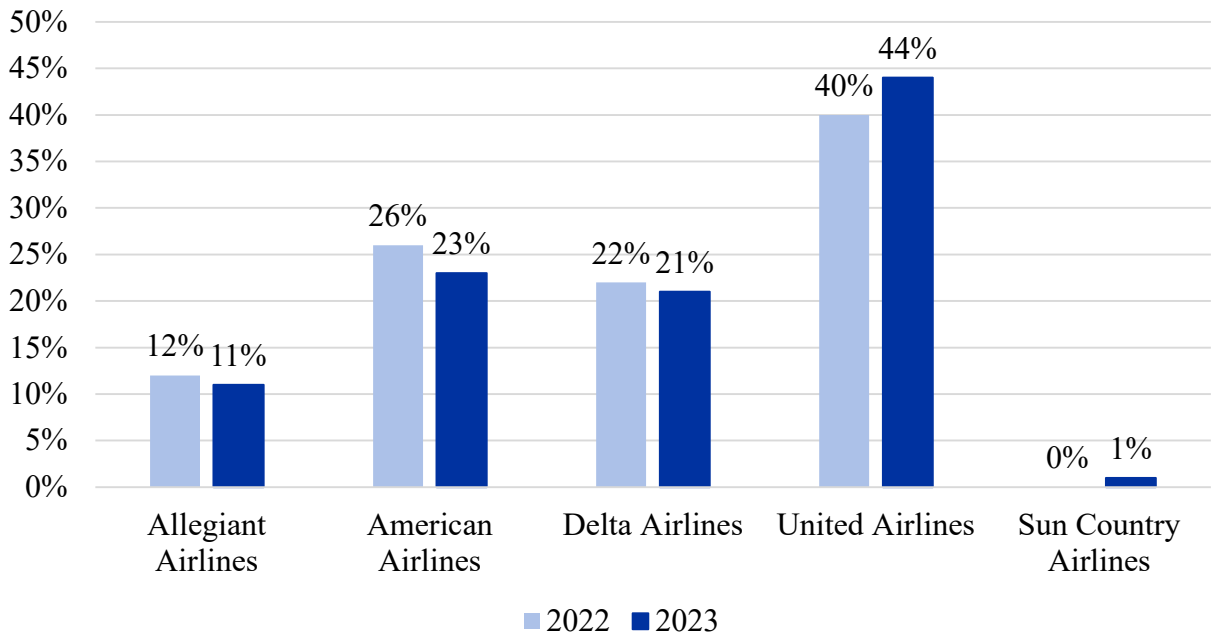


Figure 6: 2022 and YTD 2023 enplaned passengers by airlines, stated as a percentage.



Total mail (lbs.) increased by 6% over 2022 and a 12% increase over 2019 (pre-COVID). However total freight (lbs.) falls by 1% compared to 2022 and down 12% over 2019 (pre-COVID). Figure 7 below shows mail and freight statistics since 1990.

The 2022 general aviation (GA) data shows 37,228 flights, which represents a 10% decrease over 2022, however an 11% increase over 2019 (pre-COVID). Figure 8 below shows GA statistics since 2001.

Figure 7: Mail and freight statistics since 1990

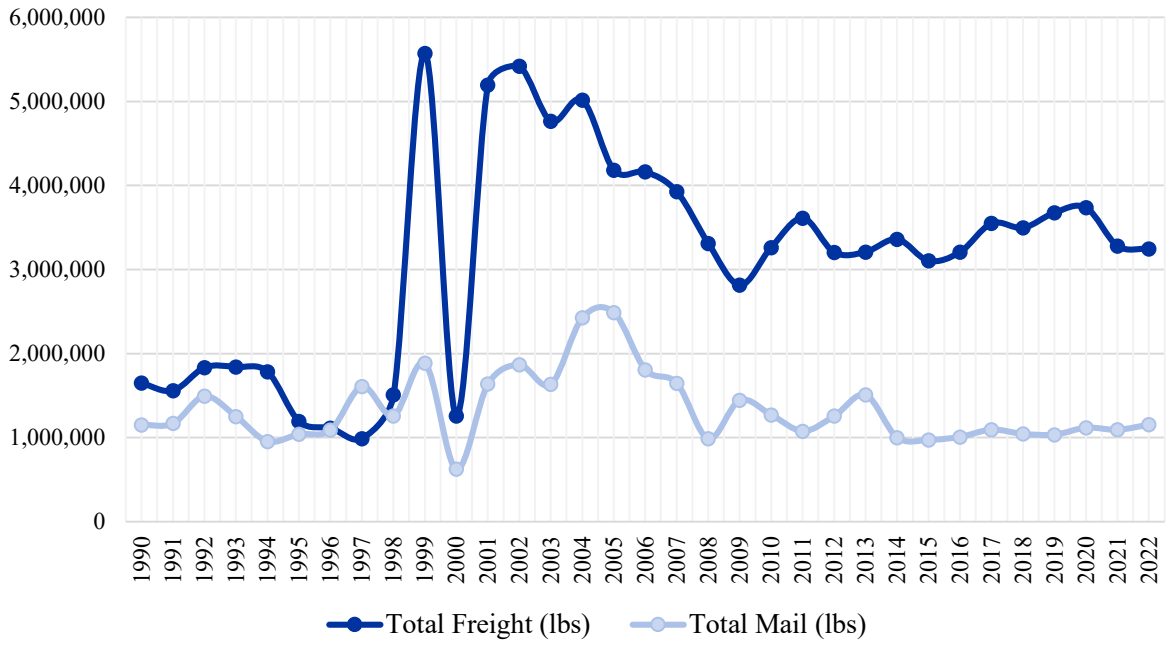
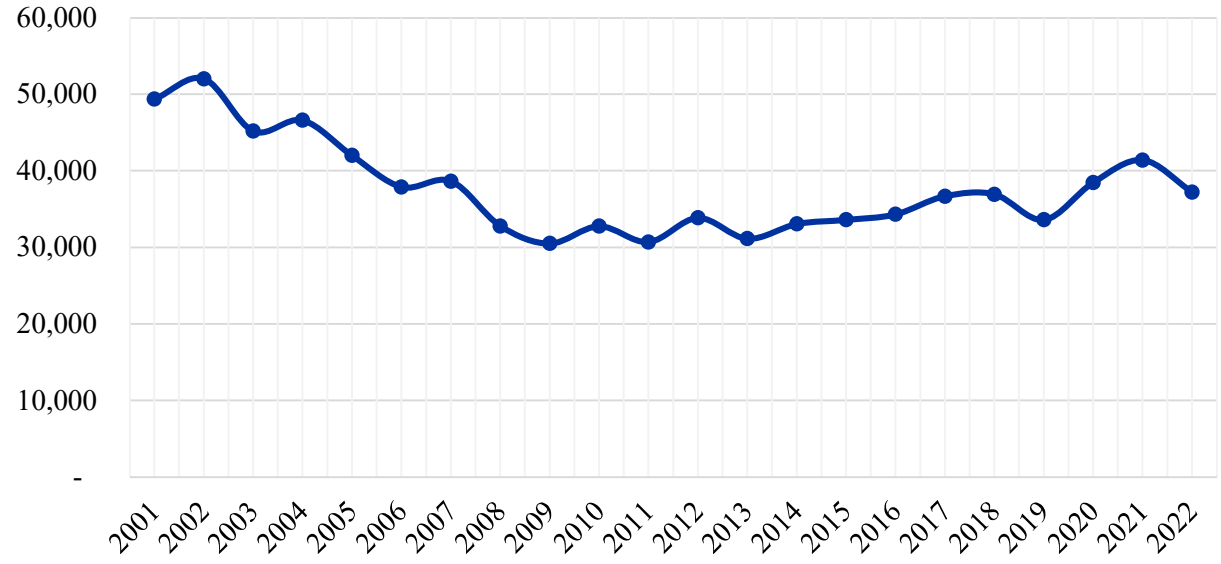


Figure 8: General aviation statistics since 2001



2.0 SURVEYING AND DEMOGRAPHICS

To assess the economic impact of RAP, a survey was conducted on commercial visitors, business tenants, and local businesses. To collect this data, two different surveys were used: the commercial visitor survey and the business tenant survey.[9]

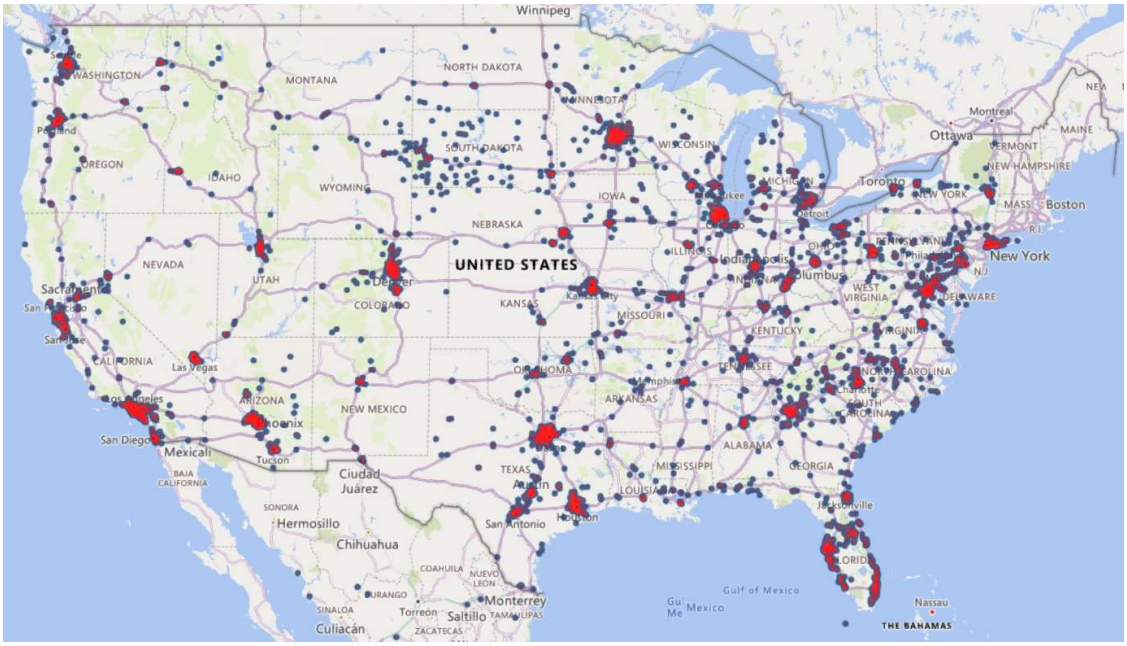
2.1 COMMERCIAL VISITOR SURVEY

The commercial visitor survey collected the data used to estimate the economic impact of visitor spending. The survey was administered via Qualtrics from October 2022 through October 2023. Airport visitors were asked to complete the survey to gain access to free Wi-Fi. Data gathered includes zip code, length of visits, party size, spending patterns, and general demographics. Data from this survey was used to determine visitor origins (local vs. nonlocal), length of visit, and visitor spending.

Respondents had to be 18 years old or older to be included in the survey. During the surveying period, there were 8,836 surveys completed, resulting in 7,537 usable surveys. Of these surveys, there were 2,059 usable surveys for spending estimates.[10] This sample size well exceeds the target (383), thus providing a 95% confidence level and a 3% margin of error.[11] Figure 9 shows the geographic heat map of the survey respondents within the United States.

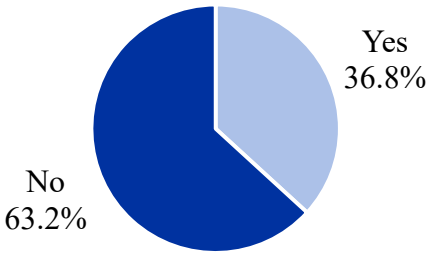
[9] Copies of all surveys can be found in Appendix A2: Survey Details.
[10] Data cleaning and removing outliers reduced the overall sample size.
[11] There were 7,537 useable surveys determined visitor origins (local vs. nonlocal) with 99% confidence and 2% margin of error.

Figure 9: Zip code heat map for the United States.

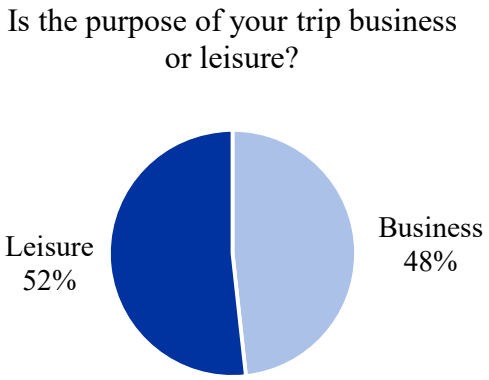


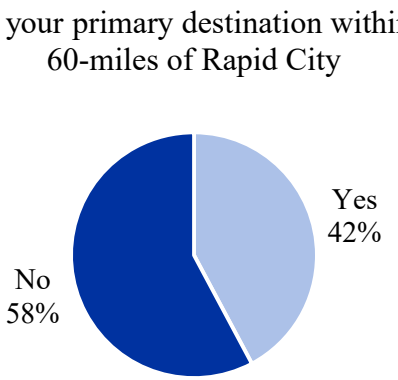
The commercial visitor survey was broken into two parts: local survey and nonlocal survey. Survey respondents were asked if they were a Rapid City/Pennington County resident. The survey terminated for those that answered "yes." Those who answered "no" were asked to complete the nonlocal survey. Figure 10 shows the breakdown of local vs. nonlocal passengers.

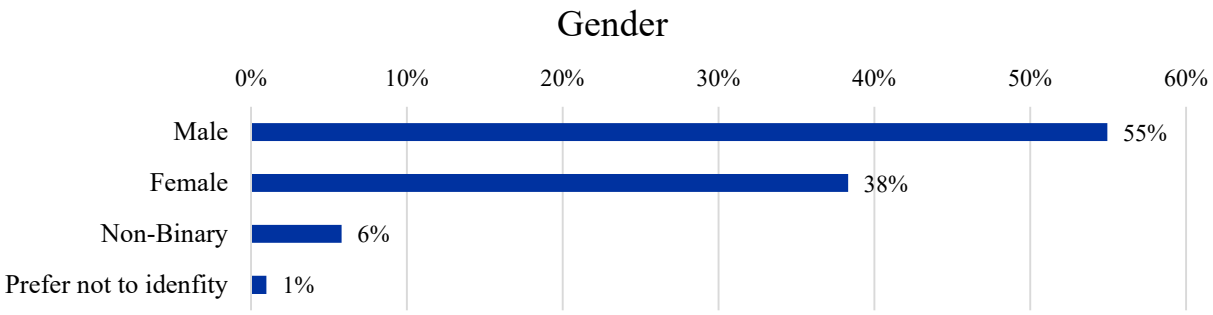
Figure 10: Are you a Rapid City/Pennington County resident?

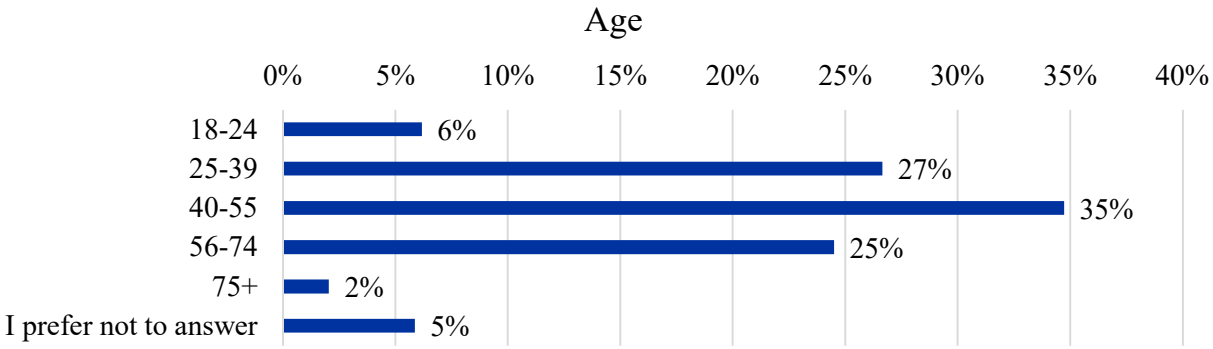


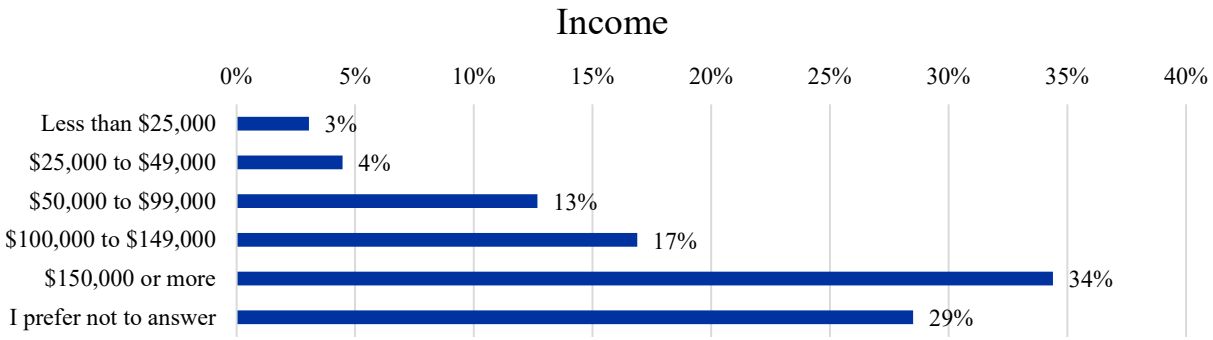
Those who were not local residents were asked additional questions on the primary purpose of their visit, length of visit, spending patterns, and general demographics. The figures below present the results of the survey.


Is the purpose of your trip business or leisure?
Leisure 52%
Business 48%


Is your primary destination within 60-miles of Rapid City
Yes 42%
No 58%

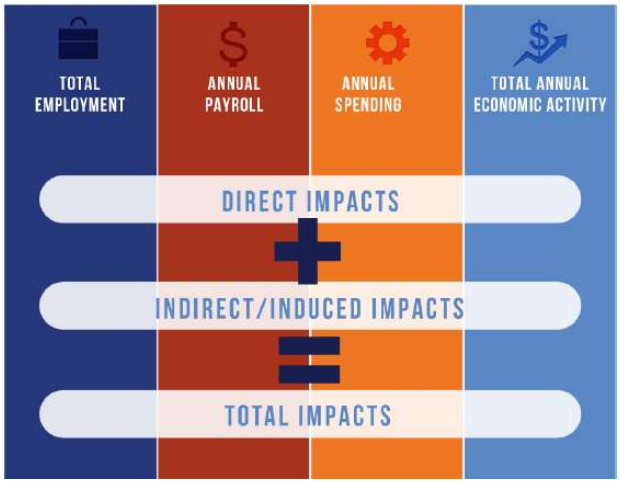

Gender
0%
10%
20%
30%
40%
50%
60%
Male
55%
Female
38%
Non-Binary
6%
Prefer not to idenfity
1%


Age
0%
5%
10%
15%
20%
25%
30%
35%
40%
18-24
6%
25-39
27%
40-55
35%
56-74
25%
75+
2%
I prefer not to answer
5%

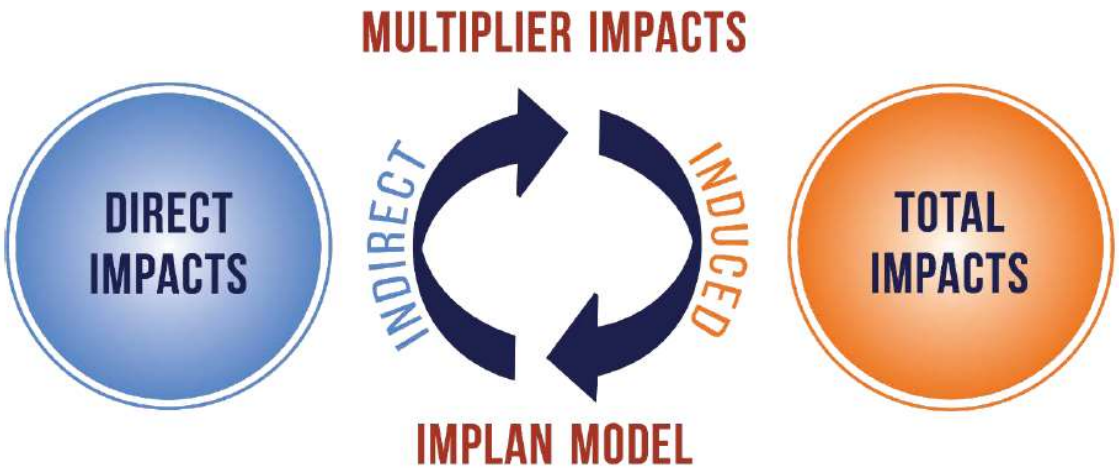

Income
0%
5%
10%
15%
20%
25%
30%
35%
40%
Less than $25,000
3%
$25,000 to $49,000
4%
$50,000 to $99,000
13%
$100,000 to $149,000
17%
$150,000 or more
34%
I prefer not to answer
29%

3.0 ECONOMIC IMPACT OF RAP

The economic impact will be broken into five primary areas: commercial visitors, general aviation visitors, airport operations, capital investment, and business tenants.



The economic impact starts with direct impacts (direct spending). These direct impacts lead to indirect and induced spending. For example, a visitor to the area purchases from local retail stores (direct spending). These retail stores must then purchase more supplies from local distributors (indirect spending). Retail store owners and employees receive more income from the spending of visitors, and they spend some of that greater income in the local area (induced spending). The dollar amount and effect on employment of indirect and induced spending can be estimated using the IMPLAN economic modeling software.



3.1 THE ECONOMIC IMPACT OF COMMERCIAL VISITORS

The economic impact starts with direct spending. To calculate the direct spending of commercial visitors, one should only consider spending associated with nonlocal visitors. To accomplish this, survey respondents are categorized into two groups:

Local Visitors: Spending by residents is not counted in the economic impact because the spending would have happened regardless of their airport usage. The survey did not collect spending data from local visitors. For this study, the definition of local visitors will be those who live within Pennington County. The survey collected the primary residence zip code from each visitor. These zip codes were used to determine the percentage (36.8%) from Pennington County (as shown in Figure 10).

Nonlocal Visitors: Spending by nonlocal visitors is the key driver in economic impact studies. These visitors' primary residence must be outside the defined economic region.

The definition of a nonlocal visitor is those that live outside Pennington County. Based on the zip code data, it is estimated that 63.2% of those surveyed were from outside Pennington County (as shown in Figure 10).

The visitor survey also asked for the length of their trip. Using this data and the enplaned passenger data from Figure 4, there were 776,740 visitor days (see Table 1).

Table 1: Total nonlocal visitors and visitor days based on visitor type

	Pennington County
2022 Total enplaned passengers	338,458
% of nonlocal passengers	63.2%
Total number of nonlocal passengers	213,978
The average number of nights	3.63
Total number of nonlocal visitor days	776,740

Survey respondents were asked how much their party expected to spend on meals, lodging, transportation, retail shopping, gear rental, and other shopping. The initial spending by visitors is referred to as 'direct effect' or 'direct spending'. The direct spending is calculated as the product of the visitor per-person/per-day spending and total visitor days. It should be noted that categories that include retail pricing must be adjusted for retail margins. That is, retail prices will include the cost of manufacturing, the majority of which occurs outside the defined economic region. The estimated economic impact of visitor spending should not include these manufacturing costs. The IMPLAN economic modeling will adjust for retail margins, which in defined economic regions are estimated at 40.56% for retail spending and 10.37% for transportation spending and gear rental.

Based on the survey data, the nonlocal visitors spent approximately $197 per person, per day, resulting in direct spending of $153 million (see Table 2 below).[12]

Table 2: Direct spending by nonlocal visitors for each defined economic region

	Spending details
Average spending per person, per day	$197.00
Total direct spending from nonlocal visitors	$153M

[12] Detailed methodology can be found in Appendix A3: Economic Impact: Commercial Visitors

This direct spending leads to indirect and induced spending. The figures are estimated using the IMPLAN model (see Table 3):

Table 3: The annual economic impact of nonlocal commercial visitors to Pennington County

Pennington County	Jobs	Labor Income	Value-Added (GDP)	Output
Direct Impact	1,050	$33M	$72M	$118M[13]
Indirect Impact	211	$12M	$20M	$41M
Induced Impact	178	$10M	$17M	$30M
Total Impact	1,439	$55M	$110M	$188M

The increase in economic activity also produces additional tax revenue at the local, state, and federal levels. The IMPLAN economic model estimates these fiscal impacts. The tax at the county and sub-county levels consists of property taxes. At the state level, most of the tax is sales tax. The tables below are the best representation of "new" tax revenue caused by RAP commercial passengers.

Table 4: The annual fiscal impact of nonlocal commercial visitor spending

	Sub-County: Municipalities	Sub-County: Special Districts	Pennington County	South Dakota
Direct Impact	$1,199,060	$1,380,426	$529,420	$3,733,515
Indirect Impact	$226,457	$260,702	$102,546	$725,332
Induced Impact	$212,603	$244,755	$95,692	$676,926
Total Impact	$1,638,119	$1,885,883	$727,657	$5,135,772

[13] This is the $153M from Table 2 with retail margins applied.

3.2 THE ECONOMIC IMPACT OF GENERAL AVIATION VISITORS

No survey data was collected on general aviation (GA) visitors; therefore, the benefit transfer model will be used. This model involves taking existing data or studies conducted in one area and applying the findings to a different area. The benefit transfer model is a useful tool when data collection is impractical or expensive. However, it is important to acknowledge that there are limitations and potential biases associated with benefit transfer, and the results should be interpreted with caution, considering the differences between the study sites and the potential errors in the transfer process.

It should be noted that many GA visitors stay for one day or even only for a few hours. These visitors will have little, if any, spending associated with their visit. In addition, aviation fuel purchases are not included in any spending estimates because fuel purchases are already reflected in business tenant spending (see section 3.5).

GA flights are divided into three categories: local, itinerant, and transient.

- **Local GA flight:** A local flight originates at RAP. In the context of economic impact, these flights are treated in the same manner as local commercial visitors. That is, any spending by these GA visitors is not included in the economic impact. However, spending associated with flight operations (fuel, etc.) will be captured by the business tenant economic analysis.

- **Itinerant GA flight:** An itinerant GA flight originates at another airport. These flights are visiting RAP for business or personal reasons. The visit could be for a few hours or a few days. These are considered nonlocal visitors, thus included in the economic impact.

- **Transient GA flight:** A transient GA flight is a subset of itinerant flights. These flights typically involve landing for a brief period, such as for refueling, maintenance, or passenger pick-up. The Airport Operations and Pilots Association (AOPA) states that "on average" 33 percent of an airport's itinerant arrivals are typically attributable to visiting or transient aircraft.[14] For this analysis, these flights will be considered day visitors.

The 2022 RAP aviation statistics show 37,228 general aviation (GA) flights in 2022.[15] Using the benefit transfer method, it is estimated that 81% of these flights are itinerant flights. As mentioned above, the AOPA states that "on average" 33 percent of an airport's itinerant arrivals are typically attributable to visiting or transient aircraft. There were 30,290 itinerant flights in 2022, resulting in 9,996 transient flights. These will be the day visitors. The remaining 20,295 will be considered overnight visitors.

Using the benefit transfer method, there were 2.76 visitors per flight and an average visit length of 2.1 days (overnight visitors only). This results in 56,013 overnight visitors and 27,588 day visitors. Overnight visitors had 117,627 total visitor days. Using this data, the direct spending of GA visitors is estimated at $44.8 million (see Table 5). [16]

Table 5: Direct spending by General Aviation visitors

	Overnight visitors	Day visitors
GA visitors	56,013	27,588
GA visitor days	117,627	27,588
GA direct spending	$41.8M	$3.0M
Total GA direct spending	$44.8M	

[14] Page 31. https://www.dot.ga.gov/InvestSmart/Aviation/EconomicImpactStudy/Technical%20Report.pdf
[15] Data was provided by RAP.
[16] Detailed methodology can be found in Appendix A4: Economic Impact: General Aviation Visitors

This direct spending leads to indirect and induced spending. The figures are estimated using the IMPLAN model (see Table 6).

Table 6: The annual economic impact of General Aviation visitors to Pennington County

Pennington County	Jobs	Labor Income	Value-Added (GDP)	Output
Direct Impact (less retail margins)	420	$12M	$23M	$35M[17]
Indirect Impact	62	$3.5M	$5.8M	$12M
Induced Impact	61	$3.5M	$6.0M	$10M
Total Impact	543	$19M	$34M	$58M

The increase in economic activity also produces additional tax revenue at the local, state, and federal levels. The IMPLAN economic model estimates these fiscal impacts. The tax at the county and sub-county levels consists of property taxes. At the state level, most of the tax is sales tax. The tables below are the best representation of "new" tax revenue caused by RAP GA visitors.

Table 7: The annual fiscal impact of General Aviation spending on Pennington County

	Sub-County: Municipalities	Sub-County: Special Districts	Pennington County	South Dakota
Direct Impact	$427,615	$492,295	$188,921	$1,324,229
Indirect Impact	$66,142	$76,144	$29,909	$211,630
Induced Impact	$72,865	$83,884	$32,796	$231,999
Total Impact	$566,622	$652,323	$251,626	$1,767,858

[17] This is the $44.8M from Table 5 with retail margins applied.

3.3 THE ECONOMIC IMPACT OF AIRPORT OPERATIONS

RAP is operated by the Rapid City Airport Board, which consists of a wide range of jobs that are associated with the daily operations of RAP. The analysis will rely on the 2023 budget and aviation statistics from the last full fiscal year, December 31, 2022. Based on these financials, RAP had 33 full-time equivalent jobs, $2.6 million in salaries and fringes, and budgeted $4.1 million to operate RAP,[18]

The IMPLAN model will use 2022 salaries expenses (with fringe), number of employees, and operating expenses to estimate the economic impact of RAP operations. These impact figures are presented in Table 8.[19]

Table 8: Total annual economic impact of RAP operations

Pennington County	Jobs	Labor Income	Value-Added (GDP)	Output
Direct Impact	33	$2.6M	$3.3M	$2.9M
Indirect Impact[20]	0	$0	$0	$0
Induced Impact	10	$568,000	$978,000	$1.7M
Total Impact	43	$3.1M	$4.2M	$4.6M

[18] This figure does not include salaries and fringe. https://rapairport.com/wp-content/uploads/2023/05/2023-Airport-Budget-Summary-Website.pdf

[19] Only locally spent operating expenses were included. Based on other studies, approximately 72% of operating expenses were spent locally for Pennington County.

[20] There is no indirect impact because the airport is managed by a municipality.

The increase in economic activity also produces additional tax revenue at the local and state levels. The IMPLAN economic model estimates these fiscal impacts. The tax at the county and sub-county levels consists of property taxes. At the state level, most of the tax is sales tax. The table below is the best representation of "new" tax revenue caused by RAP operational spending.[21]

Table 9: The annual fiscal impact of RAP operational spending on Pennington County

	Sub-County: Municipalities	Sub-County: Special Districts	Pennington County	South Dakota
1 - Direct	$3	$0	$1,040	$9,260
2 - Indirect	$0	$0	$0	$0
3 - Induced	$11,912	$13,713	$5,361	$37,923
	$11,914	$13,713	$6,401	$47,182

3.4 THE ECONOMIC IMPACT OF CAPITAL INVESTMENTS

In February 2023, RAP was granted $10.9 million from the Bipartisan Infrastructure Law Grant. These funds will be used for phase one of the $52 million airport renovation and expansion. This renovation project is scheduled to be completed over the next 10 years. Phase one of the project is focused on the expansion of the main terminal, baggage drop off, and relocation of the TSA checkpoint. Phase two will be focused on expanding the concourse and gate areas, and phase three will be focused on the car rental and baggage claim areas.

Due to volatility in airport capital investment spending, this study will use a five-year annual average to estimate the economic impact.

[21] There is minimal direct impact and no indirect impact because the airport is managed by a municipality.

It is worth noting that, unlike other annual economic impacts, the economic impact associated with capital investment only occurs when the spending associated with the project is taking place. Once the project-related spending is over, the economic impact associated with the project also ends. Economic impacts in this category are not ongoing and can change annually.

Since 2018, RAP has invested $22.4 million into airport investment projects. Since capital investment changes from year to year, a five-year historical average will be used for this study (2018-2022). This amounts to an average annual construction spending of $4.5 million (see Table 10).

Table 10: Direct spending associated with capital investment.

2018 total capital investment	$2.8M
2019 total capital investment	$2.4M
2020 total capital investment	$6.8M
2021 total capital investment	$5.6M
2022 total capital investment	$4.7M
Total 5-year capital investment	$22.4M
Average annual capital investment	$4.5M

The IMPLAN model will estimate the economic impact of RAP's average annual capital investment spending.[22] Traditionally, the economic impact of construction spending only occurs during the construction phase of the project. However, since the average annual capital investment was used, this is an average annual economic impact. The impact could fluctuate if the amount of capital investment increases or decreases. The economic impact figures are presented in Table 11.

[22] Only locally spent operating expenses were used. Based on other studies, it is estimated that 72% of investments were spent locally for Pennington County.

Table 11: The average annual economic impact of RAP capital investments

Pennington County	Jobs	Labor Income	Value-Added (GDP)	Output
Direct Impact (Spending)	39	$2.3M	$2.4M	$4.5M
Indirect Impact	6	$399,000	$677,000	$1.4M
Induced Impact	11	$635,000	$1.1M	$1.9M
Total Impact	56	$3.4M	$4.1M	$7.8M

The increase in economic activity also produces additional tax revenue at the local and state levels. The IMPLAN economic model estimates these fiscal impacts. The tax at the county and sub-county levels consists of property taxes. At the state level, most of the tax is sales tax. The tables below are the best representation of "new" tax revenue caused by RAP capital investment.

Table 12: The annual fiscal impact of RAP capital investments

	Sub-County: Municipalities	Sub-County: Special Districts	Pennington County	South Dakota
Direct Impact	$5,428	$6,246	$3,316	$23,813
Indirect Impact	$9,482	$10,916	$4,245	$29,900
Induced Impact	$13,274	$15,282	$5,975	$42,272
Total Impact	$28,183	$32,443	$13,537	$95,985

The impact figures above do not include the most recent investment grant. As mentioned earlier, in February 2023, RAP was granted $10.9 million from the Bipartisan Infrastructure Law Grant. This investment will generate support for 99 jobs and produce $13.7 million in economic output. This additional output will generate approximately $23,700 in tax revenue for Pennington County.

3.5 THE ECONOMIC IMPACT OF BUSINESS TENANTS

To determine the economic impact of airport tenants, a brief email survey was developed and administered via Qualtrics. This survey collected information on:

- Number of employees
- Annual payroll expense
- Past and future construction projects
- Dependency on airport

There are approximately 18 tenants at RAP, and even with repeated follow-up attempts, the response rate was low, with ten tenants responding to the survey (50% response rate). To supplement the survey response, we collected tenant badge counts for an additional 12 tenants from RAP. Although not a perfect substitute for survey responses, it will give us some insight into employee counts for non-respondent tenants.

Based on the survey results and badge counts, we estimated that 423 workers are employed as a direct result of RAP. This includes 241 in air transportation (airlines and support) and 45 in various government entities (FAA, NWS, and TSA). The table below shows the economic impact and the fiscal impact of this employment on Pennington County.

Table 13: The average annual economic impact of RAP business tenants

Pennington County	Jobs	Labor Income	Value-Added (GDP)	Output
Direct Impact	423	$19M	$65M	$135M
Indirect Impact	249	$12M	$21M	$40M
Induced Impact	124	$7.1M	$12M	$21M
Total Impact	796	$38M	$99M	$196M

Table 14: The annual fiscal impact of RAP business tenants

	Sub-County: Municipalities	Sub-County: Special Districts	Pennington County	South Dakota
1 - Direct	$2,192,265	$2,523,908	$951,487	$6,645,398
2 - Indirect	$459,318	$528,794	$202,451	$1,414,818
3 - Induced	$148,049	$170,438	$66,643	$471,474
	$2,799,631	$3,223,140	$1,220,580	$8,531,691

The business tenants were also asked about investment projects (capital and construction) over the past year and future investments over the next two years. Due to the low response rate, the impact figures were statistically insignificant and therefore omitted from overall economic and fiscal impact tables.

3.6 INDUSTRIES BY IMPACT

The IMPLAN economic model can estimate the impact for each industry in the region. The tables below present the top fifteen industries impacted in terms of output and employment. This is based on direct output associated with commercial visitors, general aviation visitors, RAP operational spending, RAP investment spending, and RAP business tenants.

Table 15: Top fifteen industries impacted by RAP direct output stated as a percentage of indirect/induced **output** and **total output**.

Category	% Of Indirect/Induced Output	% Of Total Output
Air transportation	0.09%	25.67%
Hotels, motels, including casinos and other lodging	0.00%	18.13%
Full-service, limited-service, all other food and drinking places	9.39%	14.25%
All Retail Spending Industries	4.99%	4.36%
Retail gasoline stores, ground passenger transportation, scenic/sightseeing transportation, and support for transportation activities	4.82%	3.94%
Other real estate	9.75%	3.43%
Management of companies and enterprises	5.79%	2.04%
Hospitals	5.16%	1.82%
Monetary authorities and depository credit intermediation	4.59%	1.62%
Owner-occupied dwellings	3.96%	1.39%
Other ambulatory healthcare services	0.16%	1.30%
Other amusement and recreation industries	0.09%	1.29%
Electric power transmission and distribution	3.47%	1.22%
Automotive equipment rental and leasing	0.36%	1.02%
Construction of new commercial structures, including farm structures	0.00%	0.98%

Table 16: Top fifteen industries impacted by RAP direct output stated as a percentage of indirect/induced **employment** and **total employment**.

Category	% Of Indirect/Induced Output	% Of Total Output
Full-service, limited-service, all other food and drinking places	18.17%	24.95%
Hotels, motels, including casinos and other lodging	0.00%	21.44%
Air transportation	0.03%	9.51%
All Retail Spending industries	8.02%	6.33%
Other amusement and recreation industries	0.45%	5.96%
Retail gasoline stores, ground passenger transportation, scenic/sightseeing transportation, and support for transportation activities	6.72%	4.97%
Other real estate	8.32%	2.65%
Employment and payroll of federal govt, non-military	0.00%	1.56%
Other ambulatory healthcare services	0.21%	1.49%
Construction of new commercial structures, including farm structures	0.00%	1.36%
Management of companies and enterprises	4.26%	1.36%
Hospitals	4.06%	1.29%
Services to buildings	2.77%	0.88%
Employment services	2.04%	0.65%
Automotive equipment rental and leasing	0.25%	0.63%

4.0 CONCLUSION

4.1 CONCLUSION

RAP has a vital role in facilitating air travel for the Rapid City region. However, that is not the only role RAP has in the local region. RAP also contributes to the region's economy by creating economic activity, jobs, and income. This economic activity multiplies within the entire regional economy. This study attempts to estimate this economic impact based on commercial visitors, general aviation visitors, RAP operations, RAP capital investments, and RAP business tenants. The economic impact was estimated using the IMPLAN model. The total annual economic impact of RAP is presented in Table 17.[23]

[23] RAP capital investments are included in the overall economic impact total because the figures represent a 5-year annual average.

Table 17: The total annual economic impact of RAP on Pennington County

Pennington County	Jobs	Labor Income	Value-Added (GDP)	Output
Commercial visitors	1,439	$55M	$110M	$188M
General aviation	543	$19M	$34M	$58M
RAP operations	43	$3.1M	$4.2M	$4.6M
RAP capital investments	56	$3.4M	$4.1M	$7.8M
RAP business tenants	796	$38M	$99M	$196M
Total Impact	2,877	$119M	$251M	$456M

It should be noted that the impact figures above do not include the most recent investment grant. As mentioned in section 3.4, in February 2023, RAP was granted $10.9 million from the Bipartisan Infrastructure Law Grant. This investment will generate support for 99 jobs and produce $13.7 million in economic output. This additional output will generate approximately $13,300 in tax revenue for Pennington County.

The increase in economic activity also produces additional tax revenue at the local and state levels (see Table 18).

Table 18: The annual fiscal impact of RAP on each economic region.

	Sub-County: Municipalities	Sub-County: Special Districts	Pennington County	South Dakota
Total Fiscal Impact	$5,044,470	$5,807,502	$2,219,801	$15,578,488

As shown in this study, RAP is far more than a vital transportation resource for the Western South Dakota region. The airport is also an important catalyst for the regional economy.

4.2 ECONOMIC IMPACT COMPARISON

The tables below present a comparison of RAP to the 2020 South Dakota Aviation Economic Impact Study and to other airports similar to RAP (as measured by total enplanements). Any blank areas in the tables are where detailed data was not available. All data in Table 19 was converted to 2023 dollars.[24] One should use caution when comparing airports as their structure and business practices vary based on the regions they serve. In addition, the methodology for collecting and analyzing data can vary.

Table 19: Comparison to the 2020 South Dakota Airport Economic Impact Study

Total Economic Impact:[25]	RAP 2023	RAP 2020
Direct spending	$295M	$205M
Economic activity (output)	$456M	$337M
Earnings (payroll)[26]	$119M	$113M
Employment	2,877	2,869
Commercial Visitors & General Aviation		
Direct spending	$153M	$107M
Economic activity (output)	$246M	$165M
Earnings (payroll)	$74M	$50M
Employment	1,982	1,707
Capital Investments[27]		
Direct spending	$4.5M	$3.7M
Output	$7.8M	$6.2M
Earnings	$3.4M	$2.1M
Employment	56	39
Airport Operations & Business Tenants[28]		
Direct spending	$138M	$89M
Output	$201M	$158M
Earnings	$41M	$58M
Employment	839	1,044

[24] The employment figure for 2020 was not adjusted for inflation. This figure is the actual amount reported in the 2020 study.
[25] The 2020 study combined commercial visitors with general aviation and business tenants with airport operations. To allow for a comparison, the same was done for 2023.
[26] Earnings adjusted to 2023 based on real personal income growth. https://fred.stlouisfed.org/series/RPI
[27] The 2020 study used a four-year average for capital investment. The 2023 study used the traditional five-year average.
[28] The 2020 study combined business tenants with airport operations, thus the same was done for 2023.

Table 20: Comparison to other airports (all data is in 2023 dollars)

	RAP	Trenton-Mercer	Baton Rouge Metro	South Bend Int.	Fort Wayne Int.
Year of Study	2023	2015	2019	2022	2022
BTS Airport Rank	149	150	151	146	145
Enplaned passengers	338,458	389,698	390,908	427,929	390,498
Total Economic Impact					
Direct spending	$295M	$155M		$351M	$344M
Output	$455M	$167M	$428M	$576M	$580M
Earnings[29]	$119M	$88M	$125M	$177M	$208M
Employment[30]	2,877	1,115	3,264	39,50	4,738
Commercial Visitors[31]					
Direct spending	$118M	$26M	$83M	$105M	$75M
Output	$188M	$27M	$135M	$180M	$129M
Earnings	$55M	$18M	$35M	$61M	$44M
Employment	1,439	373	1,359	2,117	1,518
Airport Operations[32]					
Direct spending	$138M	$139M	$143M	$241M	$255M
Output	$201M	$156M	$243M	$389M	$424M
Earnings	$41M	$72M	$79M	$112M	$155M
Employment	839	801	1,580	1,733	2,968
Capital Investments					
Direct spending	$4.4M	$3.0M	$28M	$5.7M	$14M
Output	$7.8M	$3.0M	$49M	$10.4M	$26M
Earnings	$3.4M	$2.5M	$6.8M	$3.8M	$9.2M
Employment	56	35	252	101	252

[29] Earnings adjusted to 2023 dollars based on real personal income growth. https://fred.stlouisfed.org/series/RPI
[30] Unlike Table 19, the employment figures in Table 20 are adjusted for inflation.
[31] Most studies combined the general aviation visitors in the overall visitor data. Therefore, the same was done in this comparison.
[32] Includes business tenants.

APPENDIX

A1: IMPLAN ECONOMIC MODEL

DISCLAIMER

IMPLAN is a regional economic analysis software application that is designed to estimate the impact or ripple effect (specifically backward linkages) of a given economic activity within a specific geographic area through the implementation of its Input-Output model. Studies, results, and reports that rely on IMPLAN data or applications are limited by the researcher's assumptions concerning the subject or event being modeled. Studies such as this one are in no way endorsed or verified by IMPLAN Group, LLC unless otherwise stated by a representative of IMPLAN.

IMPLAN provides the estimated Indirect and Induced Effects of the given economic activity as defined by the user's inputs. Some Direct Effects may be estimated by IMPLAN when such information is not specified by the user. While IMPLAN is an excellent tool for its designed purposes, it is the responsibility of analysts using IMPLAN to be sure inputs are defined appropriately and to be aware of the following assumptions within any I-O Model:

- Constant returns to scale
- No supply constraints
- Fixed input structure
- Industry technology assumption
- Constant byproducts coefficients
- The model is static

By design, the following key limitations apply to Input-Output Models such as IMPLAN and should be considered by analysts using the tool:

- **Feasibility:** The assumption that there are no supply constraints and there is a fixed input structure means that even if input resources required are scarce, IMPLAN will assume it will still only require the same portion of production value to acquire that input unless otherwise specified by the user. The assumption of no supply constraints also applies to human resources, so there is assumed to be no constraint on the talent pool from which a business or organization can draw. Analysts should evaluate the logistical feasibility of a business outside of IMPLAN. Similarly, IMPLAN cannot determine whether a given business venture being analyzed will be financially successful.

Backward-linked and Static model: I-O models do not account for forward linkages, nor do I-O models account for offsetting effects such as cannibalization of other existing businesses, diverting funds used for the project from other potential or existing projects, etc. It falls upon the analyst to take such possible countervailing or offsetting effects into account or to note the omission of such possible effects from the analysis.

- **Like the model, prices are also static:** Price changes cannot be modeled in IMPLAN directly; instead, the final demand effects of a price change must be estimated by the analyst before modeling them in IMPLAN to estimate the additional economic impacts of such changes.

DEFINITIONS

The IMPLAN model will report economic impact in four ways:

Output — **Gross output** is the total economic activity, including the sum of intermediate inputs and the value they add to the final good or service. The intermediate inputs are the resources used in the production of final goods and services. It should be noted that gross output can be overstated if the intermediate inputs are used multiple times in the production of other goods and services.

Direct output is the same as the direct effect (direct spending). **The indirect output** represents the value of economic activity generated because of direct business-to-business spending. **Induced output** is the total value that all industries take in as a result of household spending.

Labor Income The increase in wages, salaries, and proprietors' income as a result of the initial change in demand (direct effects).

Direct labor income is the total wages, benefits, and payroll taxes associated with the business or organization responsible for the direct effects. **Indirect labor income** represents the amount of compensation that is supported by business-to-business transactions. **Induced labor income** is the value of employee compensation and proprietor income that comes from the household spending of the employees connected to the business/organization and supply chain.

Employment The total number of jobs supported by direct spending or initial change in demand. This measurement does not distinguish between a full-time or part-time employee. It also does not account for employees who moved from one job to another within the defined economic region. Thus it does tend to overstate the number of jobs created.

Direct employment is the jobs supported at the business or organization responsible for the direct effects. **Indirect employment** represents the number of jobs that are supported by business-to-business transactions. **Induced employment** is the number of jobs supported by the household spending generated by the business activity.

Value Added The contribution to the economic region's gross domestic product (GDP).

Direct value added is associated with the business or organization responsible for the direct effects**. Indirect value added** is the specific value generated by the business-to-business transaction as a result of the direct effects. **Induced value added** is the specific value associated with household spending as a result of the direct effects.

INDUSTRY AGGREGATION

Commercial visitors were asked to identify their spending in six basic categories. Each of these categories represents multiple industry classifications within the IMPLAN model. To account for this, the IMPLAN model allows users to combine IMPLAN industry classification so the model matches the data being collected. Table A1-1 on the next page shows this industry aggregation.

Table A1-1: IMPLAN industry aggregation

Visiting spending categories	IMPLAN Industry
Lodging	Hotels and motels, including casino hotels
	Other accommodations
Meals	Full-service restaurants
	Limited-service restaurants
	All other food and drinking places
Retail shopping	Retail-Motor vehicle and parts dealers
	Retail-Furniture and home furnishings stores
	Retail – Electronics and appliance stores
	Retail – Food and beverage stores
	Retail – Health and personal care stores
	Retail - Building material and garden equipment and supplies stores
	Retail - Health and personal care stores
	Retail - Clothing and clothing accessories stores
	Retail - Sporting goods, hobby, musical instrument, and bookstores
	Retail - General merchandise stores
	Retail - Miscellaneous store retailers
	Retail - Nonstore retailers
Transportation	Retail-Gasoline stores
	Transit and ground passenger transportation
Entertainment and Recreation	Performing arts companies
	Museums, historical sites, zoos, and parks
	Commercial Sports Except Racing
	Racing and Track Operation
	Amusement parks and arcades
	Gambling industries (except casino hotels)
	Fitness and recreational sports centers
	Other amusement and recreation industries
	Bowling centers

A2: SURVEY DETAILS

COMMERCIAL VISITOR SURVEY

The commercial visitor survey collected the data used to estimate the economic impact of visitor spending. The survey was administered via Qualtrics from October 2022 through October 2023. Airport visitors were asked to complete the survey to gain access to free Wi-Fi.

GRAND VALLEY STATE UNIVERSITY

1. Before we get started, are you a local Rapid City resident? Yes _____ No_____
2. Zip code of your primary residence: _____
3. Are you 18? Yes _____ No_____ (If 'No' stop here)
4. Are you arriving, departing, or picking up/dropping off?
5. Is the purpose of your trip leisure or business?
6. How many are in your travel party? Adults: _____ Children: _____
7. How many days do you plan to spend in the Rapid City area? _____
8. How much does your party expect to spend (in the Rapid City Area) in each category **as a result of** visiting the Rapid City area?
   (Total amount spent. *Do not include money spent within the airport.)*

   $_____ Meals

   $_____ Retail Shopping

   $_____ Lodging (Hotel, Airbnb, etc.)

   $_____ Transportation

   $_____ Gear rental

   $_____ Other spending

9. Is your primary destination within 60 miles of Rapid City? Yes _____ No_____
10. Gender: Male: ___ Female: ___ Non-Binary: ____ Prefer not to identify: ____
11. Age: _____ (bracket)
12. Which statement best describes your 2022 personal income:

    $25,000 or less: ___ $25,001 to $49,999: ___ $50,000 to $99,999: ___

    $100,000 to $149,999: ____ $150,000 or more: ____ I prefer not to answer: ___

Business Tenant Survey

The business tenant survey was administered via a Qualtrics email survey. The survey questions were as follows:

1. What is the name of your business?
2. How many employees do you have at your airport location?
3. What is your annual payroll expense (including benefits)?
4. On a scale from 0-10, what influence does the airport have on your decision to establish a presence here?
5. On a scale from 0-10, how important is the airport to your revenue?
6. Approximately what percentage of your business revenue do you attribute to your proximity to the airport?
7. Have you expanded your facilities or invested in capital equipment in the past year? If so, how much?
8. Do you plan to expand your facilities or invest in capital equipment in the next two years? If so, how much?
9. What industry would best classify your establishment?
10. What year did your business open?

A3: Economic Impact: Commercial Visitors

This section will provide a more detailed methodology of the economic impact of RAP.

Estimating Direct Spending

As the reader may recall, there were 213,978 commercial visitors who stayed, on average, 3.63 days. This results in 776,740 visitor days. The direct spending is calculated as the product of the visitor per-person/per-day spending and total visitor days (see Table A3-1).

Table A3-1: Detailed breakdown of direct spending for visitors outside **Pennington County**

Pennington County	Per person, per day spending	Total direct spending
Meals	$56.11	$43,582,894
Lodging	$81.99	$63,684,931
Transportation	$35.99	$27,954,881
Retail Spending	$13.12	$10,190,832
Gear Rental	$1.91	$1,483,574
Other Spending	$7.88	$6,120,713
Total	$197.00	$153,017,825

A4: ECONOMIC IMPACT: GENERAL AVIATION VISITORS

This section will provide a more detailed methodology of the economic impact of general aviation (GA) visitors. No survey data was collected on general aviation (GA) visitors; therefore, the benefit transfer model will be used. This model involves taking existing data or studies conducted in one area and applying the findings to a different area. The benefit transfer model is a useful tool when data collection is impractical or expensive. However, it is important to acknowledge that there are limitations and potential biases associated with benefit transfer, and the results should be interpreted with caution, considering the differences between the study sites and the potential errors in the transfer process.

BENEFIT TRANSFER STUDIES

Multiple studies were used to estimate visitors per flight, days per visit, and spending patterns. A summary is provided in Table A4-1 below. Copies of the study are available upon request.

Table A4-1: Summary of the benefit transfer model

Name and year of study	Data used
South Dakota Aviation Economic Impact Study (2020)	Overnight visitors and visitors per flight.
Gerald R. Ford International Airport (2023)	Percentage of total flights that are itinerant
Oxnard Airport Economic Benefit Analysis (2019)	Overnight visitors, visitors per flight, length of visit, and spending
The Economic Impact of San Jose International Airport (2015)	Length of visit
Economic Impact Study of Long Beach Airport (2019)	Visitors per flight and spending
Economic Impact Study-SW Florida International Airport and Page Field General Aviation Airport (2006)	Visitors per flight

Using the data from the studies above, we can estimate visitors and visitor days.

Table A4-2: Estimating GA visitors and visitor days

Total GA flights	37,228	
Estimated itinerant flights (81% of total flights)	30,290	
Transient (day visitors) flights[33]	33%	Day visitors
Transient overnight/day flights	20,295	9,996
Average number of visitors per flight	2.76	2.76
Total number of transient visitors	56,013	27,588
The average number of days per visit	2.1	1.0
Total number of visitor days	117,627	27,588

Estimating Direct Spending

As shown in Table A4-2, there were 117,627 overnight visitor days and 27,588 day visitors. Using spending data from the studies in Table A4-1, we can estimate the direct spending associated with GA visitors. The direct spending is calculated as the product of the visitor per-

[33] As mentioned earlier, the AOPA states that "on average" 33 percent of an airport's itinerant arrivals are typically attributable to visiting or transient aircraft.

person/per-day spending and total visitor days. All benefit transfer figures were adjusted for inflation. California spending figures were also adjusted for cost-of-living differences.

Table A4-3: Detailed breakdown of direct spending by GA overnight and day visitors

	Per person, per day spending: Overnight	Per person, per day spending: Day	Overnight visitor direct spending	Day visitor's direct spending
Lodging	$161.12	$0.00	$18,952,387	$0
Meals	$46.45	$29.97	$5,463,296	$826,824
Retail	$52.52	$12.49	$6,177,178	$344,579
Entertainment	$48.19	$2.50	$5,668,032	$68,971
Transport	$29.75	$9.99	$3,499,079	$275,608
Other	$17.40	$54.95	$2,046,918	$1,515,983
Total	$355.42	$109.90	$41,806,891	$3,031,966

A5: ECONOMIC REGION DATA

Table A5-1: Pennington County regional data

Based on 2022 data	
Population	114,461
Households	47,678
Gross Domestic Product	$8.3B
Total employment	84,854
Total personal income	$7.5B

Table A5-2: Top 15 industries ranked by employment: **Pennington County**

Based on 2022 data	% of total employment
Employment and payroll of federal govt: military	5%
Other real estate	4%
Hospitals	4%
Limited-service restaurants	3%
Full-service restaurants	3%
Employment and payroll of local govt: Education	3%
Offices of physicians	3%
Employment and payroll of local govt: other services	2%
All other food and drinking places	2%
Community food, housing, and other relief services, including rehabilitation services	2%
Automotive repair and maintenance, except car washes	2%
Retail - General merchandise stores	2%
Retail - Miscellaneous store retailers	2%
Hotels and motels, including casino hotels	2%
Construction of new single-family residential structures	1%

Table A5-2: Top 15 industries ranked by contribution to GDP: **Pennington County**

Based on 2022 data	% of local GDP
Monetary authorities and depository credit intermediation	7%
Owner-occupied dwellings	6%
Hospitals	5%
Employment and payroll of federal govt: military	5%
Other real estate	3%
Offices of physicians	3%
Employment and payroll of local govt: Education	2%
Employment and payroll of federal govt: non-military	2%
Tenant-occupied housing	2%
Employment and payroll of local govt: other services	2%
Management of companies and enterprises	2%
Hotels and motels, including casino hotels	2%
Wholesale - Petroleum and petroleum products	2%
Retail - Nonstore retailers	1%
Full-service restaurants	1%