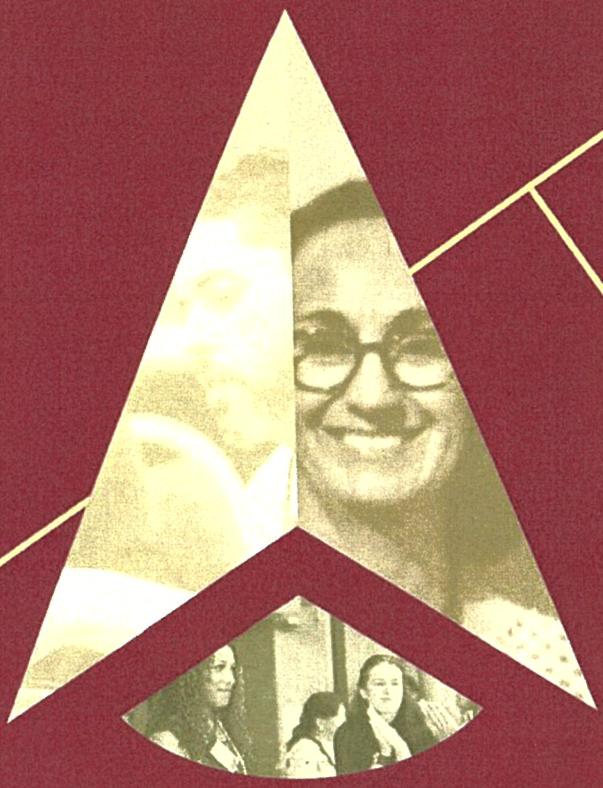

Economic Impact of Spaceport America, 2022

August 2023

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Executive Summary

The Center for Border Economic Development and Arrowhead Center at New Mexico State University has prepared an analysis of the economic impact of Spaceport America's operations and activities. The purpose of this analysis is to estimate the economic impact of Spaceport America's operations, tenant operations, and associated visitor spending in New Mexico in 2022.

Spaceport America is the first purpose-built commercial spaceport and is operated by the New Mexico Spaceport Authority (NMSA). Spaceport America is located in southern New Mexico on approximately 18,000 acres of State Trust Land leased from the New Mexico State Land Office. Its location is adjacent to the White Sands Missile Range, providing access to 6,000 square miles of restricted airspace. Spaceport America is licensed by the Federal Aviation Administration (FAA) for both vertical and horizontal launches, one of only two such sites in the United States (and is currently working on a reentry license). The facility includes a 12,000-foot by 200-foot runway, and vertical launch complexes. It is located well away from population centers. The space launch industry has seen considerable growth in the last decade and increasing competition as well. Spaceport America's location, its strong track record of successful launches, including eleven FAA-licensed launches, and the commencement in June 2023 of Virgin Galactic space tourism flights are key advantages for Spaceport America. In addition to hosting launches, Spaceport America engages in STEM education including preK-12 classroom visits and hosting of the Spaceport America Cup, the world's largest intercollegiate rocket engineering conference and competition.

Economic Impact Analysis seeks to measure the impact on the local economy from new economic activity associated with a new project. The economic impacts of Spaceport America were estimated using IMPLAN economic modeling software and are based on economic activity occurring in Doña Ana County and Sierra County in southern New Mexico. Spillover effects to the rest of the counties in New Mexico were measured using Multi-Regional Input-Output (MRIO). Economic impacts were estimated for the portion of Spaceport America's operations not derived from state funding, and from its tenant operations and visitor spending. The combined economic impact estimated for Spaceport America's operations and activities for New Mexico in 2022 shows the following results:

- 549 direct jobs; 811 total jobs
- $138 million in economic output; $60 million in value-added production, and $46 million in labor income
- $12.9 million in taxes generated: $9.2 million in federal taxes, $3.7 million in taxes in New Mexico.

Introduction and Background

> *On June 29, 2023, Virgin Galactic successfully completed its Galactic 01 mission, which lifted three Italian military officers to the edge of space. This was Virgin Galactic's first commercial flight as a spaceline.*[1]
>
> *Galactic 01 is a milestone for Virgin Galactic, but also for Spaceport America as Virgin Galactic is its anchor tenant. The commencement of regular space tourism flights from Spaceport America is expected to be a major source of revenue for the spaceport as well as an engine of economic development for the region.*

The Center for Border Economic Development and Arrowhead Center at New Mexico State University have prepared an analysis of the economic impact of Spaceport America's operations and activities. The purpose of this analysis is to estimate the economic impact of Spaceport America's operations, its tenant operations, and associated visitor spending in New Mexico in 2022.

Spaceport America is the first purpose-built commercial spaceport operated by the New Mexico Spaceport Authority (NMSA). Spaceport America is located in southern New Mexico on 18,000 acres. Its location is adjacent to the White Sands Missile Range, providing access to 6,000 square miles of restricted airspace. Spaceport America is licensed by the FAA for both vertical and horizontal launches, one of only two such sites in the United States. It currently does not engage in orbital launches although it is able to do so for FAA-approved vehicles. The facility includes a 12,000-foot by 200-foot runway, and vertical launch complexes. It is located well away from population centers.

As Spaceport America is the world's first purpose-built commercial spaceport, necessarily the evaluation of continued investment in Spaceport America required taking a forward-looking view. This meant speculation about the potential of commercial spaceflight at a time when commercial spaceflight was mainly unrealized potential. In some cases, this speculation has proven to be overly optimistic. In other cases, expectations have been exceeded. Speculation about what will happen is no longer necessary, however, as we now have a historical record for Spaceport America that can be used to evaluate its performance. The first FAA-licensed launch from the site was in 2012, which represents a 10-year track record on which to evaluate its performance. Thus, this report does not rely on speculation or guesses as to the future but uses actual data for the year 2022 to determine the economic impact of Spaceport America on the New Mexico economy. We also account for government subsidies provided to the NMSA. Specifically, we subtract state and local appropriations

[1] (Las Cruces Bulletin, 2023)

since these funds would have been used for other purposes within the state had they not been allocated to NMSA, so they are not net new dollars for the New Mexico economy. We have also gathered data on the operations of Spaceport America's tenants which we include in our analysis. Spaceport America tenants and customers[2] are briefly described in Tables 1 and 2. After determining net new spending by NMSA and by Spaceport America's tenants, we applied a standard methodology to determine the economic impact from Spaceport America operations.

Competitive Environment

The last few years have seen a rapid increase in commercial space traffic. This transformation of the space industry is frequently referred to as Space 2.0. To understand the magnitude of this transformation, consider the following facts. In the year 2000, 121 satellites were launched worldwide, 56 by the United States.[3] By 2015, the number of global launches had increased to 222; 104 in the United States.[4] From this point, launch rates began to climb rapidly so that by 2022, total global launches were 2,162; U.S. satellite launches increased to 1,796.[5] If we look at the number of satellites in orbit, it was 3,256 in 2020. Two years later in 2022, it was 6,905.[6] The increase in space traffic clearly presents an opportunity for Spaceport America, but it also has meant more competition. Currently, there are 20 spaceports in the United States[7] (see Table 3) there are also two special-purpose spaceports, which are privately operated, one by SpaceX and one by Blue Origin. Launch types also vary by location: orbital reentry, vertical, and horizontal. Spaceport America is one of only two FAA-licensed facilities that is approved for both vertical and horizontal launches. The location of the various spaceports is indicated in Figure 1.

[2] While Spaceport America tenants maintain an ongoing long-term presence at the spaceport, Spaceport America customers use the spaceport's facilities on an intermittent basis.
[3] (Our World in Data, 2023)
[4] (Our World in Data, 2023)
[5] (Our World in Data, 2023)
[6] (Statista, 2023)
[7] Spaceports operated by federal agencies are generally exempt from the requirement of FAA licensing.

Table 1- Spaceport America Tenants

Virgin Galactic is the anchor tenant of Spaceport America. Their mission is to develop and operate a new generation of space vehicles to support a vibrant space tourism business. Virgin Galactic significantly increased operations at Spaceport America in FY 20 and routinely has two shifts operating at the spaceport. More information available at virgingalactic.com.
SpinLaunch is developing technology to accelerate launch vehicles to hypersonic speeds using an electrically powered centrifuge accelerator rather than traditional rocket propulsion. This technology will provide low-cost launch services for the rapidly growing small satellite industry. More information available at spinlaunch.com/#p2.
UP Aerospace flies suborbital payloads for customers as a launch provider under the NASA Flight Opportunities Program and for other customers who require suborbital space access. More information available at upaerospace.com.
AeroVironment provides technology solutions that give customers a fresh vantage point, positioning them to see the world with new eyes and extending their reach beyond the line of sight using multi-domain robotic systems, perfected and refined over a half-century. Two units of AeroVironment are housed at Spaceport America. **AeroVironment HAPS** is involved in developing high-altitude, long-endurance solar-powered unmanned aerial vehicles. **AeroVironment's UAV** is involved in the development and testing of the **JUMP 20** system, which is a vertical takeoff and landing (VTOL), fixed-wing unmanned aircraft used to provide advanced multi-sensor intelligence, surveillance, and reconnaissance (ISR) services. More information available at avinc.com/about.
Prismatic focuses on the development of PHASA-35, a solar-powered, high-altitude, long-endurance aircraft (Solar HALE). In 2021, Prismatic was acquired by BAE Systems. Prismatic works closely with customers and other businesses within BAE Systems, continuing the development of the PHASA-35 platform. Prismatic is a member of the HAPS Alliance, a coalition of leading voices in the HAPS (High Altitude Platform Station) industry. More information available at prismaticltd.co.uk/?page_id=273.

Table 2- Spaceport America Customers[8]

Swift Engineering is an innovation company with a 35-year history of design, engineering and build heritage in intelligent systems and advanced vehicles, including autonomous systems, helicopters, submarines, spacecraft, ground vehicles, robotics, and advanced composites for military, healthcare, agriculture, and industrial applications. Based in San Clemente, California, Swift is globally recognized for its ability to bring disruptive innovations to market quickly. https://www.swiftengineering.com/
C6 Launch Systems is a Canadian-based space technology company developing a dedicated small-sat launch capability to place payloads up to 30 kg in a nominal 600 km Sun Synchronous Orbit. This means that small-sat game changers, first movers and those with urgent operational requirements can deploy payloads where they want and when they want without compromising their orbit or mission. The C6 Rocket utilizes proven, best-in-class capabilities from the engine to the deployer, with integration and other technologies from C6's talented, expert team of space engineers. https://www.c6launch.com/
STRATODYNAMICS, Inc., is an Earth Observation service provider pioneering new, dynamic methods to offer high-altitude, airborne assessments using uncrewed aerial vehicles. The company is also developing turbulence detection solutions for the aviation and urban air mobility sectors with licensed NASA technology. https://www.stratodynamics.ca/
White Sands Research & Developers (WSRD) is an aerospace engineering services company which offers a turnkey suborbital launch system where WSRD does most of the work to conduct the client's mission using the client's rocket or WSRD's. Its Mustang™ rocket is a great choice as a test platform and Smaller Mustang™ rockets provide a cost-effective platform for a variety of experiments. https://www.wsrds.com/
USAF Thunderbirds is a U.S. Air Force Air Demonstration Squadron that performs precision aerial maneuvers demonstrating the capabilities of Air Force high performance aircraft to people throughout the world. The squadron exhibits the professional qualities the Air Force develops in the people who fly, maintain, and support these aircraft. https://www.airforce.com/thunderbirds/overview

[8] (Spaceport America, 2023)

Table 3 - Spaceports by State[9]

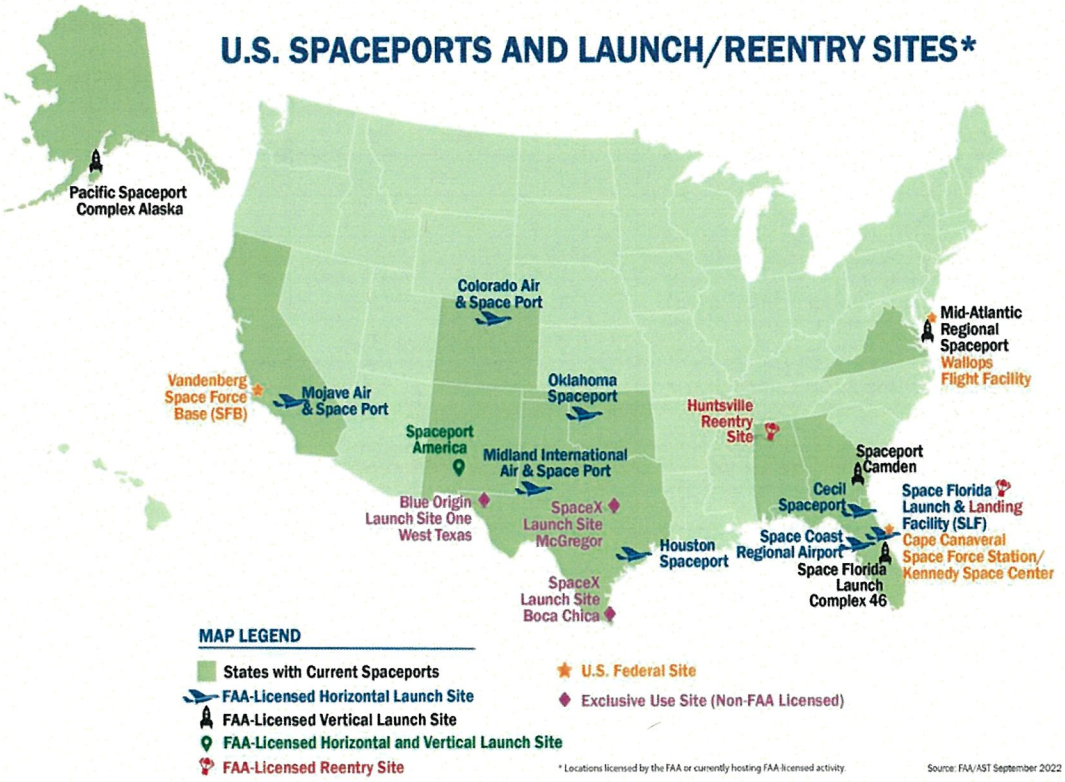
Operator	License	Launch Type
Alabama		
Huntsville International Air and Space Port	FAA	Orbital Reentry
Alaska		
Pacific Spaceport Complex	FAA	Vertical
California		
Mojave Air & Space Port	FAA and Federal	Horizontal
Vandenberg Space Force Base	FAA and Federal	Vertical and Horizontal
Colorado		
Colorado Air & Space Port	FAA	Horizontal
Florida		
Cape Canaveral Space Force Station	Federal	Vertical and Horizontal
Kennedy Space Center (NASA)	Federal	Vertical and Horizontal
Space Florida Launch Complex 46	FAA	Vertical
Space Florida Launch and Landing Facility	FAA	Horizontal and Orbital Reentry
Cecil Air and Space Port	FAA	Horizontal
Space Coast Regional Airport	FAA	Horizontal
Georgia		
Spaceport Camden	FAA	Vertical
New Mexico		
Spaceport America	FAA	Horizontal and Vertical
Oklahoma		
Oklahoma Spaceport	FAA	Horizontal
Texas		
Launch Site One West Texas | Blue Origin	Private Exclusive Use	
Boca Chica | SpaceX	Private Exclusive Use	
Houston Spaceport (Ellington Airport)	FAA	Horizontal
Midland Spaceport	FAA	Horizontal
Virginia		
Mid-Atlantic Regional Spaceport	FAA and Federal	Vertical
Wallops Flight Facility	Federal	Vertical

[9] (Federal Aviation Administration, 2023)

Spaceport America has a number of key competitive advantages: its location in southern New Mexico near White Sands Missile Range provides access to 6,000 square miles of restricted airspace; access to railroads; excellent weather conditions with 340 days of sunshine per year; low population density; remote location with 24/7 security; a local population accustomed to rockets and sonic booms, and a high elevation.[10] Another key competitive advantage is FAA approval for both vertical and horizontal launches. Spaceport America also benefits from a proven track record of successful launches. As of FY 2022, 400 rockets had been launched from Spaceport America, 11 of which were FAA-licensed.[11] This experience compares favorably with other FAA-licensed sites.

Spaceport America also faces competitive risks. Several competitors are co-located with existing federal agency spaceports. Moreover, some competitors have received greater financial support from their state governments. This state funding is likely to rise as states have demonstrated an increasing willingness to use state tax revenues to fund programs to attract and retain businesses, especially those that can generate high-paying jobs both in the space industry itself and in support industries.

Figure 1 - U.S. Spaceport and Launch/Reentry Sites[12]



[10] (Kubiak Melton & Associates, LLC, 2022)
[11] (Kubiak Melton & Associates, LLC, 2022), (Federal Aviation Administration, 2023)
[12] (Federal Aviation Administration, 2023)

Other Activities

STEM (science, technology, engineering, and mathematics) education initiatives are an important component of the mission of Spaceport America. In particular, voters in southern New Mexico's Sierra and Doña Ana counties voted to impose a 0.25% spaceport gross receipts tax to fund activities by NMSA. A portion of the revenues from this tax are earmarked for STEM education activities. A STEM in-school program aimed at 6th graders involves in-person visits by NMSA staff members to classrooms to present space videos along with science demonstrations. Virtual classroom programs connect classrooms through an online portal that provides the students with a virtual tour of Spaceport America and allows for questions and answers. Spaceport America also hosts field trips of student groups to the facility.

Each year starting in 2017, in conjunction with the Experimental Sounding Rocket Association (ESRA, https://www.soundingrocket.org/), Spaceport America has hosted the Spaceport America Cup (https://spaceportamericacup.com/), the world's largest Intercollegiate Rocket Engineering Competition for student rocketry teams. The competition draws student teams from across the country and the world. The Box on the next page provides more detail on this key Spaceport America activity.

Spaceport America has placed a greater emphasis on the Visitor Experience of spaceport tours. New tours departing from Las Cruces, New Mexico, were started in 2019,[13] adding to the tours that depart from Truth or Consequences.[14] During FY 2022, the average number of visitors was 3,390 per month.[15]

[13] (Kubiak Melton & Associates, LLC, 2022)
[14] (Sierra County Recreation and Tourism, 2023)
[15] (Kubiak Melton & Associates, LLC, 2022)

Spaceport America Cup

Spaceport America and the Experimental Sounding Rocket Association (ESRA), a non-profit organization that fosters and promotes engineering knowledge and experience in the field of rocketry, are partners in hosting the Spaceport America Cup, the world's largest intercollegiate rocketry engineering contest.

The Spaceport America Cup has been held annually at Spaceport America since 2017, with the exception of 2020 when the event was cancelled due to the pandemic. In 2021, the Spaceport America Cup was conducted as a virtual event drawing 75 competitor teams, 38 from across the U.S., and 37 from 16 other countries.

Preparing for the year-long rocketry engineering competition begins at the start of the academic year and requires each competing team to design, build, test, and eventually launch rockets at Spaceport America with a payload size of 8.8 pounds. Rockets are typically 4 to 8 inches in diameter and 8 to 20 feet long, with target altitudes of either 10,000 or 30,000 feet. Multistage rockets and all chemical propulsion types (solid, liquid, and hybrid) are allowed.

The Spaceport America Cup in 2022 was held at Spaceport America once again since 2019 and took place from June 22 through June 25. A total of 5,569 rocketeers participated: 5,257 undergraduate students; 206 and 40, respectively, in master's and PhD programs. Some 1,300 rocketeers traveled to New Mexico for the rocket launching event at Spaceport America and an additional 200 student spectators were in attendance. In the 149 teams that participated, 31 U.S. states and 22 countries were represented. A total of 75 rockets were launched over three days.

Top sponsors of the Cup's 2022 edition included Sierra Space, Virgin Galactic, and Blue Origin.

[16]

[16] (Experimental Sounding Rocket Association, 2023), (Spaceport America, 2023), and (Anderson, 2022)

Methodology

Economic impact analysis is an attempt to measure the net change in economic activity in a given geographic area that results from a change in economic activity. Often, the change in economic activity refers to new spending or employment associated with a new business or a business expansion. In this case, the impact is based on activity resulting from Spaceport America activities and operations in 2022. The main idea behind economic impact analysis is that a new dollar spent in a local area results in more than one dollar in economic activity in the area because of the multiplier effect from knock-on spending. For example, a construction worker is paid a wage, the worker then spends locally on groceries. The initial increase in the wage paid to the construction worker is the new spending; the revenue received by the grocery store is knock-on spending.

Economic impact estimates were calculated using the IMPLAN MRIO analysis at the county level for Doña Ana County, Sierra County, and for the State of New Mexico. IMPLAN has been a standard tool for academic and professional economists for decades. The methods used to produce IMPLAN's economic data set and economic impact estimates have been widely published both in professional publications as well as peer-reviewed academic journals. Many of these methods are considered standard best practices in a wide variety of applied economic fields today.[17]

Economic impacts are measured in terms of changes in output, value-added production, labor income, employment, and tax revenue. Figure 2 shows the subcomponents of output and value added production, also referred to as the Leontief Production Function. Output is the total production value of an industry and can be thought of as total revenue for a particular industry or industries. Intermediate inputs are goods and services used in the production process and purchased from other industries. Value added production is the contribution from the economic activity to gross domestic product. Value of intermediate inputs plus gross domestic product add up to total output. Business profits are included under proprietor income and other property income.

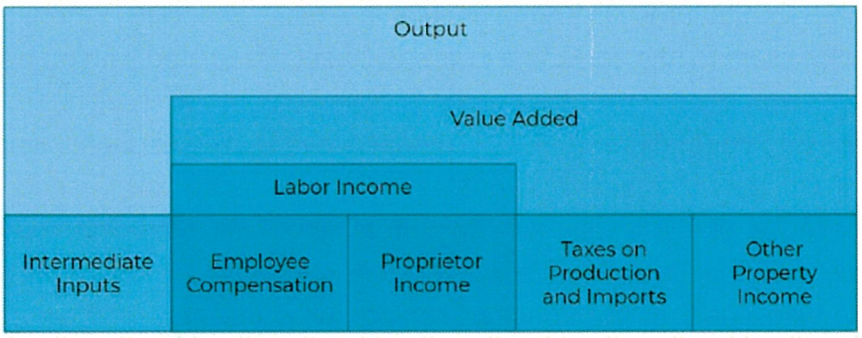
The economic impacts presented in this analysis include the direct, indirect, and induced impacts. Economic impact specific terms are defined in the glossary at the end of this document. Employment refers to full and part-time jobs. Dollar impacts are presented in 2023 dollars. Components may not sum to totals due to rounding.

Three primary sources of economic impact were identified and measured for Spaceport America: (1) tenant operations excluding real estate spending which is captured by Spaceport America's revenues, (2) out-of-state visitor spending, and (3) Spaceport America's revenues excluding funding from the State of New Mexico. The rationale for using these three impacts for calculating Spaceport America's economic impact in New Mexico is

[17] (Clouse, 2022)

that they all bring new dollars into the state that would be absent in the state but for Spaceport America.

Figure 2: Components of Economic Output



Regarding tax impact estimates, IMPLAN's state and local sales tax estimates for tenant employment and Spaceport America operations were excluded due to the gross receipts tax (GRT) deduction for receipts from operating a spaceport; launching, operating or recovering space vehicles or payloads (including passenger flights); preparing a payload; or research, development, testing and evaluation services for the United States Air Force Operationally Responsive Space Program (7-9-54.2).[18] NM GRT, NM Excise Tax, and NM Petroleum Loading Tax do apply to fuel sales at Spaceport America, and this state tax revenue was included in the tax impact of Spaceport America's operations. Other non-sales taxes were included on direct impacts, such as personal income taxes. Additionally, induced and indirect tax expenditures are included since industries in these categories do not benefit from Spaceport GRT exemptions.

The economic impact of tenant operations comprises tenant employment and privately funded construction. These figures were gathered through an anonymized survey applied to tenants with operations at Spaceport America's facilities.[19] Impacts from tenant employment were estimated by the number of jobs in the respective tenant-represented industries. Table 4 shows the two industry classifications used for tenants at Spaceport America. Table 5 shows the number of jobs reported by tenants at the county level. Expenditures for real estate were excluded from these impacts because they are captured by Spaceport America's revenues, which includes rental revenues from these tenants.

Table 4 - IMPLAN Tenant Employment Industry Codes

IMPLAN Code	Industry Description
354	Aircraft manufacturing
464	Scientific research and development services

[18] (New Mexico Taxation and Revenue Department, 2022)
[19] Survey results reflect a 66% response rate of tenants surveyed on their operations in 2022.

Table 5 - Tenant Employment Jobs by County

County	Number of jobs associated with Spaceport America Tenants
Doña Ana	152
Sierra	229
Total	381

Construction impacts were estimated based on the dollar amount of tenant construction spending for 2022 and the specific type of construction. All construction activities took place in Sierra County. Table 6 shows the IMPLAN construction industry codes used and tenant-reported figures for construction expenditures occurring in 2022. Table 7 shows the estimated spending by category and the associated IMPLAN industry codes used to estimate the economic impact and visitor spending.

Table 6 - Tenant Construction Expenditures, 2022

IMPLAN Code	Industry Description	Construction Expenditures	County
55	Construction of new commercial structures, including farm structures	$12,347,000	Sierra

Table 7 - Estimated Daily Spending for Visitors, by Category, 2022

Category Spending Share	Spending per Visitor-day	IMPLAN Codes	IMPLAN Description
31.8%	$98.49	507	Hotels and motels, including casino hotels
7.8%	$24.05	418	Transit and ground passenger transportation
7.8%	$24.05	408	Retail - Gasoline stores
11.6%	$36.08	509	Full-service restaurants
11.6%	$36.08	510	Limited-service restaurants
8.7%	$27.01	411	Retail - General merchandise stores
8.7%	$27.01	412	Retail - Miscellaneous store retailers
12.0%	$37.22	504	Other amusement and recreation industries

Out-of-state visitor spending was estimated based on the Oxford Economics' *Economic Impact of Visitors in New Mexico 2021* study that was prepared for the New Mexico Tourism Department.[20] Oxford Economics is a leader in global economic forecasting and econometric analysis.[21] The Oxford Economics study is based on historical data for the tourism industry in New Mexico and therefore provides a best available estimate of typical visitor spending in the state. This provided average overnight spending by category and this spending was

[20] (Oxford Economics, 2022)
[21] (Oxford Economics, 2023)

adjusted based on the U.S. GSA Per Diem rate for Lodging in New Mexico.[22] This calculation estimated visitor spending to be $310 per visitor-day[23].

Table 8 shows Spaceport America's reported figures for visitor-days at the county level for their own activities and activities of their tenants and customers. With this information, visitor spending was determined based on a number of visitor-days for persons traveling with the purpose of visiting or working at Spaceport America.

Table 8 - Spaceport America, Visitor-days, by County, 2022

County	Visitor-days
Doña Ana	6,731
Sierra	2,278
Total	9,009

Spaceport's revenue information was gathered directly from New Mexico Spaceport Authority's FY 2022 Audit Report.[24] Fiscal year data were used because this was the most recent data available at the time of this study. Spaceport America's revenues include rental revenue, tours and launch revenue, and lease interest revenues, shown in Table 9. Funding from the State of New Mexico is not included in this impact because it cannot be considered new spending in the state, and thus is not applicable to include in an economic impact analysis. These impacts were calculated based on the dollar value of the revenues, and the impact was estimated based on *IMPLAN Industry 534 - Other local government enterprises*.[25]

Table 9 - Spaceport America Revenues, FY 2022

Revenue Category	Amount
Rental Revenue	$6,054,688
Tours and Launch Revenue	$1,409,589
Lease Interest Revenue	$51,424
Total	$7,515,701

[22] (*FY 2022 Per Diem Rates for New Mexico*, 2022)

[23] Visitors-days is a count of the number of visitors and the number of days they visited. For example, if 10 visitors visited for 4 days, this would equal 40 visitor-days. Total visitor-days is multiplied by average daily visitor spending to estimate the total visitor spending.

[24] (Kubiak Melton & Associates, LLC, 2022)

[25] *IMPLAN Industry 531 - Other state government enterprises* was the preferred industry for Spaceport's operations in Doña Ana County, however data for this industry classification was unavailable for Doña Ana County, so *IMPLAN Industry 534 - Other local government enterprises* was used as a substitute.

Analysis of Impacts

Economic impacts were estimated for Spaceport America tenant operations, out-of-state visitor spending, and Spaceport America's revenues excluding funding from the State of New Mexico. These impacts are presented by county, and as total figures.

Sierra County

The economic impacts for Spaceport America in Sierra County include Spaceport America tenant operations (employment and construction), and out-of-state visitor spending.

Tenant Operations

The economic impact of tenant operations in Sierra County comprises tenant employment and privately-funded construction for 2022. These figures were gathered through an anonymized survey applied to tenants with operations at Spaceport America facilities.

Tenant Employment

Tenant employment is based on tenant-reported figures for employees associated with their activities at Spaceport America. Tenants reported 229 total jobs primarily located in Sierra County. While these jobs are primarily located in Sierra County, the employees may not necessarily live in Sierra County.[26] Tenant employment impacts for Sierra County are shown in Table 10. Real estate spending by Spaceport America tenants is excluded from these impacts because those expenditures are counted under Spaceport America operations.

Table 10 - Economic Impact, Tenant Employment, Sierra County, 2022

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	229	$11,435,655	$13,077,105	$38,278,338
2 - Indirect	24	$1,277,325	$1,679,980	$3,654,264
3 - Induced	27	$1,060,523	$2,382,375	$4,324,299
Total	280	$13,773,504	$17,139,459	$46,256,902

Privately-Funded Construction

Privately-funded construction includes construction spending reported by tenants during 2022. Tenants reported $12,347,000 in construction spending in 2022 all of which occurred in Sierra County. The impact of privately-funded construction in Sierra County is shown in Table 11.

[26] Employee residency can alter the induced impacts of the model, however the direct and indirect impacts would be unchanged.

Table 11 - Economic Impact, Privately-Funded Construction, Sierra County, 2022

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	120	$4,846,641	$5,170,867	$12,347,000
2 - Indirect	8	$376,553	$663,637	$1,620,770
3 - Induced	11	$437,893	$971,852	$1,758,817
Total	139	$5,661,087	$6,806,357	$15,726,587

Out-of-State Visitor Spending

A measure of visitor-days was reported by Spaceport America and tenants for out-of-state visitors associated with their operations. For the year 2022, 2,278 visitor-days were reported in Sierra County. Out-of-state visitor spending impacts are shown in Table 12.

Table 12 - Economic Impact, Visitor Spending, Sierra County, 2022

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	8	$189,242	$302,455	$595,681
2 - Indirect	1	$24,128	$39,834	$107,635
3 - Induced	0	$17,899	$39,723	$71,891
Total	9	$231,270	$382,012	$775,207

Sierra County Economic Impact

Table 13 shows the total economic impact of Spaceport America in Sierra County in 2022. The economic impacts for Spaceport America in Sierra County include Spaceport America tenant operations (employment and construction), and out-of-state visitor spending.

Table 13 - Total Economic Impact, Spaceport America, Sierra County, 2022

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	357	$16,471,539	$18,550,427	$51,221,019
2 - Indirect	32	$1,678,006	$2,383,450	$5,382,670
3 - Induced	39	$1,516,315	$3,393,950	$6,155,007
Total	428	$19,665,860	$24,327,828	$62,758,697

Doña Ana County

The economic impacts for Spaceport America in Doña Ana County include Spaceport America tenant operations (tenant employment only), out-of-state visitor spending, and Spaceport America's revenues excluding funding from the State of New Mexico.

Tenant Operations

The economic impact of tenant operations in Doña Ana County in 2022 comprises tenant employment only as all tenant construction activity occurred in Sierra County. These are jobs

located in Doña Ana County, but for Spaceport America tenants. These figures were gathered through an anonymized survey applied to tenants with operations at Spaceport America facilities.

Tenant Employment

Tenant employment is based on tenant-reported figures for employees associated with their activities at Spaceport America. Tenants reported 152 total jobs located in Doña Ana County. Tenant employment impacts for Doña Ana County are shown in Table 14. Real estate spending by Spaceport America tenants is excluded from these impacts because those expenditures are counted under Spaceport America operations.

Table 14 - Economic Impact, Tenant Employment, Doña Ana County, 2022

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	152	$12,417,589	$13,877,421	$33,349,092
2 - Indirect	32	$1,797,102	$2,850,638	$4,603,149
3 - Induced	45	$2,027,580	$3,833,621	$6,506,506
Total	229	$16,242,271	$20,561,680	$44,458,747

Out-of-State Visitor Spending

A measure of visitor-days was reported by Spaceport America and tenants for out-of-state visitors associated with their operations. For the year 2022, 6,731 visitor-days were reported were reported in Doña Ana County. Out-of-state visitor spending impacts for Doña Ana County are shown in Table 15.

Table 15 - Economic Impact, Visitor Spending, Doña Ana County, 2022

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	21	$715,277	$1,032,436	$1,760,110
2 - Indirect	3	$114,662	$186,448	$397,956
3 - Induced	3	$115,220	$218,510	$371,046
Total	26	$945,159	$1,437,394	$2,529,112

Spaceport America Revenues

Spaceport America's revenues include rental revenue, tours and launch revenue, and lease interest revenues totaling $7,515,701 (see Table 9). Revenues stem from Spaceport America's tenants as well as customers. Funding from the State of New Mexico is not included in this impact because it cannot be considered new spending in the state and thus is not applicable to include in an economic impact analysis. Spaceport America revenue impacts are attributed to Doña Ana County and are shown in Table 16.

Table 16 - Economic Impact, Spaceport America Revenues, FY2022

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	19	$1,752,683	$3,642,259	$7,515,701
2 - Indirect	14	$731,172	$1,087,758	$2,545,898
3 - Induced	7	$323,129	$612,344	$1,040,389
Total	40	$2,806,984	$5,342,361	$11,101,988

Doña Ana County Economic Impact

Table 17 shows the total economic impact of Spaceport America in Doña Ana County in 2022. The economic impacts for Spaceport America in Doña Ana County include Spaceport America tenant operations (tenant employment only), out-of-state visitor spending, and Spaceport America's revenues excluding funding from the State of New Mexico.

Table 17 - Total Economic Impact, Spaceport America, Doña Ana County, 2022

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	191	$14,885,549	$18,552,116	$42,624,903
2 - Indirect	49	$2,642,936	$4,124,845	$7,547,003
3 - Induced	54	$2,465,929	$4,664,475	$7,917,942
Total	294	$19,994,414	$27,341,436	$58,089,848

Total Economic Impact

The total estimated economic impact of Spaceport America in 2022 is shown in Table 18. This is the total impact of tenant operations, out-of-state visitor spending, and Spaceport America's revenues excluding funding from the State of New Mexico.

Table 18 - Total Economic Impact, Spaceport America, 2022

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	549	$31,357,087	$37,102,543	$93,845,922
2 - Indirect	144	$9,294,889	$12,911,142	$25,980,079
3 - Induced	118	$5,193,673	$10,421,659	$18,254,754
Total	811	$45,845,649	$60,435,345	$138,080,756

Tables 19 through 21 show economic impact of Spaceport America in 2022 by location. Table 19 shows Spaceport America's economic impact in Doña Ana County. Table 20 shows Spaceport America's economic impact in Sierra County. Table 21 shows the spillover effects from Spaceport America's activities in Doña Ana and Sierra counties to other counties in New Mexico. Regarding spillover effects, these other counties in New Mexico do not have direct economic impacts; however, there are indirect and induced economic impacts based on the direct activity occurring in Doña Ana and Sierra counties.

Table 19 - Total Economic Impact, Spaceport America, Doña Ana County, 2022

Impact	Employment	Labor Income	Value Added	Output
1 – Direct	191	$14,885,549	$18,552,116	$42,624,903
2 – Indirect	49	$2,642,936	$4,124,845	$7,547,003
3 – Induced	54	$2,465,929	$4,664,475	$7,917,942
Total	294	$19,994,414	$27,341,436	$58,089,848

Table 20 - Total Economic Impact, Spaceport America, Sierra County, 2022

Impact	Employment	Labor Income	Value Added	Output
1 - Direct	357	$16,471,539	$18,550,427	$51,221,019
2 - Indirect	32	$1,678,006	$2,383,450	$5,382,670
3 - Induced	39	$1,516,315	$3,393,950	$6,155,007
Total	428	$19,665,860	$24,327,828	$62,758,697

Table 21 - Total Economic Impact, Spaceport America, Rest of New Mexico, 2022

Impact	Employment	Labor Income	Value Added	Output
2 - Indirect	63	$4,973,946	$6,402,847	$13,050,406
3 - Induced	25	$1,211,429	$2,363,234	$4,181,805
Total	88	$6,185,375	$8,766,081	$17,232,211

Tax Revenue Impact

Table 22 shows the estimated tax revenue impacts of Spaceport America at the local, state, and federal levels in 2022. IMPLAN's state and local sales tax estimates for tenant employment and Spaceport America operations were excluded due to the gross receipts tax (GRT) deduction for receipts from operating a spaceport; launching, operating or recovering space vehicles or payloads (including passenger flights); preparing a payload; or research, development, testing and evaluation services for the United States Air Force Operationally Responsive Space Program (7-9-54.2).[27] NM GRT, NM Excise Tax, and NM Petroleum Loading Tax do apply to fuel sales at Spaceport America, and this state tax revenue was included in the tax impact of Spaceport America's operations. Other non-sales taxes were included on direct impacts, such as personal income taxes. Additionally, induced and indirect tax expenditures are included since industries in these categories do not benefit from spaceport GRT exemptions. Table 23 shows the estimated tax revenue impacts of Spaceport America attributable to Sierra County. Table 24 shows the estimated tax revenue impacts of Spaceport America attributable to Doña Ana County. Table 25 shows the estimated tax revenue impact of Spaceport America attributable to spillover activity occurring in the rest of New Mexico outside Doña Ana and Sierra counties. Regarding spillover effects, these other counties in New Mexico do not have direct tax revenue impacts; however, there are indirect and induced economic impacts based on the direct activity occurring in Doña Ana and Sierra counties.

Table 22 - Tax Impact, Spaceport America, 2022

Impact	Local	State	Federal	Total
1 - Direct	$360,492	$1,039,812	$6,445,674	$7,845,978
2 - Indirect	$287,213	$679,637	$1,801,881	$2,768,731
3 - Induced	$432,359	$945,962	$914,205	$2,292,526
Total	$1,080,065	$2,665,410	$9,161,760	$12,907,235

Table 23 - Tax Impact, Spaceport America, Sierra County, 2022

Impact	Local	State	Federal	Total
1 - Direct	$200,504	$601,391	$3,515,367	$4,317,262
2 - Indirect	$63,638	$191,432	$377,077	$632,147
3 - Induced	$150,616	$387,131	$275,451	$813,198
Total	$414,759	$1,179,954	$4,167,894	$5,762,607

[27] (New Mexico Taxation and Revenue Department, 2022)

Table 24 - Tax Impact, Spaceport America, Doña Ana County, 2022

Impact	Local	State	Federal	Total
1 - Direct	$159,988	$438,421	$2,930,307	$3,528,716
2 - Indirect	$85,196	$183,599	$497,111	$765,906
3 - Induced	$181,091	$367,723	$428,424	$977,238
Total	$426,276	$989,743	$3,855,842	$5,271,861

Table 25 - Tax Impact, Spaceport America, Rest of New Mexico, 2022

Impact	Local	State	Federal	Total
2 - Indirect	$138,378	$304,606	$927,692	$1,370,677
3 - Induced	$100,652	$191,107	$210,331	$502,089
Total	$239,030	$495,713	$1,138,023	$1,872,766

Conclusion

Spaceport America has an economic impact in New Mexico through its tenant operations, out-of-state visitor spending, and Spaceport America's revenues. Table 26 presents Spaceport America's estimated economic impact for New Mexico in 2022, including tenant operations, out-of-state visitor spending, and Spaceport America's revenues excluding funding from the State of New Mexico.

Table 26 - Spaceport America, Estimated Economic Impact for New Mexico, 2022

Impact	Spaceport Operations	Tenant Operations	Visitor Spending	Total Impact
Direct Jobs	19	501	29	549
Total Jobs	41	735	35	811
Economic Output	$11,324,953	$123,395,352	$3,360,451	$138,080,756
Value-Added Production	$5,438,146	$53,151,386	$1,845,813	$60,435,345
Labor Income	$2,853,261	$41,802,706	$1,189,682	$45,845,649
Total Taxes:	$865,013	$11,610,726	$431,496	$12,907,235
Federal	$666,663	$8,294,942	$200,155	$9,161,760
New Mexico	$198,349	$3,315,784	$231,341	$3,745,475

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Glossary

Direct effects are the immediate (or first-round) consequences of a change in economic activity or policy. For example, if a firm spends $1 million on construction of a new building, the direct effect on output (sales) in the construction sector is $1 million. If eight workers are employed on the construction of the building, then those eight workers are also a direct effect.

Employment refers to jobs. Jobs may be full- or part-time and a single worker may be employed at multiple jobs.

Indirect effects occur as industries purchase inputs from other industries. If a construction project requires steel beams, there will be indirect effects on iron mining and coke producing industries.

Induced effects result from households spending the wage and salary income received by those employed directly or indirectly on a new activity.

Input-output model refers to a type of economic model designed to capture relationships among industries and ultimate consumers.

Intermediate spending refers to the demand of industry for the goods and services produced by other industries that will be used in the production process.

Labor income consists of employee compensation (including benefits), supplements to wages and salaries (such as employer contributions to pension funds), and proprietor's income.

Merchandise trade refers to international trade in goods: goods exports and goods imports.

Multi-Regional Input-Output (MRIO) expands the region of study to include more than one region of study, allowing for spillover effects to be calculated between regions.

Output refers to gross industry sales or expenditures, depending on the consequences.

Total effects refer to the sum of direct, indirect, and induced effects.

Value added refers to the change in value of a good or service during each stage of production. Gross Domestic Product is a value-added concept.[28]

[28] (*NIPA Handbook: Concepts and Methods of the U.S. National Income and Product Accounts | U.S.*, 2021)

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