

Chapter 9. Airport Economic Impact Study

9.1. Introduction

The Airport Economic Impact Study (AEIS), a companion piece to the Nevada Airport and Heliport System Plan (NAHSP), provides an in-depth approach to calculate the quantitative economic impacts associated with the airports in the Nevada System. The AEIS uses an industry-accepted methodology that highlights the important economic contributions that Nevada realizes from its airports by quantifying employment, annual labor income, and total output associated with these airports. In addition to quantitative data, it is important that qualitative benefits are identified to gain support for airport maintenance, protection, future projects, and investment. The importance of conducting an AEIS lies in the ability of that study to educate the public and others, including elected officials, on the economic value of the airport within their communities and, on a statewide level, the contributions of the system to the statewide economy.

This chapter comprises the following sections:

- Study Airports
- Economic Impact Methodology
- Data Collection Process
- Airport Economic Impact Findings
- Tax Revenue Analysis
- Special Events Airports and Activities
- Summary

9.2. Study Airports

The NAHSP's system consists of 44 public-use, publicly owned airport facilities in the state, five privately owned airports that are open to the public, and two temporary airports that are open to the public during major events for a total of 51 system airports. The 51 system airports are listed in **Table 9-1** and identified in **Figure 9-1**, with identification of the NAHSP role for each airport. There are also five airports that are located in adjacent states but serving Nevada aviation needs due to proximity. These supporting airports are not analyzed in the study but are recognized as providing mobility options and accommodating demand for aviation services, even though they are outside the State.

The state's 51 airports range in size and activity from the largest, Harry Reid International (LAS) in Las Vegas, a commercial service airport providing airline passenger, cargo, and general aviation services, to smaller and sometimes remote general aviation airports. Many of the state's airports accommodate critical emergency services such as aerial firefighting and medical transport, even though the operators of these aircraft are not based on those airports. Nearly all airports serve the state's vast tourism industry that includes everything from high-end resorts and gaming to outdoor recreational activities, while others serve aircraft operated on behalf of important Nevada industries such as mining, aerospace and defense, and a growing information technology sector.

Beyond the 51 system airports, Nevada has 63 operational heliports. The 63 heliports are stand-alone facilities but are primarily for private uses in Nevada. The heliports are identified in the

NAHSP, but there is limited analysis of these facilities given they are almost entirely private use. No AEIS analysis was conducted for the heliports.

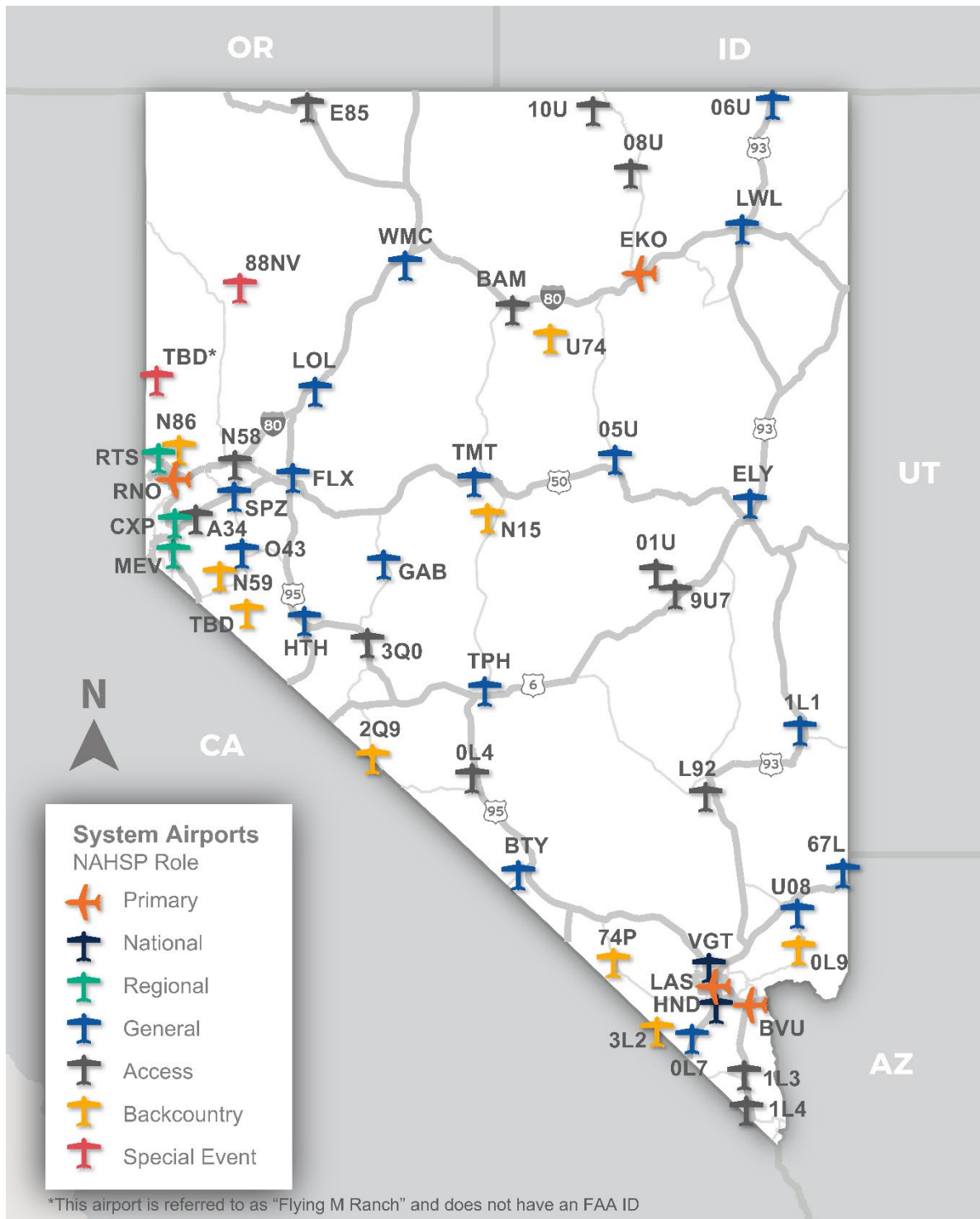
Table 9-1: NAHSP Airports Included in the AEIS

Associated City	Airport Name	FAA ID	NAHSP Role
Alamo	Alamo Landing Field	L92	Access
Austin	Austin	TMT	General
Battle Mountain	Battle Mountain	BAM	Access
Beatty	Beatty	BTY	General
Boulder City	Boulder City Municipal	BVU	Primary
Cal Nev Ari	Kidwell	1L4	Access
Carson City	Carson	CXP	Regional
Crescent Valley	Crescent Valley	U74	Backcountry
Currant	Currant Ranch	9U7	Access
Dayton/Carson City	Dayton Valley Airpark	A34	Access
Dead Cow	Dead Cow Lakebed Airstrip (High Sierra)	-	Special Event
Denio	Denio Junction	E85	Access
Duckwater	Duckwater	01U	Access
Dyer	Dyer	2Q9	Backcountry
Elko	Elko Regional	EKO	Primary
Ely	Ely Airport/Yelland Field	ELY	General
Eureka	Eureka	05U	General
Fallon	Fallon Muni	FLX	General
Fernley	Samsarg Field	N58	Access
Gabbs	Gabbs	GAB	General
Gerlach	Black Rock City (Burning Man)	88NV	Special Event
Goldfield	Lida Junction	0L4	Access
Hawthorne	Hawthorne Industrial	HTH	General
Jackpot	Jackpot/Hayden Field	06U	General
Jean	Jean	0L7	General
Kingston	Kingston	N15	Backcountry
Las Vegas	Henderson Executive	HND	National
Las Vegas	Harry Reid International	LAS	Primary
Las Vegas	North Las Vegas	VGT	National
Lovelock	Derby Field	LOL	General
Lyon County	Flying M Ranch (Hilton Ranch)	-	Backcountry
Mesquite	Mesquite	67L	General
Mina	Mina	3Q0	Access

Associated City	Airport Name	FAA ID	NAHSP Role
Minden	Minden-Tahoe	MEV	Regional
North Fork	Stevens-Crosby	08U	Access
Overton	Echo Bay	0L9	Backcountry
Overton	Perkins Field	U08	General
Owyhee	Owyhee	10U	Access
Pahrump	Calvada Meadows	74P	Backcountry
Panaca	Lincoln County	1L1	General
Reno	Reno/Stead	RTS	Regional
Reno	Reno/Tahoe International	RNO	Primary
Reno	Spanish Springs	N86	Backcountry
Sandy Valley	Sky Ranch	3L2	Backcountry
Searchlight	Searchlight	1L3	Access
Silver Springs	Silver Springs	SPZ	General
Smith	Rosaschi Air Park	N59	Backcountry
Tonopah	Tonopah	TPH	General
Wells	Wells Municipal/Harriet Field	LWL	General
Winnemucca	Winnemucca Municipal	WMC	General
Yerington	Yerington Municipal	O43	General

Sources: Kimley-Horn 2021, FAA Airport Facilities Data 2021

Figure 9-1: NAHSP Airports Included in the AEIS



Sources: Kimley-Horn, FAA Form 5010 Airport Master Record 2021

9.3. Economic Impact Methodology

An economic impact analysis estimates the impact of an industry change on the statewide and/or regional economy. For this analysis, the impact of airport-related operations located in Nevada are estimated on the statewide level. Four impacts are considered in this analysis: 1) airport operations; 2) airport tenant activities; 3) airport capital expenditures; and 4) airport-related visitors to the state. All 51 study airports do not have all four impact categories, but relevant impacts were identified for all airports.

It is important to note that the economic impacts of three airports in Clark County, Harry Reid International Airport (LAS), Henderson Executive Airport (HND), and North Las Vegas Airport (VGT), were recently estimated in the report by Oxford Economics, titled “The Economic Contribution of the Clark County Airports,” August 2019. This AEIS utilizes the findings from that study; however, the same level of data granularity of impacts by type is not available for these three airports. As appropriate, the data for the three airports is integrated into the tabular presentation and findings.

9.3.1. General Approach and Terminology

The economic impact analysis uses data obtained from airports and the statistical modeling software package IMPLAN (Impact Analysis for Planning) to analyze expenditures associated with each of the four economic activities described above. The analysis is based on the theory that when new money enters a community (in this case the state) through investments, revenue, or income, some of it is re-spent one or more times in the economy, creating additional impacts. IMPLAN estimates these impacts using specific data on what inputs are needed to produce the goods and services for the identified industries. The economic activity in the industry under study (airports) serves as the base for estimating the total economic impact generated by that industry across all industry sub-sectors.

The IMPLAN package classifies industries based on their operations. Some of the industries do not directly correspond to North American Industrial Classification System (NAICS) codes as multiple NAICS industries may be combined into a single industry in IMPLAN. Tables throughout this report showing industry impacts use the IMPLAN, rather than the NAICS system. To calculate economic impacts, multipliers for each industry are available for various indicators. The multipliers are based on relationships among industries and estimate the purchases of a particular industry from other industries.

Multipliers translate the consequences of change in one variable upon others. They are ratios that estimate the “ripple effect” throughout the economy. In more “technical terms,” they are numerical coefficients, which relate a change in a component of aggregate demand or employment to a consequent change in total income or total employment. Multipliers are applied to the direct economic impact to derive other (non-direct) economic impacts. There are three categories of impacts as discussed below:

1. **Direct Impact:** Represents the initial expenditure amounts that directly impact the regional airport economy. These include on- and off-airport effects such as airport operations, construction, airport tenants, and spending from visitors that utilize the airport.
2. **Indirect Impact:** Represents the impact from the use of direct revenues to purchases goods and services from supplying vendors in the state. Purchases are made by supplying vendors

to restock their inventory by purchasing goods and services from other vendors who in turn restock by purchasing from other vendors and so on is the indirect impact. These purchases are also commonly referred to as the “ripple effect.”

3. **Induced Impact:** The direct activity and the resulting indirect activity generate some increases in the general level of employment and income, leading to a tertiary level of economic impact through the higher level of household expenditures on goods and services. These impacts reflect the increase in spending from the household sector as income increases or decreases due to changes in production of goods and services.

These three categories of impact are conveyed in terms of individual measures or indicators. The three measures utilized to measure economic impact include:

1. **Employment:** Represents the total number of people employed by a business, regardless of whether they are full-time or part-time, as well as the jobs created or supported in the economy to support the business’ economic activity.
2. **Labor Income:** All forms of employment income, including employee compensation (wages and benefits including health care insurance payments, retirement contributions, etc.) and proprietor income.
3. **Output:** Output represents the value of industry production and economic activity associated with the operation of the airport, including airport administration and management, sales of goods and services by airport tenants, budget expenditures by agencies located on airports, capital expenditures, and visitor spending.

For example, an airport employs staff (employment), pays salaries and wages (labor income), and spends money in the regional economy (output). These are direct impacts. The purchases by the airport of goods and services from their suppliers allows these suppliers to increase their operations, hire more employees, and pay wages. These are indirect impacts. Wages paid to employees of the airport and airport suppliers are spent in the community and spread throughout the state, supporting additional businesses and further increasing operations, employment, and wages for these businesses. This is the induced impact.

This AEIS estimates the direct, indirect, and induced impacts of airport and related operations on output, employment, and labor income levels in Nevada. Due to the COVID-19 pandemic and its unprecedented impact on aviation in 2020 and into 2021, as well as the timing of the NAHSP, the AEIS analysis is based on calendar year 2019 data and all estimates are calculated in 2019 dollars.

9.3.2. Approach to Data Calculation

The study included impacts for 51 airports throughout the state of Nevada. Data for these airports and related industries were collected as discussed below and impacts estimated using the IMPLAN model. As previously noted, economic impacts for LAS, HND, and VGT from the August 2019 study were utilized in this AEIS for those three airports.

There are four activities for which impacts are estimated and described below:

- Airport operations
- Airport tenants
- Capital expenditures
- Visitors

Airport Operations: Airports throughout the state were contacted and completed the Airport Inventory Data Collection Form (inventory or survey form) designed to determine the airport's expenditures, labor income, and employment in 2019 to provide a basis for the airport operations analysis, as well as provide additional data for the NAHSP's analysis. The airport operations data is focused on staff and activities required to manage the airport including business operations, as well ground and building maintenance. The airports provided a wide variety of data. Some provided all three points of information (output, employment, and labor income), while others provided two, one, or none. As at least one data point is required for the IMPLAN analysis, the missing data points were estimated using data contained in the IMPLAN model for the county corresponding to the airport's location based on the relationships between the three components for that industry in the county. For example, Minden Airport (MEV) provided the estimated number of employees and labor income for airport operations. These actual amounts were used as the direct impacts for the airport. The direct impact of output was estimated using IMPLAN data regarding the Output per Employee in the airport industry in Douglas County. Using IMPLAN, indirect and induced multipliers are applied for output, employment, and labor income. While countywide IMPLAN data is used to estimate missing data points, the analysis uses statewide multipliers to estimate the impact of each airport's operation on the state.

Airport Tenants: A list of airport business tenants was also requested from the airports. These business tenants, defined as those with on-site employees (not to be confused with based aircraft tenants of the airport) were contacted individually to request data on their specific activity at the airport, specifically employment. Unfortunately, not all tenants provided employment data. For tenants found to be located on airport properties but without employment data, our team utilized ESRI's Community Analyst tool, a database containing various business information, including employment for businesses throughout the United States. Additionally, the Nevada Employer Directory provided by the Nevada Department of Employment, Training and Rehabilitation was also utilized. Resulting employment was used as the direct impact for airport tenants, with direct output and labor income estimated by IMPLAN for the industry corresponding to each tenant and county of operation. Indirect and induced impacts were estimated using statewide multipliers for the appropriate industries.

Capital Expenditures: Additionally, annual capital expenditures by the airports over the past five years (2015 to 2019) were requested. The data is then averaged to account for years in which expenditures are very high versus very low, depending on the year. This allows a smoothing of the impact to account for issues such as weather, project schedules, and available funding. Additionally, the FAA Grant History was utilized to determine historic capital expenditures when airports were not able to provide this data. For airports that did not provide Airport Capital Improvement Plans (ACIPs), development estimates from the FAA's 2021-2025 National Plan of Integrated Airport System (NPIAS) were utilized. Expenditures represent the direct output impact of airport capital

expenditures. Direct employment and labor income impacts are estimated using IMPLAN data for the appropriate construction-related industry in the county where each airport is located. Indirect and induced impacts are estimated using statewide multipliers for the appropriate industries.

Visitors: Visitors include both those that utilize a commercial service airport and those that arrive via a general aviation airport. The focus of the visitor spending is on those visitors arriving to Nevada from out of state as these passengers are bringing “new money” into Nevada, as opposed to spending money in one area of the state in another area, all of which are generated in the state. Airports were asked to provide information regarding the number of general aviation (GA) nonlocal, out-of-state passengers/visitors utilizing the airport in 2019 and information regarding the average number of nights spent in the state. Using these data, total GA visitor days were estimated for each airport. For commercial service airports, data on out-of-state visitors were obtained from Airline Data, Inc. for 2019. Expenditures per visitor per day in the lodging, gaming, food and drink, entertainment/recreation, shopping, and other industries were estimated for each airport based on their county of location. Expenditure data was collected from the following reports:

- Reno Tahoe 2019 Visitor Profile Survey, EMC Research for Reno-Sparks Convention & Visitors Authority
- CY17/18 Carson City Visitor Profile, Nevada Division of Tourism
- 2019 Las Vegas Visitors Profile Study, GLS Research, Las Vegas Convention and Visitors Authority
- Nevada Territory Visitor Facts-Cowboy Country, 2015-2019, Nevada Commission on Tourism
- Nevada Territory Visitor Facts-Pony Express, 2015-2019, Nevada Commission on Tourism
- Nevada Territory Visitor Facts-Nevada Silver Trails, 2015-2019, Nevada Commission on Tourism

Total visitor expenditures are considered direct output impacts of visitors. Employment and labor income impacts are estimated using relationships between output and employment and labor income for each visitor expenditure industry for the county of visitor location. Indirect and induced impacts are estimated using statewide multipliers for these industries.

9.3.3. Economic Modeling Process

IMPLAN is based on the input-output economic model. Input-output analysis is a form of economic analysis based on the interdependencies between economic sectors. Input-output is commonly used to estimate the impacts of changes in an economy and to analyze their resulting ripple effects. The latest version of IMPLAN includes 546 industries corresponding to various NAICS industries. Data is available at zip code, county, state, and national levels. By selecting the appropriate industry and region, one can input labor income, output, and/or direct employment data to estimate the direct, indirect, and induced impact of that industry on the region and/or state. In addition to estimating the overall economic impact, IMPLAN can also estimate the tax impact of the industry, including local, state, and federal taxes paid by that industry.

9.4. Airport Economic Impact Findings

As discussed above, the economic impact includes the estimate of direct, indirect, and induced impact on statewide employment, labor income, and output of four activities: airport operations, airport tenants, airport capital expenditures, and airport visitors. Findings of the economic impact analysis are summarized in this section.

Table 9-2 summarizes the total economic impact generated by Nevada’s airports in 2019 by airport type, calling out the specific impacts of three of the Clark County airports, the two Reno-Tahoe Airport Authority airports, other commercial service, and the remaining general aviation airports. Nevada airports provided approximately 285,500 jobs and generated \$12.2 billion in labor income and \$40 billion in economic output in 2019.

Table 9-2: Nevada Airports 2019 Total Economic Impacts by Airport Category

Measure	Employment	Labor Income	Output
LAS, VGT, HND	246,265	\$10,500,000,000	\$34,918,032,790
RNO and RTS	35,232	\$1,484,887,810	\$4,449,777,740
Other Commercial Service Airports	1,219	\$70,282,580	\$214,195,610
Remaining GA Airports	2,805	\$150,645,160	\$467,523,590
Statewide Total	285,521	\$12,205,815,552	\$40,049,529,717

Sources: Calculations using IMPLAN 2019; Economic Contribution of the Clark County Airports, Oxford Economics, August 2019; Ekay Economic Consultants; Kimley-Horn 2021

These statewide aviation impacts contribute greatly to the state’s overall economy as reflected in **Table 9-3**.

Table 9-3: Nevada Airports 2019 Total Contribution to the State Economy

Measure	State Economy	Total Aviation Impacts	Percent of Economy Supported by Aviation
Employment	1,857,766	285,521	15.4%
Labor Income	\$ 101,420,997,685	\$12,205,815,552	12.0%
Output	\$ 298,932,168,595	\$ 40,049,529,717	13.4%

Sources: Calculations using IMPLAN 2019; Economic Contribution of the Clark County Airports, Oxford Economics, August 2019; Ekay Economic Consultants; Kimley-Horn 2021

Table 9-4 displays the 2019 total economic impact by individual airport.

Table 9-4: Individual Nevada Airports Total 2019 Contribution to the State Economy*

Associated City	Airport Name	FAA ID	County	NAHSP Role	Employment	Labor Income	Output
Alamo	Alamo Landing Field	L92	Lincoln	Access	32	\$1,445,920	\$4,348,230
Austin	Austin Airport	TMT	Lander	General	23	\$1,110,750	\$3,281,720
Battle Mountain	Battle Mountain Airport	BAM	Lander	Access	114	\$6,105,220	\$18,200,800
Beatty	Beatty Airport	BTY	Nye	General	18	\$856,820	\$2,696,400
Boulder City	Boulder City Airport	BVU	Clark	Primary	728	\$40,208,130	\$132,352,900
Cal-Nev-Ari	Kidwell	1L4	Clark	Access	7	\$227,480	\$692,870
Carson City	Carson	CXP	Carson City	Regional	1,361	\$78,727,500	\$251,350,280
Crescent Valley	Crescent Valley	U74	Eureka	Backcountry	0	\$260	\$1,070
Currant	Currant Ranch	9U7	Nye	Access	1	\$40,310	\$130,950
Dayton/Carson City	Dayton Valley Airpark	A34	Lyon	Access	7	\$93,390	\$361,790
Dead Cow	Dead Cow Lakebed Airstrip (High Sierra)	-	Washoe	Special Event	-	\$0	\$0
Denio	Denio Junction	E85	Humboldt	Access	0	\$6,750	\$21,820
Duckwater	Duckwater	01U	Nye	Access	1	\$18,900	\$61,380
Dyer*	Dyer	2Q9	Esmeralda	Backcountry	34	\$1,508,340	\$5,046,870
Elko	Elko Regional Airport	EKO	Elko	Primary	491	\$30,074,450	\$81,842,710
Ely	Ely Airport	ELY	White Pine	General	74	\$3,678,170	\$11,800,790
Eureka	Eureka Airport - Booth Bailey Field	05U	Eureka	General	32	\$1,976,090	\$6,180,610
Fallon	Fallon Municipal	FLX	Churchill	General	64	\$4,424,170	\$13,136,280
Fernley	Tiger Field	N58	Lyon	Access	6	\$76,030	\$299,850
Gabbs	Gabbs Airport	GAB	Nye	General	3	\$122,130	\$384,790
Gerlach	Black Rock City Airport	88NV	Washoe	Special Event	24	\$887,160	\$2,584,010
Goldfield	Lida Junction	0L4	Esmeralda	Access	0	\$3,660	\$14,710
Hawthorne	Hawthorne Industrial Airport	HTH	Mineral	General	24	\$775,130	\$2,513,800
Jackpot	Jackpot/Hayden Field	06U	Elko	General	16	\$888,080	\$2,539,250

Associated City	Airport Name	FAA ID	County	NAHSP Role	Employment	Labor Income	Output
Jean	Jean Sport Airport	0L7	Clark	General	58	\$2,600,950	\$7,638,810
Kingston	Kingston Airport	N15	Lander	Backcountry	2	\$175,000	\$407,650
Las Vegas**	Henderson Executive	HND	Clark	National	1,042	\$44,427,750	\$247,540,980
Las Vegas**	Harry Reid International	LAS	Clark	Primary	244,304	\$10,416,388,850	\$34,452,459,020
Las Vegas**	North Las Vegas	VGT	Clark	National	919	\$39,183,400	\$218,032,790
Lovelock	Derby Field Airport	LOL	Pershing	General	22	\$741,530	\$2,746,670
Lyon County	Flying M	-	Lyon	Backcountry	-	\$0	\$0
Mesquite	Mesquite Municipal Airport	67L	Clark	General	87	\$4,208,920	\$12,172,190
Mina	Mina	3Q0	Mineral	Access	2	\$37,960	\$127,340
Minden	Minden	MEV	Douglas	Regional	376	\$19,493,520	\$56,415,480
North Fork	Stevens Crosby	08U	Elko	Access	0	\$7,000	\$22,330
Overton	Echo Bay Airport	0L9	Clark	Backcountry	0	\$10,680	\$32,520
Overton	Perkins Field Overton	U08	Clark	General	24	\$884,460	\$2,541,720
Owyhee	Owyhee Airport	10U	Elko	Access	15	\$902,570	\$2,531,380
Pahrump	Calvada Meadows	74P	Nye	Backcountry	8	\$312,200	\$964,280
Panaca	LC Airport - Panaca	1L1	Lincoln	General	47	\$2,261,360	\$7,689,510
Reno	Reno-Stead Airport	RTS	Washoe	Regional	1,409	\$70,261,580	\$191,465,910
Reno	Reno-Tahoe International	RNO	Washoe	Primary	33,823	\$1,414,626,230	\$4,258,311,830
Reno	Spanish Springs	N86	Washoe	Backcountry	1	\$31,900	\$90,970
Sandy Valley	Sky Ranch	3L2	Clark	Backcountry	1	\$44,420	\$135,290
Searchlight	Searchlight	1L3	Clark	Access	13	\$684,430	\$1,926,980
Silver Springs	Silver Springs	SPZ	Lyon	General	27	\$894,870	\$2,739,920
Smith	Rosaschi Air Park	N59	Lyon	Backcountry	0	\$3,320	\$13,070
Tonopah	Tonopah Airport	TPH	Nye	General	43	\$1,996,090	\$6,290,990
Wells	Wells Muni Harriet Field	LWL	Elko	General	103	\$4,692,070	\$15,037,900

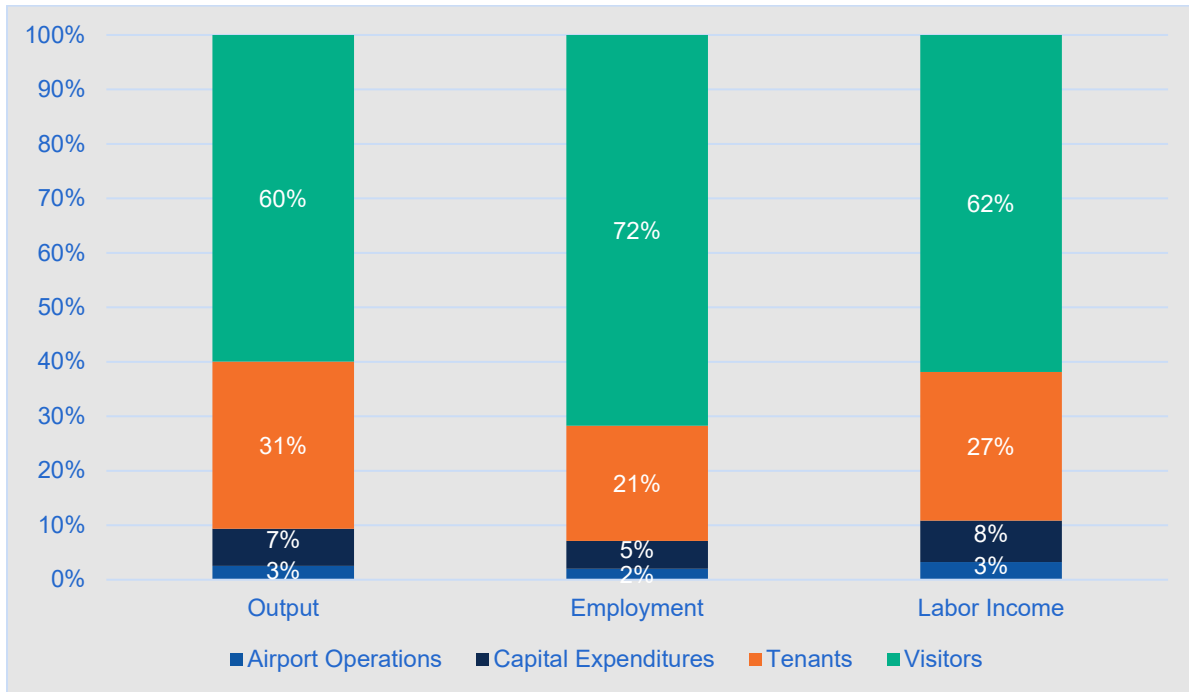
Associated City	Airport Name	FAA ID	County	NAHSP Role	Employment	Labor Income	Output
Winnemucca	Winnemucca Municipal Airport	WMC	Humboldt	General	92	\$5,474,500	\$16,179,840
Yerington	Yerington	O43	Lyon	General	43	\$2,215,150	\$6,170,480

*NOTES: *Dyer Airport was selected as the location for a new FAA Distance Measuring Equipment (DME) building that will serve future Automatic Dependent Surveillance–Broadcast (ADS-B) needs. While a non-NPIAS airport, this construction project at the airport generated capital expenditures that created jobs and spending in the area that is the majority of the economic impact at Dyer Airport. ** LAS, HND, VGT are presented in italics to reflect the results from Economic Contribution of the Clark County Airports, Oxford Economics, August 2019, not from calculations as part of this AEIS.*

Sources: Calculations using IMPLAN 2019; Economic Contribution of the Clark County Airports, Oxford Economics, August 2019; Ekay Economic Consultants; Kimley-Horn 2021

Figure 9-2 displays the share of economic impacts by category in terms of those generated by airport operations, capital expenditures, airport tenants, and visitors. The primary source of economic impact is generated by visitors, followed by tenants, capital expenditures, and airport operations.

Figure 9-2: Share of Economic Impacts by Category*



* Note: Excludes LAS, HND, VGT, as detailed data for these impacts is not available and are not directly comparable.
Sources: Calculations using IMPLAN, 2019; Ekay Economic Consultants, Kimley-Horn, 2021

Table 9-5 and **Table 9-6** display the top industries in Nevada by jobs and revenues for both indirect and induced impacts as determined through the IMPLAN analysis of the airports' economic impact. As discussed above, the IMPLAN package includes a list of industries and data regarding economic relationships among these industries for a selected geography. Using information regarding airport operations, capital expenditures, tenant operations, and visitor expenditures, the IMPLAN model estimates the indirect and induced impact of these operations and expenditures on various industries in Nevada. The top industries impacted by airports was analyzed in this study.

The top industries generate approximately 3,400 jobs and \$504 million through supplier sales, an indirect impact, and 2,100 jobs and \$445 million through re-spending, an induced impact.

Table 9-5: Top Industries in Nevada by Supplier Sales and Income Re-spending by Jobs – Total Impact*

Impacts from Supplier Sales (Indirect) in NV			Impacts from Income Re-spending (Induced) in NV		
IMPLAN Codes	Industry Description	Jobs Generated	IMPLAN Codes	Industry Description	Jobs Generated
447	Other real estate	691	490	Hospitals	294
420	Scenic and sightseeing transportation and support activities for transportation	455	447	Other real estate	249
511	All other food and drinking places	367	509	Full-service restaurants	240
455	Legal services	331	483	Offices of physicians	234
472	Employment services	314	510	Limited-service restaurants	232
469	Management of companies and enterprises	308	411	Retail - General merchandise stores	188
477	Landscape and horticultural services	285	406	Retail - Food and beverage stores	187
476	Services to buildings	253	493	Individual and family services	178
473	Business support services	215	442	Other financial investment activities	153
418	Transit and ground passenger transportation	182	413	Retail - Nonstore retailers	147
	Sub-Total – Top Industries	3,400		Sub-Total – Top Industries	2,102
	Sub-Total – All Other Industries	3,516		Sub-Total – All Other Industries	4,184
	TOTAL – All Industries	6,916		TOTAL – All Industries	6,286

*NOTE: Analysis excludes LAS, HND, VGT, as impacts of these airports were estimated by Oxford Economics outside of the AEIS and detailed data for these impacts is not available. Industry-specific impacts were estimated using data collected for the AEIS's analysis and IMPLAN software. Sources: IMPLAN 2019; Ekay Economic Consultants, Kimley-Horn 2021

Table 9-6: Top Industries in Nevada by Supplier Sales and Income Re-spending by Business Revenues – Total Impact*

Impacts from Supplier Sales (Indirect) in NV			Impacts from Income Re-spending (Induced) in NV		
IMPLAN Codes	Industry Description	Business Revenues Generated	IMPLAN Codes	Industry Description	Business Revenues Generated
447	Other real estate	\$126,094,114	449	Owner-occupied dwellings	\$137,089,459
469	Management of companies and enterprises	\$72,680,040	490	Hospitals	\$56,764,511
420	Scenic and sightseeing transportation and support activities for transportation	\$66,622,268	447	Other real estate	\$45,284,391
445	Insurance agencies, brokerages, and related activities	\$50,886,766	448	Tenant-occupied housing	\$36,947,395
455	Legal services	\$50,584,709	483	Offices of physicians	\$35,962,944
511	All Other food and drinking places	\$39,019,097	444	Insurance carriers, except direct life	\$32,674,491
453	Commercial and industrial machinery and equipment rental and leasing	\$25,184,256	441	Monetary authorities and depository credit intermediation	\$31,174,226
47	Electric power transmission and distribution	\$24,541,442	413	Retail - Nonstore retailers	\$24,900,761
472	Employment services	\$24,366,513	442	Other financial investment activities	\$22,503,663
477	Landscape and horticultural services	\$23,987,531	446	Funds, trusts, and other financial vehicles	\$21,950,991
	Sub-Total – Top Industries	\$503,966,736		Sub-Total – Top Industries	\$445,252,831
	Sub-Total – All Other Industries	\$630,381,933		Sub-Total – All Other Industries	\$599,458,310
	TOTAL – All Industries	\$1,134,348,669		TOTAL – All Industries	\$1,044,711,141

*NOTE: Analysis excludes LAS, HND, VGT, as impacts of these airports were estimated by Oxford Economics outside of the AEIS and detailed data for these impacts is not available. Industry-specific impacts were estimated using data collected for the AEIS's analysis and IMPLAN software. Sources: IMPLAN 2019; Ekay Economic Consultants, Kimley-Horn 2021

9.5. Tax Revenue Analysis

In addition to the contributions of study airports in the form of employment, labor income, and output, this activity spurs additional impacts in the form of tax revenues paid to public entities. Tax revenues are generated on a variety of aviation-related activities, such as sales tax on visitor spending, income tax on airport and tenant payroll, property taxes, fuel taxes, and more.¹ These taxes are levied at various levels, including locally (county and subcounty), statewide, and federally depending on the type of tax and applicability.

Similar to the economic impact, tax impacts are estimated using employment, expenditures, and/or payroll information provided for each airport, airport tenant, airport capital expenditures, and visitors using the IMPLAN model at the statewide level. The IMPLAN model contains data regarding the relationship between each industry within the state and levels of taxes generated by these industries for local, state, and federal sources. Using this relationship along with airport, tenant, capital expenditures, and visitor expenditure data for the relevant industry, the IMPLAN model estimates tax revenues at the local (county and sub-county), state, and federal levels generated by direct (airport/tenants/capital expenditures/visitors), indirect (suppliers), induced (income spending) activities in the state. No direct tax impacts are estimated for airport operations as many airports are public entities and are exempt from taxation. Induced and indirect tax revenues generated by airport operations are included in the analysis.

Total impact of Nevada airports on public entities in Nevada are shown in **Table 9-7**.

Table 9-7: Nevada Airports 2019 Tax Impact*

	Direct	Indirect	Induced	Total
Local	\$77,320,189	\$20,467,174	\$21,781,456	\$119,568,819
State	\$164,722,781	\$42,140,906	\$45,085,488	\$251,949,175
Federal	\$234,852,548	\$79,712,843	\$66,714,269	\$381,279,660
LAS, HND, VGT	-	-	-	\$5,900,000,000
Total	\$476,895,518	\$142,320,923	\$133,581,213	\$6,652,797,654

**NOTE: Analysis for LAS, HND, VGT derived from Contribution of the Clark County Airports, Oxford Economics, August 2019 report. This report only provides a total tax impact as the distribution of this impact among direct, indirect, and induced sources is unavailable. Sources: Calculations using IMPLAN 2019; Economic Contribution of the Clark County Airports, Oxford Economics, August 2019; Ekay Economic Consultants; Kimley-Horn 2021*

9.6. Special Events Airports and Activities

Nevada is unique in its support and attraction of two special events that involve temporary airports. In addition, the Reno-Stead Airport (RTS) serves as an international aviation-specific attraction for the Reno Air Races whose impact is much greater than just a traditional general aviation reliever airport's economic activity. Burning Man is an annual event in late summer/early fall that attracts a

¹ Taxes captured by the IMPLAN model for this tax analysis include the following (not all tax sources may be applicable): sales, property, motor vehicle license, severance, excise, and other taxes, as well as special assessments and custom duty. Also included are taxes on corporate profits, employee and employer contributions to social insurance, and personal income taxes.

large gathering from around the world, and the Black Rock City Airport (88NV) is developed to support this event. The High Sierra Fly-In is conducted during the fall at Dead Cow Airport, a private facility that opens to those attending the event. Both events are further described below.

While each of these events attracts a large crowd, many of which originate from out of state or even international destinations, their economic impact is specific to the event and does not create a standard aviation-related economic impact in the community that hosts the airport. In a traditional state aviation economic impact analysis, an airport's economic impacts consist of the jobs, payroll, and economic activity created by the following as quantified in the NAHSP:

- Airport management
- Business tenants that operate at the airport (typically for aviation purposes such as an FBO, airline, rental car agency, or aircraft repair)
- Visitors arriving from out-of-state
- Capital expenditures on airport facilities

The impacts of each of these categories is estimated primarily through surveys and use of IMPLAN to determine the direct economic impacts that primarily occur on the airport or as a result of the airport's operation. These direct impacts are generated locally, with indirect and induced impacts quantified at a statewide level as these direct impacts "multiply" throughout the state economy. In the case of these special event airports (not including RTS), while there is local economic activity in the form of sales by those that set up "shop" at the event to sell souvenirs or food, most of the economic activity occurs off-site where aviation fuel is purchased, cars are rented, food is bought, etc. The events do require the purchase of tickets; however, the income from the ticket sales is not typically "spent" in the local economy. Therefore, while each event does create an economic impact, it's difficult to quantify the impact associated with the temporary airport alone, separate from the impact of the event as a whole. Visitors do arrive by air but are then camping or staying outside of the local area and are spending money in other locations as a result of traveling to the event. For Burning Man, many visitors fly into Reno-Tahoe International Airport (RNO) and rent a car, so the visitor impacts are attributed to RNO where direct spending occurred.

The following summarizes the three unique Nevada special events, their aviation-related activities, and the estimated impacts that have been prepared separate from the NAHSP.

9.6.1. Burning Man – Black Rock City Airport

Burning Man is a large outdoor event occurring in the Black Rock Desert, in Northwest Nevada in August-September on Bureau of Land Management (BLM) property. According to their website, "Burning Man Project's mission is to produce the annual event known as Burning Man and to guide, nurture and protect the more permanent community created by its culture. We believe that the experience of Burning Man can produce positive spiritual change in the world. To this end, it is equally important that we communicate with one another, with the citizens of Black Rock City and with the community of Burning Man wherever it may arise. Burning Man is radically inclusive, and its meaning is potentially accessible to anyone." The Project aims to be a self-supporting enterprise.²

² <https://burningman.org/>

For the week of the event, a city, Black Rock City (BRC), is built in the desert. 88NV is set up specifically to support the event, with volunteers taking responsibility for establishing the runway and even a temporary air traffic control tower to manage the general aviation traffic that arrives via air. Many passengers also utilize other Nevada airports including Reno-Tahoe International (RNO), the closest traditional commercial service airport, as well as other public-use general aviation airports in northwest Nevada.

According to data collected and reported by the Black Rock Project based on a survey of event attendees, in 2019, the temporary population of Black Rock City reached 80,000, including BRC staff, government workers, volunteers, and paid participants. With a median age of 36 and personal income of \$71,500, participants spent an average of \$1,650 each in 2019 on event-related expenses. Of these, \$745 per person was spent in Nevada.³

According to a survey of its participants, the following states were identified as BRC residents:

- 47% California
- 7.8% New York
- 6.4% Washington
- 5.3% Nevada
- 5.1% Oregon
- 4.5% Colorado

Other significant states represented in the BRC population included Texas, Arizona, Florida, Illinois, Utah, and Massachusetts. Canada contributed 5.4% of participants, and Europe, 4.3%. In 2019, 69.1% of participants arrived in the area by means other than air travel (car, bus, etc.). Of those who flew to the region, 1.1% utilized 88NV, with the remaining participants primarily using RNO.⁴ RNO officials estimate approximately 20,000-25,000 Burning Man participants utilize the airport every year.⁵ Total economic impact of the Burning Man event on the Northern Nevada region has been estimated at \$60 million per year.⁶

³ BRC Census Population Analysis, 2013-2019, <http://blackrockcitycensus.org/toc.html>

⁴ BRC Census Population Analysis, 2013-2019, <http://blackrockcitycensus.org/toc.html>

⁵ <https://mynews4.com/news/local/reno-tahoe-airport-businesses-missing-out-on-burning-mans-impact>

⁶ [https://www.kolotv.com/2021/05/24/gerlach-locals-react-to-cancellation-of-burning-man/#:~:text=\(KOLO\)%20It's%20been%20estimated,site%20of%20the%20annual%20festival.](https://www.kolotv.com/2021/05/24/gerlach-locals-react-to-cancellation-of-burning-man/#:~:text=(KOLO)%20It's%20been%20estimated,site%20of%20the%20annual%20festival.)

9.6.2. High Sierra Fly-in – Dead Cow Airstrip

The High Sierra Fly-in is an annual outdoor fly-in event that takes place on the temporary Dead Cow Airstrip and surrounding dry lakebed in northern Nevada on private property. The event typically occurs over a long weekend in October. The event is “a celebration of backcountry aviation at a gathering of like-minded individuals in the beautiful Nevada desert – an experience unlike anywhere else on the planet.”⁷ The event focuses on the STOL (short takeoff/landing) Drag competition, in which pilots fly a straight pattern of 2,000 feet down, land at the halfway point to come to a complete stop, pivot 180 degrees, and then fly back to the starting point. Pilots typically utilize taildragger aircraft such as CubCrafters and Stearman for the races. Other visitors typically arrive in smaller GA aircraft such as Cessna 180s. Unlike 88NV, Dead Cow Airstrip is not an FAA registered aviation facility, but the FAA is in attendance to ensure safe operations for the temporary facility and races.



Source: NDOT Aviation Program



Source: NDOT Aviation Program

The event has taken place since 2008, with approximately 1,000 vehicles, 450 airplanes, and 2,000 spectators and participants in 2021. Participants are typically from across the U.S. and Canada; race winners were from Oregon, Kansas, and Idaho. Registration is required for each attendee at a cost of \$125 per person. Based on the estimated number of spectators, event fees would be \$250,000. Due to the smaller nature, there is limited information on the participants and spending compared to Burning Man.

9.6.3. Reno Air Races – Reno-Stead Airport

The Reno Air Races have been hosted annually at the Reno-Stead Airport (RTS) since 1964 by the Reno Air Racing Association (RARA). The Races are part of the STIHL National Championship Air Races and contain seven racing classes, a large static aircraft display, and military and civil flight demonstrations. Held over one week in September, over the last 10 years the event attracted more than 1 million spectators and generated more than \$600 million for the region’s economy.⁸ Recently, the University of Nevada, Reno conducted an economic impact study of the 2019 STIHL National Championship Air Races which found that the event hosts nearly 70,000 total unique attendees

⁷ <https://www.highsierraflyin.com>

⁸ Reno Air Racing Association. <https://airrace.org/about/>.

generating over \$100 million in total economic impact to the Reno-Tahoe region by non-local visitors.⁹

RARA and races are managed by a small full-time staff and approximately 2,500 volunteers. The full-time staff handle the numerous details for the year-to-year planning while the volunteers assist with course safety and security, event sequencing, air traffic control, and race timing and scoring.

In 2020, RARA announced that it would begin a Racing for the Future campaign, in which the first component would be the Flight Training Scholarship program. The program will support training for up to 10 students to complete their private pilot's license. The campaign also plans to add educational and training support to create a more diverse and engaged fan base.

9.7. Aerospace, Defense, and Military Impacts

Beyond airports, there are other aviation-related impacts that are generated through aerospace manufacturing and development as well as aviation-related military impacts. While these impacts were not quantified as part of the AEIS, other sources were identified to provide this context.

In 2016, IHS Economics published the Aerospace and Defense Economic Impact Analysis for the Aerospace Industries Association. The aerospace and defense (A&D) industry was defined as “a broad complex of firms performing a variety of functions including service delivery in support of operations and the manufacturing of goods and of materials, components, systems and platforms for civil aviation, space, and national security applications.” Using a process similar to the AEIS, direct, indirect, induced, and total impacts, the A&D industry's impacts were identified for the U.S. and by state using the same terms of jobs, labor income, and output utilizing data available from IMPLAN (the same economic impact modeling software used in the AEIS) and Business Market Insights, a database that utilizes IHS macroeconomic and forecast data, to calculate the impacts. This report identified the following average impacts between 2013 and 2015 for Nevada's A&D industry:

- Employment (# of workers): 1,790
- Labor Income: \$106 million
- Output: \$411 million

These impacts are mostly separate from the AEIS's airport impacts other than A&D businesses that are located on airports. The 2016 study did not identify any specific businesses so there is no mechanism to distinguish if there are any overlaps.

Also defense related but focused on the U.S. Armed Forces, Nevada's Department of Defense (DOD) installations play an important role in supporting the state's economy. While Nevada has National Guard, Air Force, Navy, and Army installations, several have aviation components that would create impacts that further increase the state's economic impact as a result of air-related transportation. From Nellis Air Force Base (AFB) to Creech AFB and Naval Air Station (NAS) Fallon and including the Nevada Test and Training Range (NTTR), all of these installations have aviation-related activity. A publication from Nellis dated February 25, 2021 for Calendar Year 2020 quantified the economic impact of Nellis, Creech, and NTTR to be a total of 36,648 jobs with a \$3.831 billion

⁹ <https://airrace.org/news/2020-stihl-national-championship-air-races-canceled/>

economic impact.¹⁰ NAS Fallon conducted an Economic Impact Assessment in May 2016 (based on Fiscal Year 2015 data) that identified 4,586 jobs that include both military and civilian staff (and including multiplier impacts) with a total economic activity estimate of \$517 million.¹¹

The aerospace, defense, and military impacts provided in Nevada are in addition to those identified for the airports as quantified in the AEIS. Any activity that existed on a public-use airport was quantified in the AEIS such as Nevada Air National Guard located at RNO (152nd Intelligence Squadron and 152nd Airlift Wing) is included in the airport's impacts, while the Nevada Air National Guard base at Creech is included in the above estimate for this DOD facility.

9.8. Summary

As demonstrated in this analysis, Nevada airports provided approximately 285,500 jobs and generated \$12.2 billion in labor income and \$40 billion in total economic output in 2019. It is recognized that the COVID-19 pandemic impacted each of the 51 study airports in some way. As of late 2021, the aviation industry continues its recovery, and many airports are nearing the high activity levels experienced in 2019. The impact of aviation has been felt throughout Nevada, the U.S., and the world prior to and throughout the pandemic as many businesses rely on aviation to transport people and goods, whether to meet critical medical needs through transporting medical professionals or the medications and equipment needed to meet healthcare demands.

This AEIS has revealed that jobs and economic activity generated by airports is considerable within Nevada. Beyond these quantitative benefits, there are qualitative benefits provided as a result of the airport system's operation from supporting business connections to emergency life-saving transport. Airports serve not only as job centers, but also as an important transportation option that complements other modes and the state's economic growth and diversification. Continued investment in the aviation system provides a means to grow the economy and support all corners of Nevada's landscape.

¹⁰ www.nellis.af.mil/Portals/104/EIA%202020%20Nellis%20AFB.pdf

¹¹ https://frtcmmodernization.com/portals/FRTCMmodernization/files/NAS_Fallon_Economics_v2_Aug_2016.pdf