Chapter 6. Forecasts of Aviation Demand

6.1. Introduction

Forecast analyses lend insight into how future aviation demand may impact the system and its potential needs. System planning forecasts differ from master planning as detailed input from users, both existing and anticipated, are not available and the process used is more top down and high level. Forecasts are prepared for aviation demand indicators such as enplanements, operations, and based aircraft for all commercial service and general aviation (GA) airports in Nevada.

Developing useful forecasts is dependent upon two elements: good baseline data from which to forecast and employing multiple methodologies to examine the range of potential demand that might be realized. The reliability of data for some indicators is better than others. For example, enplanements are recorded by both commercial service airports and airlines as required by the FAA. Most airports maintain records on based aircraft as they relate to the revenues they collect; however, for operations at non-towered airports, there are no reliable data available for all airports that is collected or compiled from any consistent source. For the Nevada Airport and Heliport System Plan (NAHSP), baseline data was obtained from multiple sources to compare and select the most accurate data for use in forecasting.

Forecasting methodologies used in the NAHSP provide both “top-down” and “bottom-up” approaches to determine future aviation projections, with the bottom-up forecasts representing general groupings of airports and not factoring in detailed analysis of each individual airport’s activities. Top-down approaches view the aviation system from a “bird’s-eye” level to understand its overall performance and direction into the future. The use of multi-level metrics reveals how different demand indicators are influenced by market changes and are considered during the selection of “preferred” projections.

The base year for the NASHP forecasts is 2020 and 2040 is used as the forecast horizon. Forecasts of based aircraft utilized 2020 as the FAA’s National Based Aircraft Inventory Program (www.basedaircraft.com) and a snapshot of data was obtained in 2020 after the study started. Operations data for both commercial service and GA operations were sourced from the FAA’s Terminal Area Forecast (TAF) that was published in 2020. It is important to note that all activity included in the FAA TAF 2020 were estimates of that year and 2020 activity results appear atypical due to the significant impacts of the COVID-19 pandemic on the aviation industry, particularly commercial enplanements and operations.

All forecast projections in the following sections assume the aviation system will perform in an unconstrained environment throughout the duration of the planning horizon without regard to the pandemic or other potential disruptions. This analysis utilizes a Compound Annual Growth Rate (CAGR) which calculates a constant rate of change over a given time period. This method creates a “smoothed” annual growth rate by dampening the effect of volatility from periods of significant change.

Forecasts and aviation demand analyses for the NAHSP are documented in the following sections:

- Socioeconomic Trends
- National Aviation Trends
- Nevada Commercial Service Activity

- Nevada General Aviation (GA) Activity
- Forecast Summary

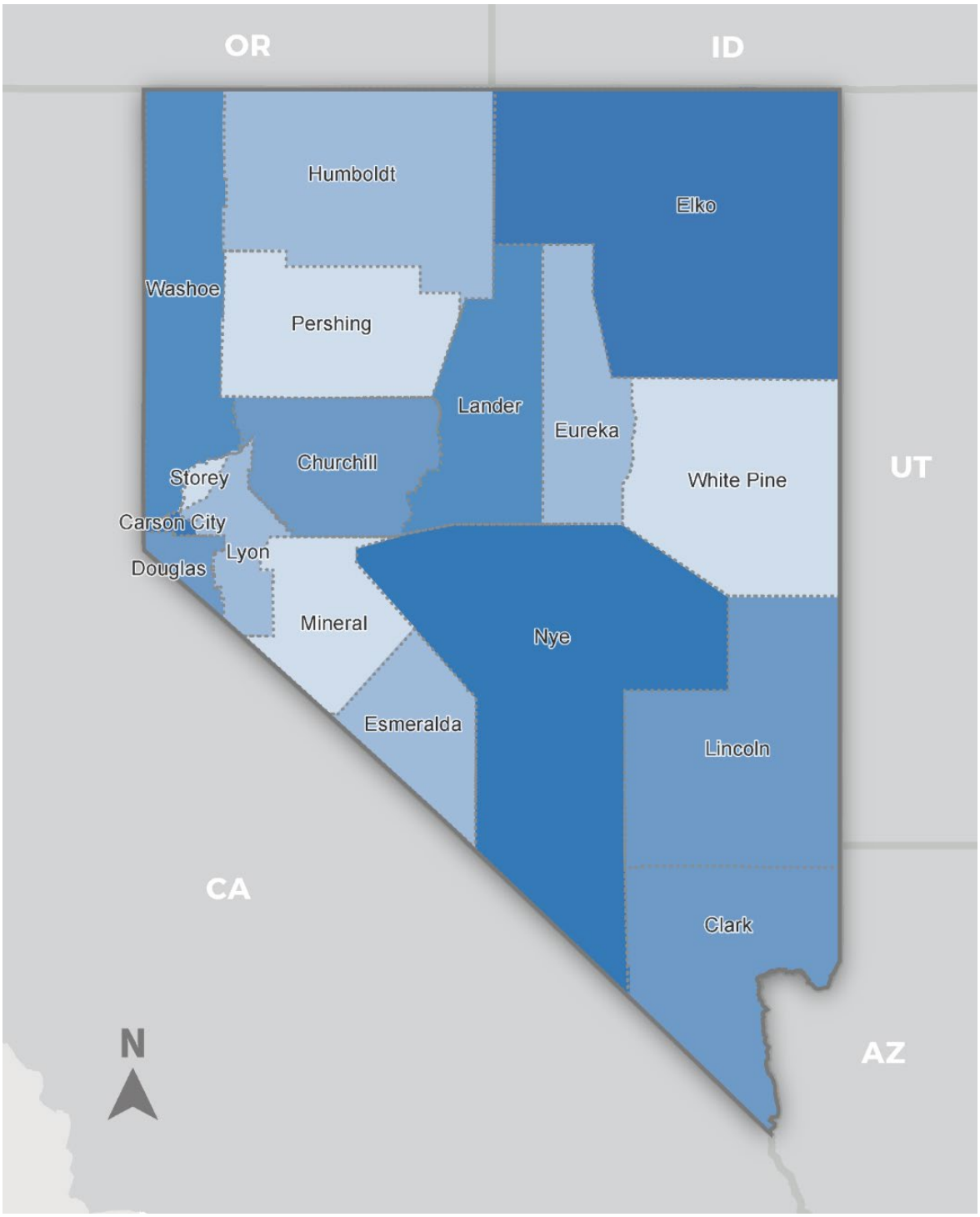
6.2. Socioeconomic Trends

Demand for aviation, an individual market's size, and prevailing economic conditions are strongly related. This section presents trends in population in Nevada which drive aviation needs. According to the Nevada Association of Counties, there are 17 counties that range in population from 1,000 residents in Esmeralda County to over 2,000,000 residents in Clark County.[1] Due to the diversity of each county and the variance between their shape and size as shown in **Figure 6-1**, analyses were completed for each Nevada county and the entire state using Woods & Poole Economics, Inc. data. Woods & Poole data used throughout this chapter reflects actual data through 2016 and forecast data from 2017 through 2040, including 2020.

It is also important to note that Nevada is bordered by five different states, Arizona, California, Idaho, Oregon, and Utah. While the population analysis is focused on Nevada, the proximity of the state to several other states does impact aviation demand and the services provided at Nevada airports. There are airports within Nevada that serve demand from those states and vice versa with airports outside Nevada attracting users from within the state to access certain geographies.

[1] https://www.nvnaco.org/ (accessed 5/4/2021)

Figure 6-1: Nevada Counties[2]



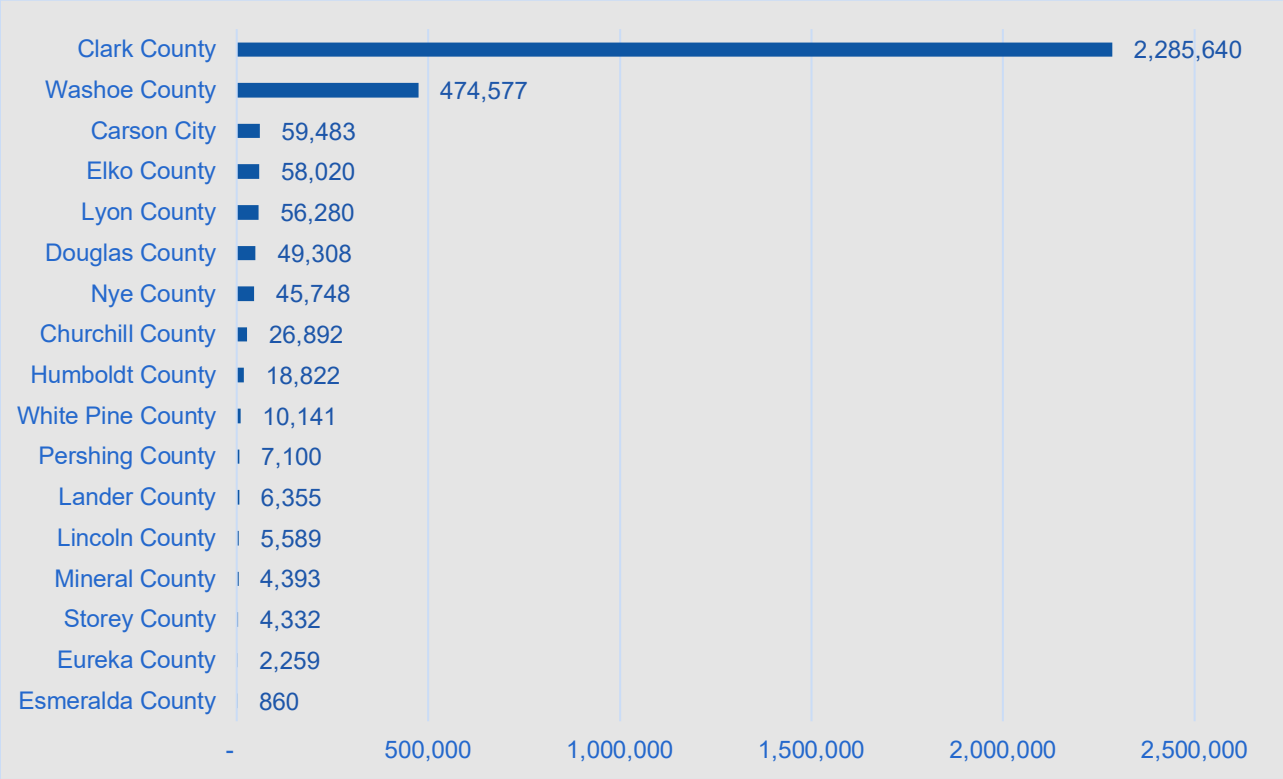
Sources: ESRI 2020, Kimley-Horn 2021

[2] Shading is utilized only to differentiate between county borders.

6.2.1. Population Trends

Population indicates market size, trends in growth, and market potential. In 2020, the state of Nevada had an estimated population of over 3.1 million, with nearly 2.3 million living in Clark County and just under 500,000 living in Washoe County, which totals approximately 89 percent of the state's population. Eight counties had between 10,000 and 60,000 residents in 2020, while the remaining seven counties all had fewer than 10,000 people. **Figure 6-2** shows the distribution of population across Nevada's 17 counties in 2020.

Figure 6-2: Population by County, 2020



Source: Woods & Poole Economics, Inc. 2020

Historical county population growth from 2000 to 2020 is shown in **Table 6-1**. As depicted, the state population grew more than 54 percent since 2000. Higher population growth was experienced between 2000 and 2010 than between 2010 and 2020, with a CAGR of 1.43 percent in the last 10 years. In more rural areas, growth is generally lower than in more urban areas though certain counties like Elko County have seen population increase at comparatively rapid rates. In terms of population numbers, from 2000 to 2020 Clark County saw the largest increase (nearly 892,000), Pershing County saw the smallest increase (less than 430), and Esmeralda and Mineral counties each saw population declines of approximately 120 and 600, respectively. Between 2000 and 2020, Clark County and Pershing County experienced the greatest and smallest population growth rates (2.50 percent CAGR and 0.31 percent CAGR, respectively), while Esmeralda County and Mineral County both experienced negative population growth rates of -0.64 percent CAGR.

Table 6-1: Population Growth by County, 2000-2020

County	Population in Thousands			CAGR	
	2000	2010	2020	2000-2010	2010-2020
Carson City	52.57	55.26	59.48	0.50%	0.74%
Churchill County	24.02	24.80	26.89	0.32%	0.81%
Clark County	1393.91	1953.26	2285.64	3.43%	1.58%
Douglas County	41.44	47.04	49.31	1.27%	0.47%
Elko County	45.23	49.07	58.02	0.82%	1.69%
Esmeralda County	0.98	0.78	0.86	-2.27%	1.02%
Eureka County	1.63	2.00	2.26	2.03%	1.25%
Humboldt County	15.87	16.60	18.82	0.45%	1.26%
Lander County	5.70	5.79	6.36	0.15%	0.94%
Lincoln County	4.18	5.36	5.59	2.52%	0.42%
Lyon County	34.81	52.07	56.28	4.11%	0.78%
Mineral County	5.00	4.79	4.39	-0.44%	-0.85%
Nye County	32.91	43.86	45.75	2.91%	0.42%
Pershing County	6.67	6.74	7.10	0.10%	0.52%
Storey County	3.39	4.00	4.33	1.65%	0.81%
Washoe County	341.39	422.04	474.58	2.14%	1.18%
White Pine County	9.03	10.05	10.14	1.07%	0.09%
Total Nevada	**2,018.74**	**2,703.49**	**3,115.80**	**2.96%**	**1.43%**

Source: Woods & Poole Economics, Inc. 2020

Table 6-2 shows forecast population for Nevada by county, in both actual number of additional residents and CAGR. As discussed previously, Woods & Poole data used throughout this chapter is forecast from 2017 through 2040, including 2020. The county with the fastest growth rate in each of the forecast periods is Churchill County, with a CAGR of 1.83 percent between 2020 and 2040. The county with the slowest growth rate in each of the same forecast periods is White Pine County, with a CAGR of 0.08 percent between 2020 and 2040. Between 2020 and 2040, the population growth in real persons of Nevada counties is expected to range between 120 (Esmeralda County) and an increase of 839,110 (Clark County). Note that Mineral County is forecast to experience a negative CAGR, -0.49 percent, and a population decline of 410 between 2020 and 2040.

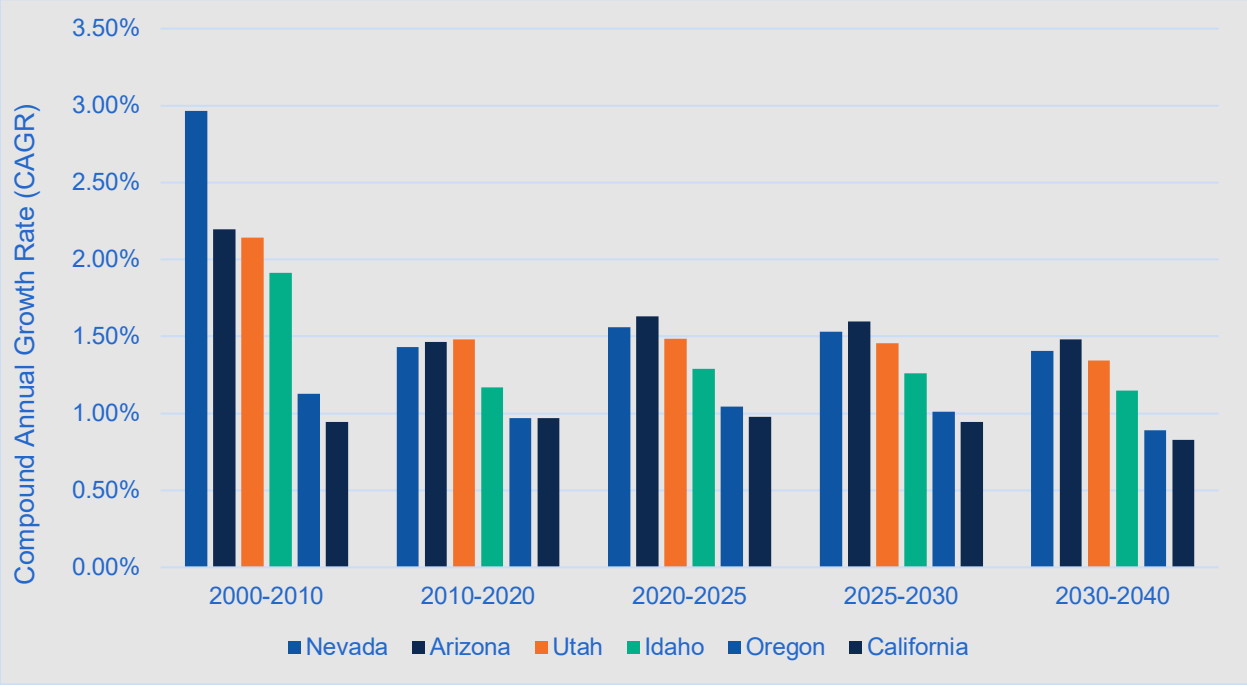
Table 6-2: Population Forecast for Nevada Counties, 2020-2040

County	Population in Thousands				CAGR		
	2020	2025	2030	2040	2020-2025	2025-2030	2030-2040
Carson City	59.48	63.95	68.63	78.06	1.46%	1.42%	1.30%
Churchill County	26.89	29.57	32.46	38.63	1.92%	1.88%	1.76%
Clark County	2285.64	2482.41	2691.44	3124.75	1.67%	1.63%	1.50%
Douglas County	49.31	50.82	52.26	54.55	0.60%	0.56%	0.43%
Elko County	58.02	62.78	67.82	78.14	1.59%	1.55%	1.43%
Esmeralda County	0.86	0.89	0.93	0.98	0.78%	0.73%	0.60%
Eureka County	2.26	2.48	2.72	3.23	1.90%	1.86%	1.73%
Humboldt County	18.82	20.21	21.66	24.57	1.43%	1.40%	1.27%
Lander County	6.36	6.66	6.96	7.52	0.93%	0.89%	0.77%
Lincoln County	5.59	5.95	6.32	7.05	1.26%	1.22%	1.10%
Lyon County	56.28	60.31	64.51	72.89	1.39%	1.36%	1.23%
Mineral County	4.39	4.30	4.21	3.98	-0.41%	-0.44%	-0.57%
Nye County	45.75	48.85	52.07	58.42	1.32%	1.28%	1.16%
Pershing County	7.10	7.45	7.81	8.46	0.97%	0.94%	0.81%
Storey County	4.33	4.71	5.12	5.97	1.70%	1.67%	1.55%
Washoe County	474.58	505.29	537.02	599.08	1.26%	1.23%	1.10%
White Pine County	10.14	10.23	10.30	10.31	0.17%	0.14%	0.01%
Total Nevada	**3,115.80**	**3,366.86**	**3,632.23**	**4,176.60**	**1.56%**	**1.53%**	**1.41%**

Source: Woods & Poole Economics, Inc. 2020

Historically, Nevada had the highest population growth rate within the region but is expected to become the second highest growth rate below Arizona in the future. **Figure 6-3** shows population growth and forecast population in 2040 for the five states that share a border with Nevada. Between 2000 and 2020, population growth (in terms of CAGR) in Nevada and surrounding states ranged between 0.96 percent (California) and 2.19 percent (Nevada). Between 2020 and 2040, population growth in Nevada and surrounding states is projected to range from 0.89 percent (California) and 1.55 percent (Arizona). Between 2020 and 2040, Nevada's population is expected to reach approximately 4.2 million people at a CAGR of 1.48 percent.

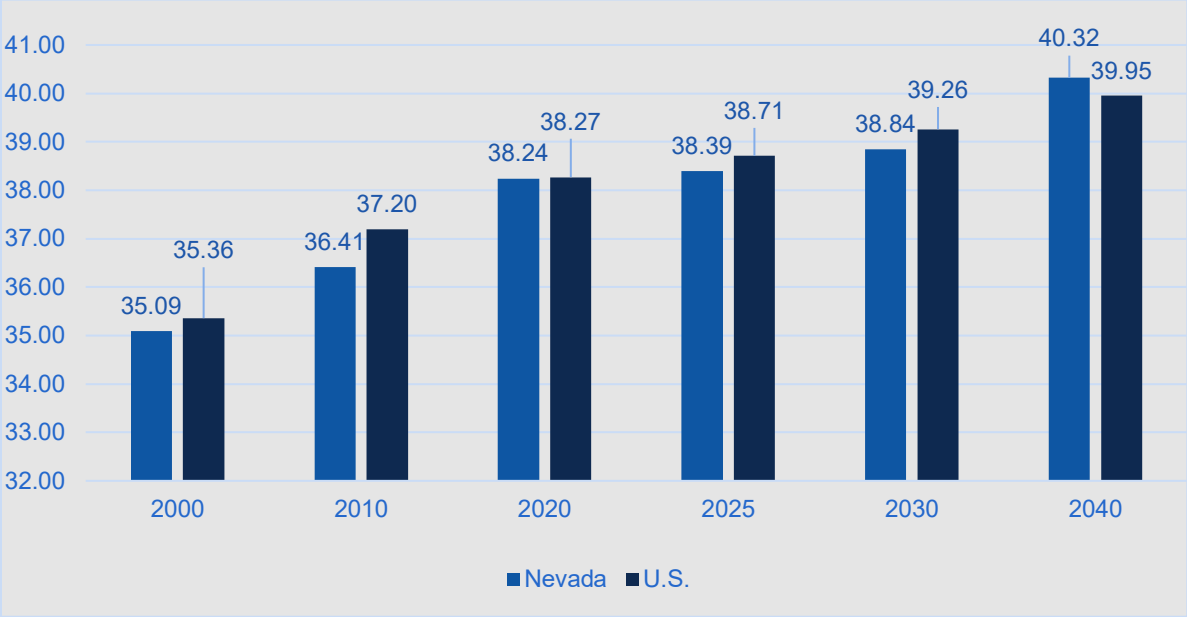
Figure 6-3: Population Growth Rates in Nevada and Surrounding States, 2000-2040



Source: Woods & Poole Economics, Inc. 2020

As shown in **Figure 6-4**, in terms of median age, Nevada is a slightly younger state when compared with the U.S. for 2020. For both groups, median age has increased over the last 20 years as the population grows older, with Nevada forecast to overtake the U.S. by 2040 in this metric.

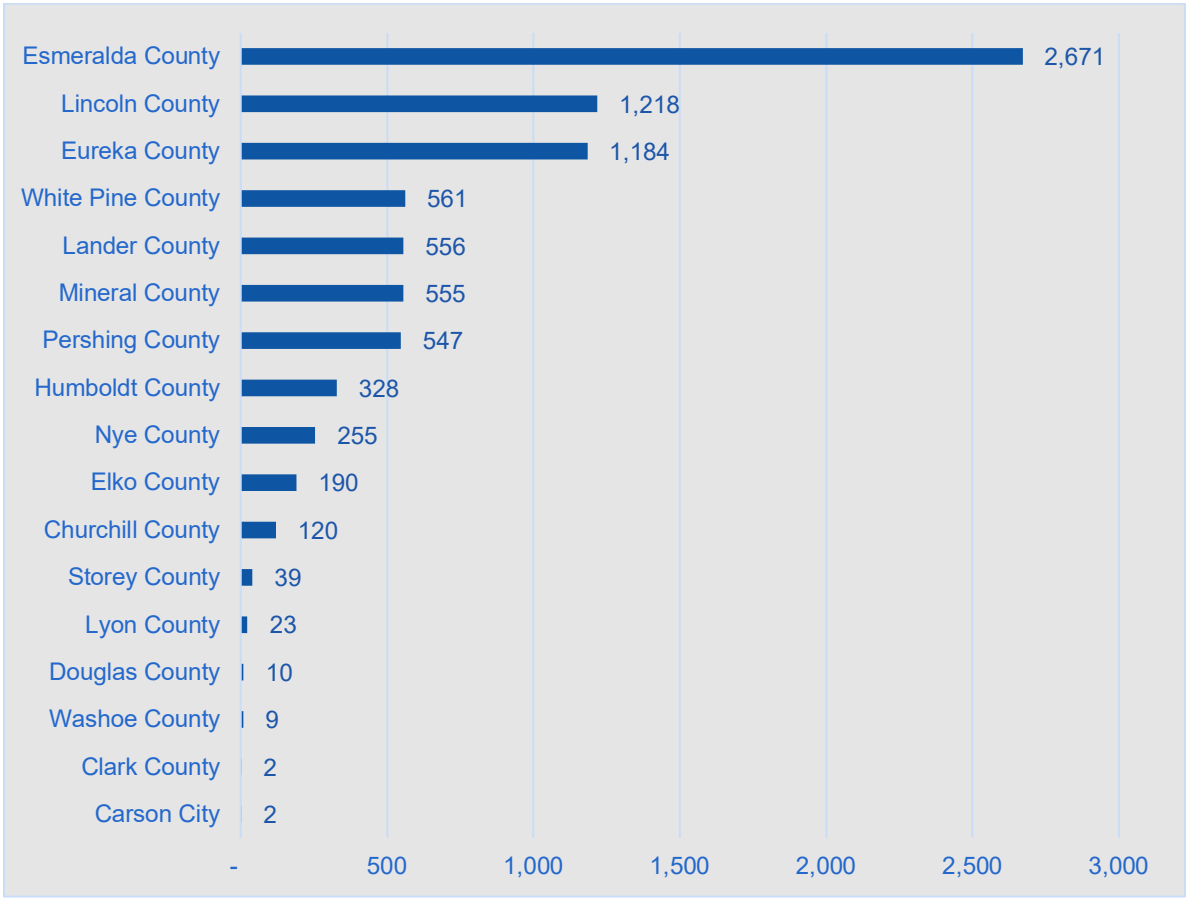
Figure 6-4: Median Age of Nevadans and the U.S., 2000-2040



Source: Woods & Poole Economics, Inc. 2020

Nevada is also a state with a significant amount of land compared to its population, which is demonstrated in the low population density of most of the counties. In many counties, if the ratio of total county acreage to the number of residents in 2020 is calculated, the number of acres in the county per person would be rather high. As shown in **Figure 6-5**, this value ranges from as low as two acres per person in Carson City and Clark County to approximately 2,700 acres per person in Esmeralda County. Eleven counties have a ratio of more than 100 acres of land per resident while four of the remaining six counties have a ratio of 10 or less acres per person. Urban counties like Clark and Washoe have some of the highest population densities and lowest acreage/per person ratios while more rural counties such as Esmeralda and Lincoln have the lowest population densities and highest acreage/per person ratios.

Figure 6-5: Ratios of Acreage per Person for Each Nevada County, 2020



Sources: UNLV "Land Use in Nevada: Counties and the Bureau of Land Management (BLM)" 2020, Headwaters Economics, Economic Profile System, Land Use 2020

6.2.2. Economic Trends

Economic conditions are also closely linked to aviation demand. For the purposes of this system plan, employment, per capita income, and Gross Regional Product (GRP) were used to identify changes in the Nevada economy that may influence aviation demand. Several trends became apparent through the NAHSP and are detailed in the following subsections.

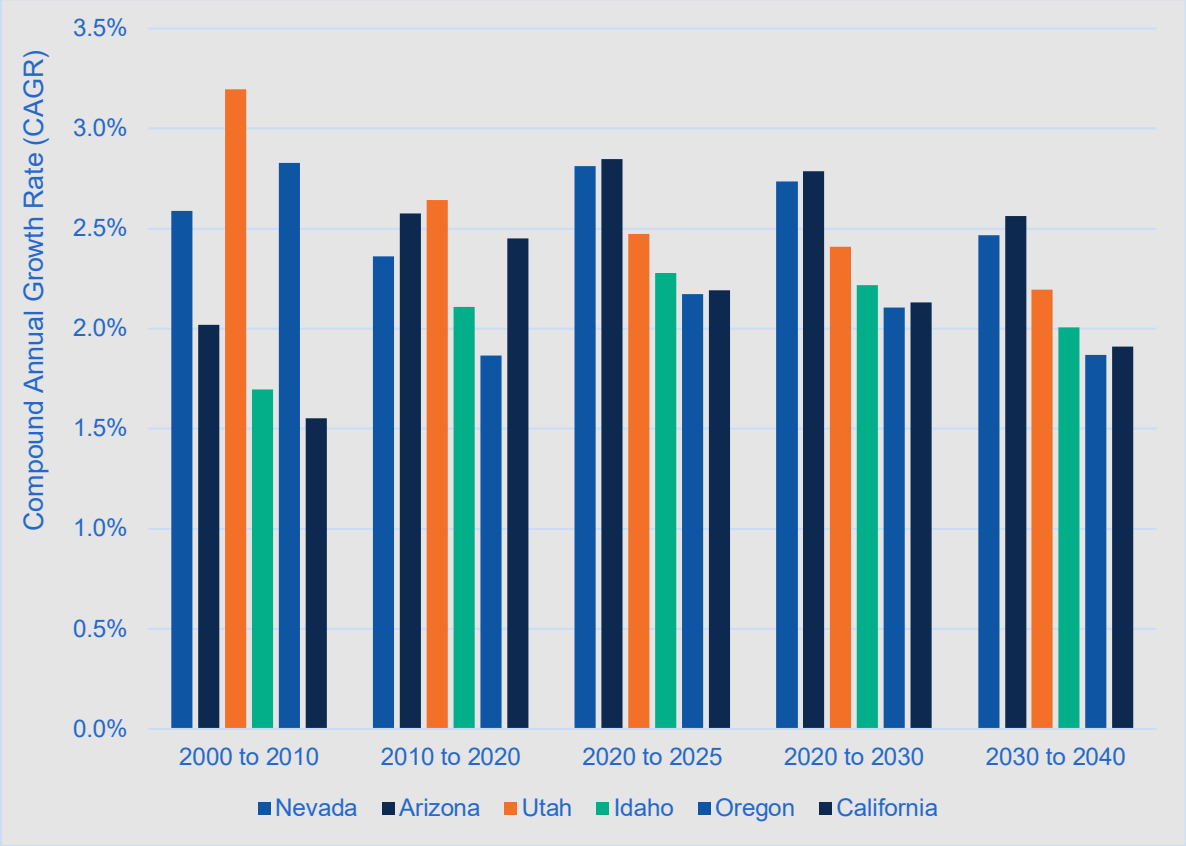
6.2.2.1. Nevada Is a Strong Economic Force in the Region

Nevada's economy is evolving due to its advanced industries and increased private investment throughout the state. As a result, businesses are providing additional employment opportunities and growth paths to mainstays of the Nevada economy such as:

- Tourism and Gaming
- Aerospace and Defense
- Mining
- Health
- Information Technology
- Manufacturing and Logistics

GRP growth rates in the state and its neighbors are shown in **Figure 6-6**. Despite not having the highest GRP compared to surrounding states, Nevada's GRP projected growth rate from 2020 to 2040 is expected to be close behind the fastest-growing state in the region, Utah. Between 2000 and 2020, GRP growth rates in Nevada and surrounding states ranged from 1.90 percent (Idaho) to 2.92 percent (Utah). Between 2000 and 2020, Nevada ranked second in GRP growth with a 2.48 percent CAGR. In the future, between 2020 and 2040, GRP growth rates in Nevada and surrounding states are expected to range from 1.99 percent (Oregon) to 2.68 percent (Arizona). Nevada is still forecast to rank second in GRP growth with a CAGR of 2.60 percent between 2020 and 2040.

Figure 6-6: GRP Growth Rates in Nevada and Surrounding States, 2000-2040

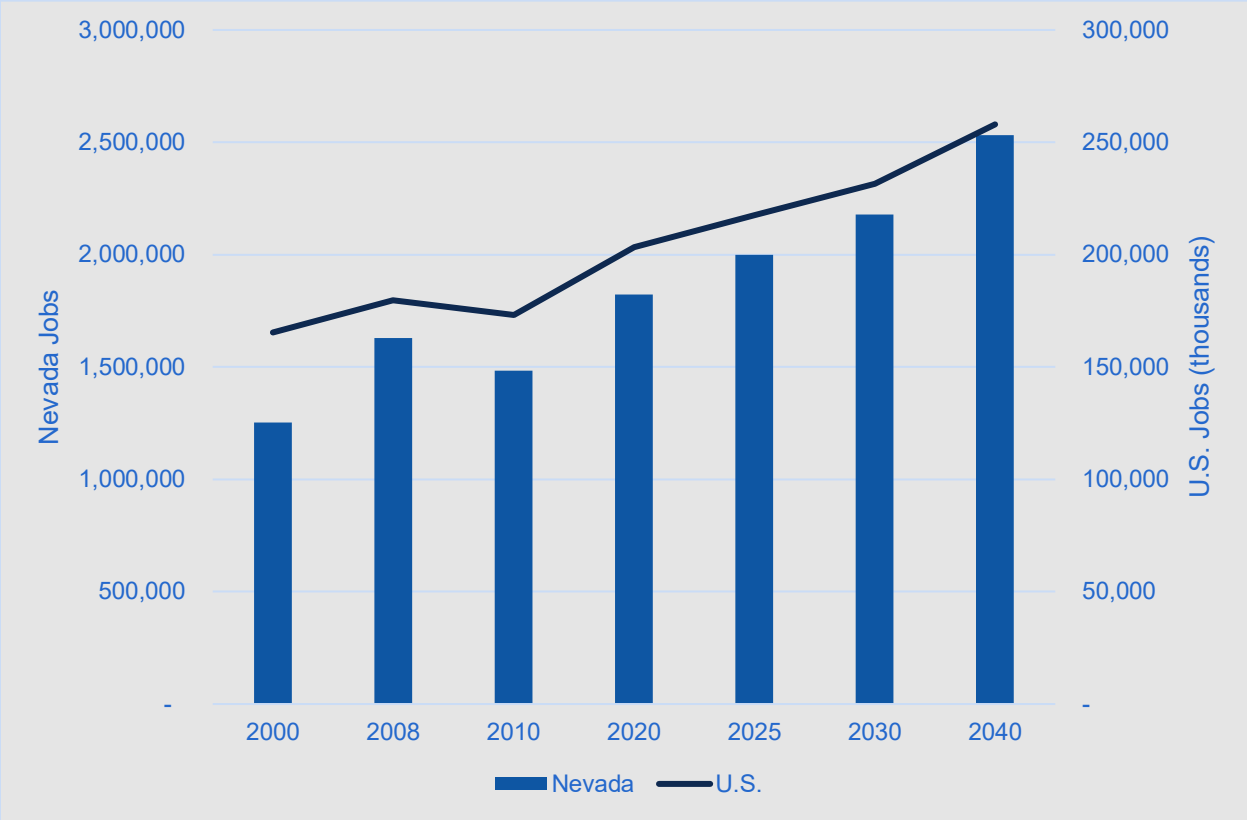


Source: Woods & Poole Economics, Inc. 2020

6.2.2.2. Employment in Nevada Is Growing at a Faster Rate Than the U.S. Average

Nevada saw job growth of approximately 45 percent in the last 20 years, or 1.9 percent annually. In the U.S., jobs increased by approximately 23 percent in the same period, or 1.04 percent annually. Nevada is expected to continue outpacing U.S. employment growth through 2040, with a forecast increase of 39 percent (equal to 1.66 percent CAGR) compared to 27 percent for the U.S. (which is 1.20 percent CAGR). Employment growth in Nevada and the U.S. is shown in **Figure 6-7**.

Figure 6-7: Growth in Employment, Nevada, and the U.S., 2000 - 2040

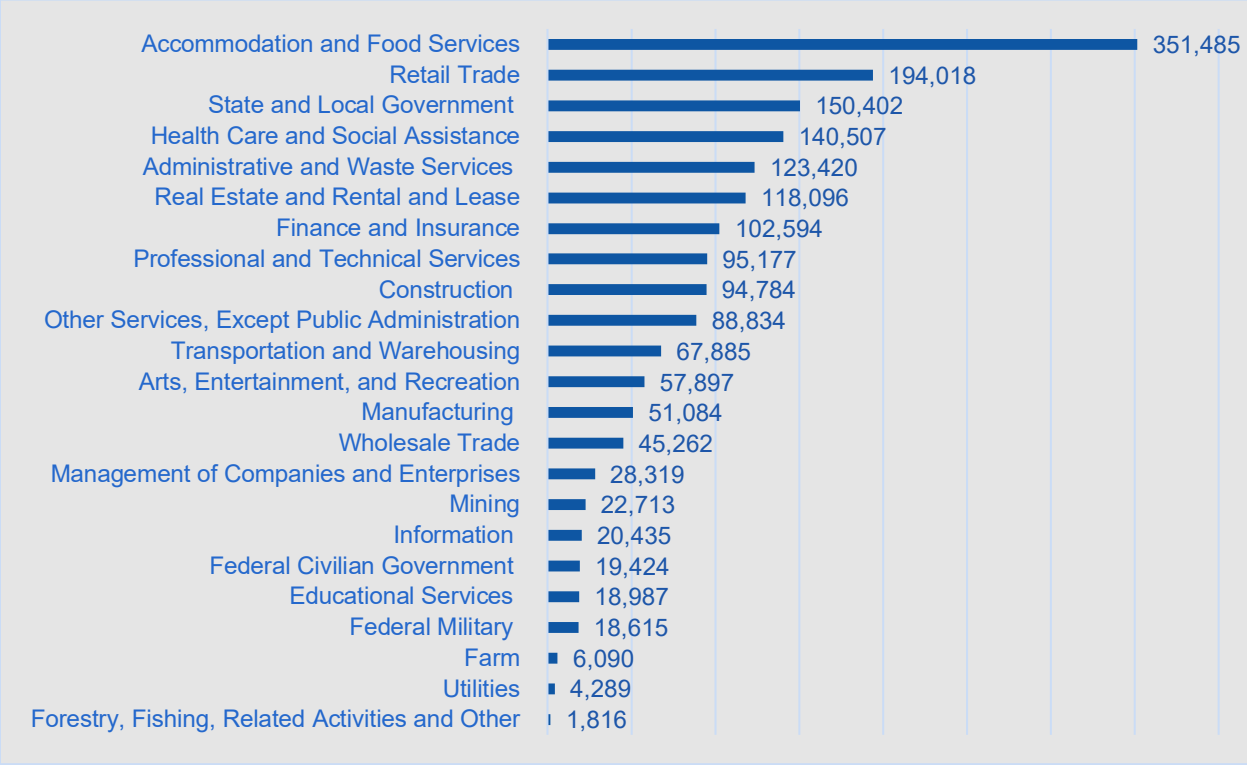


Source: Woods & Poole Economics, Inc. 2020

6.2.2.3. Employment by Industry Is Changing

The top three industries in Nevada by employment numbers are accommodation and food services, retail trade, and state and local government. These sectors make up 19.29 percent, 10.65 percent, and 8.25 percent of statewide employment, respectively. As expected for a growing economy, construction ranks ninth in the state as a top employer with approximately 95,000 employees and 5.20 percent of employment across the state. In Nevada, the top nine industries by employment make up over 75 percent of employment in the state. Aviation employment is found under the industry category "Transportation and Warehousing," which ranked 11th by employment with approximately 68,000 employees in 2020 (3.73 percent). **Figure 6-8** shows employment by industry in Nevada in 2020.

Figure 6-8: Nevada Employment by Industry, 2020



Source: Woods & Poole Economics, Inc. 2020

Table 6-3 shows how employment by industry has changed in the last 20 years. In 2000, the accommodation and food services industry was the largest employer in the state, followed by retail trade, construction, state and local government, and administrative and waste services. Over the 20-year period, seven sectors remained steady or declined: farm (1 percent); wholesale trade (0 percent); forestry, fishing related activities, and other (-3 percent); utilities (-4 percent); manufacturing (-8 percent); information (-20 percent); and construction (-28 percent). The industries with the largest growth in employment over this timeframe were educational services (183 percent); management of companies and enterprises (127 percent); real estate and rental and lease (70 percent); health care and social assistance (56 percent); and federal military (47 percent).

The transportation and warehousing industry, which includes aviation industry statistics, saw a 31 percent increase between 2000 and 2010. Between 2010 and 2020, the overall industry experienced a 28 percent growth in employment. **Table 6-4** ranks forecast employment by industry in 2040. In the next 20 years, Nevada is expected to grow by approximately 709,000 jobs, or 39 percent, with accommodation and food services remaining the state's largest industry. Over the next 10 years, manufacturing, mining, and professional and technical services are expected to grow substantially. Construction and transportation and warehousing are expected to grow by 15 percent and 20 percent, respectively, between 2020 and 2030.

Table 6-3: Nevada Employment by Industry, 2000-2020

Industry	Thousands			CAGR	
	2000	2010	2020	2000-2010	2010-2020
Accommodation and Food Services	282.71	291.01	351.49	0.3%	1.9%
Retail Trade	132.43	152.41	194.02	1.4%	2.4%
State and Local Government	103.83	133.35	150.40	2.5%	1.2%
Health Care and Social Assistance	70.40	109.54	140.51	4.5%	2.5%
Administrative and Waste Services	79.28	95.05	123.42	1.8%	2.6%
Real Estate and Rental and Lease	59.05	100.49	118.10	5.5%	1.6%
Finance and Insurance	62.37	82.79	102.59	2.9%	2.2%
Professional and Technical Services	57.89	81.38	95.18	3.5%	1.6%
Construction	104.61	75.78	94.78	-3.2%	2.3%
Other Services, Except Public Administration	48.25	65.37	88.83	3.1%	3.1%
Transportation and Warehousing	40.51	53.23	67.89	2.8%	2.5%
Arts, Entertainment, and Recreation	41.59	46.56	57.90	1.1%	2.2%
Manufacturing	45.30	41.68	51.08	-0.8%	2.1%
Wholesale Trade	37.43	37.49	45.26	0.0%	1.9%
Management of Companies and Enterprises	9.77	22.14	28.32	8.5%	2.5%
Mining	12.63	16.84	22.71	2.9%	3.0%
Information	21.95	17.65	20.44	-2.2%	1.5%
Federal Civilian Government	15.14	18.74	19.42	2.2%	0.4%
Educational Services	4.91	13.93	18.99	11.0%	3.1%
Federal Military	11.57	17.01	18.62	3.9%	0.9%
Farm	5.29	5.35	6.09	0.1%	1.3%
Utilities	4.72	4.54	4.29	-0.4%	-0.6%
Forestry, Fishing, Related Activities and Other	1.59	1.55	1.82	-0.3%	1.6%
Total Nevada	**1,253.21**	**1,483.88**	**1,822.13**	**1.7%**	**2.1%**

Source: Woods & Poole Economics, Inc. 2020.

Table 6-4: Forecast of Nevada Employment by Industry, 2020-2040

Industry	Thousands				CAGR		
	2020	2025	2030	2040	2020-2025	2025-2030	2030-2040
Accommodation and Food Services	351.49	381.33	408.85	456.63	1.64%	1.40%	1.11%
Retail Trade	194.02	212.85	233.05	278.05	1.87%	1.83%	1.78%
Health Care and Social Assistance	140.51	157.06	174.98	211.84	2.25%	2.18%	1.93%
State and Local Government	150.40	165.89	180.82	208.48	1.98%	1.74%	1.43%
Real Estate and Rental and Lease	118.10	133.23	149.86	187.37	2.44%	2.38%	2.26%
Administrative and Waste Services	123.42	135.09	147.06	169.11	1.82%	1.71%	1.41%
Finance and Insurance	102.59	114.53	125.24	142.81	2.23%	1.80%	1.32%
Construction	94.78	106.13	115.11	130.58	2.29%	1.64%	1.27%
Professional and Technical Services	95.18	102.88	111.30	130.47	1.57%	1.59%	1.60%
Other Services, Except Public Administration	88.83	97.17	106.22	126.14	1.81%	1.80%	1.73%
Transportation and Warehousing	67.89	74.17	80.98	94.85	1.79%	1.77%	1.59%
Arts, Entertainment, and Recreation	57.90	64.04	70.53	83.20	2.04%	1.95%	1.67%
Wholesale Trade	45.26	49.86	54.64	64.29	1.95%	1.85%	1.64%
Manufacturing	51.08	53.17	54.78	57.38	0.80%	0.60%	0.46%
Management of Companies and Enterprises	28.32	31.54	34.81	41.44	2.18%	2.00%	1.76%
Educational Services	18.99	22.62	26.76	36.23	3.57%	3.42%	3.08%
Mining	22.71	24.63	26.70	31.28	1.64%	1.62%	1.60%
Federal Civilian Government	19.42	20.59	21.82	24.52	1.17%	1.17%	1.17%
Information	20.44	21.30	22.17	23.96	0.84%	0.80%	0.78%
Federal Military	18.62	18.67	18.72	18.84	0.06%	0.06%	0.06%
Farm	6.09	6.34	6.56	6.92	0.80%	0.68%	0.54%
Utilities	4.29	4.42	4.53	4.66	0.61%	0.50%	0.28%
Forestry, Fishing, Related Activities and Other	1.82	1.95	2.09	2.37	1.42%	1.36%	1.28%
Total Nevada	**1,822.13**	**1,999.46**	**2,177.59**	**2,531.40**	**1.87%**	**1.72%**	**1.52%**

Source: Woods & Poole Economics, Inc. 2020

6.2.2.4. Employment Is Concentrated in Two Counties

Table 6-5 shows employment in Nevada by county. Two counties, Clark and Washoe, home of the cities of Las Vegas and Reno, respectively, comprised 88 percent of Nevada jobs in 2020.

Table 6-5: Employment by County, 2020

County	Employment	Share
Clark County	1,324,534	72.69%
Washoe County	287,525	15.78%
Carson City	41,780	2.29%
Elko County	30,203	1.66%
Douglas County	29,989	1.65%
Churchill County	27,369	1.50%
Lyon County	18,952	1.04%
Nye County	17,653	0.97%
Humboldt County	11,835	0.65%
Storey County	6,311	0.35%
White Pine County	6,016	0.33%
Eureka County	5,955	0.33%
Lander County	4,699	0.26%
Pershing County	2,951	0.16%
Lincoln County	2,773	0.15%
Mineral County	2,331	0.13%
Esmeralda County	1,257	0.07%
Total Employment	**1,822,133**	**100%**

Source: Woods & Poole Economics, Inc. 2020

6.2.2.5. The Great Recession of 2008 Impacted Industries and Counties Disproportionately

The 2008 recession heavily impacted tourism and gaming, retail trade, and transportation. As shown in **Table 6-6** and **Table 6-7**, counties dependent on these industries saw the greatest declines in employment and GRP in the 2008 to 2010 timeframe. Fortunately, most regions except for Douglas County have recovered to above 2008 levels. Similar impacts on these industries and counties have been observed throughout the COVID-19 pandemic that started in late 2019/early 2020.

Table 6-6: Employment by County, 2000-2020

County	Thousands of Jobs				Percent Change		
	2000	2008	2010	2020	2000-2008	2008-2010	2010-2020
Carson City	39.20	40.64	37.77	41.78	0.5%	-3.6%	1.0%
Churchill County	14.61	23.68	24.11	27.37	6.2%	0.9%	1.3%
Clark County	852.40	1,163.81	1,057.76	1,324.53	4.0%	-4.7%	2.3%
Douglas County	29.01	31.27	28.47	29.99	0.9%	-4.6%	0.5%
Elko County	23.89	25.83	25.28	30.20	1.0%	-1.1%	1.8%
Esmeralda County	0.41	0.59	0.79	1.26	4.7%	16.3%	4.7%
Eureka County	4.56	5.06	5.03	5.96	1.3%	-0.3%	1.7%
Humboldt County	9.61	9.94	10.20	11.84	0.4%	1.3%	1.5%
Lander County	2.84	3.53	3.88	4.70	2.7%	4.9%	1.9%
Lincoln County	1.95	2.25	2.25	2.77	1.8%	-0.1%	2.1%
Lyon County	14.24	18.29	16.09	18.95	3.2%	-6.2%	1.6%
Mineral County	2.47	2.60	2.51	2.33	0.7%	-1.8%	-0.7%
Nye County	13.84	16.92	15.26	17.65	2.5%	-5.0%	1.5%
Pershing County	2.55	2.43	2.33	2.95	-0.6%	-2.0%	2.4%
Storey County	1.25	3.54	3.71	6.31	13.9%	2.4%	5.5%
Washoe County	236.33	273.61	243.19	287.53	1.8%	-5.7%	1.7%
White Pine County	4.07	5.20	5.26	6.02	3.1%	0.5%	1.4%
Total Nevada	**1,253.21**	**1,629.16**	**1,483.88**	**1,822.13**	**3.3%**	**-4.6%**	**2.1%**

Source: Woods & Poole Economics, Inc. 2020

Table 6-7: Gross Regional Product 2000-2020 (in Millions of 2009 Dollars)

County	Gross Regional Product (millions of 2009 $$)				Percent Share (2020)	Growth Rate		
	2000	2008	2010	2020		2000-2008	2008-2010	2010-2020
Carson City	2,742.66	3,262.35	3,119.70	3,540.68	2.4%	2.2%	-2.2%	1.3%
Churchill County	787.26	1,160.34	1,160.27	1,474.03	1.0%	5.0%	0.0%	2.4%
Clark County	62,608.89	91,804.28	82,379.96	106,489.15	71.6%	4.9%	-5.3%	2.6%
Douglas County	1,704.50	1,952.83	1,729.59	1,883.16	1.3%	1.7%	-5.9%	0.9%
Elko County	1,600.75	2,174.39	2,488.91	3,265.45	2.2%	3.9%	7.0%	2.8%
Esmeralda County	26.84	52.15	88.93	155.62	0.1%	8.7%	30.6%	5.8%
Eureka County	545.43	1,070.02	1,484.68	1,748.52	1.2%	8.8%	17.8%	1.6%
Humboldt County	733.83	960.49	1,278.18	1,545.52	1.0%	3.4%	15.4%	1.9%
Lander County	258.94	490.85	756.21	972.94	0.7%	8.3%	24.1%	2.6%
Lincoln County	131.57	151.09	174.60	202.96	0.1%	1.7%	7.5%	1.5%
Lyon County	748.21	1,098.99	1,018.32	1,277.78	0.9%	4.9%	-3.7%	2.3%
Mineral County	168.14	176.36	185.70	187.51	0.1%	0.6%	2.6%	0.1%
Nye County	980.04	1,298.67	1,339.95	1,537.71	1.0%	3.6%	1.6%	1.4%
Pershing County	208.15	248.57	268.24	398.87	0.3%	2.2%	3.9%	4.0%
Storey County	80.21	281.46	321.42	451.98	0.3%	17.0%	6.9%	3.5%
Washoe County	17,544.43	22,027.70	19,258.76	22,755.35	15.3%	2.9%	-6.5%	1.7%
White Pine County	283.88	512.81	633.23	758.86	0.5%	7.7%	11.1%	1.8%
State of Nevada	**91,153.72**	**128,723.33**	**117,686.64**	**148,646.07**	**100.0%**	**4.4%**	**-4.4%**	**2.4%**

Source: Woods & Poole Economics, Inc. 2020

Using 2009 dollars to adjust for inflation, average per capita income in the state of Nevada is $41,191. However, per capita income varies greatly across the state's counties. **Table 6-8** shows per capita income in each county indexed to the state of Nevada. Douglas County, Lander County, and Esmeralda County have the highest per capita income while Eureka County, Pershing County, and Lincoln County have the lowest.

Table 6-8: Total Personal Income per Capita in Nevada, by County (in 2009 Dollars)

Region	2020 (2009 dollars)	Index
Douglas County	$58,123	141%
Lander County	$51,587	125%
Esmeralda County	$49,400	120%
Washoe County	$45,780	111%
Churchill County	$43,980	107%
Humboldt County	$43,404	105%
White Pine County	$41,857	102%
Carson City	$40,987	100%
Elko County	$40,655	99%
Clark County	$40,288	98%
Mineral County	$37,147	90%
Storey County	$36,738	89%
Nye County	$33,987	83%
Lyon County	$31,361	76%
Eureka County	$31,316	76%
Pershing County	$29,753	72%
Lincoln County	$27,356	66%
State of Nevada	**$41,191**	**100%**

Source: Woods & Poole Economics, Inc. 2020

6.3. National Aviation Trends

Every segment of aviation activity at Nevada's airports is influenced by population and economic factors as well as industry variables like the cost of equipment and fuel. As a result, commercial air service, military aviation, and general aviation (GA) in the state will be affected differently over the 20-year planning horizon. These effects are examined in this section.

6.3.1. Commercial Aviation

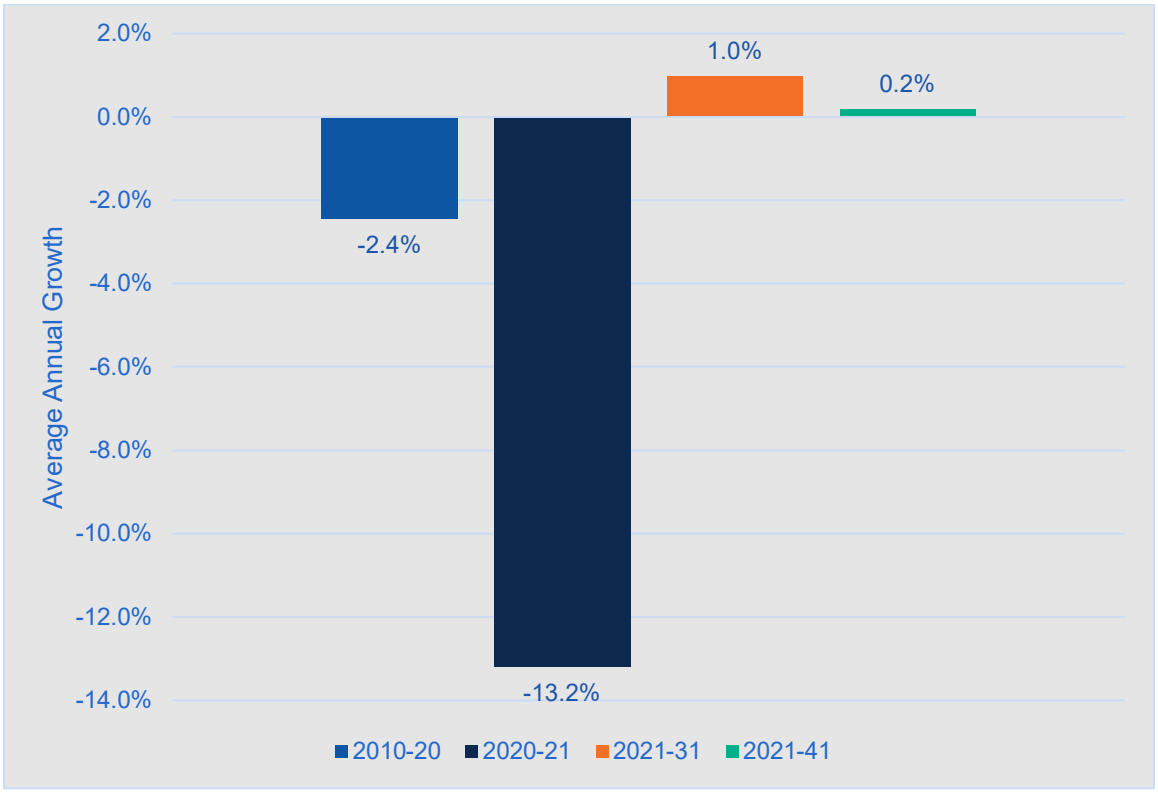
Trends in commercial service activity are highlighted in this section for their potential impact on future indicators in Nevada, particularly enplanements and commercial service operations. It is important to note that the COVID-19 pandemic resulted in an unprecedented decline in commercial aviation, and predictions of future trends vary greatly depending on the source. As of 2021, most commercial activity has rebounded to within 75 percent of 2019 activity levels, although some airports have seen higher activity.

6.3.1.1. Industry Consolidation and Restructuring

After the U.S. airline industry was deregulated in 1978, it became a volatile market characterized by cyclical boom and bust cycles. However, the economic recession of 2007-2009 led to fundamental changes in the business models of the airline industry. Airlines minimized the market's volatility by eliminating unprofitable routes, replacing older aircraft with newer, more efficient models, and by lowering operating costs. These changes allowed the industry to mark its 11th consecutive year of profitability in 2019, before realizing its spiral in 2020 and into 2021 as a result of the pandemic.

Prior to the pandemic, yields were expected to grow more quickly in the short term (2021-2031 period) as demand for air travel outpaces the return of airline capacity, increasing airfares. **Figure 6-9** displays the average annual passenger yield growths from 2010 to 2041 as projected by the FAA in its latest forecast.

Figure 6-9: System Average Annual Passenger Yield Growth[3]



Sources: FAA Aerospace Forecast Fiscal Years 2021-2041; U.S. Department of Transportation Form 41

6.3.1.2. Expansion of Ancillary Revenues

Since the end of the recession in 2009, airlines initiated new services and began charging separately for services that had been bundled with the price of a ticket in previous years. Revenues from these new add-on options are known as ancillary fees and are exempt from taxation. The trend of adding ancillary fees took a small step back in November 2020 as airlines began to eliminate change fees for most types

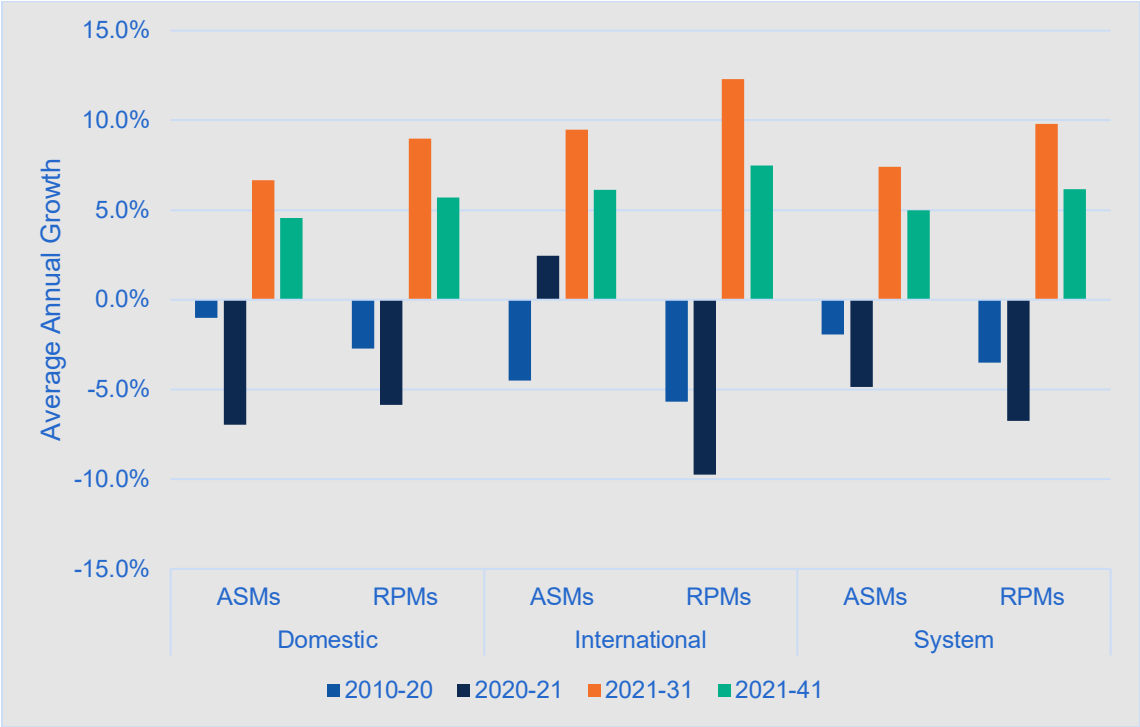
[3] *Sum of U.S. Mainline and Regional Air Carriers*

of tickets. Overall, revenue has grown faster than airlines' output since airlines began collecting ancillary fees.

6.3.1.3. Capacity Discipline

Airlines 'rightsized' aircraft to gain efficiencies in key metrics such as available seat miles (ASMs) and revenue passenger miles (RPMs), and as a result saw increasing load factors, higher profitability, and lower capital overhead. According to the *FAA Aerospace Forecast Fiscal Years 2021-2041*, as the U.S. recovery from the COVID-19 pandemic progresses, ASMs and RPMs are forecast to experience high rates of annual growth that will return to more normal rates as the market stabilizes. Overall, Low-Cost Carriers (LCCs) have grown more quickly than network or legacy carriers, which has put pressure on RPM levels throughout the industry as larger carriers compete with lower fares offered by LCCs. This pattern is expected to continue through 2041. **Figure 6-10** displays a comparison of the Available Seat Miles (ASM) and Revenue Passenger Miles (RPM) for the U.S. Commercial Air Carriers from 2010 through 2041.

Figure 6-10: U.S. Commercial Air Carrier ASMs and RPMs[4]



Sources: FAA Aerospace Forecast Fiscal Years 2021-2041; U.S. Department of Transportation Forms 41 and 298-C

6.3.1.4. Impact of COVID-19

Business travel almost entirely disappeared starting in 2020 and has not seen a full recovery as of July 2021 due to the COVID-19 pandemic. Leisure travel also shrank around March 2020 and April 2020 but picked up slightly around the 2020 holiday season and returned to near 2019 levels at many airports by July 2021, especially those that rely on leisure travel and less on business travel, including conferences

[4] *Sum of U.S. Mainline and Regional Air Carriers*

and exhibitions that are prevalent in Las Vegas. Airlines aggressively cut costs through reduced schedules, staffing, and expenditures in March and April 2020. However, long-term debt in the industry still surged by the end of 2020 as airlines struggled to generate revenue. Curtailed business travel, closed international borders, and the large U.S. domestic market meant that leisure travelers became the focus of the U.S. airline industry.

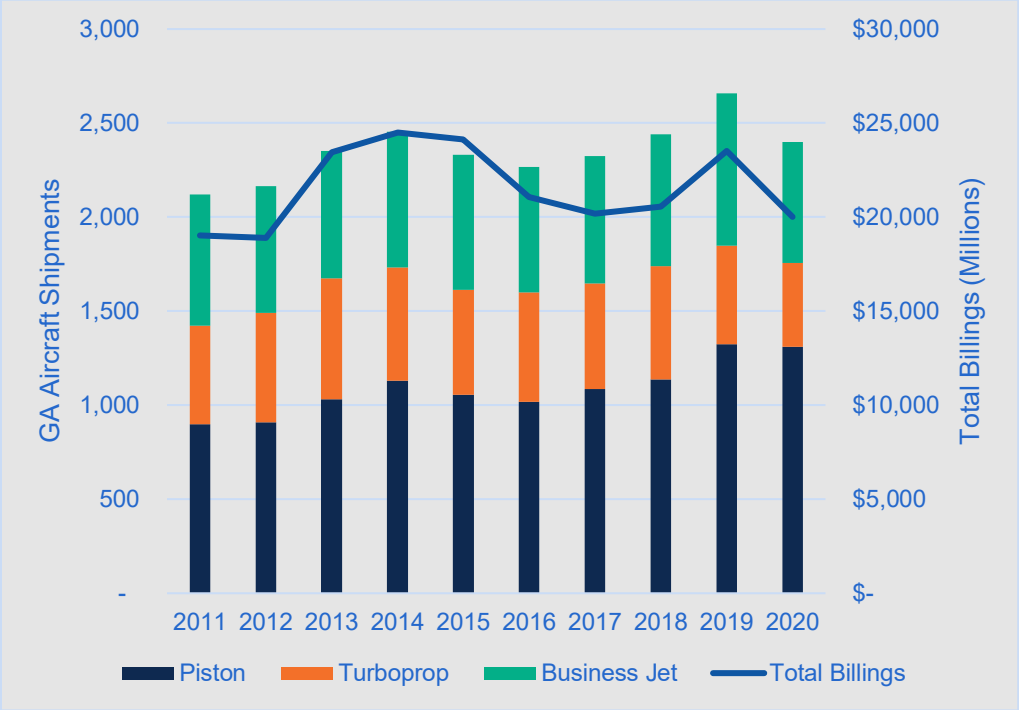
6.3.2. General Aviation (GA)

The GA community in Nevada is a major user of the airport system and its demand is evaluated in terms of based aircraft and operations. The following trends were highlighted due to their likelihood to impact Nevada's future GA demand.

6.3.2.1. Relatively Flat GA Aircraft Shipments and Billings

Between 2011 and 2020, historic GA aircraft billings fluctuated but had only increased by five percent over this time period. Total turboprop and jet deliveries had declined over this time period while piston deliveries had increased. COVID-19 had a minimal impact on piston deliveries compared to 2019, as they increased 4.0 percent in 2020. However, in 2020 turboprop deliveries continued to decline (down 15.6 percent) and business jet deliveries sharply declined, falling by 20.4 percent. **Figure 6-11** displays GA aircraft shipping and billings from 2011 through 2020.

Figure 6-11: Total GA Aircraft Shipments and Billings, 2011-2020



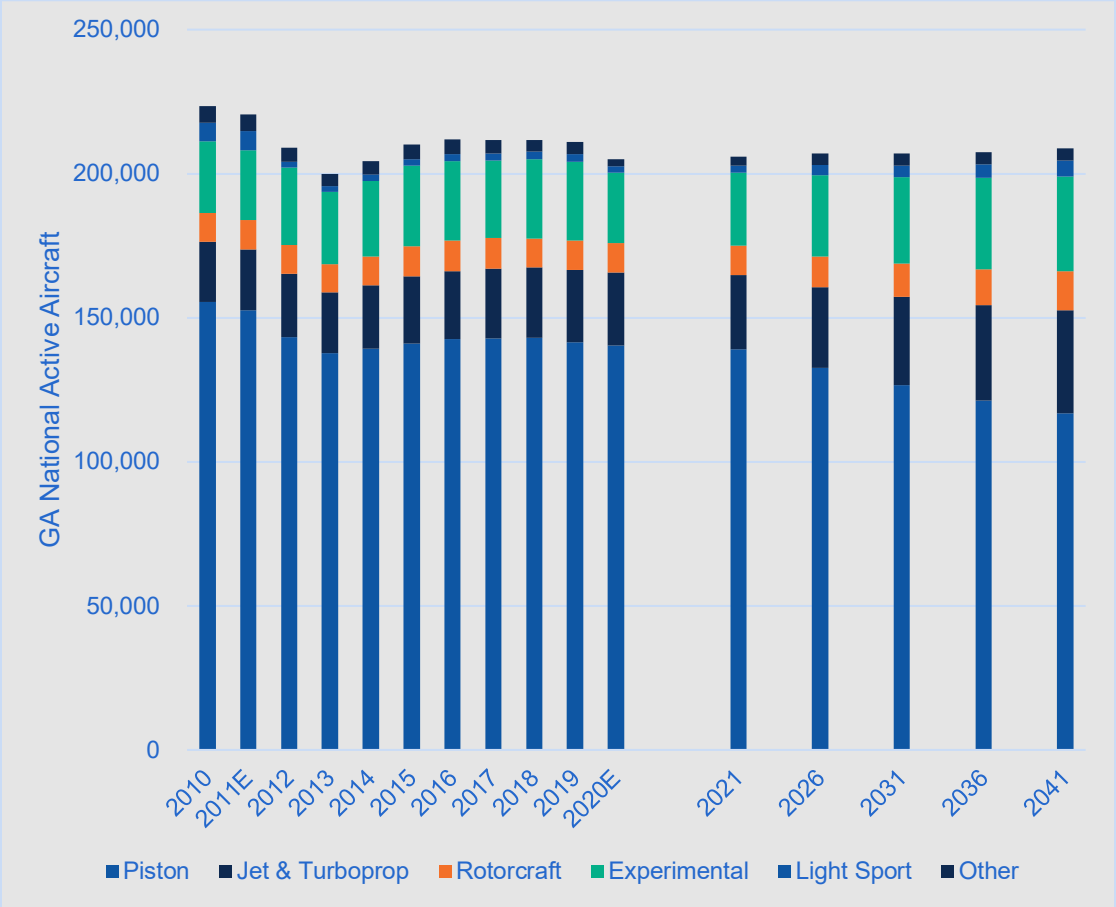
Sources: General Aviation Manufacturers Association (GAMA) GA Airplane Shipments and Billings, 1994-2020

6.3.2.2. Slight Decline in National Active GA Fleet

Between 2010 and 2020, an average annual decrease of 0.9 percent was observed in the national GA fleet. **Figure 6-12** displays the National GA fleet by type from 2010 to 2041 per the 2021 FAA Aerospace Forecast. The FAA projected the following average annual growth rates in the active GA fleet by type between 2021 and 2041:

- Piston: -0.9%
- Turboprop: 0.6%
- Jet: 2.3%
- Rotorcraft: 1.4%
- Experimental: 1.4%
- Light Sport: 4.0%
- Other: 1.6%

Figure 6-12: National Active GA Fleet by Type, 2010-2041



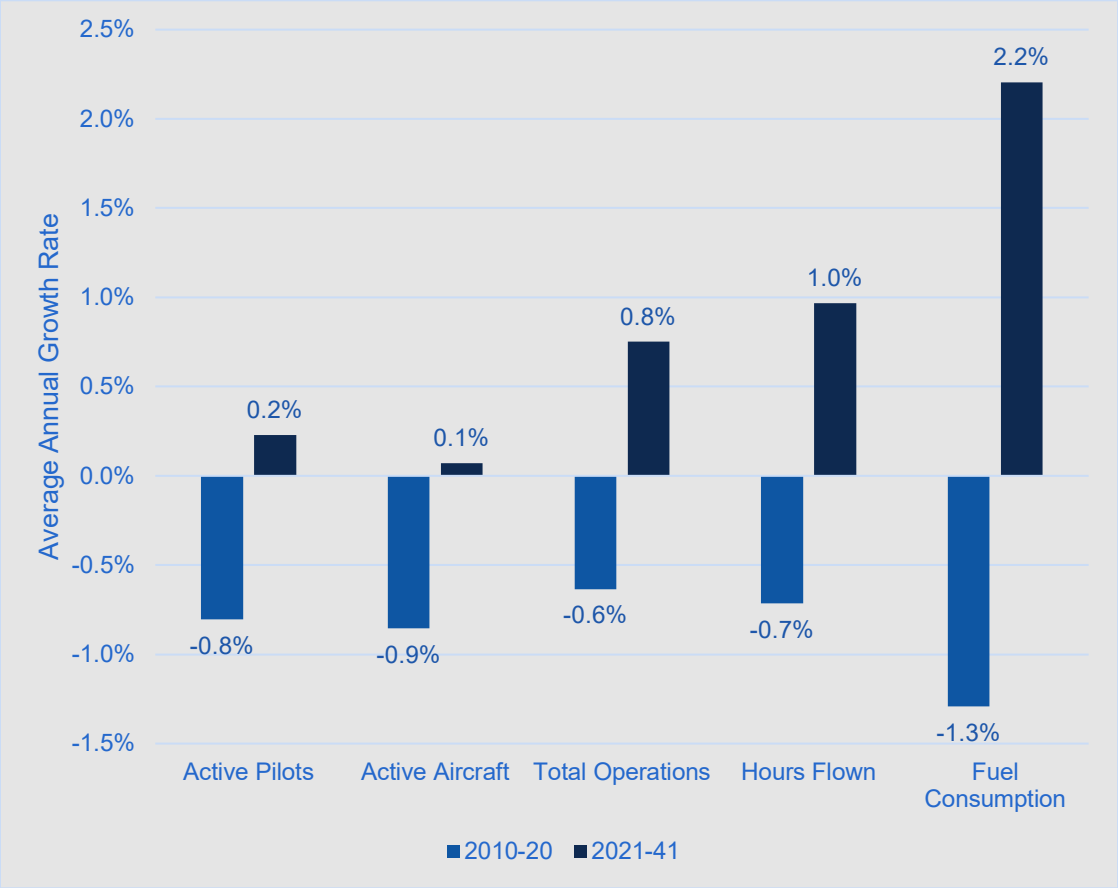
Sources: FAA Aerospace Forecast Fiscal Years 2021-2041; FAA General Aviation and Air Taxi Activity (and Avionics) Surveys 2001-2010, 2012-2018

6.3.2.3. Slight Projected Growth in GA Activity

GA activity is expected to remain relatively flat through the 2041 forecast period with a recovery largely offsetting declines due to COVID-19. This recovery was due to strong demand for pilot training and fairly consistent GA pleasure flight activity during the pandemic, which offset the reduction in corporate business travel on GA aircraft. **Figure 6-13** displays the historic and projected GA activity by type from 2010 to 2041.

The total number of active pilots in all categories, except for student pilots, is forecast by the FAA to increase by 0.2 percent on average each year between 2021 and 2041. Total GA hours flown are forecast to increase by an average of 1.0 percent per year between 2021 and 2041. Total GA fuel consumption is forecast to increase by an average of 2.2 percent per year between 2021 and 2041.

Figure 6-13: Historic and Projected GA Activity by Type, 2010-2041



Sources: FAA U.S. Civil Airmen Statistics; FAA General Aviation and Air Taxi Activity (and Avionics) Surveys 2001-2010, 2012-2018; FAA Air Traffic Activity; FAA Aerospace Forecast Fiscal Years 2021-2041

6.4. Nevada Commercial Service Activity

6.4.1. Historical and Current Commercial Service Activity

To determine future demand forecasts for commercial service in Nevada, it is important to examine historical and current contexts of commercial service airport activity across the state. While individual airports report their activity data and conduct their own forecasts, the FAA's Terminal Area Forecast (TAF) from 2019 was used as a consistent baseline for all historical commercial service data and anticipated levels of future activity. The TAF was also used because the FAA compares all forecasts to the TAF as part of its approval process.

6.4.1.1. Enplanements

Enplaned passenger activity for the past eight years for Nevada's commercial service airports is shown in **Table 6-9**. Considering the inclusion of 2020, which was significantly impacted by the COVID-19 pandemic, all commercial service airports experienced a decline from 2013 through 2020, with the largest declines at Harry Reid International (LAS) and Reno/Tahoe International (RNO) in terms of actual enplanements and all others experiencing higher CAGRs. Moreover, the 2020 data presented in the FAA TAF 2020 presents estimates for the number of enplanements and actual enplanements in 2020 could be lower than is presented in **Table 6-9**.

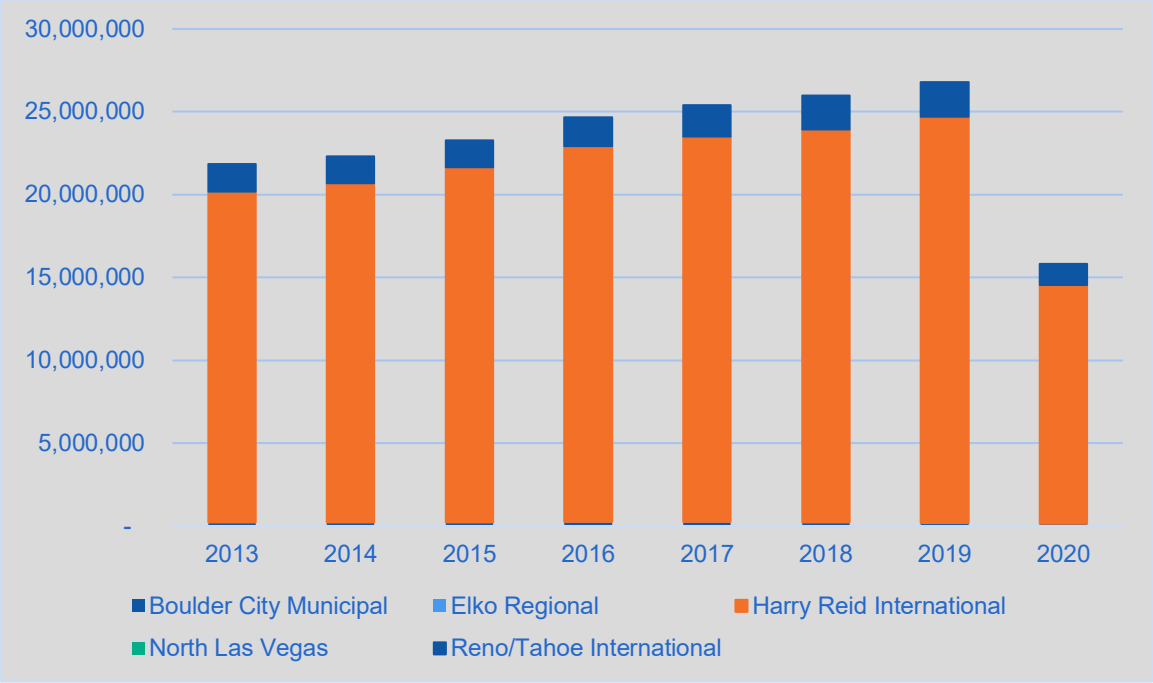
Table 6-9: Recent Enplanements at Nevada Airports, 2013-2019

Year	Boulder City Municipal (BVU)	Elko Regional (EKO)	Harry Reid International (LAS)	North Las Vegas (VGT)	Reno/Tahoe International (RNO)
2013	208,272	19,908	19,905,723	39,822	1,683,734
2014	212,588	18,508	20,434,421	31,443	1,609,833
2015	204,586	14,563	21,418,543	19,217	1,627,701
2016	218,657	14,270	22,668,615	15,908	1,752,668
2017	222,493	16,745	23,261,511	3	1,907,676
2018	206,692	17,901	23,709,855	6,516	2,030,158
2019	166,939	19,896	24,484,394	16,276	2,119,274
2020 (est.)	121,772	12,265	14,391,587	16,280	1,269,829
CAGR (2013 – 2020)	-6.5%	-5.9%	-4.0%	-10.6%	-3.5%

Source: FAA TAF 2020

As shown in **Figure 6-14**, approximately 91 percent of enplanements take place at LAS, the highest amount of any Nevada airport by far. RNO accounts for 8 percent, while the rest of the commercial service airports make up a fraction of state's annual enplanements.

Figure 6-14: Enplanement Growth by Nevada Commercial Service Airport, 2015-2020



Source: FAA TAF 2020

Nevada's total share of U.S. enplanements has remained relatively steady at approximately three percent from 2010 to 2019 as shown in **Table 6-10** and prior to the 2020 pandemic.

Table 6-10: Nevada Share of U.S. Enplanements, 2010-2019

Year	Nevada	U.S.	Nevada's Share of U.S.	Growth Rates (Year to Year)	
				Nevada	U.S.
2010	21,063,497	703,821,932	2.99%		
2011	21,783,661	723,885,332	3.01%	3.42%	2.85%
2012	22,001,361	732,042,443	3.01%	1.00%	1.13%
2013	21,857,459	735,534,910	2.97%	-0.65%	0.48%
2014	22,306,793	754,590,349	2.96%	2.06%	2.59%
2015	23,284,610	787,503,557	2.96%	4.38%	4.36%
2016	24,670,118	823,735,195	2.99%	5.95%	4.60%
2017	25,408,428	847,828,120	3.00%	2.99%	2.92%
2018	25,971,122	889,409,769	2.92%	2.21%	4.90%
2019	26,806,779	925,237,899	2.90%	3.22%	4.03%
2020 (est.)	15,811,733	515,146,861	3.07%	-41.02%	-44.32%

Source: FAA TAF 2020

6.4.1.2. Based Aircraft

A based aircraft is an aircraft that is operational and airworthy, which is typically based or stored at a specific airport for a majority of the year. While the FAA validates the number of based aircraft at each non-primary NPIAS airport through the FAA's National Based Aircraft Inventory Program, explained further in **Section 6.5.1.1**, it does not require primary airports to utilize this system. As such, for the NAHSP, the number of based aircraft listed in the FAA's TAF was utilized for the commercial service airports. As shown in **Table 6-11**, there are a total of 1,140 based aircraft at the five Nevada commercial service airports.

Table 6-11: 2020 Nevada Commercial Service Airport Based Aircraft

Associated City	Airport Name	FAA ID	2019 Based Aircraft
Boulder City	Boulder City Municipal	BVU	240
Elko	Elko Regional	EKO	77
Las Vegas	Harry Reid International	LAS	110
Las Vegas	North Las Vegas	VGT	552
Reno	Reno/Tahoe International	RNO	161
Total Statewide Based Aircraft at Commercial Service Airports			**1,166**

Source: FAA TAF 2020

6.4.1.3. Operations

Operations are defined as either a landing or takeoff occurring at an airport. For example, one takeoff and one landing together constitute two operations. For the NAHSP, the commercial operations values include both air carrier and air taxi/commuter operations as defined by the FAA:

- **Air Carrier Operations:** Airport operations performed by aircraft with seating capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds, carrying passengers or cargo for hire or compensation.
- **Air Taxi/Commuter Operations:** Airport operations performed by aircraft with seating capacity of 60 seats or less or a maximum payload capacity of 18,000 pounds or less, carrying passengers or cargo for hire or compensation on either a scheduled or charter basis, or on an on-demand or limited scheduled basis. Scheduled or charter basis is defined as five or more round-trip flights per week on at least one route according to published flight schedules.

Table 6-12 displays operations by type for 2020, including commercial, GA, and military, as derived from the FAA TAF 2020. It is important to note that the 2020 operations presented in the FAA TAF 2020 are considered estimates. For additional context, the total operations for 2019 presented in the FAA TAF 2020 are included in Table 6-12.

Table 6-12: 2020 Nevada Commercial Service Airport Operations by Type

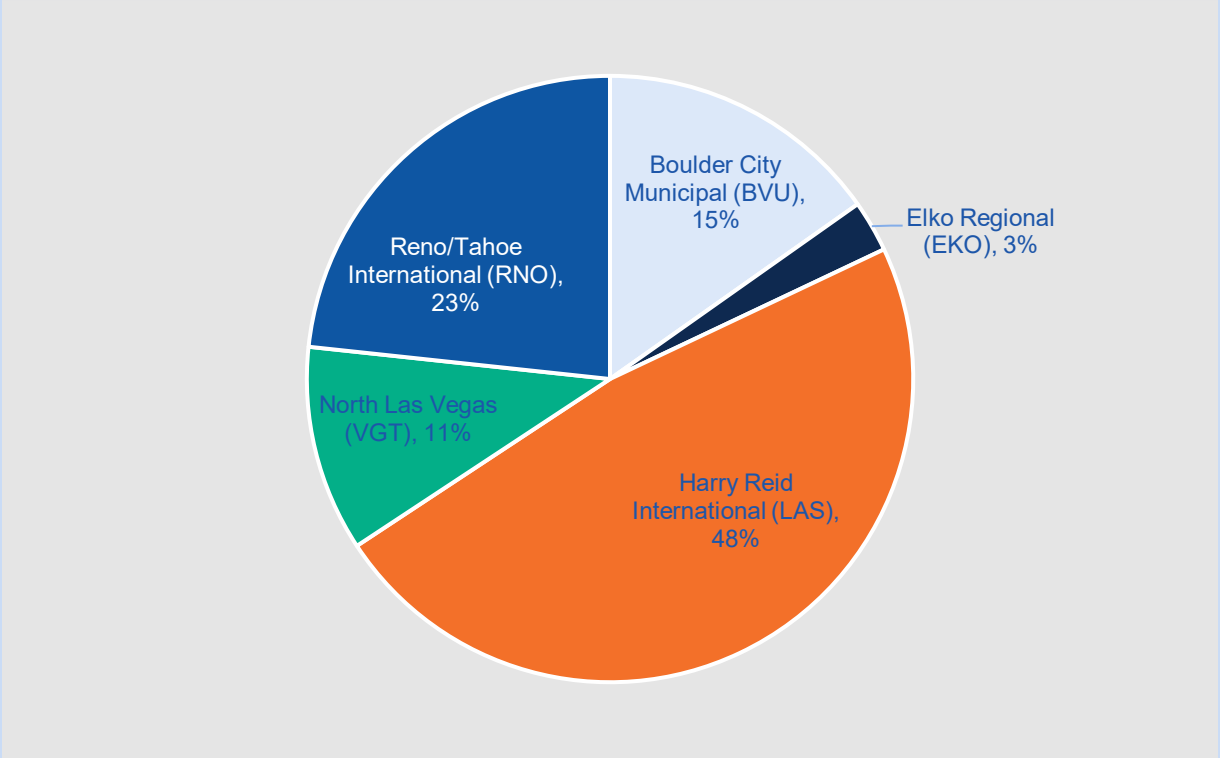
Associated City	Airport Name	FAA ID	Commercial, Air Carrier & Air Taxi	Military	Local GA	Itinerant GA	2020 Total Operations	*2019 Total Operations*
Boulder City	Boulder City Municipal	BVU	106,071	74	11,340	2,920	120,405	*120,405*
Elko	Elko Regional	EKO	6,230	135	4,944	10,460	21,769	*21,373*

Las Vegas	Harry Reid International	LAS	342,092	4,958	0	30,883	377,933	*549,098*
Las Vegas	North Las Vegas	VGT	11,538	1,607	118,344	52,906	184,395	*178,326*
Reno	Reno/Tahoe International	RNO	45,016	2,405	13,043	26,381	86,845	*99,703*
Total Statewide Commercial Service Operations by Type			**510,947**	**9,179**	**147,671**	**123,550**	**791,347**	***968,905***

Source: FAA TAF 2020

Figure 6-15 presents the market share of commercial service operations for each commercial airport in Nevada. The largest share of commercial service operations in 2020 took place at LAS at 48 percent, followed by RNO with 23 percent. The remaining 29 percent was comprised of BVU, EKO, and VGT combined.

Figure 6-15: Percent of Total Commercial Service Operations in Nevada, 2020



Source: FAA TAF 2020

6.4.2. Forecasts of Commercial Service

Estimations of future passenger enplanements, aircraft operations, and based GA aircraft at commercial service airports are presented in this section. For aircraft operations, the individual categories of Commercial, GA, and Military are examined to derive total operations forecasts for the five commercial service airports. Note that FAA TAF data for the 20-year planning horizon to 2040 were used for all commercial service forecasts in this section, with 2020 serving as the baseline year for all of these indicators at commercial service airports. While individual airports in Nevada prepare their own forecasts, historical and forecast TAF data were used to establish a uniform baseline for projections.

6.4.2.1. Enplanement Forecasts

Table 6-13 shows forecasts of enplaned passenger activity for the individual commercial service airports in Nevada. BVU and VGT are forecast to maintain consistent enplanements over the 20-year period while the remaining commercial service airports are anticipating growth over this same period of time. LAS is expected to see the most growth with a CAGR of 4.73 percent. RNO is estimated to grow at 4.16 percent annually, while EKO is estimated to experience a growth rate of 2.98 percent annually.

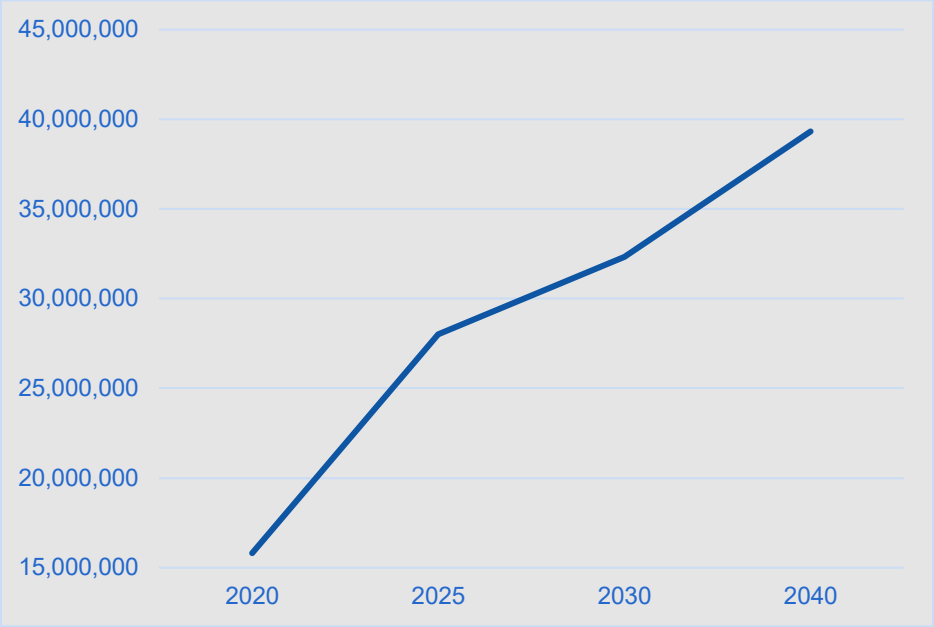
Table 6-13: Nevada Commercial Service Airport Enplanement Forecasts, 2019-2040

Associated City	Airport Name	FAA ID	Historic	Enplanements Forecast			CAGR 2019-2040
			2019	2025	2030	2040	
Boulder City	Boulder City Municipal	BVU	121,772	121,772	121,772	121,772	0.00%
Elko	Elko Regional	EKO	12,265	14,209	16,457	22,070	2.98%
Las Vegas	Harry Reid International	LAS	14,391,587	25,581,085	29,658,949	36,294,658	4.73%
Las Vegas	North Las Vegas	VGT	16,280	16,280	16,280	16,280	0.00%
Reno	Reno/Tahoe International	RNO	1,269,829	2,272,954	2,522,761	2,869,846	4.16%
Total Statewide Enplanements			15,811,733	28,006,300	32,336,219	39,324,626	4.66%

Source: FAA TAF 2019

Figure 6-16 presents the total enplanements forecast for Nevada commercial service airports through 2040. The total number of enplanements is expected to increase over the next 20 years at varying rates. Growth is estimated to be most significant between 2020 and 2025, which aligns with COVID-19 recovery returning the industry to pre-COVID levels, then growth slowing slightly, but continuing to increase from 2025 – 2040.

Figure 6-16: Statewide Commercial Service Enplanement Forecast, 2020-2040



Source: FAA TAF 2020

6.4.2.2. Based GA Aircraft Forecasts at Commercial Service Airports

Table 6-14 presents based GA aircraft projections through 2040 for the Nevada commercial service airports. In 2020 there were 1,140 based aircraft at commercial service airports which is calculated to increase by 205 up to 1,345 by 2040. Through the planning horizon BVU, LAS, and RNO are forecast to remain flat in terms of based aircraft, with a CAGR of approximately one percent at EKO and approximately one and a half percent at VGT.

Table 6-14: Based Aircraft Forecasts at Nevada Commercial Service Airports, 2020-2040

Associated City	Airport Name	FAA ID	Historic	Based Aircraft Forecast			CAGR 2019-2040
			2019	2025	2030	2040	
Boulder City	Boulder City Municipal	BVU	240	240	240	240	0.00%
Elko	Elko Regional	EKO	77	80	85	95	1.06%
Las Vegas	Harry Reid International	LAS	110	110	110	110	0.00%
Las Vegas	North Las Vegas	VGT	552	598	643	739	1.47%
Reno	Reno/Tahoe International	RNO	161	161	161	161	0.00%
Total Statewide Based Aircraft at Commercial Service Airports			1,140	1,189	1,239	1,345	0.83%

Note: Upcoming RNO development will result in additional aircraft storage that may correspond to a larger increase in based aircraft than forecast due to the existing aircraft storage waitlist. Source: FAA TAF 2020

6.4.2.3. Commercial Operations Forecasts

Table 6-15 presents commercial operations forecasts through 2040. LAS is expected to continue handling the bulk of the growth with a 3.62 percent CAGR amounting to over 354,000 added commercial

operations by 2040. RNO is expected to add over 32,000 commercial operations by 2040 with a CAGR of 2.74 percent. VGT is expected to experience similar commercial operation increases over the 20-year timeline, with a CAGR of 2.79 percent. BVU is shown to remain constant through the planning horizon, but EKO will see a marginal growth of less than one percent. Commercial operations across Nevada are calculated to grow 2.91 percent annually which would mean to an increase of commercial service operations of almost 397,000.

Table 6-15: Nevada Commercial Operations Forecasts, 2020-2040

Associated City	Airport Name	FAA ID	Historic	Commercial Operations Forecast			CAGR 2020 - 2040
			2019	2025	2030	2040	
Boulder City	Boulder City Municipal	BVU	106,071	106,074	106,071	106,071	0.00%
Elko	Elko Regional	EKO	6,230	6,476	6,746	7,362	0.84%
Las Vegas	Harry Reid International	LAS	342,092	515,694	583,948	696,983	3.62%
Las Vegas	North Las Vegas	VGT	11,538	19,996	19,996	19,996	2.79%
Reno	Reno/Tahoe International	RNO	45,016	61,727	67,963	77,294	2.74%
Total Statewide Commercial Operations			**510,947**	**709,967**	**784,724**	**907,706**	**2.91%**

**Note: Commercial service operation counts and forecast estimates utilize combined air carrier and air taxi/commuter operations*
Source: FAA TAF 2020

6.4.2.4. GA and Military Operations Forecasts at Commercial Service Airports

In addition to commercial service operations (air carrier and air taxi/commuter), commercial service airports also experience GA and military activity. GA services include personal transportation, helicopter operations, and corporate flights. Additional examples of GA activity that can utilize a commercial service airport include medical or emergency airlift, agricultural spraying, recreational flights, and natural disaster response.

Table 6-17 shows the total number of GA and military operations expected to occur at the five commercial service airports through 2040. GA operations are projected to have a CAGR of 0.40 percent resulting in a total of approximately 300,000 annual operations while military operations are projected to remain constant over the 20-year period. It should be noted that military operations are determined by national security issues and are generally unknown for the future; due to these considerations military operations are forecast to remain flat.

6.4.2.5. Total Operations at Commercial Service Airports

Table 6-16 presents forecast estimates for total operations taking place at commercial service airports. Total operations include commercial (which incorporates air carrier and air taxi/commuter categories), GA, and military operations.

Over the next 20 years, total operations at commercial service airports are calculated to experience growth. LAS is expected to have almost 371,000 more operations by 2040 and has the fastest growth rate of 3.48 percent per year. BVU experiences the slowest rate of growth at 0.42 percent annually. Overall total operations are expected to increase by 1.23 percent annually with approximately 220,000 more operations by 2040.

Table 6-16: Total Operations Forecasts at Nevada Commercial Service Airports, 2020-2040

Associated City	Airport Name	FAA ID	Historic	Total Operations Forecast			CAGR 2019-2040
			2019	2025	2030	2040	
Boulder City	Boulder City Municipal	BVU	120,405	120,408	120,405	120,405	0.00%
Elko	Elko Regional	EKO	21,769	23,891	26,275	31,939	1.94%
Las Vegas	Harry Reid International	LAS	377,933	565,537	634,468	748,908	3.48%
Las Vegas	North Las Vegas	VGT	184,395	194,697	196,560	200,348	0.42%
Reno	Reno/Tahoe International	RNO	85,845	106,385	113,049	123,254	1.82%
Total Statewide Operations at Commercial Service Airports			**791,347**	**1,010,915**	**1,090,757**	**1,010,918**	**1.23%**

Source: FAA TAF 2020

Table 6-17: GA and Military Operations Forecasts at Nevada Commercial Service Airports, 2020-2040

Associated City	Airport Name	FAA ID	Historical		Forecast GA and Military Operations						CAGR 2019-2040	
			2019		2025		2030		2040			
			GA	Military	GA	Military	GA	Military	GA	Military	GA	Military
Boulder City	Boulder City Municipal	BVU	14,260	74	14,260	74	14,260	74	14,260	74	0.00%	0.00%
Elko	Elko Regional	EKO	15,404	135	17,280	135	19,394	135	24,442	135	2.34%	0.00%
Las Vegas	Harry Reid International	LAS	30,883	4,958	44,885	4,958	45,562	4,958	46,967	4,958	2.12%	0.00%
Las Vegas	North Las Vegas	VGT	171,250	1,607	173,094	1,607	174,957	1,607	178,745	1,607	0.21%	0.00%
Reno	Reno/Tahoe International	RNO	39,424	2,405	42,253	2,405	42,681	2,405	43,555	2,405	0.50%	0.00%
Total Statewide GA and Military Operations at Commercial Service Airports			271,221	9,179	291,772	9,179	296,854	9,179	307,969	9,179	0.64%	0.00%

Source: FAA TAF 2020

6.5. Nevada General Aviation (GA) Activity

6.5.1. Historical and Current GA Activity

GA activity is the main type of activity at most of Nevada's airports, as many do not have commercial service, and most have only transient or itinerant military operations. Nevada has a long history with GA as it has provided emergency response capabilities, critical access, and economic benefits to many communities. Historic and current trends at Nevada GA airports provide insights on trends unique to the state. In turn, this helps identify characteristics that will influence future aviation activity. For the NAHSP, the FAA National Based Aircraft Inventory Program, FAA Form 5010 Airport Master Record, the 2020 FAA TAF, and the NAHSP Airport Inventory Data Collection Form[5] were utilized to collect information on based aircraft and operations at the individual airports. It should be noted that the FAA TAF only provides data for NPIAS airports, which includes only 30 of the 51 airports in the NAHSP. A list of which airports are included in the NPIAS is provided in **Table 6-18.**

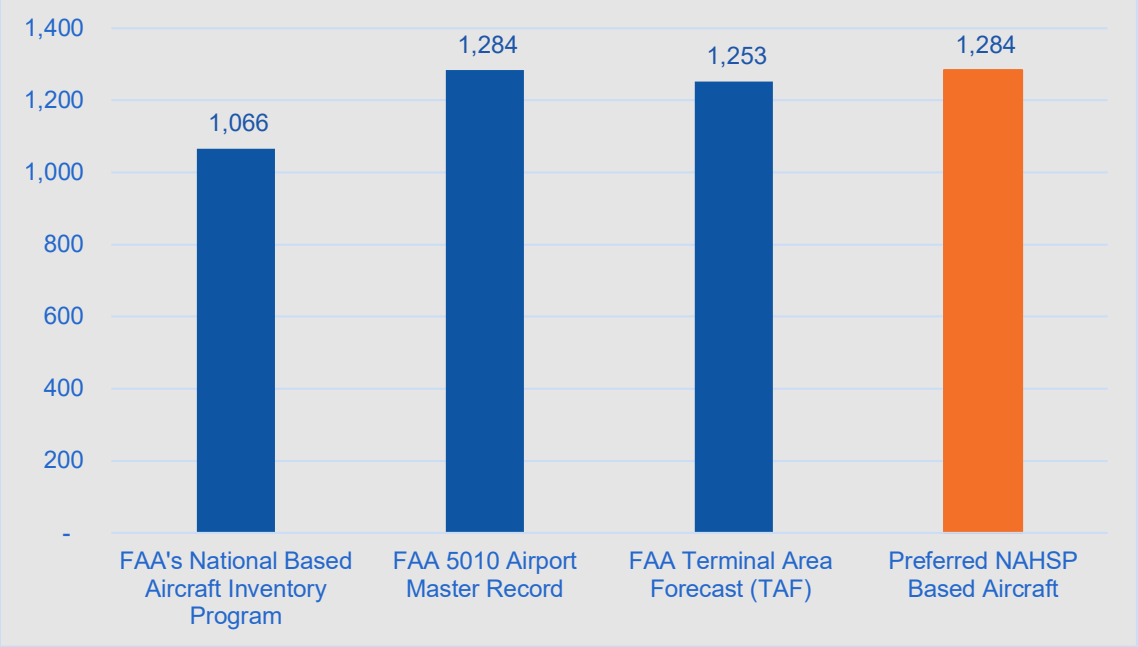
6.5.1.1. Based Aircraft

The FAA primarily collects data through the National Based Aircraft Inventory Program, also known as its website name "basedaircraft.com," to verify based aircraft counts for all Nonprimary airports in the NPIAS. Numbers submitted to the program are validated and incorporated in each airport's 5010 Master Record inspection data. These numbers are used by the FAA to determine NPIAS eligibility, allocate federal funding, and to determine system-wide improvement needs.

It is not uncommon that the number of reported based aircraft differ by source as each source has different methodologies and verification steps, and the data is collected at various times. Aircraft move from airport to airport either due to changes in residence (whether full time or just seasonal), availability of new hangars or storage facilities, aircraft being sold, etc.; therefore, the number of based aircraft varies at any point in time and while presented as representative of a single year, only truly reflect a snapshot in time of when the count was taken and recorded. As such, inventories of based aircraft were gathered from the multiple sources listed above and compared against one another to determine the most complete and accurate snapshot of based aircraft inventories at GA airports, as shown in **Figure 6-17**. **Table 6-18** shows the data for the individual airports and the final selected value used for the NAHSP.

[5] Based aircraft information was not collected on the NAHSP Airport Inventory Data Collection Form.

Figure 6-17: Total Based Aircraft at Nevada GA Airports by Source, 2020



Sources: FAA National Based Aircraft Inventory Program 2020, FAA Form 5010 Airport Master Record 2020, FAA TAF 2020

Table 6-18: Nevada GA Based Aircraft by Source

Associated City	Airport Name	FAA ID	NPIAS	FAA's National Based Aircraft Inventory Program	FAA 5010 Airport Master Record	FAA Terminal Area Forecast (TAF)	Preferred NAHSP Based Aircraft
Alamo	Alamo Landing Field	L92	Yes	1	1	1	1
Austin	Austin	TMT	Yes	5	5	4	5
Battle Mountain	Battle Mountain	BAM	Yes	4	4	3	4
Beatty	Beatty	BTY	Yes	4	5	8	5
Cal Nev Ari	Kidwell	1L4	No	0	14	0	14
Carson City	Carson	CXP	Yes	294	298	326	298
Crescent Valley	Crescent Valley	U74	No	0	0	0	0
Currant	Currant Ranch	9U7	No	0	0	0	0
Dayton/Carson City	Dayton Valley Airpark	A34	No	0	31	0	31
Dead Cow	Dead Cow Lakebed Airstrip (High Sierra)	-	No	0	0	0	0
Denio	Denio Junction	E85	No	0	0	0	0
Duckwater	Duckwater	01U	No	0	0	0	0
Dyer	Dyer	2Q9	No	0	5	0	5
Ely	Ely Airport/Yelland Field	ELY	Yes	9	10	15	10
Eureka	Eureka	05U	Yes	1	1	1	1
Fallon	Fallon Muni	FLX	Yes	79	80	77	80
Fernley	Samsarg Field	N58	No	0	3	0	3
Gabbs	Gabbs	GAB	Yes	1	1	1	1
Gerlach	Black Rock City (Burning Man)	88NV	No	0	0	0	0
Goldfield	Lida Junction	0L4	No	0	0	0	0
Hawthorne	Hawthorne Industrial	HTH	Yes	5	6	7	6
Jackpot	Jackpot/Hayden Field	06U	Yes	0	0	0	0

Associated City	Airport Name	FAA ID	NPIAS	FAA's National Based Aircraft Inventory Program	FAA 5010 Airport Master Record	FAA Terminal Area Forecast (TAF)	Preferred NAHSP Based Aircraft
Jean	Jean	0L7	Yes	12	13	37	13
Kingston	Kingston	N15	No	0	4	0	4
Las Vegas	Henderson Executive	HND	Yes	253	247	219	247
Lovelock	Derby Field	LOL	Yes	2	2	2	2
Lyon County	Flying M Ranch (Hilton Ranch)	-	No	0	0	0	0
Mesquite	Mesquite	67L	Yes	7	9	14	9
Mina	Mina	3Q0	No	0	2	0	2
Minden	Minden-Tahoe	MEV	Yes	167	175	350	175
North Fork	Stevens-Crosby	08U	No	0	1	0	1
Overton	Echo Bay	0L9	No	0	0	0	0
Overton	Perkins Field	U08	Yes	1	1	12	1
Owyhee	Owyhee	10U	Yes	0	0	0	0
Pahrump	Calvada Meadows	74P	No	0	47	0	47
Panaca	Lincoln County	1L1	Yes	1	2	5	2
Reno	Reno/Stead	RTS	Yes	168	172	93	172
Reno	Spanish Springs	N86	No	0	11	0	11
Sandy Valley	Sky Ranch	3L2	No	0	79	0	79
Searchlight	Searchlight	1L3	No	0	0	0	0
Silver Springs	Silver Springs	SPZ	Yes	12	12	16	12
Smith	Rosaschi Air Park	N59	No	0	2	0	2
Tonopah	Tonopah	TPH	Yes	9	9	9	9
Wells	Wells Municipal/Harriet Field	LWL	Yes	4	4	5	4
Winnemucca	Winnemucca Municipal	WMC	Yes	10	10	29	10
Yerington	Yerington Municipal	O43	Yes	17	18	19	18

Sources: FAA National Based Aircraft Inventory Program 2020, FAA Form 5010 Airport Master Record 2020, FAA TAF 2020

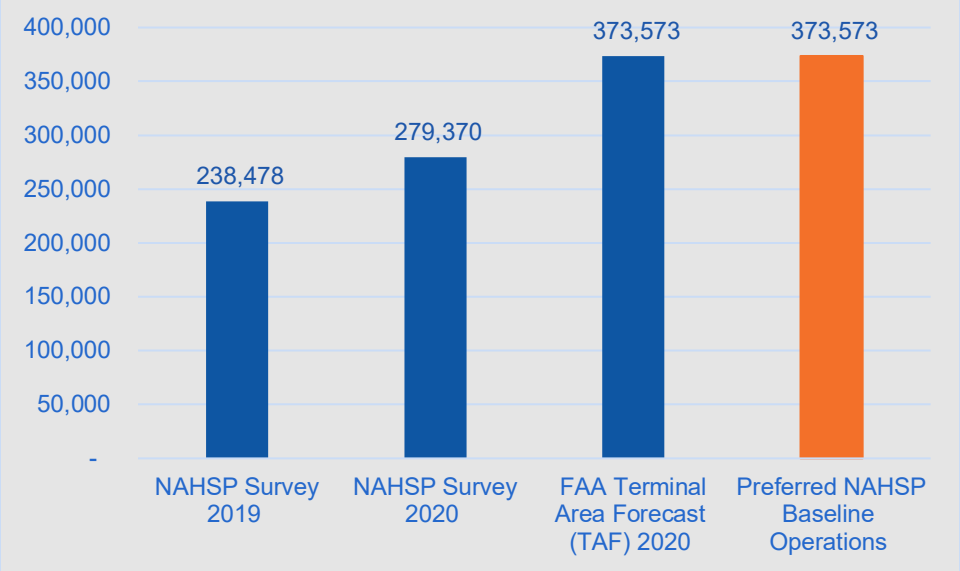
6.5.1.2. GA Operations at GA Airports

GA operations estimates for the NAHSP were gathered from the NAHSP Airport Inventory Data Collection Form (requested both 2019 and 2020) and 2020 FAA TAF to determine the most reliable assessment of the number of operations at Nevada GA airports in 2020. Most Nevada airports do not have an air traffic control tower (ATCT) or another form of monitoring equipment (e.g., visual, acoustic, or GPS-based) to track takeoffs and landings. As a result, annual aircraft operations are often estimated by these airports using methods such as average number of operations per based aircraft (OPBA), fuel sales, asking major airport tenants, or referencing local knowledge. The Nevada Department of Transportation (NDOT) has been working with local airport sponsors and alternative funding sources to provide monitoring equipment at non-towered airports to provide more reliable operations counting data.

Figure 6-18 displays the total operations counts at the GA airports as available from each source. It is difficult to compare the different sources as the FAA TAF only includes operations for NPIAS airports and only 29 of the 51 NAHSP airports were able to provide their annual operations during the inventory data collection process. **Table 6-19** shows operations for the individual NAHSP airports by source that were utilized to determine the final NAHSP operations count for 2020. In order to determine the preferred baseline NAHSP operations number, the differences between 2019 and 2020 operations from the inventory process were reviewed along with the contextual information gathered from the airport sponsors. This data was then compared against the TAF. In some cases, the data from the survey was utilized over the TAF and for other airports the TAF was utilized.

Table 6-20 displays the total baseline operations at the Nevada GA airports utilized for the NAHSP, which includes the military operations in addition to GA operations. As discussed further below, for the purposes of the NAHSP, military operations are assumed to remain constant throughout the planning period.

Figure 6-18: Nevada GA Airport Operations, 2019 and 2020



Sources: FAA TAF 2020, NAHSP Airport Inventory Data Collection Form 2021

Table 6-19: GA Operations at Nevada GA Airports by Data Source, 2020

Associated City	Airport Name	FAA ID	NPIAS	NAHSP Survey 2019 Data	NAHSP Survey 2020 Data	FAA Terminal Area Forecast (TAF) - 2020	Preferred NAHSP Baseline GA Operations
Alamo	Alamo Landing Field	L92	Yes	375	400	400	400
Austin	Austin	TMT	Yes	3,680	3,680	3,180	3,180
Battle Mountain	Battle Mountain	BAM	Yes	12,500	12,000	11,900	11,900
Beatty	Beatty	BTY	Yes	1,875	1,875	1,575	1,575
Cal Nev Ari	Kidwell	1L4	No	1,400	400	400	400
Carson City	Carson	CXP	Yes	80,000	80,000	79,900	79,900
Crescent Valley	Crescent Valley	U74	No	Not Provided	Not Provided	0	0
Currant	Currant Ranch	9U7	No	Not Provided	1,500	1,125	1,125
Dayton/Carson City	Dayton Valley Airpark	A34	No	Not Provided	Not Provided	0	0
Dead Cow	Dead Cow Lakebed Airstrip (High Sierra)	-	No	Not Provided	Not Provided	0	0
Denio	Denio Junction	E85	No	180	180	180	180
Duckwater	Duckwater	01U	No	Not Provided	1,000	670	670
Dyer	Dyer	2Q9	No	Not Provided	Not Provided	0	0
Ely	Ely Airport/Yelland Field	ELY	Yes	Not Provided	Not Provided	3,246	3,246
Eureka	Eureka	05U	Yes	576	488	488	488
Fallon	Fallon Muni	FLX	Yes	6,300	6,300	6,200	6,200
Fernley	Samsarg Field	N58	No	Not Provided	Not Provided	0	0
Gabbs	Gabbs	GAB	Yes	580	580	400	400
Gerlach	Black Rock City (Burning Man)	88NV	No	Not Provided	Not Provided	0	0
Goldfield	Lida Junction	0L4	No	Not Provided	Not Provided	0	0
Hawthorne	Hawthorne Industrial	HTH	Yes	1,214	1,309	1,243	1,243
Jackpot	Jackpot/Hayden Field	06U	Yes	Not Provided	Not Provided	5,900	5,900

Associated City	Airport Name	FAA ID	NPIAS	NAHSP Survey 2019 Data	NAHSP Survey 2020 Data	FAA Terminal Area Forecast (TAF) - 2020	Preferred NAHSP Baseline GA Operations
Jean	Jean	0L7	Yes	15,000	Not Provided	15,000	15,000
Kingston	Kingston	N15	No	96	100	96	96
Las Vegas	Henderson Executive	HND	Yes	72,649	56,301	56,322	56,322
Lovelock	Derby Field	LOL	Yes	6,400	4,400	4,040	4,040
Lyon County	Flying M Ranch (Hilton Ranch)	-	No	1,000	1,000	1,000	1,000
Mesquite	Mesquite	67L	Yes	Not Provided	Not Provided	6,824	6,824
Mina	Mina	3Q0	No	Not Provided	Not Provided	0	0
Minden	Minden-Tahoe	MEV	Yes	Not Provided	Not Provided	90,200	90,200
North Fork	Stevens-Crosby	08U	No	230	230	230	230
Overton	Echo Bay	0L9	No	Not Provided	Not Provided	0	0
Overton	Perkins Field	U08	Yes	Not Provided	Not Provided	7,200	7,200
Owyhee	Owyhee	10U	Yes	Not Provided	Not Provided	960	960
Pahrump	Calvada Meadows	74P	No	1,200	1,450	1,434	1,434
Panaca	Lincoln County	1L1	Yes	380	450	450	450
Reno	Spanish Springs	N86	No	60	60	60	60
Reno	Reno/Stead	RTS	Yes	52,000	42,000	38,500	38,500
Sandy Valley	Sky Ranch	3L2	No	Not Provided	Not Provided	0	0
Searchlight	Searchlight	1L3	No	500	200	150	150
Silver Springs	Silver Springs	SPZ	Yes	12,000	13,000	11,175	11,175
Smith	Rosaschi Air Park	N59	No	Not Provided	Not Provided	0	0
Tonopah	Tonopah	TPH	Yes	7,275	7,275	6,955	6,955
Wells	Wells Municipal/Harriet Field	LWL	Yes	Not Provided	Not Provided	7,400	7,400
Winnemucca	Winnemucca Municipal	WMC	Yes	Not Provided	Not Provided	6,475	6,475
Yerington	Yerington Municipal	O43	Yes	1,900	2,300	2,295	2,295

Sources: FAA TAF 2020, NAHSP Airport Inventory Data Collection Form 2021

Table 6-20: Total Baseline Operations at Nevada GA Airports, 2020

Associated City	Airport Name	FAA ID	Baseline Operations		
			GA	Military	Total
Alamo	Alamo Landing Field	L92	400	0	400
Austin	Austin	TMT	3,180	500	3,680
Battle Mountain	Battle Mountain	BAM	11,900	100	12,000
Beatty	Beatty	BTY	1,580	300	1,880
Cal Nev Ari	Kidwell	1L4	400	0	400
Carson City	Carson	CXP	79,900	100	80,000
Crescent Valley	Crescent Valley	U74	0	0	0
Currant	Currant Ranch	9U7	1,130	380	1,500
Dayton/Carson City	Dayton Valley Airpark	A34	0	0	0
Dead Cow	Dead Cow Lakebed Airstrip (High Sierra)	-	0	0	0
Denio	Denio Junction	E85	180	0	180
Duckwater	Duckwater	01U	670	330	1,000
Dyer	Dyer	2Q9	0	0	0
Ely	Ely Airport/Yelland Field	ELY	3,250	230	3,480
Eureka	Eureka	05U	490	0	490
Fallon	Fallon Muni	FLX	6,200	100	6,300
Fernley	Samsarg Field	N58	0	0	0
Gabbs	Gabbs	GAB	400	180	580
Gerlach	Black Rock City (Burning Man)	88NV	0	0	0
Goldfield	Lida Junction	0L4	0	0	0
Hawthorne	Hawthorne Industrial	HTH	1,240	70	1,310
Jackpot	Jackpot/Hayden Field	06U	5,900	400	6,300
Jean	Jean	0L7	15,000	0	15,000
Kingston	Kingston	N15	100	0	100
Las Vegas	Henderson Executive	HND	56,320	0	56,320
Lovelock	Derby Field	LOL	4,040	360	4,400
Lyon County	Flying M Ranch (Hilton Ranch)	-	1,000	0	1,000
Mesquite	Mesquite	67L	6,820	180	7,000
Mina	Mina	3Q0	0	0	0
Minden	Minden-Tahoe	MEV	90,200	300	90,500
North Fork	Stevens-Crosby	08U	230	0	230
Overton	Echo Bay	0L9	0	0	0
Overton	Perkins Field	U08	7,200	180	7,380
Owyhee	Owyhee	10U	960	400	1,360
Pahrump	Calvada Meadows	74P	1,430	20	1,450

Associated City	Airport Name	FAA ID	Baseline Operations		
			GA	Military	Total
Panaca	Lincoln County	1L1	450	0	450
Reno	Spanish Springs	N86	60	0	60
Reno	Reno/Stead	RTS	38,500	3,500	42,000
Sandy Valley	Sky Ranch	3L2	0	0	0
Searchlight	Searchlight	1L3	150	50	200
Silver Springs	Silver Springs	SPZ	11,180	1,830	13,000
Smith	Rosaschi Air Park	N59	0	0	0
Tonopah	Tonopah	TPH	6,960	320	7,280
Wells	Wells Municipal/Harriet Field	LWL	7,400	180	7,580
Winnemucca	Winnemucca Municipal	WMC	6,480	360	6,840
Yerington	Yerington Municipal	O43	2,300	10	2,300
Total Statewide Operations at GA Airports			**373,600**	**10,400**	**373,570**

Note: Operations have been rounded. Sources: FAA TAF 2020, NAHSP Airport Inventory Data Collection Form 2021

6.5.2. Forecasts of GA Activity at GA Airports

Forecasts for GA are focused on predicting based aircraft and GA operations to determine future demand over the next 20 years. Forecasts presented in this chapter are unconstrained, meaning that there are no extenuating circumstances that are anticipated to limit or restrict potential demand or operational functionality of the airports.

6.5.2.1. Forecasting Methodologies

This section describes the methodologies and associated growth rates utilized in the based aircraft and operational forecasts for GA airports. Each of the methodologies below utilize CAGR which calculates a constant rate of change over a given time period. It dampens the effect of volatility during periods that experience significant change and is essentially a “smoothed” annual growth rate. The CAGR has been applied to the 2020 base year for the 20-year planning horizon for each methodology as discussed below.

Socioeconomics

Socioeconomic characteristics provide insight to the economic health of a specific locality or region. Population, per capita personal income (PCPI), employment, Gross Regional Product (GRP), and other indicators can reflect propensity to own or operate aircraft, both in terms of based aircraft and operations. Socioeconomic data was provided by Woods and Poole Economics, Inc., an independent firm that specializes in long-term economic and demographic projections for the individual counties and the State of Nevada. The individual growth rates for 2020 to 2025, 2020 to 2030, and 2020 to 2040 were applied, with the total growth rates shown in each table. Additional information for the socioeconomics of each county and statewide are detailed in **Section 6.2.**

FAA Aerospace Forecast

The FAA’s forecast of the number of active GA and air taxi aircraft, by type of aircraft, was used to develop a CAGR for the NAHSP. The *FAA Aerospace Forecast 2021-2041* predicts the following for active aircraft:

- Standard single-engine piston aircraft will decrease at an annual rate of 1.0% through 2040.
- Multi-engine piston aircraft will decrease at an annual rate of 0.5% through 2040.
- Jet aircraft will increase at an annual rate of 1.8% through 2040.
- Helicopter aircraft will increase at an annual rate of 1.6% through 2040.
- Light sport aircraft will increase at an annual rate of 3.3% through 2040.
- Experimental aircraft will increase at an annual rate of 0.9% through 2040.

As the NAHSP forecasts for based aircraft were prepared on a statewide level as the study did not collect data containing the individual aircraft type at each airport, an average growth rate was applied to the 2020 base year. This average included a 0.06 percent growth rate from 2020 to 2025 and 2020 to 2030, and a 0.07 percent growth rate from 2020 to 2040.

For GA operations at GA airports, a growth rate of 0.75 percent was applied to all operations based on the average annual growth rate from 2021 to 2040 of total GA operations per the FAA Aerospace Forecast.

FAA Terminal Area Forecast (TAF)

The TAF is the official forecast for each airport in the NPIAS. The TAF contains forecasts for passenger enplanements, aircraft operations, and the number of based aircraft using data from the U.S. Department of Transportation (USDOT) T-100 database, Air Traffic Control Tower (ATCT) records, and FAA Master Records (Form 5010-1). The TAF is based on historical aircraft operations data, which are estimated for all non-towered airports. Only 30 NAHSP airports are included in the TAF, and of those 30 only six were forecast to have any growth within the forecast period. Additionally, only four airports in Nevada have an ATCT to accurately count operations.

6.5.2.2. Based Aircraft Forecasts at GA Airports

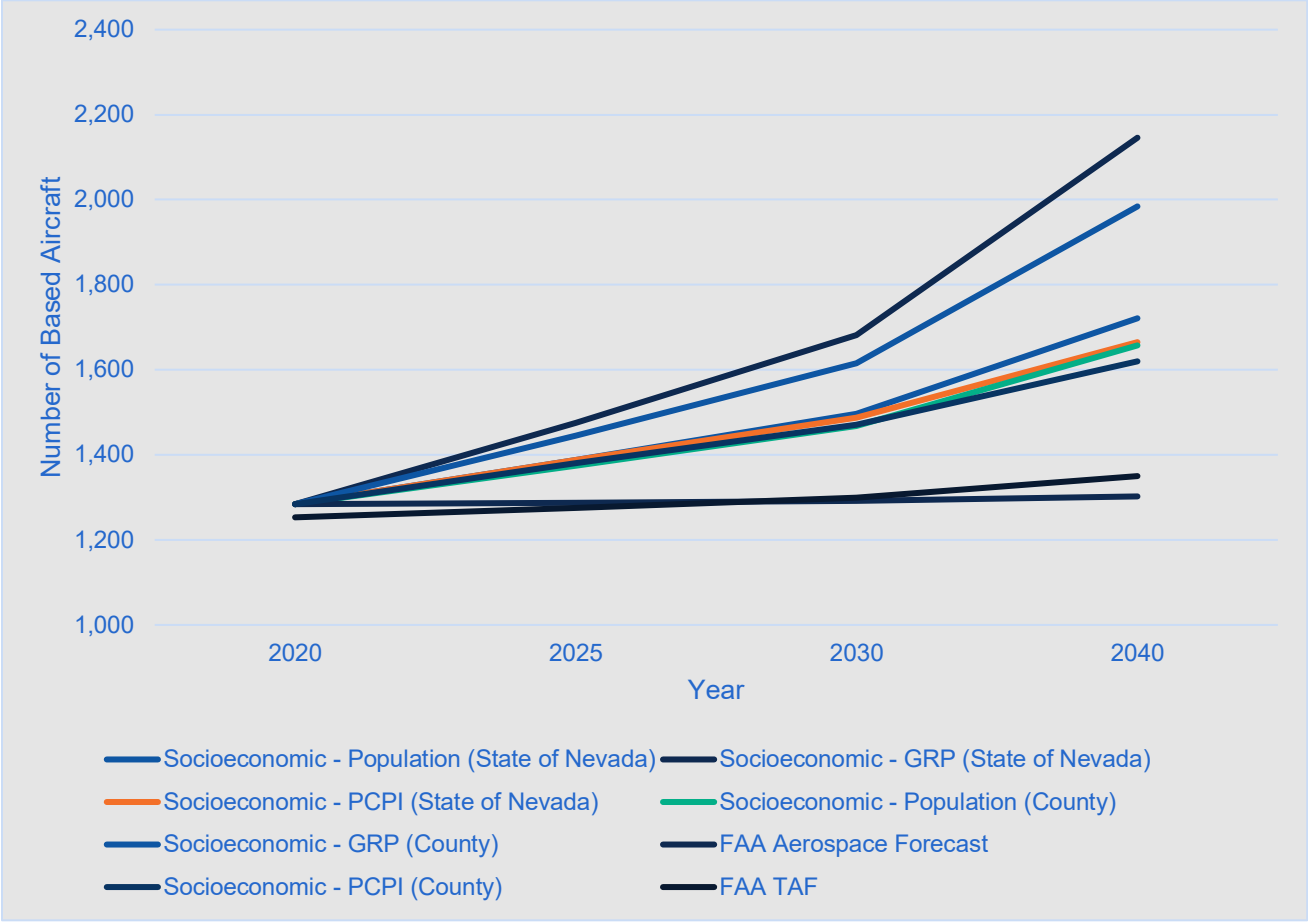
Using the methodologies discussed in **Section 6.5.2.1** resulted in a wide range of results for future based aircraft for GA airports, as shown in **Table 6-21** and **Figure 6-19.** The lowest growth resulting from the forecasts was from the FAA Aerospace Forecast methodology with only 0.07 percent growth, resulting in only 35 additional based aircraft statewide. The largest growth was from the State of Nevada GRP with 2.60 percent growth or 862 additional based aircraft. It should be noted that the TAF number is slightly different as the TAF only includes airports that are included within the FAA's NPIAS.

Table 6-21: GA Based Aircraft Results by Forecast Methodology, 2020-2040

Forecast Methodology	Historic	Forecast			CAGR 2020-2040
	2020	2025	2030	2040	
Socioeconomic - Population (State of Nevada)	1,280	1,390	1,500	1,720	1.48%
Socioeconomic - GRP (State of Nevada)	1,280	1,480	1,680	2,150	2.60%
Socioeconomic - PCPI (State of Nevada)	1,280	1,390	1,490	1,670	1.31%
Socioeconomic - Population (County)	1,280	1,370	1,470	1,660	1.28%
Socioeconomic - GRP (County)	1,280	1,440	1,620	1,980	2.20%
Socioeconomic - PCPI (County)	1,280	1,380	1,470	1,620	1.17%
FAA Aerospace Forecast	1,280	1,290	1,290	1,300	0.07%
FAA TAF	1,250	1,280	1,300	1,350	0.37%

Note: Operations have been rounded. Source: Kimley-Horn 2021

Figure 6-19: GA Based Aircraft Results by Forecast Methodology, 2020-2040



Source: Kimley-Horn 2021

The forecast results were then reviewed against historical activity and other aviation planning studies to select a preferred forecast of based aircraft methodology. Based on this review, the Socioeconomic Population by County was selected as the preferred methodology. Using the preferred methodology, Socioeconomic Population (County), based aircraft is calculated to grow at 1.28 percent CAGR from 1,280 in 2020 to 1,670 in 2040, which adds 380 aircraft to based aircraft inventory in Nevada. **Table 6-22** presents the results of the forecasts for based aircraft for the individual airports.

Table 6-22: Preferred Based Aircraft Forecasts at Nevada GA Airports, 2020-2040

Associated City	Airport Name	FAA ID	County	Historic	Forecast Based Aircraft			CAGR 2020-2040
				2020	2025	2030	2040	
Alamo	Alamo Landing Field	L92	Lincoln County	1	1	1	1	1.17%
Austin	Austin	TMT	Lander County	5	5	5	6	0.84%
Battle Mountain	Battle Mountain	BAM	Lander County	4	4	4	5	0.84%
Beatty	Beatty	BTY	Nye County	5	5	6	6	1.23%
Cal Nev Ari	Kidwell	1L4	Clark County	14	15	16	19	1.58%
Carson City	Carson	CXP	Carson City	298	320	344	391	1.37%
Crescent Valley	Crescent Valley	U74	Eureka County	0	0	0	0	1.81%
Currant	Currant Ranch	9U7	Nye County	0	0	0	0	1.23%
Dayton/Carson City	Dayton Valley Airpark	A34	Lyon County	31	33	36	40	1.30%
Dead Cow	Dead Cow Lakebed Airstrip (High Sierra)	-	Washoe County	0	0	0	0	1.17%
Denio	Denio Junction	E85	Humboldt County	0	0	0	0	1.34%
Duckwater	Duckwater	01U	Nye County	0	0	0	0	1.23%
Dyer	Dyer	2Q9	Esmeralda County	5	5	5	6	0.68%
Ely	Ely Airport/Yelland Field	ELY	White Pine County	10	10	10	10	0.08%
Eureka	Eureka	05U	Eureka County	1	1	1	1	1.81%
Fallon	Fallon Muni	FLX	Churchill County	80	88	97	115	1.83%
Fernley	Samsarg Field	N58	Lyon County	3	3	3	4	1.30%
Gabbs	Gabbs	GAB	Nye County	1	1	1	1	1.23%
Gerlach	Black Rock City (Burning Man)	88NV	Washoe County	0	0	0	0	1.17%
Goldfield	Lida Junction	0L4	Esmeralda County	0	0	0	0	0.68%
Hawthorne	Hawthorne Industrial	HTH	Mineral County	6	6	6	5	-0.49%
Jackpot	Jackpot/Hayden Field	06U	Elko County	0	0	0	0	1.50%
Jean	Jean	0L7	Clark County	13	14	15	18	1.58%

Associated City	Airport Name	FAA ID	County	Historic	Forecast Based Aircraft			CAGR 2020-2040
				2020	2025	2030	2040	
Kingston	Kingston	N15	Lander County	4	4	4	5	0.84%
Las Vegas	Henderson Executive	HND	Clark County	247	268	291	338	1.58%
Lovelock	Derby Field	LOL	Pershing County	2	2	2	2	0.88%
Lyon County	Flying M Ranch (Hilton Ranch)	Flying M	Lyon County	0	0	0	0	1.30%
Mesquite	Mesquite	67L	Clark County	9	10	11	12	1.58%
Mina	Mina	3Q0	Mineral County	2	2	2	2	-0.49%
Minden	Minden-Tahoe	MEV	Douglas County	175	180	185	194	0.51%
North Fork	Stevens-Crosby	08U	Elko County	1	1	1	1	1.50%
Overton	Echo Bay	0L9	Clark County	0	0	0	0	1.58%
Overton	Perkins Field	U08	Clark County	1	1	1	1	1.58%
Owyhee	Owyhee	10U	Elko County	0	0	0	0	1.50%
Pahrump	Calvada Meadows	74P	Nye County	47	50	53	60	1.23%
Panaca	Lincoln County	1L1	Lincoln County	2	2	2	3	1.17%
Reno	Spanish Springs	N86	Washoe County	11	12	12	14	1.17%
Reno	Reno/Stead	RTS	Washoe County	172	183	195	217	1.17%
Sandy Valley	Sky Ranch	3L2	Clark County	79	86	93	108	1.58%
Searchlight	Searchlight	1L3	Clark County	0	0	0	0	1.58%
Silver Springs	Silver Springs	SPZ	Lyon County	12	13	14	16	1.30%
Smith	Rosaschi Air Park	N59	Lyon County	2	2	2	3	1.30%
Tonopah	Tonopah	TPH	Nye County	9	10	10	11	1.23%
Wells	Wells Municipal/Harriet Field	LWL	Elko County	4	4	5	5	1.50%
Winnemucca	Winnemucca Municipal	WMC	Humboldt County	10	11	12	13	1.34%
Yerington	Yerington Municipal	O43	Lyon County	18	19	21	23	1.30%
Total Statewide Based Aircraft at GA Airports				**1,284**	**1,374**	**1,468**	**1,657**	**1.19%**

Note: Upcoming RNO development will result in additional aircraft storage that may correspond to a larger increase in based aircraft than forecast due to the existing aircraft storage waitlist. Source: Kimley-Horn 2021

6.5.2.3. GA Operations Forecasts at GA Airports

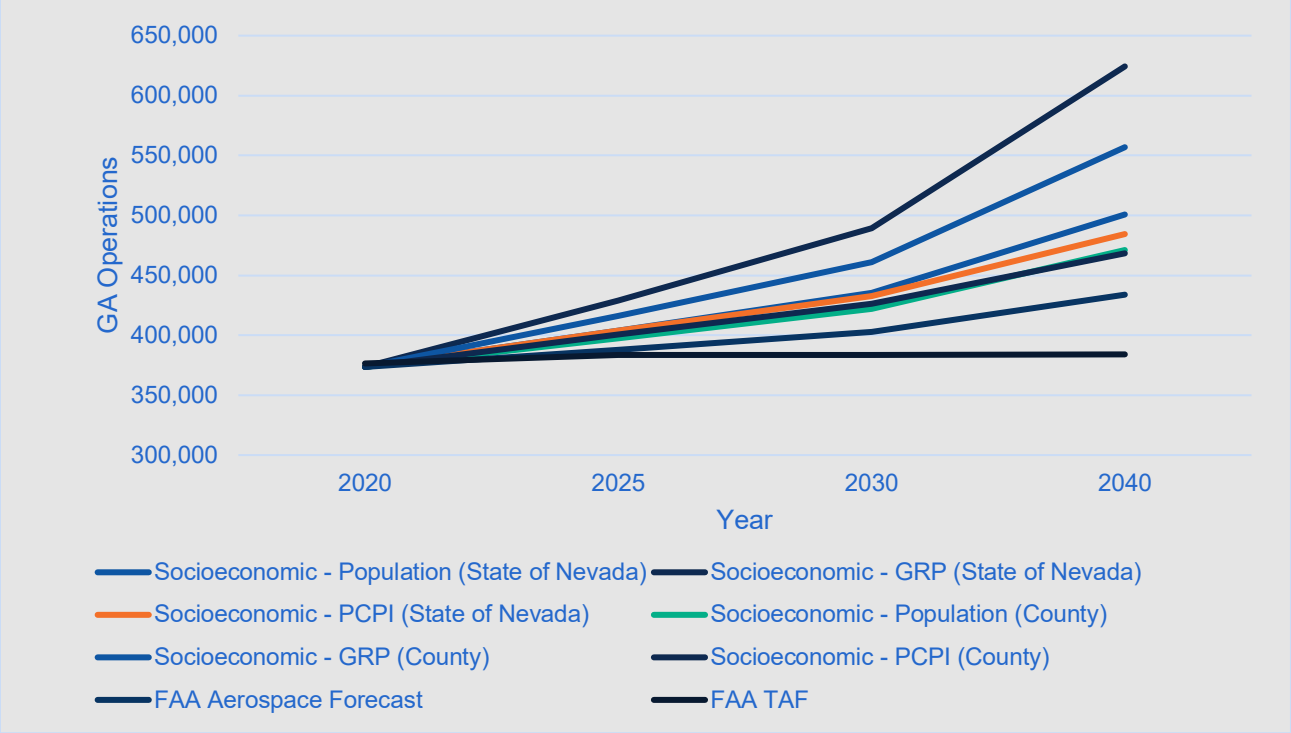
Using the methodologies discussed in 6.5.2.1 resulted in a wide range of results for future operations, as shown in **Table 6-23** and **Figure 6-20.** The lowest growth was from the FAA TAF methodology with only 0.10 percent growth, resulting in only 7,500 additional GA operations over the 20-year period. The largest growth was from the State of Nevada GRP methodology with 2.60 percent growth or 250,000 new GA operations over the next 20 years.

Table 6-23: Nevada GA Airport Operations Results by Forecast Methodology, 2020-2040

Forecast Methodology	Historic	Forecast			CAGR (2020-2040)
	2020	2025	2030	2040	
Socioeconomic - Population (State of Nevada)	373,570	403,670	435,490	500,760	1.48%
Socioeconomic - GRP (State of Nevada)	373,570	429,150	489,350	624,320	2.60%
Socioeconomic - PCPI (State of Nevada)	373,570	404,030	432,910	484,430	1.31%
Socioeconomic - Population (County)	373,570	397,400	422,180	471,100	1.17%
Socioeconomic - GRP (County)	373,570	416,390	461,150	556,910	2.02%
Socioeconomic - PCPI (County)	373,570	400,850	426,030	468,350	1.14%
FAA Aerospace Forecast	373,570	387,840	402,580	433,860	0.75%
FAA TAF	376,470	383,640	383,770	384,030	0.10%

Note: Operations have been rounded. Source: Kimley-Horn 2021

Figure 6-20: Nevada GA Airport Operations Results by Forecast Methodology, 2020-2040



Source: Kimley-Horn 2021

Similar to based aircraft, the forecast results were then reviewed against historical activity and other aviation planning studies to select a preferred forecast for GA operations. Based on this review, the Socioeconomic GRP by County was selected as the preferred methodology. Using the preferred methodology, total statewide GA operations are calculated to grow at 2.02 percent CAGR from approximately 373,500 in 2020 to 557,000 in 2040, which adds more than 183,000 total operations in Nevada across all GA airports. **Table 6-24** presents the preferred method's forecast results for GA and military operations for Nevada GA airports. For **Table 6-24**, the military operations from **Table 6-22** were added to the forecast GA operations to develop the total operations at GA airports. As noted above, military operations are forecast to remain constant throughout the planning period.

As noted in **Section 6.5.1.2**, there are several airports that did not provide operational information through the NAHSP inventory effort and are not included in the NPIAS. While it is understood operations are conducted at these airports, the NAHSP forecasts assume zero operations at these airports.

Table 6-24: Preferred Nevada GA Airport Operations Forecasts by Airport, 2020-2040

Associated City	Airport Name	FAA ID	County	Historic	Forecast Operations			CAGR 2020-2040
				2020	2025	2030	2040	
Alamo	Alamo Landing Field	L92	Lincoln County	400	440	480	560	1.70%
Austin	Austin	TMT	Lander County	3,680	4,020	4,390	5,220	1.76%
Battle Mountain	Battle Mountain	BAM	Lander County	12,000	13,260	14,640	17,770	1.98%
Beatty	Beatty	BTY	Nye County	1,880	2,060	2,270	2,730	1.90%
Cal Nev Ari	Kidwell	1L4	Clark County	400	460	530	690	2.76%
Carson City	Carson	CXP	Carson City	80,000	90,740	102,080	126,410	2.31%
Crescent Valley	Crescent Valley	U74	Eureka County	0	0	0	0	0.00%
Currant	Currant Ranch	9U7	Nye County	1,500	1,640	1,790	2,120	1.73%
Dayton/Carson City	Dayton Valley Airpark*	A34	Lyon County	0	0	0	0	0.00%
Dead Cow	Dead Cow Lakebed Airstrip (High Sierra)*	-	Washoe County	0	0	0	0	0.00%
Denio	Denio Junction	E85	Humboldt County	180	200	230	300	2.59%
Duckwater	Duckwater	01U	Nye County	1,000	1,080	1,170	1,370	1.59%
Dyer	Dyer*	2Q9	Esmeralda County	0	0	0	0	0.00%
Ely	Ely Airport/Yelland Field	ELY	White Pine County	3,480	3,660	3,840	4,170	0.91%
Eureka	Eureka	05U	Eureka County	490	560	650	850	2.81%
Fallon	Fallon Muni	FLX	Churchill County	6,300	7,230	8,250	10,600	2.64%
Fernley	Samsarg Field*	N58	Lyon County	0	0	0	0	0.00%
Gabbs	Gabbs	GAB	Nye County	580	630	680	800	1.62%
Gerlach	Black Rock City (Burning Man)*	88NV	Washoe County	0	0	0	0	0.00%
Goldfield	Lida Junction*	0L4	Esmeralda County	0	0	0	0	0.00%
Hawthorne	Hawthorne Industrial	HTH	Mineral County	1,310	1,380	1,450	1,570	0.90%
Jackpot	Jackpot/Hayden Field	06U	Elko County	6,300	7,070	7,880	9,680	2.17%
Jean	Jean	0L7	Clark County	15,000	17,400	20,030	26,000	2.79%
Kingston	Kingston	N15	Lander County	100	110	120	140	1.84%

Associated City	Airport Name	FAA ID	County	Historic	Forecast Operations			CAGR 2020-2040
				2020	2025	2030	2040	
Las Vegas	Henderson Executive	HND	Clark County	56,320	65,350	75,210	97,610	2.79%
Lovelock	Derby Field	LOL	Pershing County	4,400	4,880	5,390	6,510	1.98%
Lyon County	Flying M Ranch (Hilton Ranch)	-	Lyon County	1,000	1,110	1,220	1,450	1.88%
Mesquite	Mesquite	67L	Clark County	7,000	8,100	9,290	12,010	2.73%
Mina	Mina*	3Q0	Mineral County	0	0	0	0	0.00%
Minden	Minden-Tahoe	MEV	Douglas County	90,500	94,950	98,650	104,000	0.70%
North Fork	Stevens-Crosby	08U	Elko County	230	260	290	360	2.27%
Overton	Echo Bay*	0L9	Clark County	0	0	0	0	0.00%
Overton	Perkins Field	U08	Clark County	7,380	8,530	9,790	12,660	2.74%
Owyhee	Owyhee	10U	Elko County	1,360	1,490	1,620	1,910	1.71%
Pahrump	Calvada Meadows	74P	Nye County	1,450	1,630	1,810	2,240	2.19%
Panaca	Lincoln County	1L1	Lincoln County	450	490	540	630	1.70%
Reno	Spanish Springs	N86	Washoe County	60	70	70	90	2.05%
Reno	Reno/Stead	RTS	Washoe County	42,000	46,630	51,400	61,250	1.90%
Sandy Valley	Sky Ranch*	3L2	Clark County	0	0	0	0	0.00%
Searchlight	Searchlight	1L3	Clark County	200	220	250	310	2.22%
Silver Springs	Silver Springs	SPZ	Lyon County	13,000	14,220	15,470	18,060	1.66%
Smith	Rosaschi Air Park*	N59	Lyon County	0	0	0	0	0.00%
Tonopah	Tonopah	TPH	Nye County	7,280	8,110	9,020	11,070	2.12%
Wells	Wells Municipal/Harriet Field	LWL	Elko County	7,580	8,540	9,570	11,820	2.25%
Winnemucca	Winnemucca Municipal	WMC	Humboldt County	6,840	7,690	8,650	10,990	2.40%
Yerington	Yerington Municipal	O43	Lyon County	2,300	2,560	2,810	3,340	1.88%
Total Statewide GA Operations at GA Airports				**383,930**	**426,750**	**471,510**	**567,270**	**1.91%**

**Airport did not provide annual operations through NAHSP process. Sources: FAA TAF 2020, Kimley-Horn 2021*

6.6. Forecast Summary

The forecasts presented in this chapter are utilized as part of the determination of potential growth areas in Nevada over the next 20 years and were based on statewide trends as well as national trends that are expected to impact future aviation activity in Nevada. As shown in **Table 6-25**, the NAHSP forecasts display an increase of more than 500,000 total annual operations for a total of 1.87 million operations and 780 based aircraft for the airports within the Nevada system for a total of 3,064 based aircraft by 2040. It should be noted that this 2040 total includes NPIAS and non-NPIAS airports within the Nevada system.

Table 6-25: Total Nevada 2040 Based Aircraft and Operations Forecast

Associated City	Airport Name	FAA ID	2040 Based Aircraft Forecast	2040 Operations Forecast
Alamo	Alamo Landing Field	L92	1	560
Austin	Austin	TMT	6	5,220
Battle Mountain	Battle Mountain	BAM	5	17,770
Beatty	Beatty	BTY	6	2,730
Boulder City	Boulder City Municipal	BVU	240	120,405
Cal Nev Ari	Kidwell	1L4	19	690
Carson City	Carson	CXP	391	126,410
Crescent Valley	Crescent Valley	U74	0	0
Currant	Currant Ranch	9U7	0	2,120
Dayton/Carson City	Dayton Valley Airpark	A34	40	0
Dead Cow	Dead Cow Lakebed Airstrip (High Sierra)	-	0	0
Denio	Denio Junction	E85	0	300
Duckwater	Duckwater	01U	0	1,370
Dyer	Dyer	2Q9	6	0
Elko	Elko Regional	EKO	95	31,939
Ely	Ely Airport/Yelland Field	ELY	10	4,170
Eureka	Eureka	05U	1	850
Fallon	Fallon Muni	FLX	115	10,600
Fernley	Samsarg Field	N58	4	0
Gabbs	Gabbs	GAB	1	800
Gerlach	Black Rock City (Burning Man)	88NV	0	0
Goldfield	Lida Junction	0L4	0	0
Hawthorne	Hawthorne Industrial	HTH	5	1,570
Jackpot	Jackpot/Hayden Field	06U	0	9,680
Jean	Jean	0L7	18	26,000
Kingston	Kingston	N15	5	140
Las Vegas	Henderson Executive	HND	338	97,610
Las Vegas	Harry Reid International	LAS	110	478,888

Associated City	Airport Name	FAA ID	2040 Based Aircraft Forecast	2040 Operations Forecast
Las Vegas	North Las Vegas	VGT	739	200,348
Lovelock	Derby Field	LOL	2	6,510
Lyon County	Flying M Ranch (Hilton Ranch)	-	0	1,450
Mesquite	Mesquite	67L	12	12,010
Mina	Mina	3Q0	2	0
Minden	Minden-Tahoe	MEV	194	104,000
North Fork	Stevens-Crosby	08U	1	360
Overton	Echo Bay	0L9	0	0
Overton	Perkins Field	U08	1	12,660
Owyhee	Owyhee	10U	0	1,910
Pahrump	Calvada Meadows	74P	60	2,240
Panaca	Lincoln County	1L1	3	630
Reno	Spanish Springs	N86	14	90
Reno	Reno/Stead	RTS	217	61,250
Reno	Reno/Tahoe International	RNO	161	123,254
Sandy Valley	Sky Ranch	3L2	108	0
Searchlight	Searchlight	1L3	0	310
Silver Springs	Silver Springs	SPZ	16	18,060
Smith	Rosaschi Air Park	N59	3	0
Tonopah	Tonopah	TPH	11	11,070
Wells	Wells Municipal/Harriet Field	LWL	5	11,820
Winnemucca	Winnemucca Municipal	WMC	13	10,990
Yerington	Yerington Municipal	O43	23	3,340
Total Statewide 2040 Forecast Based Aircraft and Operations			**3,064**	**1,866,375**

Note: Upcoming RNO development will result in additional aircraft storage that may correspond to a more significant increase in based aircraft due to the existing aircraft storage waitlist. Sources: FAA TAF 2020, Kimley-Horn 2021

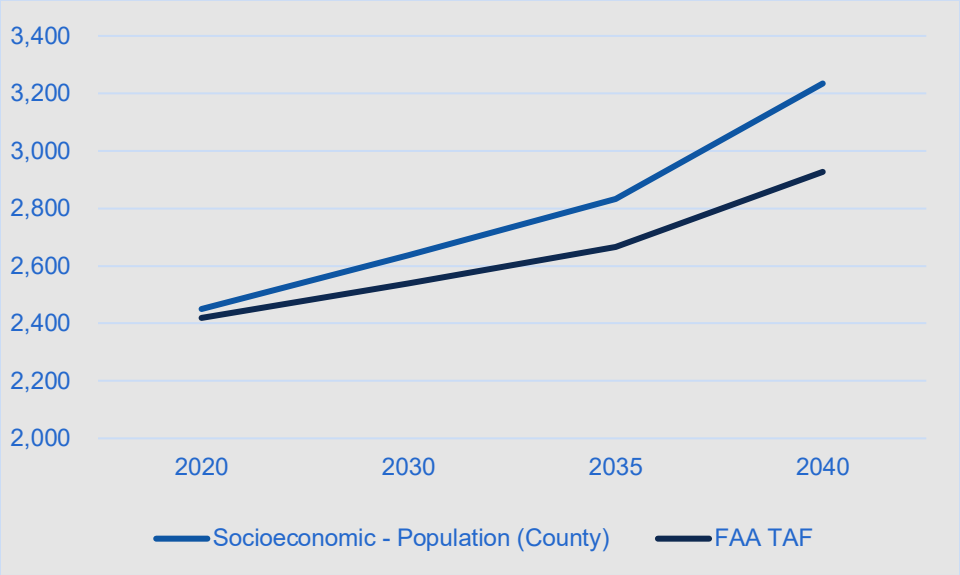
6.6.1. TAF Comparison

Preferred forecasts are required to be compared to the FAA TAF. Note that only NPIAS airports are included in the TAF, meaning that only forecasts for these airports are subject to FAA acceptance. As a result, based aircraft and operations forecasts for the NPIAS airports were reviewed to draw a more accurate comparison between the forecast sources.

Figure 6-21 presents findings from the NAHSP and compares them to TAF projections for based aircraft through the year 2040. For the base year, the NAHSP based aircraft forecast is one percent different, growing to approximately 11 percent different by 2040. **Figure 6-22** presents findings from the NAHSP and compares them to TAF projections for based aircraft through the year 2040. For the 2020 base year,

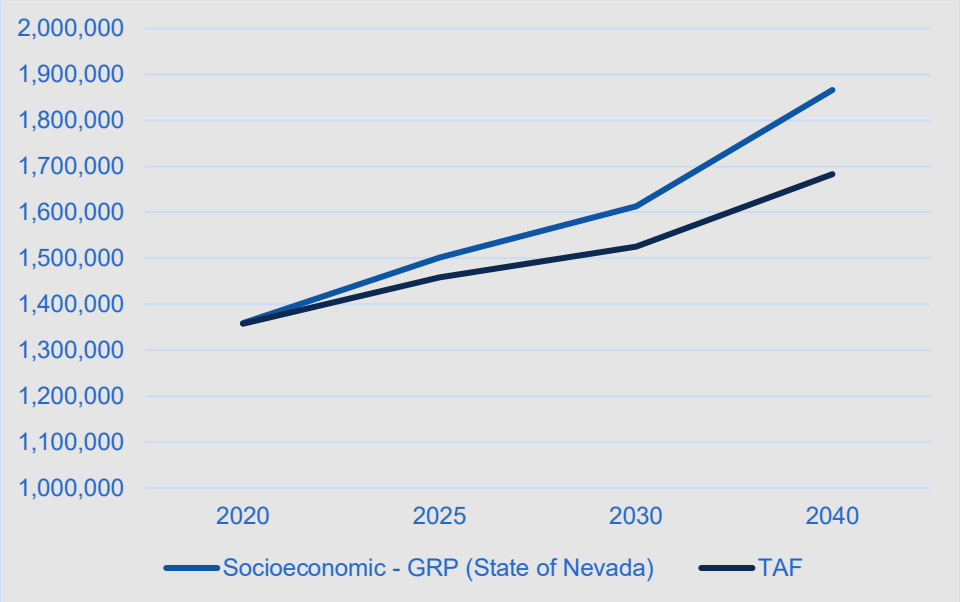
the NAHSP operations forecast is less than one percent different, growing to approximately 11 percent different by 2040.

Figure 6-21: NAHSP and FAA TAF Based Aircraft Forecasts, NPIAS Airports Only, 2020-2040



Sources: 2020 FAA TAF (GA Airports), Kimley-Horn 2021

Figure 6-22: NAHSP and FAA TAF Operations Forecasts, NPIAS Airports Only, 2019-2040



Sources: 2020 FAA TAF (GA Airports), Kimley-Horn 2021