DRAFT TECHNICAL MEMORANDUM

AVIATION ACTIVITY FORECASTS

Aspen/Pitkin County Airport

Prepared for

Pitkin County
Aspen, Colorado

August 2019

ASPEN/PITKIN COUNTY AIRPORT

ASE VISION

CONTENTS

CONTENTS *(continued)*

TABLES

FIGURES

CHAPTER 1
INTRODUCTION AND SUMMARY

This technical memorandum presents forecasts of aviation activity for Aspen/Pitkin County Airport (the Airport or ASE). Forecasts are presented for enplaned passengers, air cargo, and aircraft operations, including passenger, all-cargo, general aviation, and military operations, and aircraft fleet mix. Using calendar year 2018 as the base year, annual forecasts are prepared for five future demand years—2023, 2028, 2033, 2038, and 2048. In addition, an estimate for 2019 is presented based on actual data for January through March 2019 and advance airline schedules for April through December 2019. U.S. Department of Transportation (USDOT) records were used as the basis for the enplaned passenger, air cargo, and commercial airline aircraft operations forecasts. Federal Aviation Administration (FAA), Air Traffic Activity System (ATADS) data were used as the basis for the total aircraft operations forecasts.

The forecasts presented in this memorandum are "unconstrained" and, therefore, do not include specific assumptions about physical, regulatory, environmental or other impediments to aviation activity growth. The unconstrained forecasts are the "preferred" forecasts recommended for Federal Aviation Administration (FAA) approval.

1.1 FORECAST APPROACH

The forecasts for the Airport were based on: (1) a review of previous forecasts prepared for the Airport, including the FAA 2018 Terminal Area Forecasts (TAF) for the Airport; (2) the collection and analysis of data related to economic and tourism trends in the Aspen region; (3) input from the airlines currently serving the Airport on future airline schedules and fleet mix, (4) a review of historical enplaned passengers and passenger airline operations at ASE and other airports in the region; (4) the development of statistical models to identify historical causal factors; and (5) coordination with representatives of the Airport and the FAA.

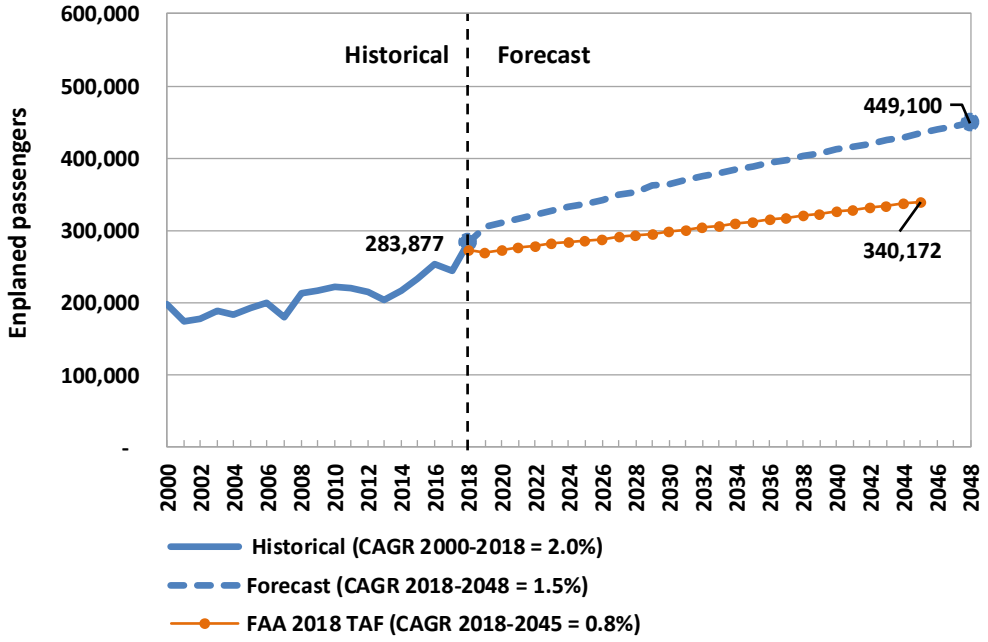
1.2 ENPLANED PASSENGERS

Figure 1-1 presents historical and forecast enplaned passengers for 2000 through 2048, compared with the FAA 2018 TAF for the Airport. The ASE enplaned passenger forecasts are based on 2018 data and are within 15.9% of the FAA 2018 TAF in 2023 and 20.8% in 2028.* The enplaned passenger forecast growth rate of 1.5% per year between 2018 and 2048 is higher than the rate forecast by the FAA in its 2018 TAF for the Airport (an average of 0.8% per year) from Federal Fiscal Year (FFY) 2018 to FFY 2045.** A detailed comparison of the ASE enplaned passenger forecasts and the FAA 2018 TAF is presented in Chapter 6.

*U.S. Department of Transportation, Federal Aviation Administration, *Forecasting Aviation Activity by Airport*, July 2001, and *Review and Approval of Aviation Forecasts*, June 2008, http://www.faa.gov.

**The Federal Fiscal Year begins on October 1 and ends on September 30.

Figure 1-1
Forecasts of Enplaned Passengers
Aspen/Pitkin County Airport



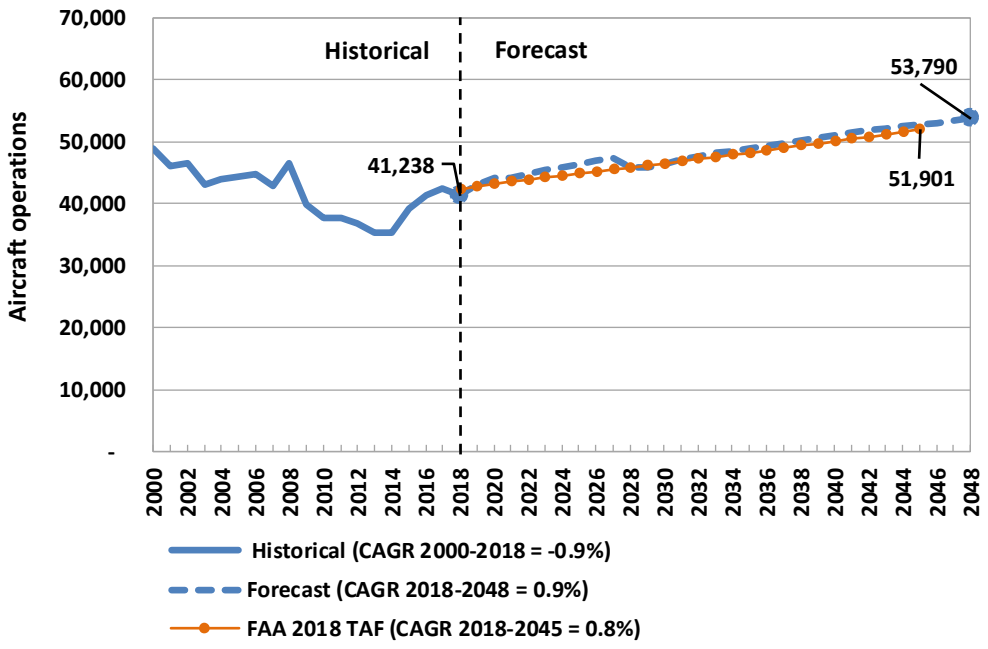
CAGR = Compound average growth rate

Sources: Historical—U.S. Department of Transportation, T100 online database, accessed July 2019.
Forecast—LeighFisher, July 2019.

1.3 AIRCRAFT OPERATIONS

Figure 1-3 presents historical and forecast total aircraft operations for 2000 through 2048, compared with the FAA 2018 TAF for the Airport. Total aircraft operations include air carrier, air taxi and commuter, general aviation, and military takeoffs and landings. The aircraft operations forecasts are based on 2018 data and are within 2.7% of the FAA 2018 TAF in 2023 and 0.1% in 2028. The forecast average growth rate in total aircraft operations of 0.9% per year between 2018 and 2048 is slightly higher than the rate forecast by the FAA in its 2018 TAF for the Airport (an average of 0.8% per year) from FFY 2019 to FFY 2045. A detailed comparison of the ASE aircraft operations forecasts and the FAA 2018 TAF is presented in Section 6.

Figure 1-2
Forecasts of Total Aircraft Operations
Aspen/Pitkin County Airport



CAGR = Compound average growth rate

Note: Data include air carrier, air taxi and commuter, general aviation, and military takeoffs and landings

Sources: Historical—Federal Aviation Administration, Air Traffic Activity Data System (ATADS), www.faa.gov, accessed July 2019.
Forecast—LeighFisher, July 2019.

1.4 AIR CARGO

Air cargo volumes are not reported for the Airport according to USDOT data, although there are indications that some freight operations occur at the Airport based on FAA Traffic Flow Management System Counts (TFMSC) data.* As discussed in Chapter 5, intermittent air cargo service by regional aircraft is expected to continue and increase gradually through 2048 supplemented by air cargo carried by passenger airlines (belly cargo) with the operation of small narrowbody aircraft at ASE.

*Traffic Flow Management System Counts (TFMSC) (previously called ETMSC) contains data derived from the Air Traffic Airspace Lab's Traffic Flow Management System. TFMSC contains a number of value-added fields and assumptions that provide richer information to industry experts, planners, and researchers. Please note: TFMSC does not represent the official traffic counts for the National Airspace System.

1.5 AIRPORT SERVICE REGION

As shown on Figure 1-3, Pitkin County is the primary area served by the Airport. According to the U.S. Department of Commerce, Bureau of the Census, the population of Pitkin County was 17,950 in 2018. Because economic growth and activity within this area stimulate a significant portion of passenger demand at the Airport, statistics for Pitkin County were used to evaluate certain long-term and future airline traffic trends at the Airport.

The secondary area served by the Airport, which includes parts of the counties surrounding Pitkin County, is defined by the location of and driving distance to other commercial service airports, as well as by the availability, price, and quality of airline service at those other airports.

- Figure 1-3 presents 50- and 75-mile radii from ASE to illustrate the potential Airport service region in terms of the location of and driving distance to other commercial service airports.
- Table 1-1 presents a comparison of the commercial passenger airline service at selected airports during the winter and summer seasons in terms of the frequency of daily flights, the number of destinations served, and the average airfare paid.

Table 1-1
Comparison of Commercial Passenger Airline Service
at Aspen and Selected Colorado Airports

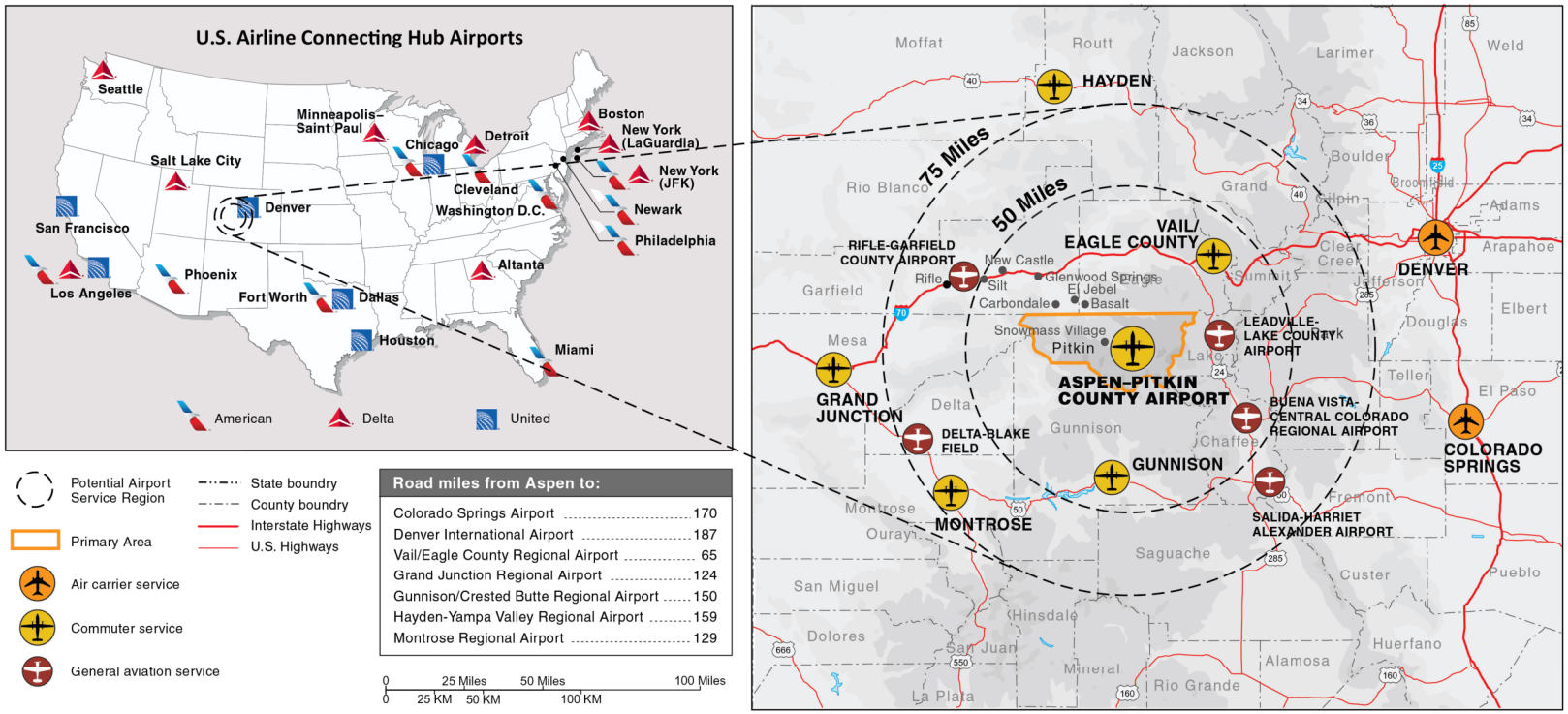
City/Airport	2018 Enplaned passengers	2019 Average daily nonstop departures		2019 Number of destinations served		2018 Average one-way domestic airfare paid	
		Winter season	Summer season	Winter season	Summer season	Winter season	Summer season *(a)*
Aspen	**283,850**	**30**	**20**	**10**	**10**	**$292**	**$317**
Denver	31,373,862	771 *(b)*	932 *(b)*	186	204	136	146
Colorado Springs	837,478	26 *(b)*	34 *(b)*	10	13	149	163
Grand Junction	221,945	12 *(b)*	14 *(b)*	5	8	227	228
Eagle	172,677	16 *(b)*	4 *(b)*	13	2	281	315
Montrose	133,762	11 *(b)*	10	10	5	250	278
Hayden	99,804	11 *(b)*	3	15	1	227	306
Gunnison	36,086	3 *(b)*	3	3	2	233	284

Note: Winter season = January through March
Summer season = July and August, except as noted

(a) Includes July, August, and September because the data are reported by quarter.
(b) Includes narrowbody aircraft service.

Sources: OAG Aviation Worldwide Ltd, online database, and U.S. Department of Transportation, Origin-Destination Survey of Airline Passenger Traffic, Domestic, online database, accessed July 2019.

Figure 1-3
Airport Service Region
Aspen/Pitkin County Airport



Of the eight Colorado airports shown in Table 1-1 and Figure 1-2, six (including ASE) are commuter service airports characterized primarily by regional aircraft service to the connecting hubs of major airlines. The location of these five other commuter service airports, relative to ASE in terms of driving distance, is one of the factors that defines the outer boundaries of ASE's service region. Other factors that define the secondary area include the number of average daily flights and the destinations served as well as the average airfares at these five other airports, as shown in Table 1-1. The five other commuter service airports include:

- Vail/Eagle County Airport (EGE), located approximately 65 road miles from the Airport, is the closest commercial service airport. Although EGE has fewer average daily flights than ASE, 11 of its 16 flights during the winter season are provided with narrowbody aircraft with a greater number of seats than the regional aircraft serving ASE. EGE's passenger airline service is considerably reduced during the summer season, with average one-way airfares higher in summer than in winter. Similar to ASE, all commercial airline service at EGE is provided to the connecting hub airports of major U.S. airlines.

- Grand Junction Regional Airport (GJT), 124 road miles from the Airport, is the next closest commercial service airport. During the winter season, GJT provides an average of 12 daily flights with regional jet aircraft to 5 destinations and weekly service with narrowbody aircraft by Allegiant Air, an ultra low cost carrier (ULCC). GJT's service increases during the summer season to an average of 14 daily flights.

- Montrose Regional Airport (MTJ) is 129 road miles from the Airport. During the winter season, 2 of MTJ's 11 daily flights are operated with narrowbody aircraft; the remainder with regional jet aircraft. MTJ's service decreases during the summer season to an average of 10 daily flights.

- Gunnison/Crested Butte Regional Airport (GUC) is 150 road miles from the Airport and is in the secondary area of ASE's Airport service region. Due to the driving distance and terrain, ASE may not be accessible to Gunnison during all seasons. An average of three daily flights are operated at GUC during the winter and summer seasons.

- Hayden/Yampa Valley Regional Airport (HDN) is 159 road miles from the Airport. During the winter season, 5 of HDN's 11 daily flights are operated with narrowbody aircraft; the remainder with regional jet aircraft. HDN's service decreases during the summer season to an average of 3 daily flights.

In addition to these five commuter service airports, ASE is bordered to the east by:

- Denver International Airport (DEN), a large-hub airport as defined by the FAA,* a connecting hub for United Airlines, and a focus city for Southwest Airlines, a low cost carrier (LCC), and Frontier Airlines, an ultra low cost carrier
- Colorado Springs Airport (COS), a small-hub airport as defined by the FAA, with service primarily to the connecting hubs of major U.S. airlines

Although DEN and COS are located the furthest from ASE (187 and 170 miles, respectively), both airports offer lower average airfares than ASE and the other commuter service airports due to presence of LCCs and ULCCs and provide significantly more connectivity and frequency of flights, as shown on Table 1-1.

In addition, the secondary area includes five general aviation airports, as shown on Figure 1-3.

- Buena Vista-Central Colorado Regional Airport (AEJ), 49 miles from ASE, supports 13 based aircraft and handles an average of 10,000 aircraft operations per year, according to the FAA's 2018 Terminal Area Forecast (TAF)**
- Leadville-Lake County Airport (LXV), 61 miles from ASE, supports 5 based aircraft and handles an average of 5,000 aircraft operations per year
- Rifle-Garfield County Airport (RIL), 63 miles from ASE, supports 50 based aircraft and handled 14,561 aircraft operations in 2018
- Salida-Harriet Alexander Airport (ANK), 91 miles from ASE, supports 27 based aircraft and handles an average of 4,000 aircraft operations per year
- Delta-Blake Field (AJZ), 116 miles from ASE, supports 42 based aircraft and handles an average of 3,000 aircraft operations per year

As shown on Figure 1-3, Pitkin County is bordered by the counties of Eagle, Garfield, and Gunnison. Portions of the populations of these counties are likely served at ASE due to their proximity, the frequency of service, and the availability of seats. As shown on Table 1-2, more than 40% of the population of the four counties listed is unincorporated area which makes it difficult to assess their airport choice. However, based on the available information and the guidelines of a 50- to 75-mile driving radius, the potential population served by ASE ranged from 33,267 to 45,907 in 2017. As mentioned earlier, statistics for Pitkin County were used to evaluate certain long-term and future airline traffic trends at the Airport.

*A large-hub airport is defined by the Federal Aviation Administration (FAA) as one that enplanes 1% or more of annual nationwide passenger boardings; a medium-hub airport enplanes between 0.5% and 1% of nationwide passenger boardings; and a small-hub airport enplanes between 0.25% and 0.5% of nationwide passenger boardings.

**Federal Aviation Administration, Terminal Area Forecast, 2018, released February 2019, www.faa.gov.

Table 1-2
Potential Airport Service Region Population in 2017

County/Municipality origin	Potential ASE service region population: 50 miles or less	Potential ASE service region population: 75 miles or less	Total Population: 2017	Total Population: Percent of total	Driving miles from the municipality (listed far left) to: Aspen	Eagle	Grand Junction	Gunnison	Hayden	Montrose	Colorado Springs	Denver
PITKIN COUNTY												
Aspen	6,879	6,879	6,879	38%	--	73	128	145	175	136	264	198
Basalt (Part)	1,011	1,011	1,011	6%	18	55	110	157	157	118	247	180
Snowmass Village	2,903	2,903	2,903	16%	10	71	126	156	162	137	166	167
Unincorporated area	7,082	7,082	7,082	40%	--	--	--	--	--	--	--	--
Total--Pitkin County	17,875	17,875	17,875	100%								
EAGLE COUNTY												
Avon			6,587	12%	93	21	138	154	92	193	172	106
Basalt (Part)	3,189	3,189	3,189	6%	18	55	110	157	157	118	247	180
Eagle		1,712 *(a)*	6,849	13%	73	--	118	175	109	173	192	126
Gypsum		1,799 *(a)*	7,195	13%	66	8	111	181	99	164	201	133
Minturn			1,056	2%	99	27	144	147	98	199	171	103
Red Cliff			280	1%	107	36	153	139	107	206	180	112
Vail			5,495	10%	102	30	147	161	119	202	163	97
Unincorporated area												
El Jebel	3,801	3,801	3,801	7%	22	51	106	149	152	117	243	176
Dotsero		353 *(b)*	705	1%	59	14	105	186	104	158	206	139
Other unincorporated areas	--	--	19,505	36%	--	--	--	--	--	--	--	--
Total--Eagle County	6,990	10,854	54,662	100%								
GARFIELD COUNTY												
Carbondale	3,413	3,413 *(b)*	6,826	12%	29	45	99	145	147	109	235	170
Glenwood Springs	4,989	4,989 *(b)*	9,977	17%	46	32	87	157	134	140	223	157
New Castle		2,411	4,821	8%	54	44	77	193	121	131	237	170
Parachute			1,109	2%	83	74	44	164	123	100	266	199
Rifle		4,733 *(b)*	9,465	16%	68	58	61	181	107	116	249	183
Silt		1,561 *(b)*	3,121	5%	61	51	68	187	115	122	244	177
Unincorporated area	--	--	23,848	40%	--	--	--	--	--	--	--	--
Total--Garfield County	8,402	17,107	59,167	100%								
GUNNISON COUNTY												
Crested Butte			1,656	10%	103	202	152	28	293	92	199	228
Gunnison			6,443	38%	145	175	124	--	245	65	171	200
Marble		71 *(b)*	141	1%	58	72	111	130	174	94	265	198
Mount Crested Butte			850	5%	177	206	120	32	276	96	198	233
Pitkin			71	0%	196	177	153	27	248	92	170	205
Unincorporated area	--	--	7,710	46%	--	--	--	--	--	--	--	--
Total--Gunnison County	--	71	16,871	100%								
TOTAL--FOUR COUNTIES	**33,267**	**45,904**	**148,575**									

(a) Population served by ASE and EGE; assumed 25% served by ASE.
(b) Population served by ASE and EGE; assumed 50% served by ASE
Sources: 2017 Population--Colorado Department of Local Affairs (DOLA), www.colorado.gov/dola, accessed May 2019. Driving miles--Travelmath.com.

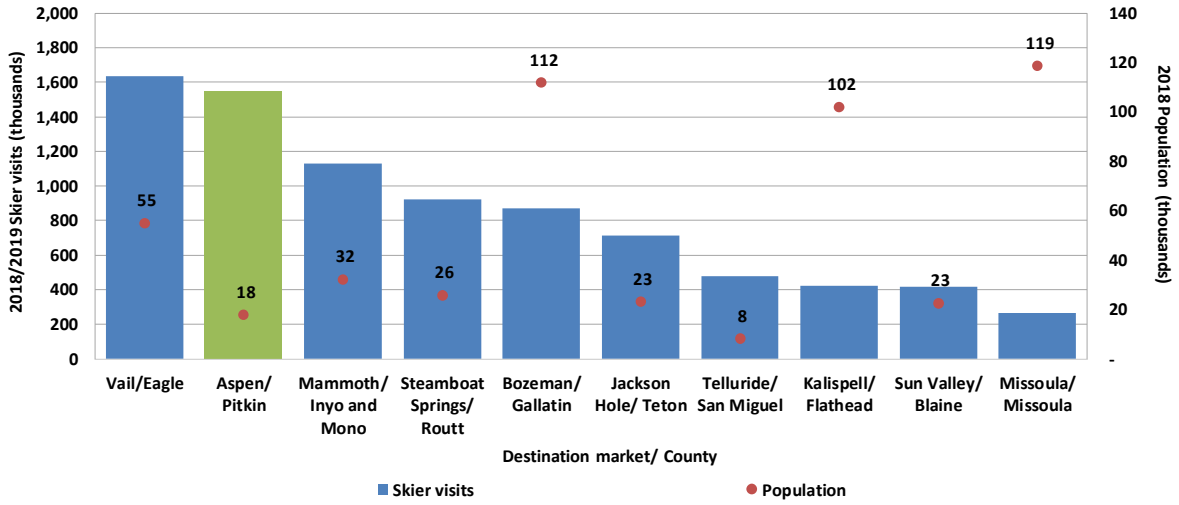
CHAPTER 2
ECONOMIC BASIS FOR AIRLINE TRAFFIC

Although the economy of an airport service region is typically a major factor affecting long-term airline traffic at the airport serving the region, destination markets such as the Aspen region are more directly influenced by the numbers of visitors, the level of airline service, the number of hotel rooms, and other infrastructure supporting the visitor base. The Aspen region is a destination market for skiing, visiting parks and historic landmarks, and participating in a range of outdoor recreational activity. The following sections present (1) a comparison of selected destination markets, (2) a summary of the Aspen visitor industry, and (3) a review of historical and forecast economic activity in the Aspen region.

2.1 COMPARISON OF DESTINATION MARKETS

The Aspen region is a destination market for skiing and a range of outdoor recreational activity. In 2018, Aspen ranked second among U.S. ski resorts with an estimated 1.6 million skier visits, following Vail, as shown in Figure 2-1.

Figure 2-1
Estimated Skier Visits for Selected Destination Markets in 2018
Ranked by 2018 skier visits



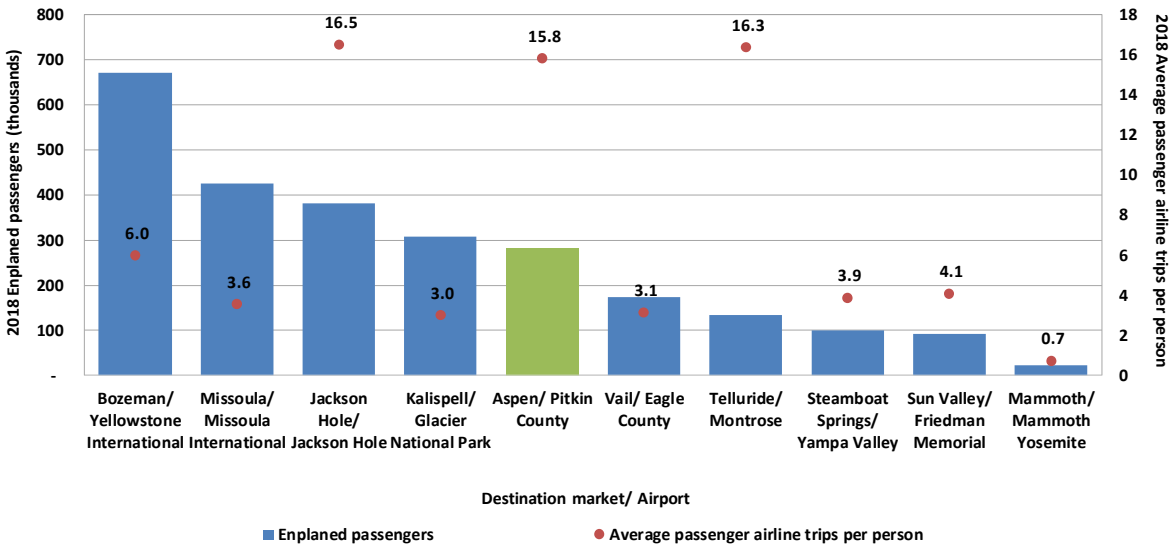
Note: A skier visit is the purchase of a lift ticket for a full or partial day. It includes season-pass use.
Vail Resorts: Vail Mountain, Beaver Creek, Breckenridge, Keystone and Crested Butte
Aspen Ski Company: Aspen Mountain, Aspen Highlands, Snowmass, and Buttermilk
Bozeman: Big Sky Resort, Bridger Bowl, and Moonlight Basin
Kalispell: Whitefish Mountain Resort and Blacktail Mountain Ski Area
Missoula: Snowbowl, Discovery, Lookout Pass, and Lost Trail
Population data are for the county shown in 2018.

Sources: U.S. Census Bureau, Population Division, *Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2018,* December 2018, www.census.gov, U.S. Department of Agriculture (USDA) Forest Service, Northern Region and individual ski areas as reported by the University of Montana, Institute for Tourism and Recreation Research, www.tourismresearchmt.org, Travel and Leisure, "America's Most-Visited Ski Resorts," www.travelandleisure.com and regional press releases.

It is important to note that the resident population of the selected resort locations was less than 120,000 in 2018, with Aspen accounting for the smallest population (17,950) and Missoula the largest (118,791). The relationship between the number of skier visits and the relatively small population bases underlines the importance of the numbers of visitors and the role of these resort locations as destination markets.

As shown in Figure 2-2, a ranking of the selected destination markets in terms of enplaned passengers in 2018 differs from a ranking of skier visits presented in Figure 2-1. The airport at Yellowstone National Park in Bozeman, Montana accounted for the largest number of enplaned passengers in 2018 but ranked fifth in the number of 2018 skier visits, reflecting a peak number of visitors during the summer months, as shown in Figure 2-3. ASE ranked second in terms of skier visits in 2015 and fifth in enplaned passengers, including a second seasonal peak during the summer months, as shown in Figure 2-3. Ski resorts such as Aspen and Telluride are being increasingly used for summer activities and vacations (e.g., mountain biking, hiking, and fishing).

Figure 2-2
Enplaned Passengers for Selected Destination Markets in 2018
Ranked by 2018 enplaned passengers

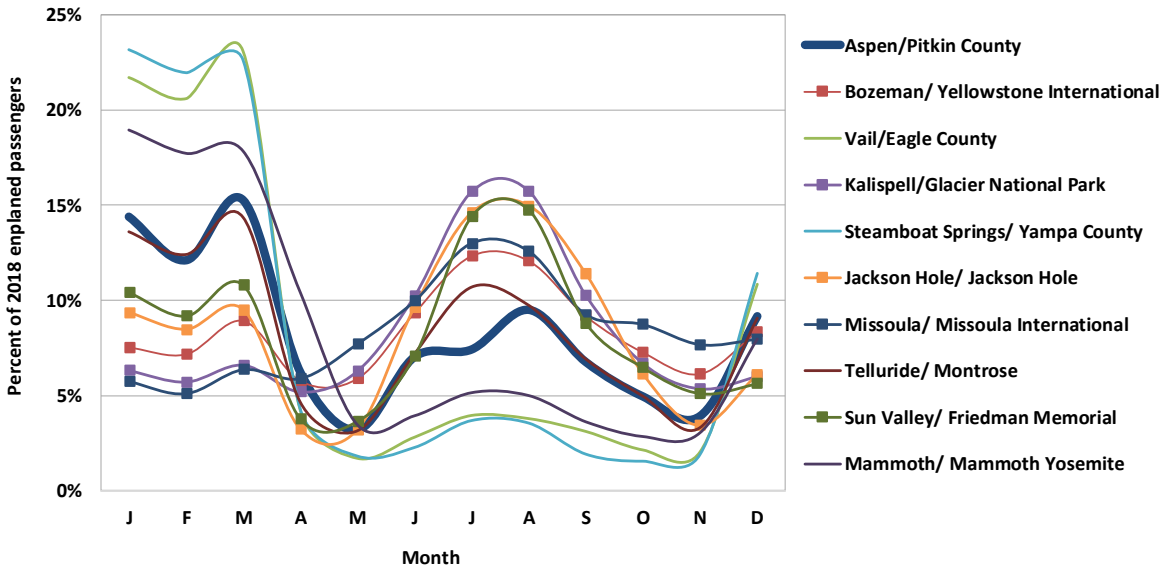


Note: Vail Resorts: Vail Mountain, Beaver Creek, Breckenridge, Keystone and Crested Butte
Aspen Ski Company: Aspen Mountain, Aspen Highlands, Snowmass, and Buttermilk
Bozeman: Big Sky Resort, Bridger Bowl, and Moonlight Basin.
Kalispell: Whitefish Mountain Resort and Blacktail Mountain Ski Area.
Missoula: Snowbowl, Discovery, Lookout Pass, and Lost Trail.

Sources: U.S. Department of Transportation, Schedule T100, online database, accessed April 2019 and U.S. Census Bureau, Population Division, *Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2018,* December 2018, www.census.gov.

The average number of passenger airline trips per person underlines the role of each resort location as a destination market. As shown in Figure 2-2, Aspen accounted for the third largest number of trips per person in 2018 with an average of 15.8, after Jackson Hole and Telluride, with 16.5 and 18.3, respectively. Bozeman and Sun Valley ranked fourth and fifth, with 6.0 and 4.1, respectively. Mammoth had the lowest number of trips per person in 2018, with 0.7, reflecting the limited level of passenger airline service (less than 2 daily departures in 2018 as shown on Figure 2-4).

Figure 2-3
Trends in Monthly Enplaned Passengers
for Selected Destination Markets in 2018



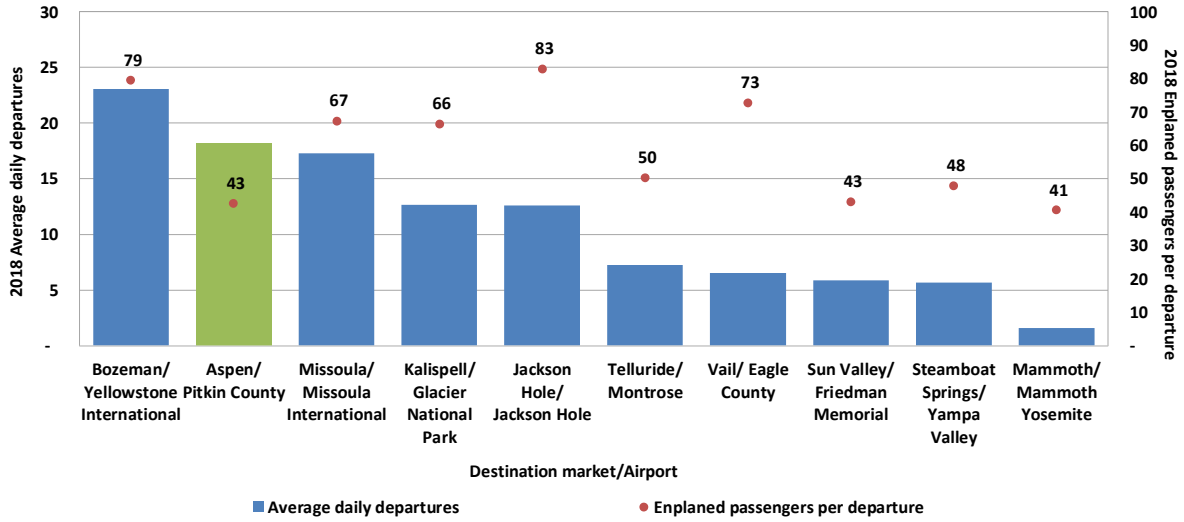
Note: Square markers indicate that the summer is the peak season.
Jackson Hole Airport is 21 road miles from Grand Teton National Park and 57 road miles from Yellowstone National Park.

Source: U.S. Department of Transportation, Schedule T100, online database, accessed April 2019.

As shown on Figure 2-3, five of the selected destination markets have peak seasons in the summer—Bozeman, Kalispell, Jackson Hole, Missoula, and Sun Valley, with four of the five airports being within driving distance of national parks popular during the summer.

A comparison of selected destination markets to the Aspen region suggests that the primary driver of passenger traffic at airports has historically been trips by visitors from outside the region rather than the size of the population base. The destination markets selected for this comparison also provide a view of the evolution of passenger traffic at destination airports in the future.

Figure 2-4
Average Daily Scheduled Passenger Airline Departures for Selected Destination Markets in 2018



Note: Vail Resorts: Vail Mountain, Beaver Creek, Breckenridge, Keystone and Crested Butte
Aspen Ski Company: Aspen Mountain, Aspen Highlands, Snowmass, and Buttermilk
Bozeman: Big Sky Resort, Bridger Bowl, and Moonlight Basin.
Kalispell: Whitefish Mountain Resort and Blacktail Mountain Ski Area.
Missoula: Snowbowl, Discovery, Lookout Pass, and Lost Trail.

Source: U.S. Department of Transportation, Schedule T100, online database, accessed April 2019.

2.2 ASPEN VISITOR INDUSTRY

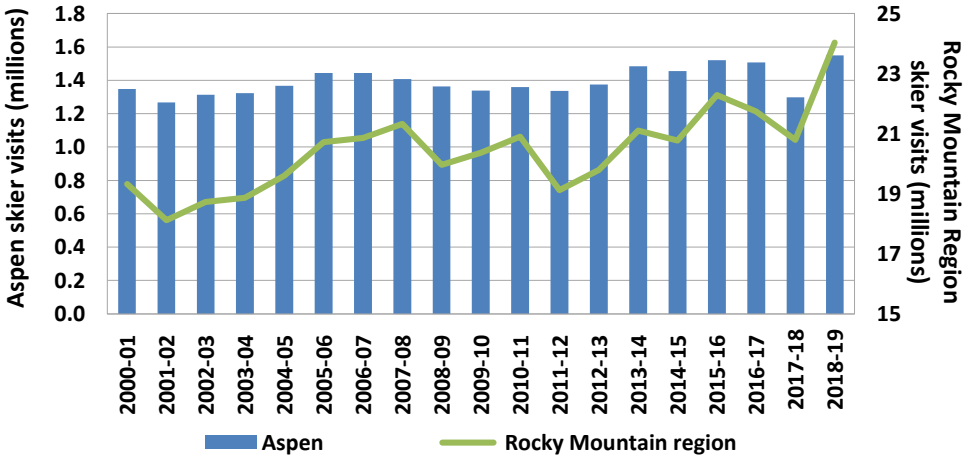
The visitor industry is an important driver of the economies of the Aspen region. Visitors to the Aspen region include leisure travelers originating from both domestic and international locations.

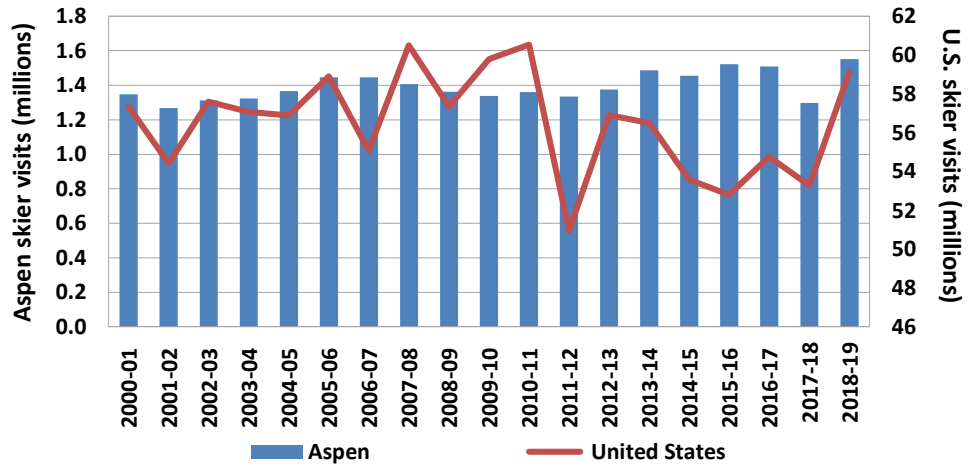
2.2.1 Skier Visits

According to the National Association of Ski Areas, the 2018-19 ski season is one of the best on record in terms of skier visits. The number of skier visits at Aspen resorts increased 19.8% in 2019, compared with increases of 15.6% in the Rocky Mountain Region and 11.0% in the United States. As shown in Figure 2-5, the increase in the 2018-19 season reflects a lower than average 2017-18 season and an abundant snowfall, which was up 31% nationwide from the 2017-18 season.

The historical trend in skier visits at Aspen resorts follows that for the Rocky Mountain Region which reported a record of 24 million skier visits in 2018-19. Between 2000 and 2019, the number of skier visits at Aspen increased an average of 0.7% per year, faster than that for the nation as a whole (0.2% per year) but slower than that for the Rocky Mountain Region (1.2% per year). Historical trends in U.S. skier visits vary from year while Aspen and the Rocky Mountain Region appear to be on a gradually increasing trend.

Figure 2-5
Aspen Skier Visits





Note: A skier visit is the purchase of a lift ticket for a full or partial day. It includes season-pass use.

Source: Aspen Skiing Company and National Association of Ski Areas, Estimated U.S. Snowsports Visits by Region, 1978/79 – 2017/18, www.nsaa.org.

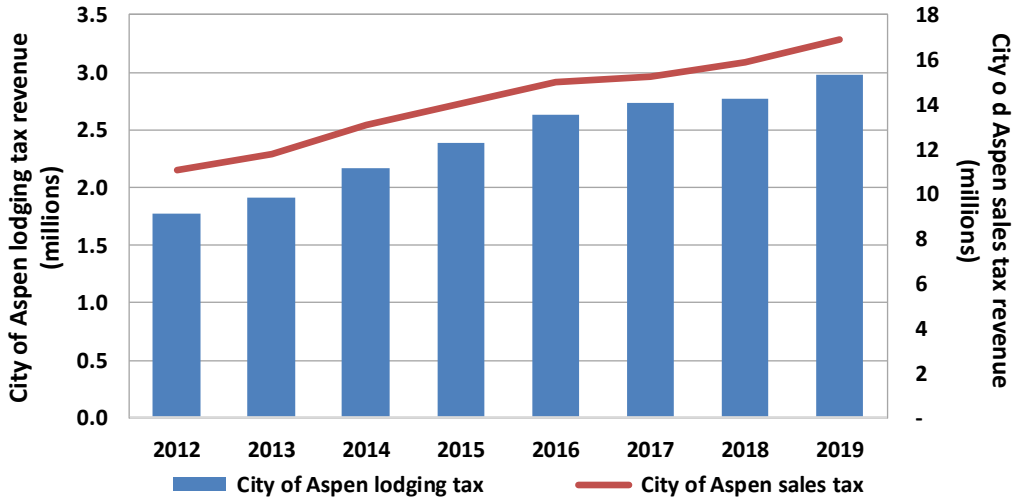
In recent years, the growth in skier visits is, in part, attributable to consolidation in the ski resort industry which has facilitated the development of ski pass programs such as Epic and Ikon. Vail Resorts, Inc., which currently operates 17 mountain resorts and 3 urban ski areas, started the Epic pass program in 2008 for its properties. Alterra Mountain Company, which currently owns and operates 14 mountain resorts, started the Ikon pass program in 2018 and offered partnership agreements for the Ikon pass to other mountain resort owners. At the same time, Vail Resorts Inc. revised its Epic program and offered partnerships agreements for the Epic pass. For the 2019/20 season, the Epic Pass is offered for two options: (1) unlimited and unrestricted skiing at all Vail Resorts and (2) a local pass with unlimited and unrestricted access to certain resorts and limited and holiday-restricted access to the remaining Vail resorts. The Ikon pass also offers two options that are structured differently than the Epic

pass: (1) the Base Pass includes unlimited and unrestricted access to 14 resorts but limits access to up to 7 days at the remaining resorts and (2) the Ikon Base Pass includes unlimited access with restricted blackout dates to 12 resorts but limits access to up to 5 days at the remaining resorts. For the 2019/2020 season, the Epic and Ikon ski passes are expected to include 37* and 39 resorts, respectively.

2.2.2 Aspen Visitor Spending

Visitor spending is another measure of the level and growth of visitors to the Aspen region. As shown on Figure 2-6, the City of Aspen's lodging and sales tax revenues increased an average of 7.7% and 6.2% per year, respectively, between 2012 and 2019.

Figure 2-6
Lodging and Sales Tax Revenue
City of Aspen



Note: City of Aspen lodging tax = 1.5%; City of Aspen sales tax = 2.1%
Data for 2019 are estimated based on actual revenue for January through May.

Source: City of Aspen, Consumption Tax Report, December 2018 and May 2019.

2.2.3 Aspen Region Recreation

Aspen region recreation includes visiting the four Aspen ski resorts, White River National Forest, and numerous hiking trails.

2.2.3.1 Aspen Ski Resorts

The Aspen ski resorts include Aspen Highlands, Aspen Mountain, Buttermilk, and Aspen Snowmass. As shown in Table 2-1, the four Aspen resorts have a combined 5,317 skiable acres, second only to Big Sky in Bozeman, Montana; a summit elevation of 12,510 feet,

*Includes 20 ski resorts from the 2018-2019 season and 17 additional acquired in 2019. Epic Pass, Vail Resorts to Acquire Peak Resorts, Owner of 17 U.S. Ski Areas, July 22, 2019, www.epicpass.com.

second among the selected ski resorts; and 41 lifts, second only to Big Sky in Bozeman, Montana. The average driving distance from the Aspen ski resorts to ASE is no more than 7 miles, the lowest of the selected airports.

Table 2-1
Comparison of Ski Resort Metrics for Selected Destination Markets

Ski resort	Nearest airport(s)	Miles from nearest airport	Estimated snowfall	Skiable areas (acres)	Summit elevation	Lifts
Aspen						
Aspen Highlands	**Pitkin County**	**4**	**300**	**1,040**	**12,392**	**5**
Aspen Mountain	**Pitkin County**	**4**	**300**	**675**	**11,212**	**8**
Buttermilk	**Pitkin County**	**1**	**200**	**470**	**9,900**	**8**
Snowmass	**Pitkin County**	**7**	**300**	**3,132**	**12,510**	**20**
Bozeman (Big Sky)	Bozeman Yellowstone	52	400	5,850	11,166	36
Jackson Hole	Jackson Hole	13	459	2,500	10,450	11
Kalispell/Glacier National Park						
Whitefish Mountain	Glacier National Park	19	300	3,000	6,817	14
Blacktail Mountain Ski Area	Glacier National Park	37	250	1,000	6,780	4
Mammoth Mountain	Mammoth Yosemite/Bishop	13/45	400	3,500	11,053	28
Missoula (Snowbowl)	Missoula	12	300	950	7,600	4
Telluride	Montrose	70	280	2,000	13,150	17
Vail	Eagle County	36	354	5,289	11,570	31
Steamboat Springs	Yampa County	26	375	2,965	10,568	18
Sun Valley	Friedman Memorial	15	200	2,154	9,150	18

Note: Vail Resorts: Vail Mountain, Beaver Creek, Breckenridge, Keystone and Crested Butte
Aspen Ski Company: Aspen Mountain, Aspen Highlands, Snowmass, and Buttermilk
Bozeman: Big Sky Resort, Bridger Bowl, and Moonlight Basin
Kalispell: Whitefish Mountain Resort and Blacktail Mountain Ski Area
Missoula: Snowbowl, Discovery, Lookout Pass, and Lost Trail

Sources: Colorado Ski Country USA, www.coloradoski.com, and individual ski resort websites, accessed April 2019.

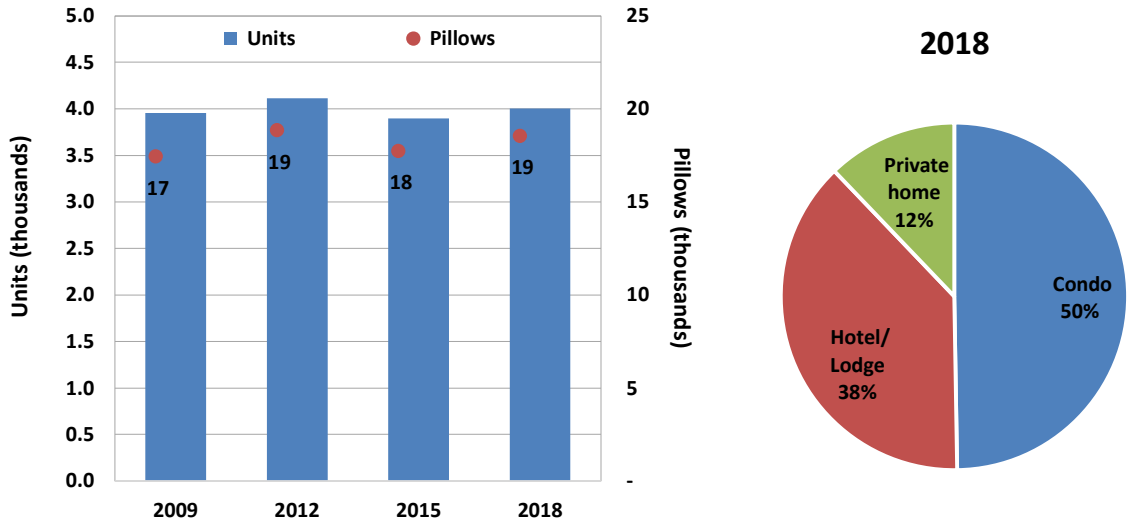
2.2.3.2 National Parks and Trails

The Aspen region borders White River National Forest and numerous trails such as the Hunter Creek Trail, Smuggler Mountain, and Sunnyside Trail. According to the U.S. Forestry Service, the 2.3 million acres in the White River National Forest includes 11 ski resorts, 8 Wilderness areas, and 2,500 miles of trails and is the most visited national forest in the nation. The Maroon Bells-Snowmass Wilderness area includes the Marron Bells Scenic Area near Aspen which is a major access point to the wilderness trails. The Black Canyon of the Gunnison National Park and the Rocky Mountain National Park are 112 miles and 164 miles, respectively, from Aspen.

2.2.4 Lodging Infrastructure

In 2018, an estimated 4,000 lodging units were in Aspen and Snowmass Village, relatively unchanged from 2009 levels, as shown on Figure 2-7. Of the fixed structures, condos accounted for 50% of total, followed by hotel, motel, and lodge units with 38%, and private homes with 12%.

Figure 2-7
Traditional Lodging Trends
Aspen and Snowmass

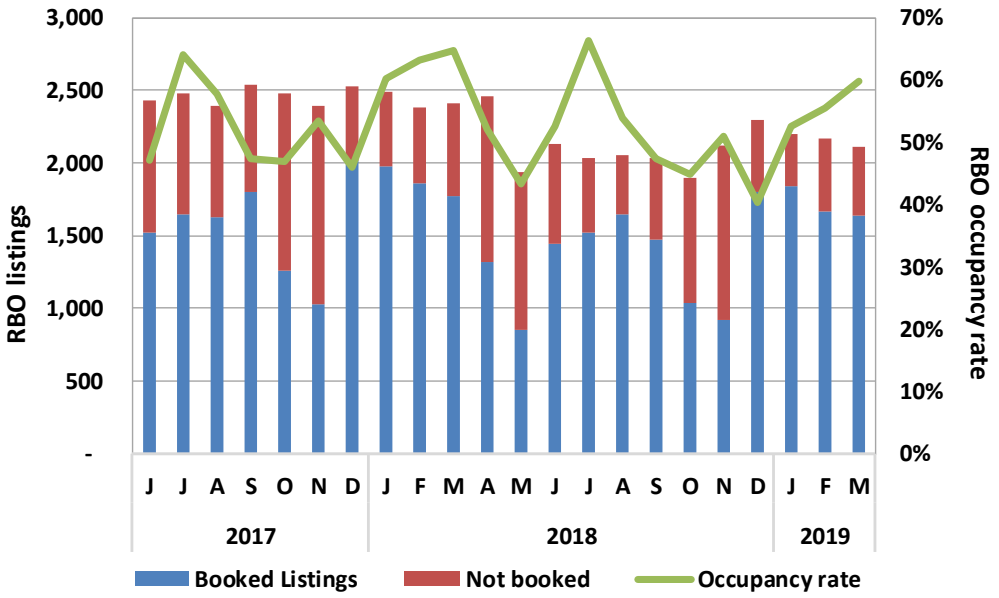


Note: Includes traditional lodging, professional managed short-term rental units, and fractional ownership units; excludes rentals by owner (RBO).

Source: DestiMetrics, Stay Aspen Snowmass Transient Inventory Study, July 2018.

In addition, the number of rentals by owner (RBO) has supplemented traditional lodging units with more than 2,000 additional listings, as shown on Figure 2-8. Occupancy rates for RBOs averaged 53% in 2018, lower than the average for traditional lodging units (59%). The monthly trends in occupancy rates are similar for RBOs and traditional lodging, with the occupancy rates peaking during the peak winter season (January through March) and in the summer (June through August), as shown on Figure 2-9.

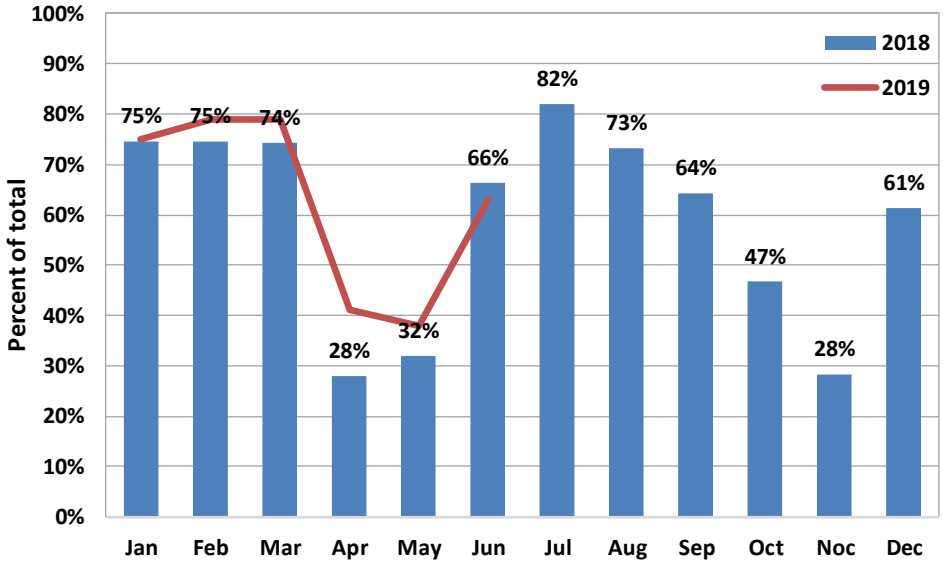
Figure 2-8
Rentals By Owner
Aspen and Snowmass



Note: RBO = Rentals by owner; includes RBO listings on Airbnb, HomeAway, and VRBO.

Source: AIRDNA, April 2019.

Figure 2-9
Historical Monthly Occupancy for Traditional Lodging
Aspen and Snowmass



Note: Occupancy numbers are from the new reporting tool structure RRC Associates and are not forecasts or projections; the ACRA is providing current reservations on the books to assist businesses in their staffing and inventory needs. It should be noted that last minute reservations can be made after the occupancy report is released which would increase the actual occupancy.

Source: Aspen Area Resort Association.

New construction of lodging facilities in the Aspen region includes:

- W Aspen and The Sky Residences at W Aspen opened in July 2019 providing 88 guestrooms and 11 W-branded fractional residences. Located at the base of Aspen Mountain, the development will also feature a 12,000 sq. ft. rooftop bar and pool, which is open to the public with expansive views of Aspen Mountain.*
- The design and planning of a 107,000-square-foot Lift One Lodge, which will add 34 fractional and six full-interest condominiums, and the 64,000-square-foot, 81-room Gorsuch Haus luxury hotel.**
- Base 1 lodge, a mixed-use project in downtown Aspen with hotel rooms and retail and restaurant space

*Aspen Chamber Resort Association, News from Aspen for the Summer/Fall 2019 Season, www.aspenchamber.org.

**Post Independent, It will take at least two years before construction on Aspen's Lift One begins, March 7, 2019, www.postindependent.com.

2.3 HISTORICAL AND FORECAST ECONOMIC ACTIVITY

The economy of the Aspen region (represented by data for Pitkin County) is an important determinant of long-term passenger demand at the Airport. The development of the economic base of an airport service region is important to passenger traffic growth at the airport serving that region. This is particularly true where the industries in the region rely on the airport for passenger and cargo service. The Aspen region is a national and international travel resort destination.

2.3.1 Population

As shown in Table 2-2, the population of Pitkin County increased an average of 1.1% per year between 2001 and 2018, with the strongest growth between 2001 and 2010 (an average increase of 1.5% per year). The Colorado Department of Local Affairs (DOLA) projects population in Pitkin County to increase an average of 0.5% per year between 2018 and 2048, equal to that of the nation but slower than that for the State (an average increase of 1.1% per year) during the same period.

2.3.2 Total Employment

Total employment in Pitkin County increased an average of 0.3% per year between 2001 and 2018, with the strongest growth between 2010 and 2018 (an average increase of 1.1% per year). DOLA projects total employment in Pitkin County to increase an average of 0.5% per year between 2018 and 2048, slower than the State (an average increase of 1.2% per year) and the nation (an average increase of 0.7% per year).

2.3.3 Average Annual Wages

From 2001 to 2018, average annual wages (in 2018 constant dollars) in Pitkin County increased an average of 0.4% per year, with the strongest growth between 2010 and 2018 (an average increase of 0.9% per year), as shown in Table 2-2. In 2018, Pitkin County's average annual wages were $52,715, 10.6% lower than the State and 7.9% lower than the nation. DOLA projects average annual wages in Pitkin County to increase an average of 0.9% per year between 2018 and 2048.

Table 2-2
Historical and Projected Socioeconomic Data

	Population (thousands)			Total employment (thousands)			Average annual wages (2018 dollars)		
	Pitkin County	State of Colorado	United States	Pitkin County	State of Colorado	United States	Pitkin County	State of Colorado	United States
Historical									
2001	15	4,426	284,969	20	2,707	136,933	49,549	53,812	51,354
2010	17	5,029	308,746	19	2,787	139,064	49,088	55,123	53,837
2011	17	5,122	311,580	20	2,834	139,869	48,331	54,792	53,632
2012	17	5,194	313,874	20	2,893	142,469	48,830	55,300	53,908
2013	17	5,270	316,058	20	2,970	143,929	48,413	54,836	53,688
2014	18	5,351	318,386	21	3,064	146,305	49,075	55,925	54,482
2015	18	5,452	320,743	20	3,161	148,834	53,470	57,403	56,089
2016	18	5,541	323,071	21	3,232	151,436	52,993	57,192	56,101
2017	18	5,616	325,147	21	3,309	153,337	52,198	58,304	56,742
2018	18	5,696	327,167	21	3,389	155,761	52,715	58,942	57,265
Projected									
2020	18	5,696	327,167	22	3,534	159,871	53,411	59,838	58,276
2030	19	6,569	348,661	23	4,015	169,516	58,044	65,677	65,280
2038	20	7,175	362,082	24	4,348	178,749	63,071	71,932	73,077
2048	21	8,012	379,588	25	4,805	191,000	69,973	80,597	84,147
				Annual percent increase (decrease)					
2010-2011	0.2%	1.8%	0.9%	1.2%	1.7%	0.6%	(1.5%)	(0.6%)	(0.4%)
2011-2012	0.7	1.4	0.7	1.0	2.0	1.9	1.0	0.9	0.5
2012-2013	1.0	1.5	0.7	2.0	2.7	1.0	(0.9)	(0.8)	(0.4)
2013-2014	1.5	1.5	0.7	4.1	3.2	1.7	1.4	2.0	1.5
2014-2015	1.3	1.9	0.7	(2.9)	3.2	1.7	9.0	2.6	3.0
2015-2016	0.1	1.6	0.7	1.6	2.2	1.7	(0.9)	(0.4)	0.0
2016-2017	(0.1)	1.4	0.6	1.3	2.4	1.3	(1.5)	1.9	1.1
2017-2018	0.0	1.4	0.6	1.0	2.4	1.6	1.0	1.1	0.9
				Compound annual percent increase					
Historical									
2001-2010	1.5%	1.4%	0.9%	(0.4%)	0.3%	0.2%	(0.1%)	0.3%	0.5%
2010-2018	0.6	1.6	0.7	1.1	2.5	1.4	0.9	0.8	0.8
2001-2018	1.1	1.5	0.8	0.3	1.3	0.8	0.4	0.5	0.6
Projected									
2018-2020	0.1	0.0	0.0	1.4	2.1	1.3	0.7	0.8	0.9
2020-2030	0.6	1.4	0.6	0.5	1.3	0.6	0.8	0.9	1.1
2030-2038	0.4	1.1	0.5	0.4	1.0	0.7	1.0	1.1	1.4
2038-2048	0.4	1.1	0.5	0.4	1.0	0.7	1.0	1.1	1.4
2018-2048	0.5	1.1	0.5	0.5	1.2	0.7	0.9	1.0	1.3

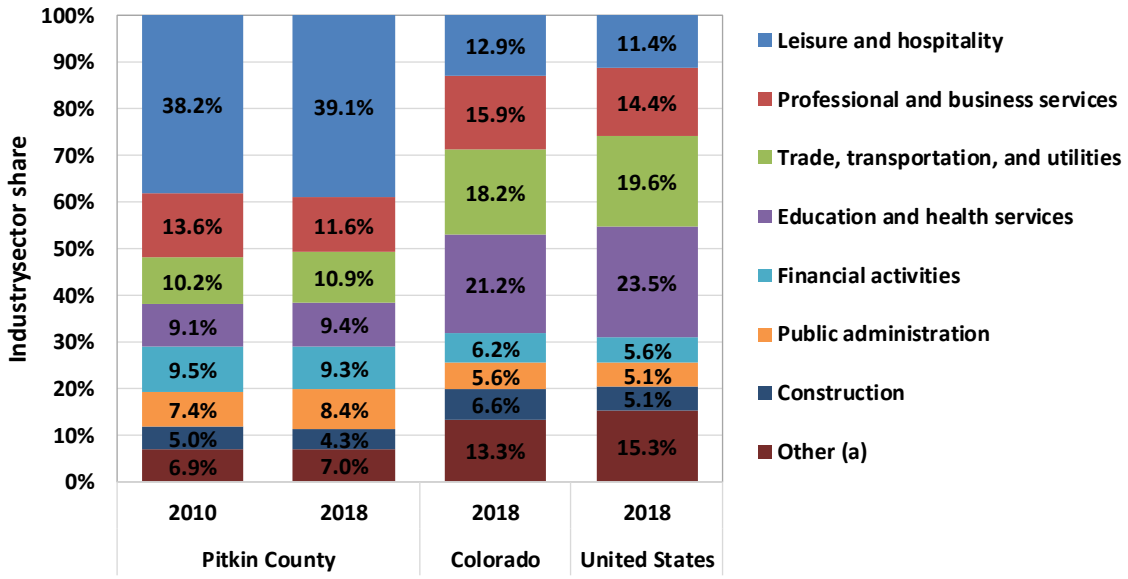
Note: Pitkin County is defined as the primary area of the Airport Service Region.

Sources: *Historical:* U.S. Department of Commerce, Bureau of the Census, www.census.gov and U.S. Department of Labor, Bureau of Labor Statistics, Quarterly Census of Employment and Wages, www.bls.gov; accessed July 2019. Wage data are adjusted to constant 2018 dollars using the U.S. Department of Labor, Consumer Price Index for Urban Consumers (1982-84 = 100), www.bls.gov. *Projected*: Colorado Department of Local Affairs (DOLA), Economic Forecasts, December 2018, www.dola.colorado.gov. Pitkin County annual wage growth is assumed to increase at slightly slower rates than for Colorado since separate forecasts for Pitkin County are not available.

2.3.4 Total Employment by Industry Sector

Figure 2-10 shows a comparative distribution of total employment by industry sector for Pitkin County in 2010 and in 2018, and for the State and the nation in 2018. Employment in leisure and hospitality (39.1%), professional and business services (11.6%), and trade, transportation, and utilities (10.9%) accounted for 61.6% of total employment in Pitkin County in 2018. The large share of leisure and hospitality employment reflects the role of the visitor industry in the regional economy and the role of Aspen as a destination market.

Figure 2-10
Trends in Total Employment



Note: Pitkin County is defined as the primary area of the Airport Service Region.

(a) Includes information, manufacturing, natural resources and mining, and other services.

Source: U.S. Department of Labor, Bureau of Labor Statistics, Quarterly Census of Employment and Wages, www.bls.gov; accessed July 2019.

2.3.5 Annual Wages by Industry Sector

As noted in Figure 2-10, the leisure and hospitality sector in Pitkin County accounted for the largest share of total employment in 2018, with 39.1%, more than three times the shares for the State and the nation. As shown in Table 2-3, average annual wages in the leisure and hospitality sector are the lowest of all industry sectors in Pitkin County, but are significantly higher than the State and the nation by 36% and 40%, respectively. The education and health services and construction sectors in Pitkin County are also account for higher average annual wages in 2018 than the State and the nation, by 17% and 13% respectively.

Table 2-3
Comparison of Average Annual Wages by Industry Sector
In 2018 dollars

Industry sector	Pitkin County 2010	Pitkin County 2018	Pitkin County CAGR 2010-2018	Colorado 2018	United States 2018	Percent difference from Pitkin County: Colorado	Percent difference from Pitkin County: United States
Leisure and hospitality	$30,906	$40,397	3.4%	$25,844	$24,343	-36%	-40%
Professional and business services	49,804	68,677	4.1%	81,439	75,083	19%	9%
Trade, transportation, and utilities	40,012	45,887	1.7%	50,723	48,361	11%	5%
Education and health services	51,342	61,453	2.3%	50,970	51,269	-17%	-17%
Financial activities	56,548	67,238	2.2%	84,463	95,353	26%	42%
Public administration	52,771	59,779	1.6%	64,550	65,649	8%	10%
Construction	55,025	71,713	3.4%	62,440	62,498	-13%	-13%
Other *(a)*	45,562	53,703	2.1%	72,151	67,120	34%	25%
All sectors	42,561	52,651	2.7%	58,942	57,265	12%	9%

CAGR = Compound average growth rate

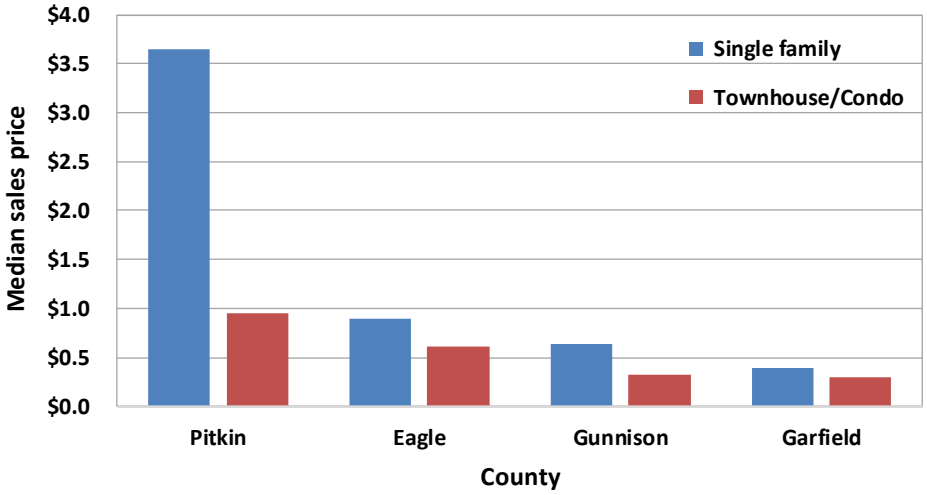
(a) Includes information, manufacturing, natural resources and mining, and other services.

Source: U.S. Department of Labor, Bureau of Labor Statistics, Quarterly Census of Employment and Wages, www.bls.gov; accessed July 2019.

2.3.6 Regional Housing Market

Trends in the housing market in a region generally follow economic cycles and are typically an indicator of overall economic activity and personal income levels. In contrast, home prices in Pitkin County are more indicative of a luxury resort destination and high levels of personal wealth. As shown on Figure 2-11, the median sales price of single-family homes in Pitkin County was $3.7 million for the 12-months ended June 2019, more than 9 times the median price for a home in Garfield County. As a result, a large share of the work force in Pitkin County resides in the adjacent counties of Garfield, Gunnison, and Eagle. The rural bus rapid transit system operated by the Roaring Fork Transportation Authority (RFTA), known as VelociRFTA, provides an extensive network throughout the Roaring Fork Valley.

Figure 2-11
Recent Housing Price Trends
For the 12-months ended June 2019



Source: Colorado Association of Realtors, Local Market Update, www.coloradorealtors.com, accessed July 2019.

2.4 ECONOMIC OUTLOOK

The economic outlook for the United States, the State of Colorado, and Pitkin County forms a basis for anticipated growth in airline traffic at the Airport. Economic activity in Pitkin County and the State is directly linked to the production of goods and services in the world and the rest of the United States. Both airline travel and the movement of cargo through the Airport depend on the economic linkages between and among the regional, State, national, and global economies. The economic and other assumptions underlying the forecasts of enplaned passengers are based on a review of national, State, and regional economic outlooks as well as an analysis of historical socioeconomic trends and airline traffic trends, as presented in Chapter 3 titled "Historical Passenger Airline Traffic."

2.4.1 U.S. Economy

The U.S. economy has grown at a slow to moderate pace since the 2008-2009 economic recession, with U.S. GDP growth averaging 2.2% per year between 2009 and 2018. In January 2019, the Congressional Budget Office (CBO) projected U.S. economic growth, as measured by U.S. GDP in constant dollars, to increase 2.7% in 2019 and 1.9% in 2020, for an overall growth rate of 1.8% per year between 2018 and 2029.* IHS Markit, an internationally recognized economic forecasting firm, forecasts U.S. GDP, in constant dollars to increase an average of 1.8% between 2018 and 2039.** Since the 2008-2009 economic recession, U.S. unemployment rates (seasonally adjusted) have decreased from 9.5% in July 2009 to 3.4% in May 2019. The CBO projects an average unemployment rate of 3.8% in 2018, 3.4% in 2019, increasing to 4.7% to 4.8% by 2029.*** For purposes of this forecast, it is assumed that U.S. GDP growth will average 2.0% per year through 2048.

2.4.2 Colorado Economy

Colorado's economy continues to outperform the nation and remains among the top states for GDP growth. In 2018, Colorado GDP increased 3.5% and tied for the fifth fastest in the nation (following the states of Washington, Utah, Idaho, and Arizona). Contributions to growth continue to be broad-based across most industries, with information and professional, scientific, and technical services posting the largest contributions to the increase in Colorado's GDP in 2018. Colorado's information industry and workforce continue to attract new companies to the state and add new employees; over 4,100 technology companies are located in Colorado. The Colorado economy is expected to continue to expand through the remainder of 2019 and into 2020, though at a slower pace of growth as labor market tightening constrains business activity, global economic activity slows, and trade tensions persist. ****

2.4.3 Aspen/Pitkin County Economy

The economies of Aspen and Pitkin County are dependent upon the visitor industry, particularly ski tourism. The local economy benefited from the heavy snowfall during the 2018-19 winter season. In addition to record high occupancy rates at Pitkin County resorts in Aspen and Snowmass, Aspen's nominal retail sales revenue increased 7.9% in March 2019 compared with March 2018, to reach a record for the busy winter month. In the long-term, the Colorado

*Congressional Budget Office, The Budget and Economic Outlook: Fiscal Years 2019-2029, January 2019, www.cbo.gov. The CBO's report incorporates the effects of Public Law 115-97 (originally called the Tax Cuts and Jobs Act) enacted on December 22, 2017; the Bipartisan Budget Act of 2018 (P.L. 115-123) enacted on February 9, 2018; and the Consolidated Appropriations Act, 2018 (P.L. 115-141) enacted on March 23, 2018. The projections do not incorporate the effects of the partial shutdown of the federal government that started on December 22, 2018 and ended on January 25, 2019.

**As reported in Federal Aviation Administration, *FAA Aerospace Forecast, Fiscal Years 2019-2039*, March 2019, www.faa.gov.

***The CBO considers 4.7% to be the natural rate of unemployment.

****Colorado Legislative Council Staff, Economic and Revenue Forecast, June 2019, www.leg.colorado.gov.

Department of Local Affairs (DOLA) forecasts population and income growth to approximate national growth, while employment growth is expected to be slower than the national average.

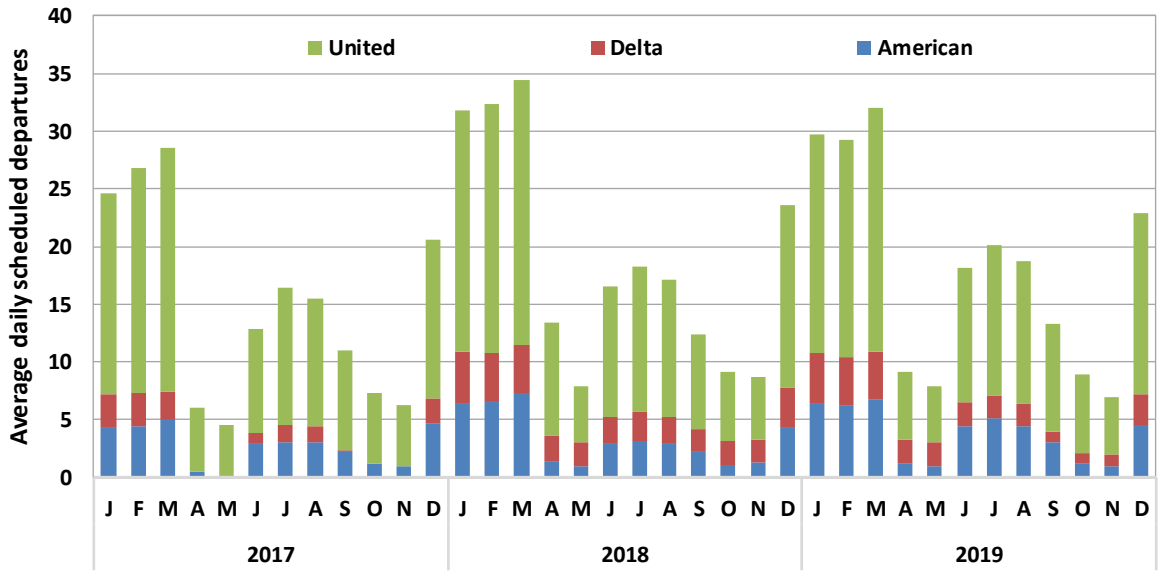
CHAPTER 3
HISTORICAL PASSENGER AIRLINE TRAFFIC

Historical and future passenger airline traffic is influenced by a number of factors including (1) the diversity of airline service at an airport, (2) the passenger market shares of the airlines providing service, (3) trends in mainline and regional airline passenger traffic, and (4) passenger traffic at other airports in the region. In 2018, approximately 72% of ASE's passengers were visitors, reflecting the role of Aspen as a destination market. The remaining 28% of passengers at ASE in 2018 were residents.

3.1 AIRLINES SERVING ASPEN

As shown on Figure 3-1, scheduled passenger airline service at ASE is seasonal, with more scheduled departures during the peak season (January through March). The three airlines serving the Airport—American, Delta, and United—each provided year-round service in 2018 and 2019.

Figure 3-1
Passenger Airlines Serving Aspen
Aspen/Pitkin County Airport



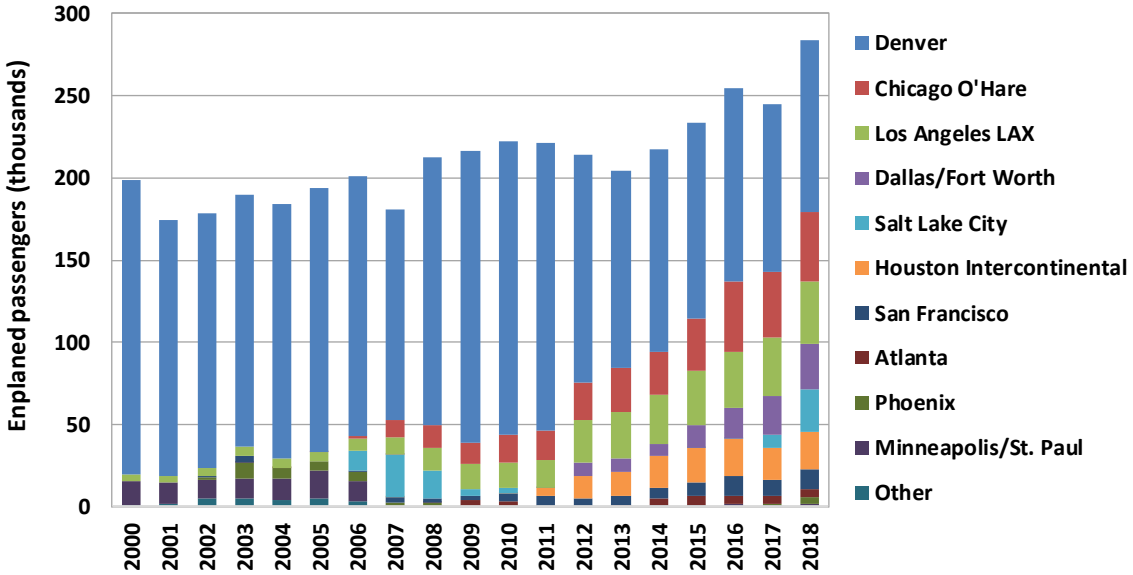
Note: Skywest Airlines operates all scheduled flights at ASE as a regional affiliate of United, Delta, and American.

Source: OAG Worldwide Aviation Ltd, online database, accessed May 2019. Advance airline schedules are subject to change.

3.2 HISTORICAL PASSENGER TRENDS

Between 2000 and 2018, the number of destinations served nonstop at the Airport tripled, from 3 to 10, as shown on Figure 3-2. Each of the 10 destinations served are connecting hubs for American, Delta, and United (as shown in Figure 1-3), reflecting the role of ASE as a spoke in airline route networks.

Figure 3-2
Historical Enplaned Passengers
Aspen/Pitkin County Airport



Source: U.S. Department of Transportation, online database, accessed April 2019.

The number of enplaned passengers at ASE increased an average of 2.0% per year between 2000 and 2018, with stronger growth between 2010 and 2018 (an average increase of 3.1% per year), as shown in Table 3-1. The trend in seat capacity at ASE has been generally consistent with passenger traffic growth, while average load factors (the percent of occupied seats) have varied considerably. Aircraft size, in terms of seats per departure, has averaged 66 to 69 seats since 2010.

Table 3-1
Historical Passenger Airline Activity
Aspen/Pitkin County Airport

Year	Enplaned passengers	Seats	Departures	Load factor	Average seats per departure
2000	198,723	312,169	3,604	64%	87
2001	174,438	292,544	3,319	60%	88
2002	178,642	294,044	3,448	61%	85
2003	189,795	303,204	3,839	63%	79
2004	183,934	271,025	3,904	68%	69
2005	193,626	273,544	3,973	71%	69
2006	200,847	277,223	4,698	72%	59
2007	180,784	272,994	4,795	66%	57
2008	212,323	340,246	5,773	62%	59
2009	216,405	345,732	5,659	63%	61
2010	222,255	343,266	5,070	65%	68
2011	221,108	343,448	5,093	64%	67
2012	214,207	333,131	5,016	64%	66
2013	204,198	292,175	4,446	70%	66
2014	217,134	300,756	4,514	72%	67
2015	233,476	332,750	4,807	70%	69
2016	254,302	348,651	5,073	73%	69
2017	244,732	359,939	5,222	68%	69
2018	283,877	445,979	6,652	64%	67
January-March					
2018	118,648	192,045	2,795	62%	69
2019	127,655	168,162	2,511	76%	67
	Percent increase (decrease)				
2010-2011	(0.5%)	0.1%	0.5%	(0.6%)	(0.4%)
2011-2012	(3.1)	(3.0)	(1.5)	(0.1)	(1.5)
2012-2013	(4.7)	(12.3)	(11.4)	8.7	(1.0)
2013-2014	6.3	2.9	1.5	3.3	1.4
2014-2015	7.5	10.6	6.5	(2.8)	3.9
2015-2016	8.9	4.8	5.5	4.0	(0.7)
2016-2017	(3.8)	3.2	2.9	(6.8)	0.3
2017-2018	16.0	23.9	27.4	(6.4)	(2.7)
2018-2019 (a)	7.6	(12.4)	(10.2)	22.9	(2.5)
	Compound average percent increase (decrease)				
2000-2005	(0.5%)	(2.6%)	2.0	2.1	(4.5%)
2005-2010	2.8	4.6	5.0	(1.8)	(0.3)
2010-2018	3.1	3.3	3.5	(0.2)	(0.1)
2000-2018	2.0	2.0	3.5	0.0	(1.4)

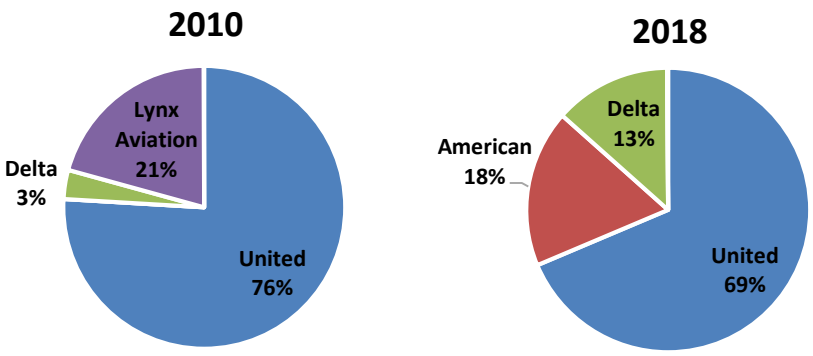
(a) Represents the percent change for the first three months of 2019 (January through March).

Source: U.S. Department of Transportation, online database, accessed April 2019.

3.3 AIRLINE SHARES OF ENPLANED PASSENGERS

Airline service at ASE has expanded since 2010 to include three major airlines. Skywest Airlines, a regional airline experienced in mountain environments, serves as the regional affiliate for American, Delta, and United.

Figure 3-3
Airline Shares of Enplaned Passengers
Aspen/Pitkin County Airport



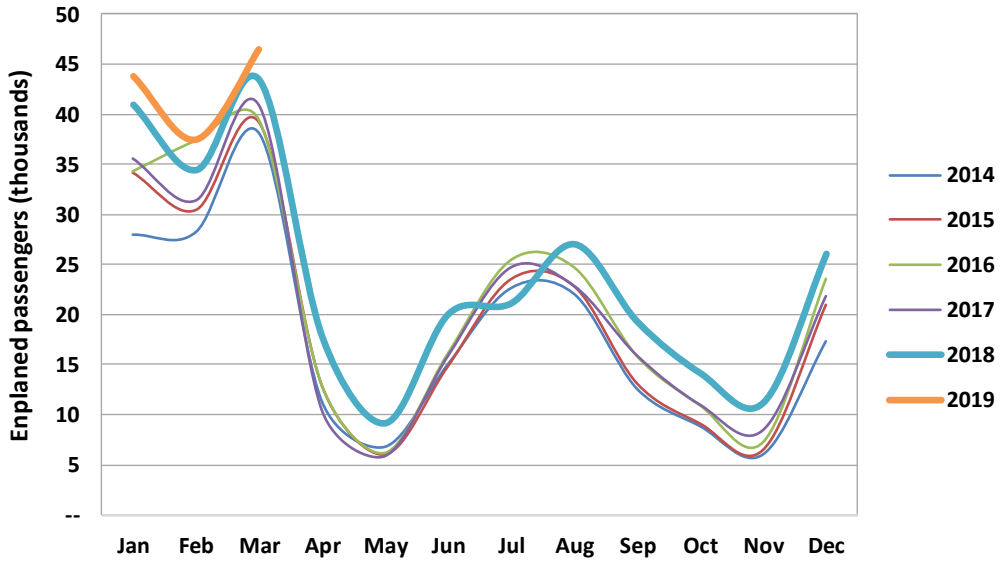
Note: Lynx Aviation was based in Denver and ceased operations in 2011.
Skywest Airlines served as a regional affiliate for American, Delta, and United in 2018.

Source: U.S. Department of Transportation, online database, accessed April 2019.

3.4 MONTHLY TRENDS IN PASSENGERS

Figure 3-4 shows monthly enplaned passenger data at ASE for January 2014 through March 2019. The monthly data show the seasonal variation in passenger traffic, with peak levels occurring in January through March, and the lowest monthly activity in May, October, and November.

Figure 3-4
Monthly Enplaned Passengers
Aspen/Pitkin County Airport



Source: U.S. Department of Transportation, online database, accessed April 2019.

3.5 ORIGIN-DESTINATION MARKETS AND AIRLINE SERVICE

Table 3-2 shows the top 20 origin-destination (O&D) markets for passengers starting or ending their journeys at ASE in 2018. These 20 markets accounted for 75.3% of the total outbound domestic O&D passengers at ASE in 2018.

The top three O&D markets at ASE—Los Angeles, New York, and Chicago—accounted for 13.7%, 11.0%, and 7.0%, respectively, of the outbound domestic O&D passengers in 2018. Other major destinations include San Francisco, Houston, Dallas/Fort Worth, and Miami.

During the peak season in 2019 (January through March), eight of the top 20 O&D markets were served nonstop at ASE, as shown on Table 3-2. During the peak season in 2018 (April through December), six of the top 20 O&D markets were served nonstop at the Airport but with half the number of daily departures as the peak season.

Table 3-2
Domestic Passenger Origin-Destination Patterns and Airline Service
Aspen/Pitkin County Airport

Rank	Origin-destination market	Air miles from Aspen	Percent of outbound O&D airline passengers	Average daily nonstop departures: Peak Season (January-March 2019)	Average daily nonstop departures: Off Season (April-December 2018)
1	Los Angeles *(a)*	737	13.7%	4	2
2	New York *(b)*	1,744	11.0	--	--
3	Chicago *(c)*	1,013	7.0	4	1
4	San Francisco *(d)*	848	5.8	2	1
5	Houston *(e)*	913	5.4	3	1
6	Dallas/Fort Worth *(f)*	701	4.8	3	1
7	Miami *(g)*	1,792	4.0	--	--
8	Washington D.C. *(h)*	1,574	3.8	--	--
9	Denver	125	2.9	7	6
10	Boston	1,879	2.6	--	--
11	Atlanta	1,304	2.0	1	--
12	Austin	812	1.9	--	--
13	San Diego	730	1.5	--	--
14	Philadelphia	1,681	1.4	--	--
15	Detroit	1,248	1.4	--	--
16	Phoenix	491	1.4	2	--
17	Seattle/Tacoma	960	1.3	--	--
18	Tampa	1,596	1.3	--	--
19	Minneapolis/St. Paul	802	1.2	--	--
20	Orlando	1,640	1.0	--	--
	Markets listed		75.3%	26	11
	Other markets		24.7	2	3
	Total		100.0%	28	14

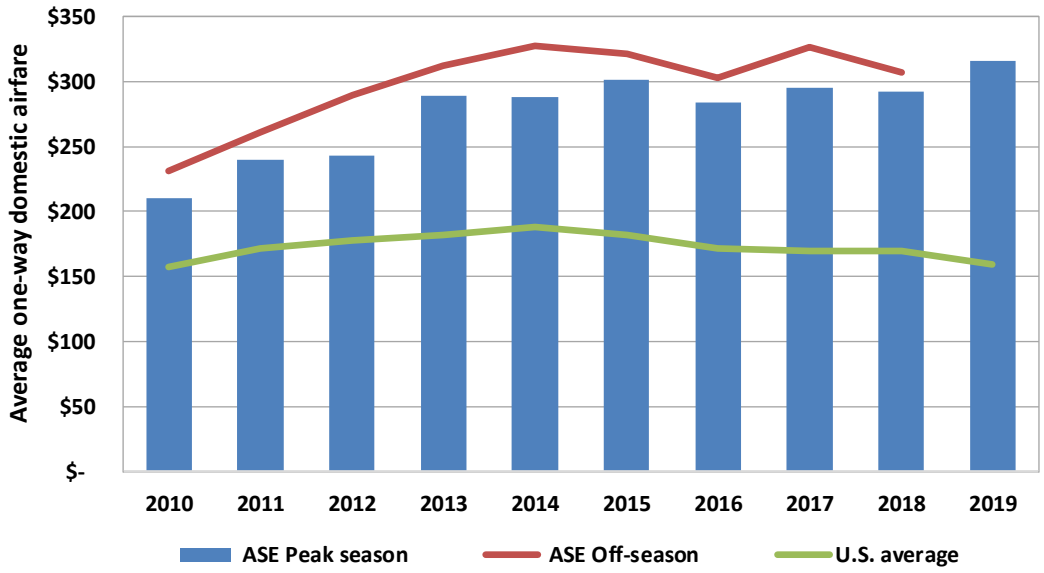
(a) Los Angeles International, Bob Hope, Ontario International, John Wayne (Orange County), and Long Beach airports.
(b) Newark Liberty International, LaGuardia, and John F. Kennedy International airports.
(c) Chicago O'Hare and Midway International airports.
(d) San Francisco, Oakland, and Mineta San Jose International airports.
(e) George Bush Intercontinental and Houston William P. Hobby airports.
(f) Dallas Fort Worth International Airport and Dallas Love Field.
(g) Miami International and Fort Lauderdale International airports.
(h) Regan Washington National, Baltimore/Washington International, and Washington Dulles International airports.

Sources: U.S. Department of Transportation, Origin-Destination Survey of Airline Passenger Traffic, Domestic, Databank 1A, online database, and U.S. Department of Transportation, online database, accessed April 2019.

3.6 AIRFARES

Recent trends in domestic one-way airfares (not adjusted for inflation) at ASE during the peak and off-season are shown on Figure 3-5. Between 2010 and 2019, domestic airfares at ASE during the peak season increased an average of 3.6% per year, slower than the growth in domestic airfares during the off-season (an increase of 4.6% per year). U.S. average domestic airfares are considerably lower than ASE and have remained relatively unchanged since 2010.

Figure 3-5
Domestic Average Airfares
Aspen/Pitkin County Airport



Note: Peak season—January through March; Off-season—April through December

Source: U.S. Department of Transportation, *Origin-Destination Survey of Airline Passenger Traffic, Domestic*, Databank 1A, online database, accessed April 2019.

CHAPTER 4
HISTORICAL AIRCRAFT OPERATIONS AND BASED AIRCRAFT

This chapter summarizes historical aircraft operations for ASE, including air carrier, air taxi and commuter, general aviation, and military operations. Aircraft operations data for ASE were obtained from the FAA's Air Traffic Activity System (ATADS).

4.1 TOTAL AIRCRAFT OPERATIONS

Table 4-1 presents total aircraft operations by type at ASE. From 2000 to 2018, total commercial aircraft operations (air carrier and air taxi and commuter) at ASE increased from 14,831 to 21,104, an average increase of 2.0% per year. Commercial aircraft operations accounted for 51.2% of total operations in 2018.

Total general aviation aircraft operations at ASE decreased between 2000 and 2018, from 33,748 to 19,867 (an average decrease of 2.9% per year).

Total military aircraft operations averaged 150 annual operations between 2000 and 2018.

4.2 BASED AIRCRAFT

ASE's fixed base operator, Atlantic Aviation, conducted an inventory of based aircraft at ASE in January 2019 and reported a total of 84 based aircraft in 2018, compared with 105 based aircraft reported in the FAA's 2018 TAF. Atlantic Aviation's inventory includes detail by aircraft type and tail number. Of the 84 based aircraft, 49 are single engine aircraft, 16 jet aircraft, 17 multi-engine aircraft, and 2 helicopters. The forecasts of based aircraft at ASE presented in Chapter 5 are based on Atlantic Aviation's inventory since it is a detailed count.

Table 4-1
Historical Aircraft Operations
Aspen/Pitkin County Airport

Year	Commercial operations: Air carrier	Commercial operations: Air taxi/ commuter	Commercial operations: Total	General aviation	Military	Total aircraft operations	Percent increase (decrease)
2000	7,632	7,199	14,831	33,748	239	48,818	--%
2001	6,988	9,008	15,996	29,930	121	46,047	(5.7)
2002	6,902	10,034	16,936	29,377	128	46,441	0.9
2003	6,580	10,034	16,614	26,241	124	42,979	(7.5)
2004	5,224	12,446	17,670	26,228	93	43,991	2.4
2005	5,223	12,522	17,745	26,383	125	44,253	0.6
2006	5,410	13,904	19,314	25,330	94	44,738	1.1
2007	6,380	12,786	19,166	19,284	57	38,507	(13.9)
2008	7,849	12,750	20,599	15,718	59	36,376	(5.5)
2009	8,359	10,247	18,606	21,053	127	39,786	9.4
2010	9,698	7,945	17,643	19,842	118	37,603	(5.5)
2011	9,682	8,664	18,346	19,171	98	37,615	0.0
2012	9,485	8,797	18,282	18,493	125	36,900	(1.9)
2013	8,307	9,428	17,735	17,507	86	35,328	(4.3)
2014	8,716	8,926	17,642	17,604	149	35,395	0.2
2015	8,986	9,674	18,660	20,297	237	39,194	10.7
2016	9,310	10,248	19,558	21,448	334	41,340	5.5
2017	9,626	10,865	20,491	21,667	268	42,426	2.6
2018	11,590	9,514	21,104	19,867	267	41,238	(2.8)
January-March							
2018	5,113	3,004	8,117	5,677	56	13,850	--%
2019	4,443	3,323	7,766	5,216	28	13,010	(6.1)
	Compound average percent increase (decrease)						
2000-2010	2.4%	1.0%	1.8%	(5.2%)	(6.8%)	(2.6%)	
2010-2018	2.3	2.3	2.3	0.0	10.7	1.2	
2000-2018	2.3	1.6	2.0	(2.9)	0.6	(0.9)	

Note: Includes arrivals and departures.

Source: Federal Aviation Administration, Air Traffic Activity System (ATADS), www.faa.gov, accessed April 2019.

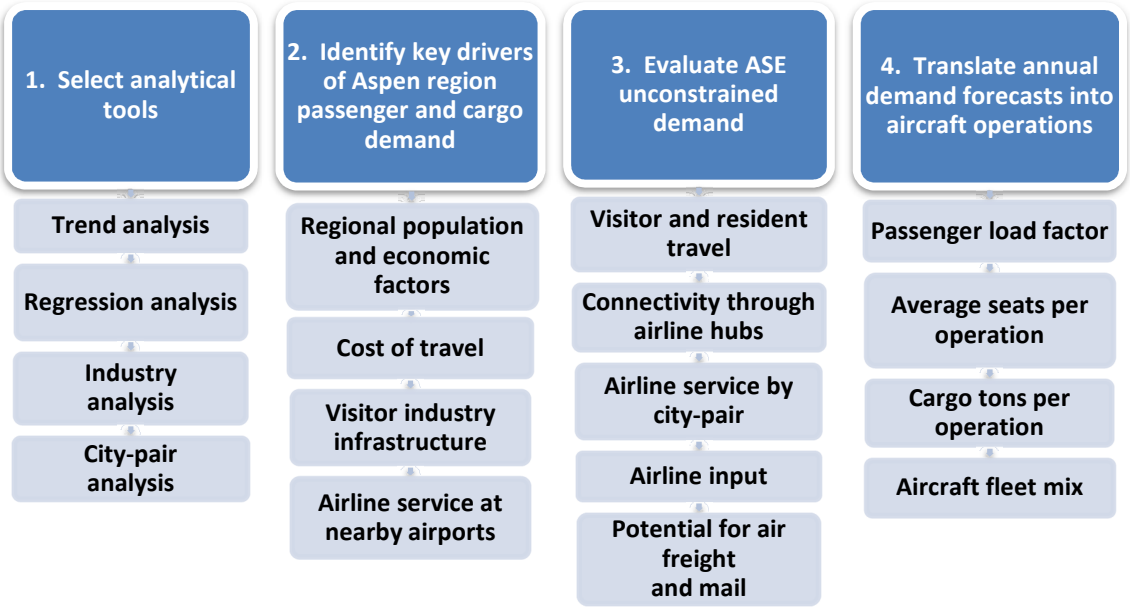
CHAPTER 5
AVIATION ACTIVITY FORECASTS

This section summarizes unconstrained forecasts of enplaned passengers, air cargo, and total aircraft operations for ASE, including the forecast approach, methodology, and assumptions. As noted earlier, the forecasts presented in this report are "unconstrained" and, therefore, do not include specific assumptions about physical, regulatory, environmental or other impediments to aviation activity growth. Forecasts of aviation activity are presented for enplaned passengers, air cargo, and aircraft operations, including passenger, all-cargo, general aviation, and military operations. Using calendar year 2018 as the base year, annual forecasts were prepared for six future demand years—2019, 2023, 2028, 2033, 2038, and 2048.*

5.1 FORECAST APPROACH

As shown in Figure 6-1, the forecast approach incorporated a multi-tiered approach to evaluate passenger traffic in the Aspen region.

Figure 5-1
Forecast Approach
Aspen/Pitkin County Airport



*The forecasts presented in this report were prepared using the information and assumptions given in the accompanying text. Inevitably, some of the assumptions used to develop the forecasts will not be realized and unanticipated events and circumstances may occur. Therefore, there are likely to be differences between the forecast and actual results, and those differences may be material.

U.S. Department of Transportation records (i.e., Schedule T100) were used as the basis for the enplaned passenger, air cargo, and commercial airline aircraft operations forecasts. Federal Aviation Administration, Air Traffic Activity System (ATADS) data were used as the basis for the total aircraft operations forecasts.

It was recognized that no one approach would provide input on all key factors that affect passenger and cargo activity in the Aspen region. For example, an econometric analysis would provide input on the relationships between historical passengers and regional economic conditions but little to no input on such factors as (1) the role of individual markets in airline scheduling and service decisions, (2) recent trends in the airline industry that have affected an airline's decisions in route planning and aircraft acquisition, and (3) new service development at the Airport. Input on these factors is important to the development of reliable forecasts that can serve as the basis for planning efforts at the Airport.

5.2 ENPLANED PASSENGERS

Forecasts of enplaned passengers were developed taking into account analyses of the economic basis for airline traffic, analyses of historical airline traffic, and an assessment of the key factors that may affect future airline traffic, as discussed previously. The key factors influencing the trends in enplaned passengers at ASE include:

- The role of Aspen as a destination market with visitors accounting for 72% of passenger traffic; the remaining 28% by residents in 2018
- The strong seasonality of aviation activity with 42% of ASE's 2018 passengers enplaned during the peak season (January through March)
- The influence of external factors such as snowfall, the availability of lodging accommodations, competing service at nearby airports, airline networks and regional aircraft fleets, and the significant use of private aircraft for air travel to and from Aspen

Econometric model was one tool that was used to evaluate the relationship between ASE's historical passenger trends to economic and airline industry metrics. Typically, a passenger regression model includes an income variable (e.g., total personal income, per capita income, or GDP—all expressed in constant dollars) and a cost of travel variable (e.g., yield or airfare—also expressed in constant dollars). The primary objective is to represent the two key variables that affect air travel demand, i.e., how much people have to spend and how much it costs to travel. Other variables may be important as well, depending on the traffic market characteristics.

5.2.1 Economic Drivers

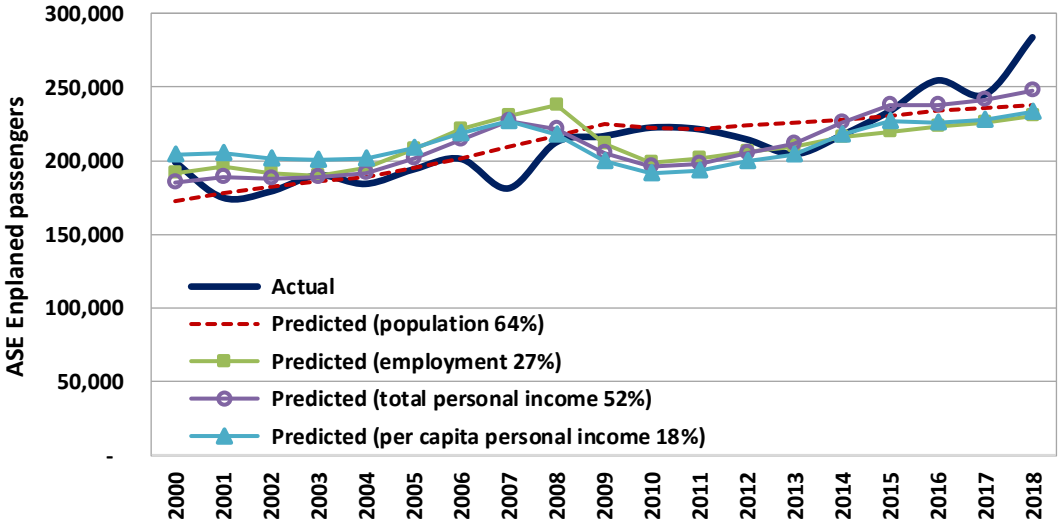
Economic drivers such as total income, per capita personal income, population, and employment were evaluated in relation to the historical trends in ASE enplaned passengers. As shown in Figure 5-2, economic drivers accounted for 18% to 64% of the historical variation

in ASE enplaned passengers and were not effective on their own (as single variables) in explaining historical trends.*

5.2.2 Cost of Travel Drivers

The cost of travel can be measured in terms of average airfares, airline yield (the airfare paid to travel one mile), and aviation fuel costs. As shown in Figure 5-3, cost of travel factors alone account for an insignificant share of the historical variation in ASE passengers

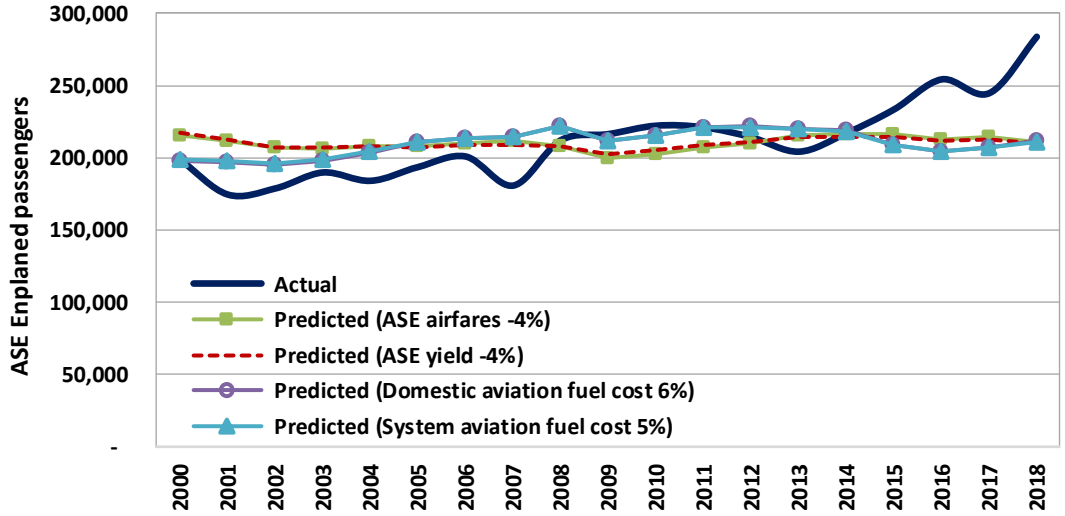
Figure 5-2
Economic Drivers
Historical and Predicted Enplaned Passengers
Aspen/Pitkin County Airport



Sources: Actual—U.S. Department of Transportation, Schedule T100, online database, accessed April 2019.
Predicted regression model results—LeighFisher, April 2019.

*Data series for ASE origin-destination passengers and passenger trips by visitors and residents were also evaluated.

Figure 5-3
Cost of Travel
Historical and Predicted Enplaned Passengers
Aspen/Pitkin County Airport

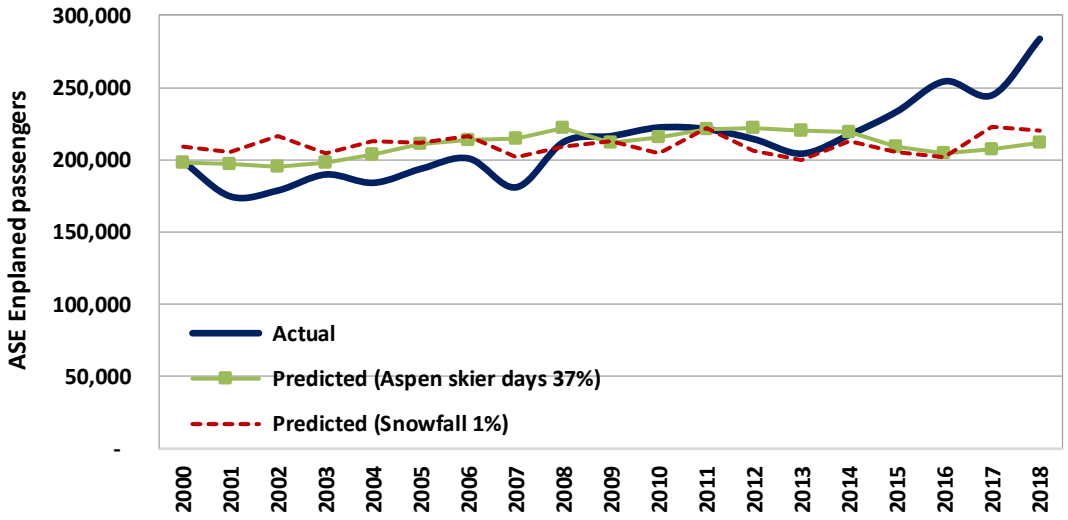


Sources: Actual—U.S. Department of Transportation, Schedule T100, online database, accessed April 2019.
Predicted regression model results—LeighFisher, April 2019.

5.2.3 Resort Destination Drivers

The influence of a ski resort destination such as Aspen can be measured in terms of the number of skier days and average annual snowfall. As shown in Figure 5-4, resort destination factors alone account for an insignificant share of the historical variation in ASE passengers

Figure 5-4
Resort Destination Drivers
Historical and Predicted Enplaned Passengers
Aspen/Pitkin County Airport

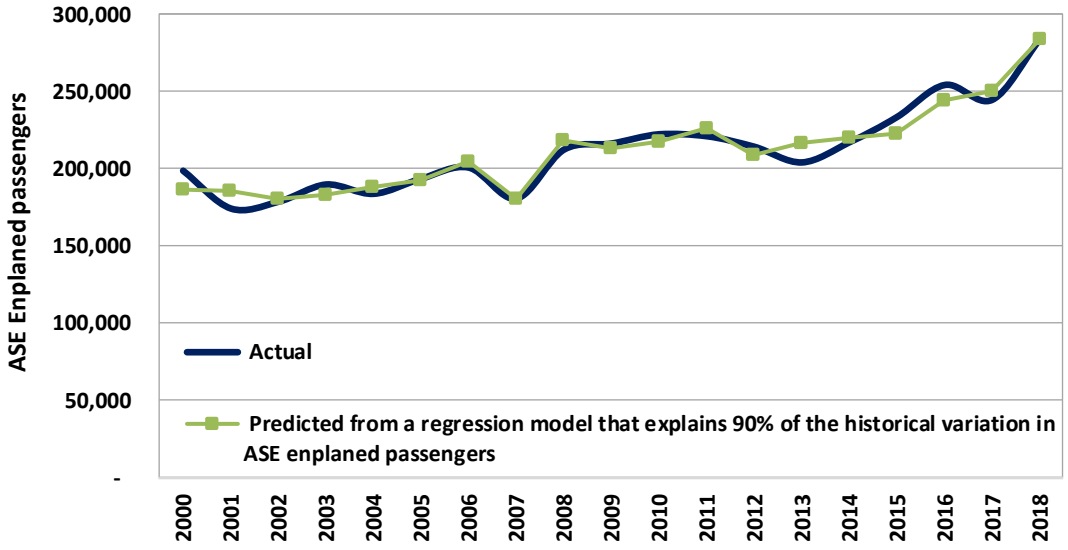


Sources: Actual—U.S. Department of Transportation, Schedule T100, online database, accessed April 2019.
Predicted regression model results—LeighFisher, April 2019.

5.2.4 Representative Model

The historical trend in enplaned passengers at ASE relates strongly to the predicted values from a regression model which includes population in the Aspen region and airline yield at ASE, in constant dollars, as shown on Figure 5-5. The forecasts of enplaned passengers at ASE were based on projections of population in the Aspen region prepared by the Colorado Department of Local Affairs (DOLA), presented in Table 2-1, and projections of ASE airfares based on the FAA's national forecasts.

Figure 5-5
Representative Model
Historical and Predicted Enplaned Passengers
Aspen/Pitkin County Airport



Sources: Actual—U.S. Department of Transportation, Schedule T100, online database, accessed April 2019.
Predicted regression model results—LeighFisher, April 2019.

5.2.5 Enplaned Passenger Forecast Assumptions

In general, it was assumed that, in the long term, changes in airline traffic at the Airport will occur largely as a function of the numbers of visitors, the level of airline service in terms of available scheduled seats, the number of hotel rooms, and other infrastructure supporting the visitor base. It was also assumed that continued development of airline service at the Airport will not be constrained by the availability of aviation fuel, long-term limitations in airline fleet capacity, limitations in the capacity of the air traffic control system or the Airport, or government policies or actions that restrict growth. Also considered were recent and potential developments in the national economy and in the air transportation industry as they have affected or may affect airline traffic at the Airport.

For 2019 through 2048, it was assumed that:

1. The Aspen region will continue to be a premier ski resort destination and a popular destination for outdoor recreation such as hiking, fishing, and camping.

2. Growth in lodging infrastructure in the Aspen region will be limited and may represent a potential constraint on the growth in tourism.

3. The U.S. GDP growth will average 2.0% per year, as presented in Chapter 2, “Economic Basis for Airline Traffic”.

4. Aviation fuel prices will increase by the end of 2019, following recent crude oil price declines and uncertainty about global oil demand growth.* Aviation fuel prices will increase at moderate rates but remain below the record prices reached in mid-2008, reflecting reduced consumption levels, technological advances, and the availability of previously unexplored resources.

5. Shortages in the number of regional airline pilots will not limit airline service at ASE during the forecast period.

6. Any airline consolidation that may occur during the forecast period will not have a material impact on the level of passenger activity at the Airport.

7. A generally stable international political environment and safety and security precautions will ensure airline traveler confidence in aviation without imposing unreasonable inconveniences.

8. There will be no major disruption of airline service or airline travel behavior as a result of airline bankruptcies or liquidations, international hostilities, terrorist acts or threats, or public health crises.

5.2.6 Enplaned Passenger Forecasts

As shown in Table 5-1 and on Figure 5-6, the number of enplaned passengers at ASE are forecast to increase from 283,877 in 2018 to 449,100 in 2048, increasing an average of 1.5% per year. Peak season passenger traffic is forecast to increase an average of 2.2% per year between 2018 and 2048, compared with an average increase of 1.0% per year for off season passengers. In 2048, the peak season will account for 50% of annual enplaned passengers, compared with 42% in 2018.

5.3 AIR CARGO

According to the U.S. Department of Transportation, no air cargo data have been reported for ASE since 2008. The FAA's TFMSC data show a small number of freight operations in 2018 and previous years by regional aircraft such as the Beech 1900. For the purposes of this forecast, it was assumed that:

- Intermittent air cargo service by regional aircraft will continue and increase gradually through 2048 and that the air cargo transported will be reported to the USDOT.

- Air cargo carried by passenger airlines (belly cargo) will be added with the operation of small narrowbody aircraft at ASE such as the A319 and A220-100.

As shown in Table 5-1, total air cargo is forecast to reach 23,383 tons in 2048.

*In its June 11, 2019 *Short-Term Energy Outlook*, the U.S. Energy Information Administration projected crude oil prices, in terms of West Texas Intermediate oil, to average $59 per barrel in 2019 and $63 in 2020, down from $65 per barrel in 2018, but up from $43 and $51 per barrel in 2016 and 2017, respectively.

Table 5-1
Aviation Activity Forecasts
Aspen/Pitkin County Airport

	Historical 2018	Estimated 2019 (a)	Forecast 2023	2028	2033	2038	2048	CAGR 2018-2048
ENPLANED PASSENGERS								
Peak Season (January-March)	118,631	126,600	143,100	161,100	178,100	193,400	225,200	2.2%
Off Season (April-December)	165,219	178,400	183,900	193,200	201,700	209,200	223,900	1.0%
Total enplaned passengers	283,877	305,000	327,000	354,300	379,800	402,600	449,100	1.5%
Percent change/CAGR		7.5%	1.8%	1.6%	1.4%	1.2%	1.1%	
TOTAL AIR CARGO (TONS) (b)								
Passenger airlines (belly cargo)	--	--	--	--	19,878	21,624	23,062	--
All-cargo airlines	--	--	14	21	39	79	321	--
Total air cargo	--	--	14	21	19,918	21,704	23,383	--
BASED AIRCRAFT								
Single	49	49	47	45	43	41	39	-0.8%
Jet	16	16	18	20	23	26	31	2.2%
Multi	17	17	18	19	20	21	23	1.0%
Helicopter	2	2	2	2	2	2	2	0.0%
Other	--	--	--	--	--	--	--	--
Total based aircraft	84	84	85	86	88	90	95	0.4%
FORECAST ASSUMPTIONS								
Load factor (percent of occupied seats)								
Peak Season (January-March)	61.8%	75.0%	76.7%	79.2%	78.1%	78.6%	83.9%	1.0%
Off Season (April-December)	65.1%	66.2%	66.6%	67.2%	67.8%	68.3%	69.4%	0.2%
Total load factor	63.7%	70.0%	70.7%	72.2%	72.2%	72.9%	76.0%	0.6%
Average seats per operation								
Peak Season (January-March)	68.8	67.6	68.8	82.9	84.9	86.8	87.5	0.8%
Off Season (April-December)	68.6	69.1	69.1	83.4	86.0	90.1	90.2	0.9%
Total average seats per operation	68.7	68.4	69.0	83.2	85.5	88.6	88.9	0.9%

Table 5-1 *(page 2 of 3)*
Aviation Activity Forecasts
Aspen/Pitkin County Airport

	Historical 2018	Estimated 2019	Forecast 2023	2028	2033	2038	2048	CAGR 2018-2048
FORECAST ASSUMPTIONS (continued)								
Average air cargo per operation (tons)								
Passenger airlines	--	--	1.750	1.750	1.750	1.750	1.750	--
All-cargo airlines	--	--	0.957	0.957	0.957	0.957	0.957	--
General aviation operations per based aircraft	237	240	250	263	270	277	281	0.6%
AIRCRAFT OPERATIONS								
Commercial operations								
Air carrier								
Passenger airlines								
Peak Season (January-March)	5,580	5,000	5,420	4,910	5,370	5,670	6,140	0.3%
Off Season (April-December)	7,400	7,800	7,990	6,890	6,920	6,800	7,160	-0.1%
Total air carrier	12,980	12,800	13,410	11,800	12,290	12,470	13,300	0.1%
Air taxi								
Unscheduled passenger operations								
Peak Season (January-March)	3,106	3,170	3,420	3,720	4,020	4,290	4,760	1.4%
Off Season (April-December)	6,443	6,530	6,890	7,290	7,640	7,930	8,290	0.8%
Total passenger operations	9,549	9,700	10,310	11,010	11,660	12,220	13,050	1.0%
Air cargo	10	10	10	20	50	100	390	13.0%
Other	100	100	100	100	100	100	100	0.0%
Total air taxi	9,659	9,810	10,420	11,130	11,810	12,420	13,540	1.1%
Total commercial operations	22,639	22,610	23,830	22,930	24,100	24,890	26,840	0.6%

Table 5-1 *(page 3 of 3)*
Aviation Activity Forecasts
Aspen/Pitkin County Airport

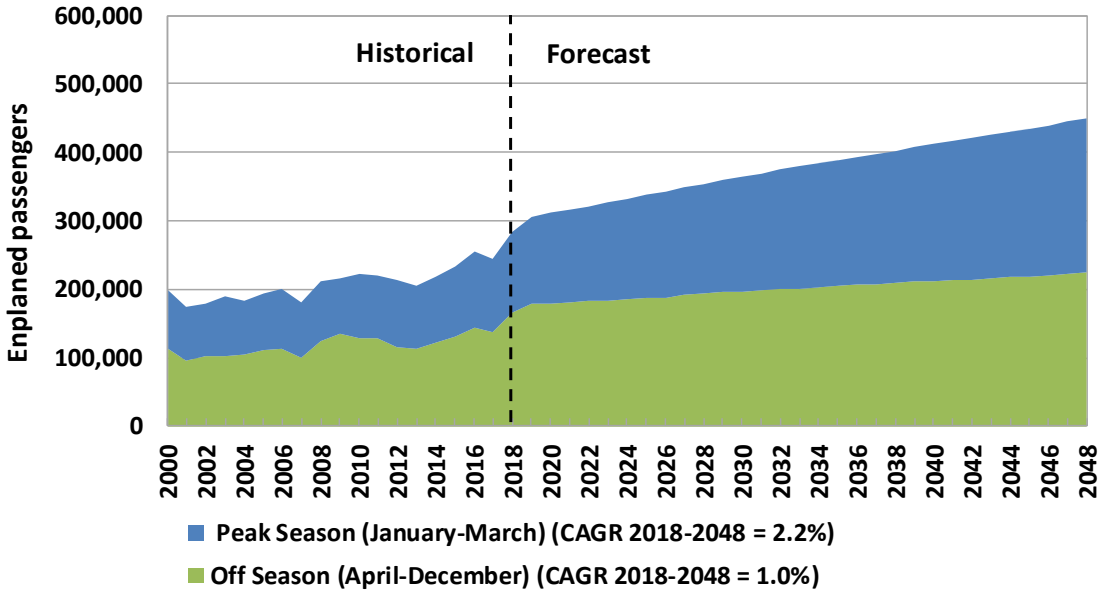
	Historical	Estimated	Forecast					CAGR
	2018	2019	2023	2028	2033	2038	2048	2018-2048
AIRCRAFT OPERATIONS (continued)								
General aviation								
Itinerant								
Peak Season (January-March)	4,649	4,690	4,850	5,020	5,150	5,260	5,340	0.5%
Off Season (April-December)	11,066	11,280	12,110	13,120	14,080	14,960	16,400	1.3%
Total itinerant	15,715	15,970	16,960	18,140	19,230	20,220	21,740	1.1%
Local								
Peak Season (January-March)	1,028	1,050	1,130	1,240	1,340	1,450	1,640	1.6%
Off Season (April-December)	3,124	3,130	3,170	3,200	3,230	3,250	3,270	0.2%
Total local	4,152	4,180	4,300	4,440	4,570	4,700	4,910	0.6%
Total								
Peak Season (January-March)	5,677	5,740	5,980	6,260	6,490	6,710	6,980	0.7%
Off Season (April-December)	14,190	14,410	15,280	16,320	17,310	18,210	19,670	1.1%
Total general aviation	19,867	20,150	21,260	22,580	23,800	24,920	26,650	1.0%
Military	267	300	300	300	300	300	300	0.4%
Total aircraft operations	42,773	43,060	45,390	45,810	48,200	50,110	53,790	0.8%

CAGR = Compound annual growth rate

(a) Based on actual data for January through March and advance published airline schedules for April through December.
(b) Data for air cargo tonnage were not reported for 2018 although freight operations occurred based on FAA TFMSC data.

Sources: Historical and Estimated--U.S. Department of Transportation, Schedule T100, online database, OAG Aviation Worldwide Ltd, online database, Federal Aviation Administration, Air Traffic Activity System (ATADS), all accessed May through June 2019.
Forecast--LeighFisher, June 2019.

Figure 5-6
Forecasts of Enplaned Passengers
Aspen/Pitkin County Airport



Source: LeighFisher, April 2019.

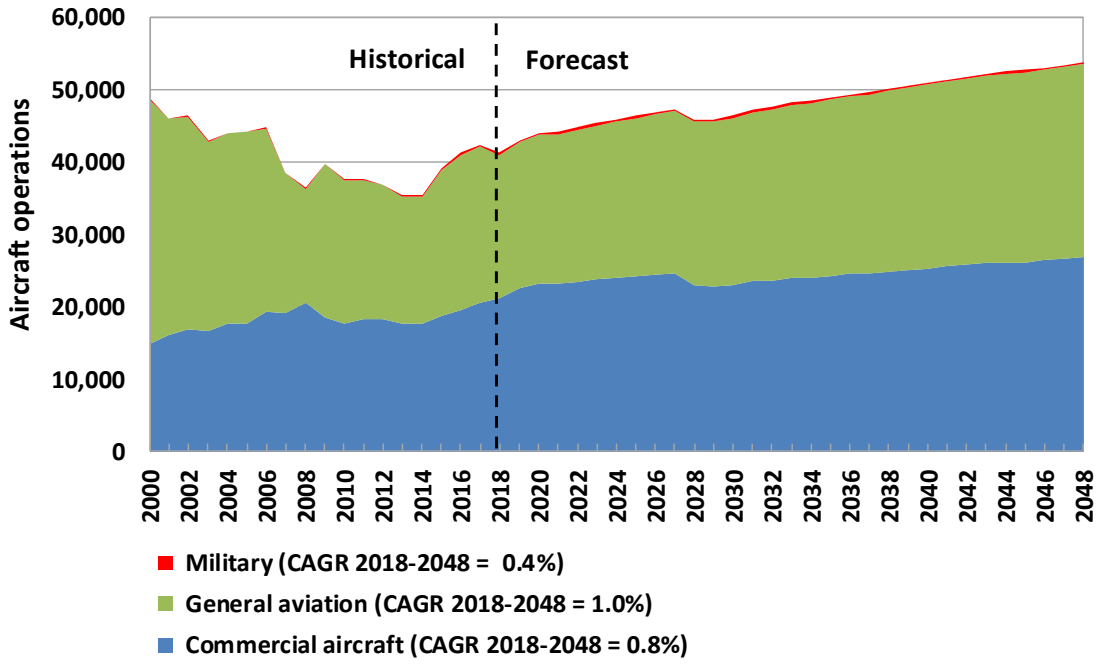
5.4 BASED AIRCRAFT

According to ASE's fixed base operator, a total of 84 aircraft were based at the Airport in 2018, including 16 jet aircraft and 17 multi-engine aircraft which together account for nearly 40% of all based aircraft. The number aircraft based at ASE is forecast to increase an average of 0.4% per year between 2018 and 2048, consistent with the FAA's National Aerospace Forecasts published in March 2019. In 2048, a total of 95 aircraft are forecast to be based at ASE.

5.5 TOTAL AIRCRAFT OPERATIONS FORECASTS

Table 5-1 and Figure 5-7 summarize the forecasts of total aircraft operations at the Airport, including commercial, general aviation, and military aircraft operations. Total aircraft operations are forecast to increase an average of 0.8% per year from 42,773 operations in 2018 to 53,790 operations in 2048. Commercial aircraft operations, including air carrier and air taxi operations, are forecast to increase from 22,639 operations in 2018 to 26,840 operations in 2048, reflecting continued gradual development of commercial passenger airline service at the Airport. In 2048, commercial aircraft operations are forecast to account for approximately 50% of total Airport operations.

Figure 5-7
Historical and Forecast Total Aircraft Operations
Aspen/Pitkin County Airport



Note: Includes air carrier, air taxi, general aviation, and military operations.

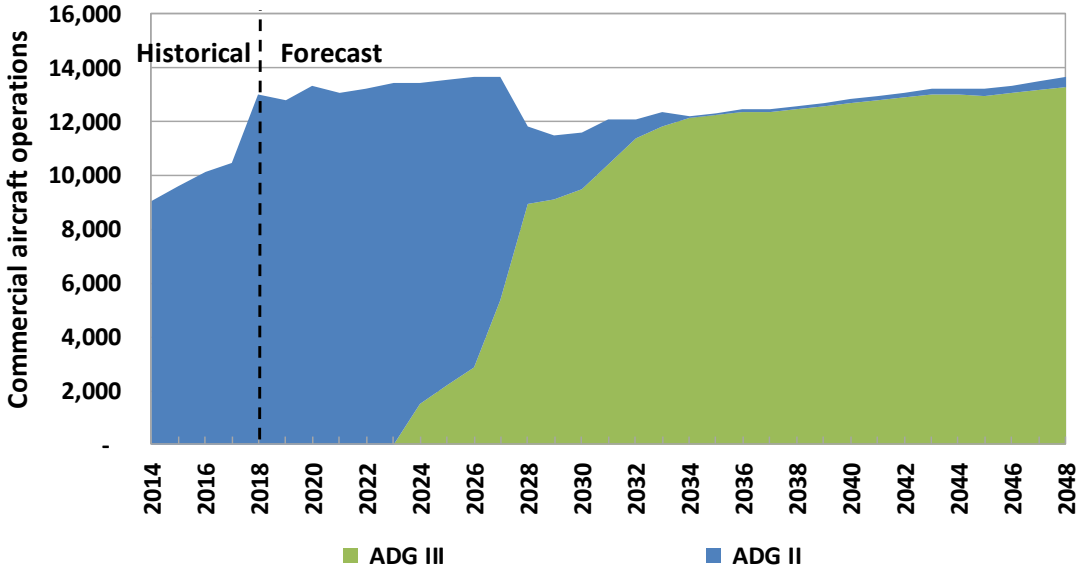
Sources: Historical— Federal Aviation Administration, Air Traffic Activity System (ATADS), www.faa.gov, accessed April 2019.
Forecast—LeighFisher, April 2019.

5.5.1 Passenger Airline Departures

Passenger aircraft operations include total departures and arrivals performed by regional affiliate aircraft in the service of transporting passengers, as shown in Table 5-1. Passenger airline aircraft operation forecasts were calculated by dividing the enplaned passenger forecasts by the estimated number of passengers enplaned per departure. In 2018, the estimated average number of passengers enplaned per departure for the Airport as a whole was approximately 43.8 and is derived by multiplying the load factor by the average seats per departure (e.g., 63.7% x 68.7 = 43.8). This number is expected to increase slowly over the forecast period based on an estimated increase in the average number of seats per aircraft and an estimated load factor, or percent of available seats filled with passengers. The average number of passengers enplaned per departure is expected to reach approximately 67.6 in 2048. Dividing the enplaned passenger forecasts by the forecast number of passengers enplaned per departure yields passenger airline aircraft departure forecasts. The forecast departures were then multiplied by two to yield passenger airline aircraft operations for each category of activity.

Figure 5-8 presents the forecasts of passenger airline operations by airplane design group (ADG).* Starting in 2028, narrowbody aircraft such as the A319 and A220-100 in ADG III are forecast to be used passenger service at ASE.

Figure 5-8
Forecasts of Passenger Airline Aircraft Operations
Aspen/Pitkin County Airport



Source: LeighFisher, April 2019.

5.6 AIRCRAFT FLEET FORECASTS

Table 5-2 summarizes the passenger airline fleet mix for 2018 and for the forecast years (2019, 2023, 2028, 2033. 2038, and 2048) by Airplane Design Group (ADG).

*_Airplane Design Group (ADG)._ A classification of aircraft based on wingspan and tail height. When the aircraft wingspan and tail height fall in different groups, the higher group is used. FAA Advisory Circular, AC 150/5300-13A, February 26, 2014.

Table 5-2
Forecasts of Aircraft Fleet Mix by Airplane Design Group
Aspen/Pitkin County Airport

	Historical	Estimated	Forecast					CAGR 2018-
	2018	2019 (a)	2023	2028	2033	2038	2048	2048
COMMERCIAL OPERATIONS (PASSENGER AND ALL-CARGO AIRLINES)								
Peak Season (January-March)								
ADG II								
CRJ700	5,580	5,000	5,420	--	--	--	--	-100.0%
Cessna 208 Caravan (cargo)	--	--	--	--	--	10	80	--
Total ADG II	5,580	5,000	5,420	--	--	10	80	-13.2%
ADG III								
A319	--	--	--	720	800	1,050	1,210	--
A220-100	--	--	--	310	190	210	230	--
E175	--	--	--	3,880	4,380	4,410	4,700	--
Total ADG III	--	--		4,910	5,370	5,670	6,140	--
Total Peak Season	5,580	5,000	5,420	4,910	5,380	5,680	6,210	0.4%
Off Season (April-December)								
ADG II								
CRJ700	7,400	7,800	7,990	2,870	460	--	--	-100.0%
Cessna 208 Caravan (cargo)	10	10	10	20	50	90	310	12.1%
Total ADG II	7,410	7,810	8,000	2,890	510	90	310	-10.0%
ADG III								
A319	--	--	--	980	1,020	1,460	1,550	--
A220-100	--	--	--	570	580	590	630	--
E175	--	--	--	2,470	4,850	4,740	4,970	--
Total ADG III	--	--		4,020	6,450	6,800	7,160	--
Total Off Season	7,410	7,810	8,000	6,910	6,960	6,890	7,470	0.0%

Table 5-2 *(page 2 of 10)*
Forecasts of Aircraft Fleet Mix by Airplane Design Group
Aspen/Pitkin County Airport

	Historical	Estimated	Forecast					CAGR
	2018	2019	2023	2028	2033	2038	2048	2018-2048
COMMERCIAL OPERATIONS (CONTINUED)								
Total (January-December)								
ADG II								
CRJ700	12,980	12,800	13,410	2,870	460	--	--	-100.0%
Cessna 208 Caravan (cargo)	10	10	10	20	50	100	390	13.0%
Total ADG II	12,990	12,810	13,420	2,890	510	100	390	-11.0%
ADG III								
A319	--	--	--	1,700	1,820	2,510	2,760	--
A220-100	--	--	--	880	780	800	860	--
E175	--	--	--	6,350	9,230	9,160	9,670	--
Total ADG III	--	--	--	8,930	11,830	12,470	13,290	--
Total	12,990	12,810	13,420	11,820	12,340	12,560	13,680	0.2%
Percent of commercial operations								
Peak Season (January-March)								
ADG II	100%	100%	100%	0%	0%	0%	1%	
ADG III	0%	0%	0%	100%	100%	100%	99%	
Total Peak Season	100%	100%	100%	100%	100%	100%	100%	
Off Season (April-December)								
ADG II	100%	100%	100%	42%	7%	1%	4%	
ADG III	0%	0%	0%	58%	93%	99%	96%	
Total Off Season	100%	100%	100%	100%	100%	100%	100%	
Total (January-December)								
ADG II	100%	100%	100%	24%	4%	1%	3%	
ADG III	0%	0%	0%	76%	96%	99%	97%	
Total	100%	100%	100%	100%	100%	100%	100%	

Table 5-2 ***(page 3 of 10)***
Forecasts of Aircraft Fleet Mix by Airplane Design Group
Aspen/Pitkin County Airport

	Historical	Estimated	Forecast					CAGR
	2018	2019	2023	2028	2033	2038	2048	2018-2048
AIR TAXI OPERATIONS								
Peak Season (January-March)								
ADG I								
E550 - Eclipse 550	49	49	48	49	49	48	44	-0.4%
H25B - BAe HS 125/700-800	38	37	36	36	35	33	27	-1.1%
LJ45 - Bombardier Learjet 45	33	33	31	30	29	27	20	-1.7%
Other	40	40	39	38	38	36	30	-0.9%
Total ADG I	159	159	155	154	150	143	121	-0.9%
ADG II								
E55P - Embraer Phenom 300	534	545	590	644	698	747	833	1.5%
CL30 - Challenger 300	434	443	480	524	569	609	680	1.5%
C680 - Cessna Citation Sovereign	403	412	446	487	529	566	633	1.5%
C56X - Cessna Excel/XLS	379	387	419	458	497	533	596	1.5%
CL35 - Challenger 300	294	301	327	357	388	416	467	1.5%
Other	775	791	856	933	1,010	1,080	1,203	1.5%
Total ADG II	2,818	2,879	3,118	3,403	3,690	3,950	4,412	1.5%
ADG III								
GLEX - BD-700 Global Express	77	80	88	97	107	117	134	1.8%
GL5T - BD-700 Global 5000	51	52	59	66	73	80	94	2.0%
Total ADG III	128	132	147	163	180	197	228	1.9%
Total Peak Season	3,106	3,170	3,420	3,720	4,020	4,290	4,760	1.4%

Table 5-2 ***(page 4 of 10)***
Forecasts of Aircraft Fleet Mix by Airplane Design Group
Aspen/Pitkin County Airport

	Historical	Estimated	Forecast					CAGR
	2018	2019	2023	2028	2033	2038	2048	2018-2048
AIR TAXI OPERATIONS (CONTINUED)								
Off Season (April-December)								
ADG I								
E550 - Eclipse 550	113	112	110	109	107	103	100	-0.4%
C25A - Cessna Citation CJ2	77	76	72	69	64	59	54	-1.2%
E50P - Embraer Phenom 100	41	39	33	28	22	15	8	-5.4%
Other	62	61	56	52	47	41	35	-1.9%
Total ADG I	293	289	272	258	240	218	198	-1.3%
ADG II								
E55P - Embraer Phenom 300	1,330	1,349	1,427	1,513	1,589	1,652	1,731	0.9%
CL30 - Challenger 300	842	855	905	961	1,011	1,052	1,104	0.9%
C56X - Cessna Excel/XLS	730	740	785	834	877	913	958	0.9%
CL35 - Challenger 300	605	614	652	693	729	760	799	0.9%
C680 - Cessna Citation Sovereign	577	586	622	662	697	726	763	0.9%
Other	1,770	1,795	1,897	2,011	2,110	2,194	2,297	0.9%
Total ADG II	5,854	5,939	6,287	6,673	7,013	7,298	7,651	0.9%
ADG III								
GLEX - BD-700 Global Express	150	153	166	179	191	202	215	1.2%
GL5T - BD-700 Global 5000	137	140	152	164	176	186	198	1.2%
GLF5 - Gulfstream V/G500	8	9	14	18	23	27	32	4.6%
Total ADG III	296	303	332	362	390	415	445	1.4%
Total Off Season	6,443	6,530	6,890	7,290	7,640	7,930	8,290	0.8%

Table 5-2 *(page 5 of 10)*
Forecasts of Aircraft Fleet Mix by Airplane Design Group
Aspen/Pitkin County Airport

	Historical	Estimated	Forecast					CAGR
	2018	2019	2023	2028	2033	2038	2048	2018-2048
AIR TAXI OPERATIONS (CONTINUED)								
Total (January-December)								
ADG I	452	448	427	412	390	361	318	-1.2%
ADG II	8,672	8,818	9,406	10,076	10,703	11,248	12,063	1.1%
ADG III	424	435	479	525	570	612	673	1.5%
Total	9,549	9,700	10,310	11,010	11,660	12,220	13,050	1.0%
Percent of total								
ADG I	5%	5%	4%	4%	3%	3%	2%	
ADG II	91%	91%	91%	92%	92%	92%	92%	
ADG III	4%	4%	5%	5%	5%	5%	5%	
Total	100%	100%	100%	100%	100%	100%	100%	
GENERAL AVIATION OPERATIONS								
Peak Season (January-March)								
ADG I								
H25B - BAe HS 125/700-800	209	210	216	222	226	229	229	0.3%
C525 - Cessna CitationJet/CJ1	176	177	181	186	188	190	189	0.2%
E50P - Embraer Phenom 100	125	126	128	130	131	131	127	0.0%
Other	994	1,004	1,043	1,088	1,123	1,157	1,194	0.6%
Total ADG I	1,503	1,517	1,568	1,625	1,668	1,707	1,740	0.5%
ADG II								
E55P - Embraer Phenom 300	507	513	535	560	580	600	624	0.7%
CL30 - Challenger 300	274	278	289	303	314	324	338	0.7%
C680 - Cessna Citation Sovereign	256	260	271	283	294	304	316	0.7%
C56X - Cessna Excel/XLS	192	195	203	213	220	228	237	0.7%
CL35 - Challenger 300	181	184	192	201	208	215	224	0.7%
Other	2,103	2,127	2,216	2,320	2,405	2,487	2,587	0.7%
Total ADG II	3,514	3,556	3,705	3,878	4,021	4,157	4,325	0.7%

Table 5-2 ***(page 6 of 10)***
Forecasts of Aircraft Fleet Mix by Airplane Design Group
Aspen/Pitkin County Airport

	Historical	Estimated	Forecast					CAGR
	Historical	Estimated	Forecast					CAGR
	2018	2019	2023	2028	2033	2038	2048	2018-2048
GENERAL AVIATION OPERATIONS (CONTINUED)								
ADG III								
GLEX - BD-700 Global Express	284	287	302	320	336	352	375	0.9%
GLEX - BD-700 Global Express	181	184	194	208	220	231	250	1.1%
GLEX - BD-700 Global Express	102	104	111	121	129	138	153	1.3%
Other	93	94	101	110	118	126	141	1.4%
Total ADG III	660	669	708	759	804	847	919	1.1%
Total Peak Season	5,677	5,740	5,980	6,260	6,490	6,710	6,980	0.7%
Off Season (April-December)								
ADG I								
E550 - Eclipse 550	528	532	549	565	578	584	581	0.3%
C25A - Cessna Citation CJ2	387	389	397	403	406	403	386	0.0%
E50P - Embraer Phenom 100	384	386	394	400	402	400	382	0.0%
Other	2,723	2,761	2,913	3,090	3,255	3,401	3,624	1.0%
Total ADG I	4,021	4,069	4,252	4,458	4,640	4,789	4,972	0.7%
ADG II								
E55P - Embraer Phenom 300	941	957	1,017	1,090	1,159	1,222	1,327	1.2%
CL30 - Challenger 300	686	698	743	797	848	895	975	1.2%
C56X - Cessna Excel/XLS	644	655	697	749	797	841	916	1.2%
CL35 - Challenger 300	515	524	558	600	639	675	737	1.2%
C680 - Cessna Citation Sovereign	506	515	549	590	628	664	725	1.2%
Other	5,188	5,270	5,591	5,975	6,340	6,673	7,216	1.1%
Total ADG II	8,480	8,620	9,154	9,802	10,412	10,969	11,896	1.1%

Table 5-2 ***(page 7 of 10)***
Forecasts of Aircraft Fleet Mix by Airplane Design Group
Aspen/Pitkin County Airport

	Historical	Estimated	Forecast					CAGR
	2018	2019	2023	2028	2033	2038	2048	2018-2048
GENERAL AVIATION OPERATIONS (CONTINUED)								
Off Season (April-December)								
ADG III								
GLEX - BD-700 Global Express	624	636	684	747	809	870	979	1.5%
GL5T - BD-700 Global 5000	440	450	487	536	586	634	725	1.7%
GLF5 - Gulfstream V/G500	286	294	321	359	398	437	511	1.9%
Other	339	347	377	419	462	504	584	1.8%
Total ADG III	1,689	1,727	1,868	2,060	2,255	2,445	2,798	1.7%
Total Off Season	14,190	14,410	15,280	16,320	17,310	18,210	19,670	1.1%
Total (January-December)								
ADG I	5,524	5,586	5,820	6,083	6,308	6,496	6,712	0.7%
ADG II	11,994	12,176	12,859	13,680	14,433	15,127	16,221	1.0%
ADG III	2,349	2,396	2,576	2,819	3,058	3,291	3,717	1.5%
Total	19,867	20,150	21,260	22,580	23,800	24,920	26,650	
Percent of total								
ADG I	28%	28%	27%	27%	27%	26%	25%	
ADG II	60%	60%	60%	61%	61%	61%	61%	
ADG III	12%	12%	12%	12%	13%	13%	14%	
Total	100%	100%	100%	100%	100%	100%	100%	
MILITARY OPERATIONS								
ADG I								
F18S - F18 Hornet	6	6	6	6	6	6	6	0.4%
LJ31 - Bombardier Learjet 31/A/B	2	3	3	3	3	3	3	0.4%
F22 - Boeing Raptor F22	4	5	5	5	5	5	5	0.4%
TEX2 - Raytheon Texan 2	11	12	12	12	12	12	12	0.4%
C172 - Cessna Skyhawk 172	4	4	4	4	4	4	4	0.4%
Other	26	30	30	30	30	30	30	0.4%
Total ADG I	53	60	60	60	60	60	60	0.4%

Table 5-2 ***(page 8 of 10)***
Forecasts of Aircraft Fleet Mix by Airplane Design Group
Aspen/Pitkin County Airport

	Historical 2018	Estimated 2019	Forecast 2023	2028	2033	2038	2048	CAGR 2018-2048
MILITARY OPERATIONS (CONTINUED)								
ADG II								
B350 - Beech Super King Air 350	24	27	27	27	27	27	27	0.4%
DHC6 - DeHavilland Twin Otter	10	11	11	11	11	11	11	0.4%
C560 - Cessna Citation V/Ultra/Encore		10	11	11	11	11	11	11
C750 - Cessna Citation X	6	7	7	7	7	7	7	0.4%
C550 - Cessna Citation II/Bravo	2	3	3	3	3	3	3	0.4%
Other	81	91	91	91	91	91	91	0.4%
Total ADG II	133	149	149	149	149	149	149	0.4%
ADG III								
GLF5 - Gulfstream V/G500	63	71	71	71	71	71	71	0.4%
P3 - Lockheed P-3C Orion	2	2	2	2	2	2	2	0.4%
B737 - Boeing 737-700	1	1	1	1	1	1	1	0.4%
GL5T - BD-700 Global 5000	1	1	1	1	1	1	1	0.4%
Total ADG III	67	76	76	76	76	76	76	0.4%
ADG IV								
C30J - C-130J Hercules	11	12	12	12	12	12	12	0.4%
C130 - Lockheed 130 Hercules	2	2	2	2	2	2	2	0.4%
C17 - Boeing Globemaster 3	2	2	2	2	2	2	2	0.4%
Total ADG IV	14	16	16	16	16	16	16	0.4%
Total military operations	267	300	300	300	300	300	300	0.4%

Table 5-2 ***(page 9 of 10)***
Forecasts of Aircraft Fleet Mix by Airplane Design Group
Aspen/Pitkin County Airport

	Historical	Estimated	Forecast					CAGR
	2018	2019	2023	2028	2033	2038	2048	2018-2048
AIRPORT TOTAL AIRCRAFT OPERATIONS (EXCLUDING MILITARY)								
Peak Season (January-March)								
ADG I	1,663	1,676	1,723	1,779	1,818	1,850	1,860	0.4%
ADG II	11,912	11,435	12,244	7,282	7,711	8,118	8,816	-1.0%
ADG III	788	801	855	5,832	6,354	6,713	7,286	7.7%
Total Peak Season	14,363	13,913	14,821	14,893	15,883	16,681	17,963	0.7%
Off Season (April-December)								
ADG I	4,314	4,358	4,524	4,717	4,881	5,006	5,170	0.6%
ADG II	21,744	22,369	23,441	19,365	17,934	18,357	19,857	-0.3%
ADG III	1,985	2,030	2,200	6,442	9,094	9,660	10,403	5.7%
Total Off Season	28,043	28,756	30,165	30,523	31,909	33,023	35,430	0.8%
Total (January-December)								
ADG I	5,977	6,034	6,247	6,496	6,699	6,856	7,030	0.5%
ADG II	33,656	33,804	35,685	26,646	25,645	26,475	28,674	-0.5%
ADG III	2,773	2,831	3,055	12,274	15,448	16,373	17,689	6.4%
Total (January-December)	42,406	42,669	44,986	45,416	47,792	49,705	53,393	0.8%
Percent of Airport total aircraft operations								
Peak Season (January-March)								
ADG I	12%	12%	12%	12%	11%	11%	10%	
ADG II	83%	82%	83%	49%	49%	49%	49%	
ADG III	5%	6%	6%	39%	40%	40%	41%	
Total Peak Season	100%	100%	100%	100%	100%	100%	100%	
ADG II	83%	82%	83%	49%	49%	49%	49%	

Table 5-2 *(page 10 of 10)*
Forecasts of Aircraft Fleet Mix by Airplane Design Group
Aspen/Pitkin County Airport

	Historical	Estimated	Forecast					CAGR
	2018	2019	2023	2028	2033	2038	2048	2018-2048
AIRPORT TOTAL AIRCRAFT OPERATIONS (EXCLUDING MILITARY) (CONTINUED)								
Percent of Airport total aircraft operations								
Off Season (April-December)								
ADG I	15%	15%	15%	15%	15%	15%	15%	
ADG II	78%	78%	78%	63%	56%	56%	56%	
ADG III	7%	7%	7%	21%	29%	29%	29%	
Total Off Season	100%	100%	100%	100%	100%	100%	100%	
Total (January-December)								
ADG I	14%	14%	14%	14%	14%	14%	13%	
ADG II	79%	79%	79%	59%	54%	53%	54%	
ADG III	7%	7%	7%	27%	32%	33%	33%	
Total (January-December)	100%	100%	100%	100%	100%	100%	100%	

CAGR = Compound annual growth rate

Note: Totals may not add due to rounding.
Air taxi, general aviation, and military operations are based on the percent distribution of TFMSC operations by equipment type.

Sources: Historical and Estimated--U.S. Department of Transportation, Schedule T100, online database, OAG Aviation Worldwide Ltd, online database, Federal Aviation Administration, Traffic Flow Management System Counts (TFMSC), Aviation System Performance Metrics (ASPM), and Air Traffic Activity System (ATADS), all accessed May through June 2019.
Forecast--LeighFisher, June 2019.

CHAPTER 6
COMPARISON WITH THE FAA 2018 TAF

Table 6-1 presents a comparison of the aviation demand forecasts prepared for Aspen/Pitkin County Airport with the FAA 2018 TAF for the Airport. These unconstrained forecasts are the "preferred" forecasts recommended for FAA approval and are compared for the components of total enplaned passengers, commercial aircraft operations, and total aircraft operations.

The format of Table 6-1 is based on the template provided by the FAA for the comparison of airport planning forecasts and the FAA TAF.* As required, the results are presented for the base year of 2018 and forecast horizons years, which are equal to the base year plus 1, 5, 10, and 15 years (2019, 2023, 2028, and 2033). The ASE unconstrained forecasts have been compared graphically with the FAA 2018 TAF in the figures presented in Chapter 1 of this report.

The key findings of the comparison of the ASE unconstrained aviation activity forecasts with the FAA 2018 TAF are summarized below:

- The unconstrained forecasts for enplaned passengers at ASE are higher than the 2018 TAF in 2023 and 2028, as shown in Table 6-1.
  - In 2023, the variance is 15.9%
  - In 2028, the variance is 20.8%
  - This large variance reflects passenger traffic growth faster than forecast in 2018 and year-to-date 2019 since the FAA 2018 TAF was prepared.
  - In 2018, actual enplaned passengers totaled 283,877 according to USDOT data, 4.2% greater than the forecast of 272,461 in the FAA 2018 TAF
  - In 2019, the FAA 2018 TAF forecast a 1.0% decrease in ASE enplaned passengers, compared with an actual increase of 7.6% during the first three months of 2019 (January through March) according to USDOT data

- The unconstrained forecast of commercial operations for ASE is greater than the 2018 TAF in 2023 but lower in 2028:
  - The variance is 7.1% in 2023
  - The variance is -1.4% in 2028

- The unconstrained forecast of total aircraft operations for ASE is greater than the 2018 TAF in 2023 and 2028:
  - The variance is 2.7% in 2023
  - The variance is 0.1% in 2028

- Except for the passengers forecast variance due to faster growth in 2018 and 2019, the ASE unconstrained forecasts are similar to the FAA 2018 TAF for the Airport and "differ by less than 10 percent in the 5-year forecast period, and 15 percent in the 10-year forecast period," as stipulated in the FAA forecast guidance.

*U.S. Department of Transportation, Federal Aviation Administration, *Forecasting Aviation Activity by Airport*, 2019 July 2001, and *Review and Approval of Aviation Forecasts*, June 2008, http://www.faa.gov.

Table 6-2 presents a summary of the ASE unconstrained forecasts using a second template provided by the FAA.

Table 6-1
FAA TAF Forecast Comparison
Aspen/Pitkin County Airport
2018 – 2033

	Year *(a)*	ASE planning forecasts	FAA 2018 TAF	ASE forecasts vs. 2018 TAF (percent variance)
Passenger enplanements				
Base yr.	2018	283,877	272,461	4.2%
Base yr. + 5yrs.	2023	327,000	282,045	15.9%
Base yr. + 10yrs.	2028	354,300	293,413	20.8%
Base yr. + 15yrs.	2033	379,800	306,919	23.7%
Commercial operations *(b)*				
Base yr.	2018	22,639	21,267	6.5%
Base yr. + 5yrs.	2023	23,830	22,246	7.1%
Base yr. + 10yrs.	2028	22,930	23,258	-1.4%
Base yr. + 15yrs.	2033	24,100	24,386	-1.2%
Total operations *(c)*				
Base yr.	2018	42,773	42,222	1.3%
Base yr. + 5yrs.	2023	45,390	44,201	2.7%
Base yr. + 10yrs.	2028	45,810	45,787	0.1%
Base yr. + 15yrs.	2033	48,200	47,511	1.5%

n.a. = not available

(a) The ASE enplaned passenger forecasts were prepared on a calendar year basis and the FAA 2018 TAF was prepared on a U.S. government fiscal year basis (October through September).

(b) Commercial operations include operations by passenger airlines, all-cargo airlines, and air taxi operators.

(c) Total operations include commercial operations plus operations by general aviation and military.

Sources: ASE planning forecasts—LeighFisher, April 2019.
FAA 2018 TAF for ASE—U.S. Department of Transportation, Federal Aviation Administration, www.faa.gov, accessed April 2019.

Table 6-2
Summary of ASE Planning Forecasts Using FAA Template
Aspen/Pitkin County Airport

		ASE planning forecast				Average annual compound growth rates			
	Base year 2018	Base year + 1 year 2019	Base year + 5 years 2023	Base year + 10 years 2028	Base year + 15 years 2033	Base year to +1 year 2018 - 2019	Base year to +5 years 2018 - 2032	Base year to +10 years 2018 - 2028	Base year to +15 years 2018 - 2033
Passenger enplanements (millions)									
Air carrier *(a)*	--	--	--	105,800	113,000	--	--	--	--
Commuter *(b)*	283,877	305,970	327,000	248,500	266,800	7.8%	2.9%	-1.3%	-0.4%
Total	283,877	305,970	327,000	354,300	379,800	7.8%	2.9%	2.2%	2.0%
Aircraft operations (thousands)									
Itinerant									
Air carrier	12,980	12,800	13,410	11,800	12,290	-1.4%	0.7%	-0.9%	-0.4%
Commuter/air taxi	9,659	9,810	10,420	11,130	11,810	1.6%	1.5%	1.4%	1.3%
Total commercial operations	22,639	22,610	23,830	22,930	24,100	-0.1%	1.0%	0.1%	0.4%
General aviation	15,715	15,970	16,960	18,140	19,230	1.6%	1.5%	1.4%	1.4%
Military	267	300	300	300	300	12.4%	2.4%	1.2%	0.8%
Local									
General aviation	4,152	4,180	4,300	4,440	4,570	0.7%	0.7%	0.7%	0.6%
Military	--	--	--	--	--	--	--	--	--
Total operations	42,773	43,060	45,390	45,810	48,200	0.7%	1.2%	0.7%	0.8%
Cargo/mail (enplaned + deplaned tons)	--	--	14	21	5,149	--	--	--	--
Based Aircraft									
Single-engine (nonjet)	49	49	47	45	43	0.0%	-0.8%	-0.8%	-0.9%
Multiengine (nonjet)	17	17	18	19	20	0.0%	1.1%	1.1%	1.1%
Jet engine	16	16	18	20	23	0.0%	2.4%	2.3%	2.4%
Helicopter	2	2	2	2	2	0.0%	0.0%	0.0%	0.0%
Other	--	--	--	--	--	--	--	--	--
Total	84	84	85	86	88	0.0%	0.2%	0.2%	0.3%
Operational factors									
Average aircraft size (seats)									
Air Carrier *(a)*	--	--	--	116	122	--	--	--	--
Commuter *(b)*	69	68	69	74	76	-0.5%	0.1%	0.7%	0.6%
Average enplaning load factor									
Air Carrier *(a)*	--	--	--	71%	71%	--	--	--	--
Commuter *(b)*	71%	71%	71%	73%	73%	0.2%	-0.1%	0.3%	0.2%
GA operations per based aircraft	237	240	250	263	270	1.4%	1.1%	1.1%	0.9%

Note: The ASE planning forecasts were prepared on a calendar year basis and the FAA 2018 TAF was prepared on a U.S. government fiscal year basis (October through September).

(a) Includes mainline and charter airline activity as summarized in the previous tables in this report.
(b) Includes regional affiliate airline activity, which includes flights using regional aircraft with more than 60 seats.

Sources: ASE planning forecasts—LeighFisher, April 2019. FAA 2018 TAF for ASE—U.S. Department of Transportation, Federal Aviation Administration, www.faa.gov, accessed April 2019.