

3.0 CURRENT AND FORECASTED AVIATION ACTIVITY

The goal of an aviation activity forecast is to use observed trends at the airport to project the estimated baseline year operations forward to the end of the study period. The forecasted aviation activity is also used to determine the ultimate critical aircraft. In cases where the critical aircraft is expected to change, it is also important to estimate the timing of the change, as this may trigger the need to modify airport facilities, such as runways, taxiways, and aprons.

The aviation forecast prepared for Wasilla Airport will be used to 1) establish the current operational demands of the airport; 2) evaluate historical airport uses and trends that affect aviation activity at the airport; and 3) forecast future operational demands based on the current demand and historical trends.

3.1 TERMINOLOGY

In aviation activity forecasting, the most critical metric used is aircraft operations. The forecast studies the total number of operations based on the type of operation and the type of aircraft employed. The following terminology is used to define the different types of airport operations discussed:

- **Operations:** The FAA guidance regarding what constitutes an operation is defined differently in the FAA ACs, as follows:
 - AC 150/5070-6B, *Airport Master Plans*, provides guidance for airport master planning, including demand-capacity analysis, and defines an operation as the landing, takeoff, or touch-and-go procedure by an aircraft (FAA, 2015).
 - AC 150/5000-17, *Critical Aircraft and Regular Use Determination*, states that only local and itinerant takeoffs and landings qualify as operations for the determination of critical aircraft and regular use. The critical aircraft is the most demanding aircraft that regularly uses the airport. The threshold to determine regular use is 500 annual operations. For the determination of design requirements on the airfield, touch-and-go operations and operations by federal government agencies and the military are expressly excluded from operational counts (FAA, 2017).

In this forecast, the term aircraft operation matches the FAA definition in AC 150/5000-17 and refers only to the takeoff or landing of a local or itinerant aircraft.

- **Touch-and-Go Operations:** An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway.
 - **Training Operations:** Training operations, also called touch-and-go operations, are not included in the operations count per AC 150/5000-17.
- **Itinerant Operations:** These are operations to or from an airport using aircraft based at a different airport. For these visitors, transient parking is provided to allow pilots to park their aircraft at the airport for a short duration.

- *Local Operations:* These are operations to or from an airport using aircraft based at that airport. For this forecast, 50% of the GA operations were assigned to local operations.
- *Air Carrier Operations:* Air carrier operations are scheduled passenger or cargo operations provided by a certificated air carrier. Air carriers are required to report all their operations to the U.S. Department of Transportation's (U.S. DOT) Bureau of Transportation Statistics (BTS) – Office of Airline Statistics monthly (U.S. DOT, 2007).
- *Air Taxi Operations:* Air taxi operations are on-demand charter operations provided by a certified air carrier. Air taxi operators voluntarily report operational information annually through the Airport Activity Survey (FAA, 2023b).

3.2 OTHER AIRPORT ACTIVITY FORECASTS

When preparing an aviation activity forecast, the FAA requires that Terminal Area Forecast (TAF), previous forecasts, and state or local aviation system plan studies be considered (FAA, 2015). For the Wasilla Airport, relevant data from the 2011 AASP forecast, the 2012 Wasilla AMP (updated in 2013), and the FAA's TAF were all considered and compared to the baseline data developed in this report. A discussion and comparison of each forecast are included below.

3.2.1 2011 ALASKA AVIATION SYSTEM PLAN FORECASTS

The AASP is a planning document that establishes the vision for Alaska's aviation network by addressing aviation infrastructure and policy needs. The AASP identifies airport improvements needed and establishes funding priorities. The AASP documents the condition of the aviation system with photos, maps, and data and is continuously updated as planning, design, and construction projects are complete.

The AASP includes a statewide aviation forecast published in 2011 (DOT&PF, 2011), which consists of a high-level forecast for the Wasilla Airport. The AASP forecast is based on historic FAA data for hours flown and based aircraft in Alaska compared to the rest of the United States. The forecast then used the correlation between hours flown and based aircraft to estimate operations for Alaska as a whole. Next, specific data for the Wasilla Airport is derived from the number of based aircraft at the airport. The based aircraft data used in this analysis is derived from the FAA 5010 Airport Master Records data.

The 2011 final AASP forecast reported that there is no reliable year-by-year record of based aircraft by borough or census area. Therefore, the number of based aircraft in each borough was assumed to increase with the population forecast for that borough/census area.

The 2011 Final AASP forecast includes forecasts for 2008-2030 for enplanements, operations, and based aircraft. The AASP identified the Cessna 185 (A-1 Small) as the most common aircraft in Alaska based on registration records; it was therefore assumed to be the critical aircraft at airports that do not have commercial service.

Wasilla Airport lacks commercial service. Therefore, aircraft classified as A-1 Small were identified as the study period's existing and ultimate critical aircraft. The AASP forecasted activity specific to Wasilla Airport is summarized in Table 3-1.

Table 3-1: 2011 Alaska Aviation System Plan Forecast for Wasilla Airport

Aircraft Operations Forecast				
	Base Year Estimate	Projected		
Category	2008	2015	2020	2030
Air Carrier	3,900	4,800	5,566	7,188
Air Taxi	0	0	0	0
GA	24,186	29,769	34,511	44,547
Military	171	211	245	317
Total operations	28,257	34,780	40,322	52,052
Based Aircraft	307	316	330	367

3.2.2 2012 WASILLA AIRPORT MASTER PLAN

The 2012 Wasilla AMP forecast covered a planning period from 2010 to 2030. This forecast was completed using the “Model for Estimating General Aviation Operations at Non-Towered Airports Using Towered and Non-Towered Airport Data” (GRA, 2001a); 123 permanently based aircraft were used as the base, with correction variables for other based aircraft and population centers within 100 miles of Wasilla Airport. Using the regression model yielded an estimate of 24,200 GA operations per year, with local and itinerant GA operations split 50/50. Commercial operations were determined by interviewing air carriers that provided service at Wasilla Airport at the time the forecast was completed.

Based on a 3% growth rate, the 2012 Master Plan forecasted 77,158 operations in 2020 with 275 based aircraft and a projected 107,821 operations by 2030 with 419 based aircraft. It should be noted that the report did not split the GA operations 50/50 between local and itinerant but entered the full number of operations under each category. This resulted in double-counting the GA operations and caused an over projection in the 2012 AMP. Correcting this calculation error results in a total of 25,914 operations in the base year, 34,826 estimated operations in 2020, and 46,804 estimated operations in 2030.

The 2012 AMP projected the installation of a seaplane base and 275 based aircraft at Wasilla by 2020. The airfield does not currently have a seaplane base, and the 2021 based aircraft numbers are 85 fewer than the 2020 prediction. Expansion of based aircraft was likely limited due to the unavailability of tie-down spaces, which has a direct correlation to the number of based aircraft. It should also be noted that the 2012 forecast predicted continued commuter/air taxi operation of Grasshopper Aviation and a new service to be provided by Everts Alaska. Grasshopper Aviation is no longer in operation at the airport, and Everts Alaska is not providing scheduled carrier service to Wasilla Airport.

The 2012 AMP projected that Wasilla Airport would see a mixture of B-II, B-III, and B-IV category aircraft and concluded that future airport improvements should be designed to B-II standards.

3.2.3 FAA TERMINAL AREA FORECAST

The TAF is the official FAA forecast for aviation activity for U.S. airports in the NPIAS and is updated frequently based on historical traffic information. The FAA maintains the TAF for non-primary and non-hub airports using

modeling based on the number of based aircraft at the airport. Wasilla Airport is a non-towered airport, so no direct traffic records are available from air traffic control.

The TAF for non-primary airports, such as Wasilla, is developed by applying a 0% growth rate for the duration of the study period from the baseline operation data obtained from the 5010 Master Record. The operation levels in the 5010 are then held constant unless otherwise specified by a local or regional FAA official. The October 20, 2022, Airport Master Record for Wasilla Airport estimates 49,514 annual operations (FAA, 2022c). The annual operations for Wasilla Airport in the TAF have remained constant since 2011. In these instances, the TAF is not representative of a modeled forecast that considers local trends. The forecast developed for this AMP Update is anticipated to be more accurate because it is based on reported operational data and interviews with air carriers and charter operators.

3.3 AVIATION ACTIVITY DATA FOR WASILLA AIRPORT

Wasilla Airport does not have an ATCT, so airport activity information must be derived from other sources. A baseline of aviation activity at the airport was established by compiling existing information from published sources regarding scheduled operations, air taxi operations, and local and itinerant operations and analyzing population growth. Data collected for use as the baseline for estimating aviation activity were supported by data collected by the FAA and airport user interviews.

3.3.1 ENPLANEMENTS

Wasilla Airport has no scheduled air service currently. The reported enplanements (passenger boardings) are from the FAA’s Air Carrier Activity Information System (ACAIS), containing revenue passenger boarding and all-cargo data (FAA, 2023c). The reported enplanements from 2012 to 2021 are shown in Table 3-2.

Table 3-2: Wasilla Enplanements

Year	Enplanements
2012	0
2013	208
2014	35
2015	22
2016	17
2017	8
2018	11
2019	7
2020	28
2021	0

3.3.2 AIR CARRIER OPERATIONS

Scheduled airport activity data are collected in the BTS’s “T-100 Domestic Market U.S. Carriers” database. All certified carriers that offer scheduled service are required to submit a report to BTS each month. FAA includes this information in the ACAIS (BTS, 2023). There are no air carrier reports for the Wasilla Airport included in the T-100 database, indicating that no scheduled passenger and cargo services operate at the airport. This lack of

scheduled passenger and cargo operations at the airport was confirmed through interviews with the City and airport users.

3.3.3 AIR TAXI OPERATIONS

The BTS T-100 database contains flight data from Part 135 certificated air taxis offering on-demand service. On-demand-only operators are not required to submit monthly reports but may voluntarily provide information. As such, on-demand air carrier operations and enplanements are likely not fully represented in the database. Interviews with the City and airport users indicated that there are only occasional on-demand air taxi operations at the airport.

3.3.4 GENERAL AVIATION OPERATIONS

The FAA's Traffic Flow Management System Counts (TFMSC) database provides information on traffic counts by airport based on flight plans and when flights are detected by the National Airspace System. TFMSC contains every flight record constructed, which includes IFRs and voluntarily filed VFR flights. It also includes commercial traffic (air carriers and air taxis) and military operations. This database was used as an indicator to represent the number of IFR operations annually at Wasilla Airport.

3.4 GENERAL AVIATION FORECAST METHODOLOGY - GRA MODEL

There are several methodologies and techniques for forecasting GA activity at an airport. The chosen methodology for this forecast is the GRA model, which considers based aircraft, aircraft based at airports within 100 miles, and population data from the USCB 2020 census, adjusted for the base year. These methodologies are described in *Forecasting Aviation Activity by Airport* (GRA, 2001b). GA operations are estimated using Equation 13 from the "Model for Estimating General Aviation Operations at Non-Towered Airports Using Towered and Non-Towered Airport Data" (GRA, 2001a). Use of the GRA model for this forecast was approved by the FAA in October 2023.

For this forecast, GA operations were split 50%-50% between local and itinerant due to the lack of data to support a weighted distribution. Based on these values, the equation yielded an estimated 45,949 GA operations for the Wasilla Airport in 2021.

3.5 POPULATION AND AIRCRAFT REGISTRATION GROWTH PROJECTIONS

Looking forward from 2022 to 2050, DOLWD expects an annualized population growth rate of 1.00% for MSB (DOLWD, 2022b), and NEI projects a slightly higher growth rate for the population of Wasilla at 1.15% for the period (Table 3-3). Aircraft registration in Wasilla is projected to grow 1.48% annually through 2050, compared to 0.85% for the MSB (NEI, 2023).

Table 3-3: Annualized Historical and Projected Population and Aircraft Registration Growth Rates, 2022–2050

Location	Annualized Growth of Population (%)		Annualized Growth of Aircraft Registrations (%)	
	Historical	Projected	Historical	Projected
Wasilla	1.94	1.15	2.69	1.48
MSB	2.17	1.00	1.89	0.85

A series of low, base, and high aviation growth rates, as shown in Table 3-4 (NEI, 2023). For this forecast, the base (middle) growth rate was chosen.

Table 3-4: Aviation Growth Rate Scenarios, 2022-2050

Growth Scenario	Annualized Growth Rate (%)	Basis for Growth Rate
Low	1.15	NIE population projections for the City
Base	1.48	Linear regression of Wasilla aircraft as a function of population applied to NEI population projections for the City
High	1.89	Linear regression of MSB aircraft as a function of population applied to DOLWD’s population projections for the MSB (DOLWD, 2022c)

3.6 BASED AIRCRAFT

The Master Record for Wasilla Airport shows that there are 132 based aircraft at the airport, one of which is a helicopter, as of information provided in September 2021 (FAA, 2022c).

During a 2023 airport inspection, 16 helicopters were visibly staged on one lease lot, indicating the Master Record information is not reliable. Based aircraft data gathered from leaseholder-provided information, cross-referenced to the extent possible with tie-down information, yields an estimated 190 based aircraft (fixed-wing, glider, and helicopter) at Wasilla Airport in base year 2021. This estimated number was used as the baseline for the forecast. An additional 27 aircraft were added to the 2025 based aircraft projection in the forecast to account for increased tie-down availability on the newly constructed Apron E expansion.

3.7 AVIATION ACTIVITY FORECAST

Aviation activity (operations and enplanements) was projected forward for the years 2023, 2025, 2030, 2035, and 2040 using historical and expected population growth rates with adjustments for anticipated changes in current users of the airport and changes in the local economy. The following information was used to develop the forecast represented in Table 3-5.

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Table 3-5: Aviation Activity Projections for Year 2023, 2025, 2030, 2035, and 2040

	AAC	ADG	Base Year = 2021				Growth=1.48%	
			2021	2023	2025	2030	2035	2040
PASSENGER ENPLANEMENTS								
Commuter/Air Taxi								
From FAA ACAIS (10 yr avg)	-	-	34	35	36	39	42	45
FIXED-WING OPERATIONS								
ITINERANT								
Air Carrier / Air Taxi / Other								
Beechcraft 1900D (combined A/B and I/II)	B	II	6	6	6	7	7	8
Bombardier Learjet 31A & 60	C	I	2	2	2	2	2	3
Bombardier Challenger 600/601/604	C	II	2	2	2	2	2	3
General Aviation								
Itinerant (Fixed-Wing/Glider)	A	I	22,974	23,659	24,365	26,222	28,220	30,371
(Assumed 50% of GA Total)								
Military								
Cessna 172	A	I	2	2	2	2	2	3
Gulfstream GLF6	D	III	2	2	2	2	2	3
TOTAL ITINERANT OPS			22,988	23,673	24,379	26,237	28,235	30,391
LOCAL								
Air Carrier / Air Taxi / Other								
Douglas DC-4	B	III	131	135	139	150	161	173
Identified Demanding Future Aircraft								
Pilatus PC-12	A	II	-	250	257	277	298	321
Cessna 208	A	II	-	50	51	55	60	64
Cessna Citation CJ1+	B	I	-	90	93	100	107	116
Air Tractor 602	B	II	-	480	494	532	573	616
King Air 200	B	II	-	80	82	89	95	103
Beechcraft 1900	B	II	-	80	82	609	655	705
Cessna Skycourier	B	II	-	50	51	55	60	64
Other Jet/turboprop	B	II	-	80	82	89	95	103
General Aviation								
Local (Fixed-Wing/Glider)	-	-	22,974	23,659	24,365	26,222	28,220	30,371
(Assumed 50% of GA Total)								
TOTAL LOCAL OPS			23,105	24,954	25,696	28,178	30,324	32,636
TOTAL FIXED-WING OPS			46,093	48,627	50,075	54,415	58,559	63,027
HELICOPTER OPERATIONS								
Air Carrier / Air Taxi / Other								
Sikorsky SH-60 Seahawk	-	-	2	2	2	2	2	3
Identified Demanding Future Aircraft								
Robinson R44	-	-	-	76	78	84	91	98
General Aviation								
Itinerant	-	-	2,527	2,602	2,680	2,884	3,104	3,341
Local	-	-	2,527	2,602	2,680	2,884	3,104	3,341
Military								
Chinook CH-47	-	-	2	2	2	2	2	3
TOTAL HELICOPTER OPS			5,058	5,284	5,442	5,856	6,303	6,786
TOTAL OPERATIONS			51,151	53,911	55,517	60,271	64,862	69,813
INSTRUMENT OPERATIONS			9	9	10	10	11	12
BASED AIRCRAFT								
Fixed-Wing	-	-	168	173	205	221	237	256
Helicopter	-	-	20	21	21	23	25	26
Glider	-	-	2	2	2	2	2	3
TOTAL BASED AIRCRAFT			190	196	228	246	264	285

3.7.1 LOCAL AND ITINERANT OPERATIONS

The number of air carriers, air taxis, and other operations, as well as the number of military operations, were obtained from the TFMSC database (FAA, 2023d). Local itinerant operations at Wasilla Airport do not currently involve regular use by air carriers or military operations. Therefore, the TFMSC database contains limited information for Wasilla. An average number of operations was used over the last 10 years, for the years that data is available, to compute the base year operations for the itinerant air carrier/air taxi/other categories.

3.7.2 POTENTIAL FUTURE USE OF WASILLA AIRPORT

Interviews with potential future users of Wasilla Airport were conducted as part of the aviation activity forecast. Aviation operators at Ted Stevens Anchorage International, Merrill Field, Talkeetna, Wolf Lake, and Palmer were interviewed to determine interest in the future use of Wasilla Airport. Two of the operators interviewed, Silver Sky Aviation and Ravn Connect, expressed imminent future use of Wasilla Airport.

Silver Sky Aviation is an FAA Part 135 repair station that focuses on small to medium-sized turboprop and corporate jet aircraft. They began operations in 2023 and are in the process of expanding their maintenance facility at Wasilla Airport. In addition to its maintenance facility, Silver Sky Aviation also plans to have over-the-counter part sales and provide fixed-base operator services. Silver Sky estimates that they will increase activity at the Wasilla Airport by approximately 650–1,000 annual operations, including 290 operations with B-II aircraft, in 2023. This projection is included in the breakdown of “Identified Demanding Future Aircraft” in Table 3-5.

At the time the Aviation Activity Forecast was developed, Ravn Alaska had plans to expand operations for Ravn Connect, its FAA Part 135 carrier. Ravn Connect operated a fleet of Beechcraft 1900Ds and specialized in charter, mail, and freight service, while also supplementing existing Ravn Alaska routes with additional cargo and passenger capacity. For Ravn Connect to supply charter service out of Wasilla Airport, Runway 04/22 would need to be a minimum of 4,000 feet in length. Ravn indicated that the growth in the MSB was appealing and that once a 4,000-foot runway was available, they would likely conduct a market analysis to determine whether expansion to Wasilla could be profitable. Assuming a 4,000-foot runway is constructed by 2030, this forecast projected that an air carrier would perform two operations per day, five days per week, using the Beechcraft 1900, or similar, aircraft. These operations are split evenly between local and itinerant operations, as shown in Table 3-5.

Since the forecast was prepared, Ravn Alaska has ceased operations and sold most of its fleet to rival air carriers. However, other carriers have been expanding service in Alaska, including on routes historically served by Ravn. The assumptions in the Aviation Activity Forecast are still reasonable, and the forecast is considered valid for planning purposes.

3.8 COMPARISON TO OTHER AIRPORT ACTIVITY FORECASTS

Table 3-6 compares the results of the current airport forecast to the 2011 AASP, 2012 AMP Forecast, corrected 2012 AMP Forecast (corrected to account for a 50/50 split of GA local and itinerant operations), and the TAF.

Table 3-6: Comparison of Airport Forecast to Previous Forecasts

	2020-2021 Forecasted Operations	2030 Forecasted Operations	% Difference vs 2020-2021 AF	% Difference vs 2030 AF
Current Aviation Forecast	51,151	60,271	N/A	N/A
AASP	40,322	52,052	27%	16%
Published 2012 IYS AMP Forecast	77,158	107,821	-34%	-44%
Corrected 2012 IYS AMP Forecast*	34,826	46,804	47%	29%
TAF	49,514	49,514	3%	22%

*Corrected to account for the 50/50 split of GA local and itinerant operations

3.9 CRITICAL AIRCRAFT

The current and future critical aircraft are identified in accordance with AC 150/5000-17 *Critical Aircraft and Regular Use Determination* as the most demanding aircraft or group of aircraft with 500 or more annual operations (FAA, 2017). Therefore, based on the recorded operations and forecasted activity, A-I Small aircraft constitute existing and B-II aircraft constitute near-term and ultimate critical aircraft at Wasilla Airport:

Existing Critical Aircraft: A-I Small

Near-Term and Ultimate Critical Aircraft: B-II

A-I Small is defined as a small aircraft with an approach speed of less than 91 knots (A), a tail height of less than 20 feet, or a wingspan of less than 49 feet, whichever is more restrictive (I), and a Maximum Takeoff Weight (MTOW) of less than 12,500 lbs (Small). The near-term (current) and ultimate critical (future) aircraft for Runway 04/22 is a B-II aircraft, which is an aircraft with an approach speed of 91 knots or more but less than 121 knots (B) and a tail height of 20 feet or more but less than or equal to 30 feet or a wingspan 49 feet or more but less than or equal to 79 feet, whichever is more restrictive (II).

The Approach and Departure Reference Codes (APRC and DPRC) for a runway are a measure of the largest aircraft that can operate on the runway while maintaining safety for aircraft simultaneously taxiing on a parallel taxiway (FAA, 2022b). The APRC for Runway 04/22 is B/III/4,000. Similarly, the DPRC for Runway 04/22 is B/III.

Runway 04S/22S is an unlit, visual ski (gravel/STOL) runway that is 1,690 feet in length and 60 feet wide. The RDC for this runway is A-I-VIS. The APRC for Runway 04S/22S (visual runway – visibility minimums not lower than ¾ mile) is B/I(S)/4000. The DPRC for Runway 04S/22S is B/I(S).

The A-I Small is the largest and critical aircraft currently using Gravel Runway 04S/22S. Based on existing operations at Wasilla Airport, the size or classification of aircraft using the ski runway is not anticipated to change in the near term or ultimately.

3.10 RUNWAY CAPACITY

Airfield capacity was estimated in accordance with the long-range planning method in Chapter 2.0 of AC 150/5060-5 *Airport Capacity and Delay*. The lowest annual service volume modeled for a single runway configuration is 195,000 operations per year, with a peak hourly capacity of 74 VFR and 57 IFR operations per hour. The capacity of the airfield exceeds the current forecasted demand of 51,163 operations and the future

2040 projection of 69,826 per year. The airport is not currently constrained by this forecast, nor is it projected to be constrained by it.