

Wasilla Airport

ALP update

Aviation Forecast

Prepared for:

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1.1 Forecast

Aviation activity is closely tied to the economy and population growth. The City of Wasilla and the Mat-Su Borough have been experiencing steady growth since the 1980s. The area’s growth rate is driven by the ongoing shortage of land in the Anchorage bowl, availability of developable land in the valley, lower real estate prices, lower property taxes, the ability to live in the valley and commute to Anchorage, and the area’s excellent outdoor recreational opportunities.

1.2 Historical Population Trends

From 2000 to 2013, Wasilla’s population increased from 5,588 to 8,621 in 2013, a growth rate of 3.39% per year. During the same period, the Mat-Su Borough population, considered the fastest growing region in Alaska, grew from 59,322 to 95,195, a growth rate of 3.71% per year. During the 45-year period between 1960 and 2005, Wasilla and the Mat-Su Borough populations grew at a rate of 3.43% and 6.09% per year, respectively. For the past 45 years, the area has grown faster than the state. See Table 1-1.

Table 1-1. Population Growth Rates

Period		Population	Average Annual Growth Rate
2010 to 2015 (recent 5 years)	Wasilla	7,831 to 9,284 ¹	3.47%
	Mat-Su Borough	88,8995 to 101,095 ¹	2.58%
	State of Alaska	710,249 to 738,432 ¹	0.78%
2000 to 2013 (recent 13 years)	Wasilla	5,588 to 8,621 ²	3.39%
	Mat-Su Borough	59,322 to 95,195 ²	3.71%
	State of Alaska	627,963 to 736,399 ³	1.23%
1960 to 2005 (45 years)	Wasilla	122 to 8,351 ²	9.85%
	Mat-Su Borough	5,188 to 74,041 ²	6.09%
	State of Alaska	226,167 to 666,946 ³	2.43%

Source: 1. United States Census Bureau, <https://www.census.gov/quickfacts/table/PST045216/02,02170,0283080>
 2. United States Census Bureau, <http://quickfacts.census.gov/qfd/states/02000.html>.
 3. State of Alaska Department of Labor and Workforce Development, Research and Analysis, <http://live.laborstats.alaska.gov/pop/estimates/data/ComponentsOfChangeAK.xls>

1.3 Population Growth Projections

In December of 2009, the University of Alaska’s Institute of Social and Economic Research (ISER), projected that between 2010 and 2035 population in the Mat-Su Borough would grow on average between 5.03% and 0.93% depending on a wide range of economic factors. See Table 1-2. The BASE

CASE of 3.06% average population growth in the Mat-Su Borough is based on oil development in the outer continental shelf in 2021, a natural gas pipeline in 2019, development of Livengood, Donlin Creek and Pebble mines, US inflation at 2.5%, and modest US economic recovery.

Table 1-2. Average Growth Rate Projections 2010-2035 (ISER, 2009)

	Wage and Salary Jobs	Population	Households
HIGH CASE			
State	1.98 %	1.99 %	2.10 %
Anchorage	1.46 %	1.23 %	1.33 %
Mat-Su	5.65 %	5.03 %	5.15 %
BASE CASE			
State	1.06 %	1.11 %	1.24 %
Anchorage	.74 %	.78 %	.90 %
Mat-Su	3.69 %	3.06 %	3.19 %
LOW CASE			
State	.28 %	.30 %	.44 %
Anchorage	.26 %	.26 %	.40 %
Mat-Su	.89 %	.93 %	1.07 %

The State of Alaska Department of Labor and Workforce Development produces resident population projections for Alaska. See Table 1-3. The trend for the Mat-Su Borough is for consistent growth in population due to natural increases and in-migration.

Table 1-3. Population Projections (Alaska DOL)

	2012	2017	2022	2027	2032	2037
<u>Population</u>						
State of Alaska	732,298	770,417	806,479	839,191	868,902	897,034
Anchorage Borough	298,842	313,348	326,612	338,059	347,870	356,584
Matanuska-Susitna Borough	93,801	105,617	117,845	130,254	142,615	154,692
<u>Annual Growth Rate</u>						
State of Alaska		1.02%	0.92%	0.80%	0.70%	0.64%
Anchorage Borough		0.95%	0.83%	0.69%	0.57%	0.50%
Matanuska-Susitna Borough		2.40%	2.22%	2.02%	1.83%	1.64%

1.4 Aviation Activity

Aircraft operations and enplanement data is not available at this airport because there is no tower. Annual operations are estimated using based aircraft and the “Model for Estimating General Aviation Operations at Non-Towered Airports using Towered and Non-Towered Airport Data” (GRA, Inc., July 2001).

Aviation activity is growing and the fleet mix is changing. The last forecast was completed in 2009 as a part of the update to the Airport Layout Plan. Since then, one air cargo company (Transnorthern Aviation) has negotiated three long-term leases with the City. Transnorthern Aviation currently operates from the Ted Stevens Anchorage International. Currently they use their facilities in Wasilla to perform light maintenance and to store aircraft. In conversations with their operations manager and chief pilot, they have indicated no immediate plans to increase activity in Wasilla, and that the current runway length only allows Transnorthern to take off with reduced cargo loads with their Super DC-3. A runway extension to 4,000 feet would allow heavier loads in the DC-3’s and an expansion to 5,000 would allow them to operate other portions of their fleet from Wasilla, should customer demand arise.

Currently, the airport has no active flight school, the one flight school that was operating from Wasilla airport closed when the instructor retired. Hageland Aviation operates its aviation maintenance facility at Palmer, and will occasionally use the field in Wasilla for instrument approaches and instrument equipment checks. The State Department of Forestry occasionally uses Wasilla during periods of high winds in Palmer to relocate their helicopters to Wasilla, Big Lake or Willow airports; whichever is most convenient for their firefighting operations.

1.5 Based Aircraft

An accurate accounting of based aircraft forms the basis of forecasting general aviation (GA) operations in Section 1.6. Fixed-wing based aircraft were determined from City tie-down lease records and visual inspection as of June 2016, discussions with leaseholders and Wasilla Public Works staff. A total of 149 fixed-wing based aircraft were on the field, including 124 aircraft counted on the aprons and 25 aircraft indicated by public works staff as stored in hangars. This count does not include transient operations. Table 1-4 shows the historical and projected fixed wing-based aircraft for Wasilla. In addition, three rotor wing aircraft are based at Wasilla.

Table 1.4 - Historical and Projected Fixed Wing, Based Aircraft

Year	Tie Downs	Growth Rate
1993-97	No Data	
1998	35	
1999	42	20.0%
2000	55	31.0%
2001	80	45.5%
2002	112	40.0%
2010	123	1.1%
2016	149	3.0%
2021	173	3.0%
2026	199	3.0%
2031	230	3.0%
2036	267	3.0%
2041	309	3.0%

1.6 Operations

Forecasting of non-general aviation (GA) operations was accomplished by reviewing US Department of Transportation (USDOT), FAA, and US Census data; and by mailed surveys, personal interviews. GRA model. Forecasting GA operations for 2016 (base year) was accomplished using Equation 13 from the “Model for Estimating General Aviation Operations at Non-Towered Airports Using Towered and Non-Towered Airport Data” (GRA, Inc., July 2001) as follows:

$$OPS = -571 + 355*BA - 0.46*BA^2 + 40,510*\%in100mi + 3,795*VITFSnum + 0.001*POP100 - 8,587*WACAORAK + 24,102*POP25/100 + 13,674*TOWDUM$$

- BA = based aircraft at the airport
- BA² = the square of based aircraft at the airport
- %in100mi = based aircraft as a percentage of total based aircraft at GA airports within a 100 mile radius
- VITFSnum = number of 14 CFR Part 141 certified flight schools at the airport
- POP100 = population within a 100 mile radius of the airport
- WACAORAK = adjustment factor if state is WA, CA, OR, or AK (=1 if so)
- POP25/100 = ratio of population within 25 miles over population within 100 miles of the airport
- TOWDUM = adjustment factor if a control tower is present (=1 if so)

Based aircraft for GA model was calculated using based aircraft = 149. %in100mi was determined by finding the based aircraft (from the 5010) at airports within 100 miles of Wasilla, then summing those values and comparing the based aircraft at Wasilla to the total. The VITFSnum for Wasilla is 0, since there are no Part 141 flight schools at Wasilla. POP100 was determined using the Missouri Census Data Center website, which allows you to find the 2010 Census population within a specified radius of any point in the United States. POP100 was increased by the 3.5% total annual population growth between 2010 and 2013 for Alaska. POP25 was determined using the same method. The WACAORAK variable is 1, since Alaska is included in this list of states. Finally, the TOWDUM value was 0 since there is no control tower at the airport. Using these values, the equation yielded an estimated 37,794 GA operations for the Wasilla Municipal Airport in 2016. The calculation sheet is shown in Appendix B.

GA operations were split 50% - 50% for local and itinerant operations. After conversations with Alaska Army National Guard, military operations were estimated to 72 for 2016 and split 60% Blackhawks, 10% King Airs, and 30% Shorts 330s. Air carriers and air taxis were assumed to be captured in the cargo operator's surveys.

Using the above analysis, the 2016 (base year) total fixed-wing operations are estimated to be 37,454, helicopter operations are estimated to be 340, and total operations are estimated to be 37,794. See Table 1-5. A detailed breakdown of the forecast is provided in Appendix A

An average annual growth rate of 3.0% was applied to the base year data to project aviation activity for the 20-year planning period. The 3.0% growth rate for this forecast is slightly lower than the City of Wasilla's recent population growth rate of 3.37% for the past 13 years, lower than the MSB's recent growth rate of 3.71%, about the same as ISERs BASE CASE scenario of 3.06% and above the Alaska Department of Labor's projected growth rate of 2.4% for the Mat-Su Borough.

Table 1-5. Aviation Activity Forecast Summary

	Specified Base Year:		2016	Growth Rate:		3%
	Forecast Operations per Year					
	<u>2016</u>	<u>2021</u>	<u>2026</u>	<u>2031</u>	<u>2036</u>	<u>2041</u>
FIXED WING OPERATIONS						
<u>ITINERANT</u>						
Commuter/Air Taxi/Cargo	390	570	721	829	953	1,098
Total Military Operations	32	34	37	42	47	53
GA, Itinerant	18,426	21,361	24,763	28,707	33,279	38,580
TOTAL ITINERANT OPERATIONS	18,848	21,965	25,521	29,578	34,280	39,731
<u>LOCAL</u>						
Total Commercial Operations	180	191	209	242	280	325
GA , Local	18,426	21,361	24,763	28,707	33,279	38,580
TOTAL LOCAL OPERATIONS	18,606	21,552	24,972	28,949	33,560	38,905
TOTAL FIXED WING OPERATIONS	37,454	43,516	50,493	58,527	67,840	78,636
HELICOPTER OPERATIONS						
Commuter/Air Taxi	300	318	348	403	468	542
Military	40	42	46	54	62	72
TOTAL HELICOPTER OPERATIONS	340	360	394	457	530	614
TOTAL OPERATIONS	37,794	43,877	50,887	58,984	68,370	79,250
Instrument Operations	1,843	1,953	3,291	2,136	2,476	2,871
Based Aircraft						
Single Engine (nonjet)	140	162	188	218	253	293
Multi Engine (nonjet)	6	6	7	8	9	11
Jet Engine	0	0	0	0	0	0
Helicopter	3	3	3	4	5	5
Other	0	0	0	0	0	0
TOTAL BASED AIRCRAFT	149	172	199	230	267	309

1.7 Enplanements

Wasilla Municipal Airport has no scheduled air service because of its proximity to nearby Ted Stevens Anchorage International Airport located 42 miles away. Reported chartered passenger services to and from Wasilla by certified air carriers between 2006 and 2016 is shown in Table 1-6. As is shown in the table, enplaned air taxi passengers vary significantly from year to year, with no distinguishable pattern, this is related to the fact that no air taxi carrier is based in Wasilla. For this reason, enplanements are not considered in this forecast. Should air taxi service be established, the forecast should be revised to include enplanements.

Table 1-6. Wasilla Enplanements (FAA Air Carrier Activity Information System Database)

Year	Enplanements
2006	384
2007	7
2008	0
2009	105
2010	0
2011	0
2012	0
2013	208
2014	35
2015	22
2016	-

1.8 Comparison with Other Forecasts

The 2003 Wasilla Airport master plan estimated 37,581 operations for 2017 using their growth rate of 3%. The 2012 Wasilla Airport master plan estimated 57,400 operations for 2014 using 140 based aircraft. The 2014 Birchwood Airport FAA terminal area forecast estimated 70,188 using 465 based aircraft. The 2016 Palmer Airport master plan estimated 34,083 total operations for 2014 using 137 based aircraft. This forecast estimates total operations at Wasilla as 37,794 for year 2016.

1.9 Comparison with the APO TAF

FAA Office of Aviation Policy and Planning (APO) provides forecasts of aviation activity at public airports. The APO terminal area forecast (TAF) for Wasilla Municipal Airport was obtained through their website and Table 1-7 shows the comparison between the current airport forecast and the TAF published by APO.

The difference between this forecast and the APO TAF is likely due to the differences in the accuracy of the source data. This forecast is based on site visits, research, interviews, and a deeper study of the specific activity at the Wasilla Airport. The source of the APO TAF data is 5010 data with no anticipated growth for operations.

Table 1-7. Comparison of Airport Forecast and Terminal Airport Forecast

	Airport Forecast (year)	Airport Forecast (AF)	Terminal Airport Forecast (TAF)
Passenger Enplanements			
Base Yr.	2016	22	200
Base Yr. +5 yrs.	2021	26	210
Base Yr. +10 yrs.	2026	30	221
Base Yr. +15 yrs.	2031	34	232
Base Yr. +20 yrs.	2036	40	244
Commercial Operations			
Base Yr.	2016	390	1,042
Base Yr. +5 yrs.	2021	1,122	1,042
Base Yr. +10 yrs.	2026	1,293	1,042
Base Yr. +15 yrs.	2031	1,491	1,042
Base Yr. +20 yrs.	2036	1,721	1,042
Total Operations			
Base Yr.	2016	37,794	48,400
Base Yr. +5 yrs.	2021	43,877	48,400
Base Yr. +10 yrs.	2026	50,888	48,400
Base Yr. +15 yrs.	2031	58,370	48,400
Base Yr. +20 yrs.	2036	68,370	48,400

1.10 Conclusions

Based on the estimated 72 operations for Runway Design Code (RDC) B-II and 248 operations for RDC A-III aircraft for the base year 2016 and the expected growth, see detailed forecast in Appendix A, we recommend that Runway 4-22 improvements continue to be designed to RDC B-II standards, combined with using RDC III for separation considerations. The current use does not support RDC B-II as design aircraft. The airport has seen an interest in serving larger aircraft at the airport as is demonstrated by Transnorthern Aviation entering into long term leases of three lots at the airport. If development on the east side of the runway were to be based on RDC B-II separation standards, this would limit larger aircraft in the future. The total annual aircraft operations are estimated to be

68,370 during the 20-year planning period, which falls well below the airport capacity of 130,000 annual operations.

References

- Federal Aviation Administration. Air Carrier Activity Information System Database.
http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger
- Federal Aviation Administration. Office of Aviation Policy and Planning (APO) terminal area forecast (TAF). Wasilla and Birchwood Airports. <https://aspm.faa.gov/main/taf.asp>
- Goldsmith, Scott., HDR Alaska, Inc., and Northern Economics. Economic and Demographic Projections for Alaska and Greater Anchorage 2010–2035. December 2009.
- Howell, David. Alaska Population Trends 2012 to 2042, June 2014.
- State of Alaska. Department of Labor and Workforce Development, Research and Analysis Section.

Appendix A – Detailed Aviation Forecast

WASILLA AIRPORT (IYS) AVIATION FORECAST

		Specified Base		Forecast Operations per Year				
	ARC	Year:	2016	2021	2026	Growth Rate:	2036	2041
			2016	2021	2026	2031	2036	2041
PASSENGER ENPLANEMENTS								
Commuter/Air Taxi								
<u>Grasshopper Aviation</u>	-		22	26	30	34	40	46
<u>Everts Alaska</u>	-		0	0	0	0	0	0
Total Enplanements			22	26	30	34	40	46
FIXED WING OPERATIONS								
<u>ITINERANT</u>								
Commuter/Air Taxi/Cargo								
<u>Department of Natural Resources</u>								
Aerocommander (Shrike) 500	B-II		20	21	23	27	31	36
Pilatus PC-7	A-I		20	21	23	27	31	36
DHC-2 Beaver	A-I		10	11	12	13	16	18
<u>Everts Alaska</u>								
McDonnell Douglas DC-6	B-III		0	0	52	60	70	81
Embraer EMB120 Brasilia	B-II		0	0	12	14	16	19
Curtiss Wright C-46	B-III		0	0	12	14	16	19
<u>FedEx</u>								
ATR-72	B-III		0	0	8	9	11	12
<u>Transnorthern Aviation</u>								
MD Super DC-3	A-III		48	48	48	48	48	48
Beechcraft 99	B-I		0	0	0	0	0	0
Metroliner III	B-II		0	0	0	0	0	0
<i>TN operations stated if runway extended</i>								
MD Super DC-3	A-III		0	160	185	215	249	289
<i>Former Bush Air Cargo operations</i>								
MD Super DC-3	A-III		200	212	232	269	312	361
<u>Hagelund Aviation Services/Era</u>								
Cessna F406 Twin Caravna	B-I		28	30	32	38	44	51
Cessna 208B Caravan	A-II		24	25	28	32	37	43
Beech 1900	B-II		20	21	23	27	31	36
Piper PA-31 Navajo	B-I		20	21	23	27	31	36

<i>Commercial operations cont.</i>	ARC	<u>2016</u>	<u>2021</u>	<u>2026</u>	<u>2031</u>	<u>2036</u>	<u>2041</u>
<u>Lifemed Alaska</u>	-						
King Air B200	B-II	0	0	8	9	11	12
Total Commercial Operations		390	571	722	829	954	1,098
Military							
<u>Alaska Army National Guard</u>	-						
C-12 King Air	B-II	12	13	14	15	16	17
Sherpa C-23/ Shorts	B-II	20	21	23	27	31	36
Total Military Operations		32	34	37	42	47	53
GA, Itinerant	A-I	18,426	21,361	24,763	28,707	33,279	38,580
TOTAL ITINERANT OPERATIONS		18,848	21,956	25,522	29,578	34,280	39,731
LOCAL							
<u>Commuter/Air Taxi</u>	-						
<u>Grasshopper Aviation</u>	-						
Maule M-7/Cherokee 6	A-I	180	191	209	242	280	325
Total Commercial Operations		180	191	209	242	280	325
GA , Local	A-I	18,426	21,361	24,763	28,707	33,279	38,580
TOTAL LOCAL OPERATIONS		18,606	21,552	24,972	28,949	33,560	38,905
TOTAL FIXED WING OPERATIONS		37,454	43,517	50,494	58,527	67,840	78,636
HELICOPTER OPERATIONS							
<u>Commuter/Air Taxi</u>	-						
<u>Prism Helicopters</u>	-						
Boeing MD500		150	159	174	202	234	271
Euro AS350 B2/B3		75	80	87	101	117	135
Bell 205		75	80	87	101	117	135

<i>Helicopter operations cont.</i>	ARC	<u>2016</u>	<u>2021</u>	<u>2026</u>	<u>2031</u>	<u>2036</u>	<u>2041</u>
Military							
<u>Alaska Army National Guard</u>	-						
UH-60L Blackhawk		40	42	46	54	62	72
TOTAL HELICOPTER OPERATIONS		340	360	394	457	530	614
TOTAL OPERATIONS		37,794	43,877	50,887	58,984	68,370	79,250
Instrument Operations		1,843	1,953	3,291	2,136	2,476	2,871
Based Aircraft							
Single Engine (nonjet)		140	162	188	218	253	293
Multi Engine (nonjet)		6	6	7	8	9	11
Jet Engine		0	0	0	0	0	0
Helicopter		3	3	3	4	5	5
Other		0	0	0	0	0	0
TOTAL BASED AIRCRAFT		149	172	199	230	267	309

Appendix B –GA Operations Forecast

GA Operations Regression Equation, Equation 13, All 232 Airports, (GRA, Inc., July 2001)

Factor	Variable	Variable for Wasilla	Result
-571	x 1		-571
355	x BA	149	52,895
			-
-0.46	x BA2	22,201	10,212
-40,510	x %in100mi	0.096565133	-3,912
3,795	x VITFSnum	0	0
0.001	x Pop100	418,376	418
-8,587	x WACAORAK	1	-8,587
24,102	x Pop25/100	0.322076314	7,763
13,674	x TOWDUM	0	0
Total OPS			37,794

Variable Definition

OPS	Annual GA Operations at an airport
OPSBA	Annual GA Operations per Based Aircraft (BA) at an airport
BA	Total Based Aircraft at an airport
BA2	Based Aircraft squared, which is included since airport operations tend to increase as the number of based aircraft increases, but at a slower and slower rate
PCI	Per Capita Income in the county in which the airport is located
EMP	Non-agricultural Employment in the airport's county
FAR139	Categorical variable, 1 if airport is certificated for commercial air carrier service, 0 otherwise
WST	Categorical variable, 1 if airport is located in FAA Western Region (excluding Alaska), 0 otherwise
AAL	Categorical variable, 1 if airport is located in Alaska, 0 otherwise
R12	Categorical variable, 1 if airport is located in FAA New England Region or FAA Eastern Region, 0 otherwise
BAE100	Categorical variable, 1 if airport based aircraft is 100 or greater, 0 otherwise
Pop25	Population within 25 miles, by U.S. Census
Pop50	Population within 50 miles, by U.S. Census
Pop100	Population within 100 miles, by U.S. Census
Pop25/100	Ratio of Pop25 to Pop100, proportion, between 0 and 1, by census tract, U.S. Census
Se BA/BA	Single engine based aircraft/all based aircraft, proportion, between 0 and 1, from Terminal Area Forecast (TAF)
TOWDUM	1 if towered airport, 0 otherwise, from TAF
%in50mi	Percentage of based aircraft among based aircraft at GA airports within 50 miles, Proportion, between 0 and 1, from TAF and Mapinfo software
%in100mi	Percentage of based aircraft among based aircraft at GA airports within 100 miles, Proportion, between 0 and 1, from TAF and Mapinfo software
VITFS	Presence or absence of FAR141 certificated pilot school, FAA Flight Standards VITALS database
VITFSnum	Number of FAR141 certificated pilot schools on airport, 1 if FAR141 certificated pilot school present, 0 otherwise, FAA Flight Standards VITALS database
VITFSemp	Number of Employees of FAR141 certificated pilot schools at airport, FAA Flight Standards VITALS database
WACAORAK	1 if state is CA, OR, WA, or AK, 0 otherwise