7.0 CURRENT AND FORECASTED AVIATION ACTIVITY

The BGQ air traffic forecast is consistent with the FAA AC 150/5070-6B, and July 2001 guidance paper entitled “Forecasting Aviation Activity by Airport.” The forecast was developed using prior traffic estimates and interviews with air carriers, aviation support businesses, private pilots, airport management, and other parties knowledgeable of aviation activities at BGQ, the adjacent Big Lake, and the surrounding MSB. In addition, demographic and economic trends for the MSB and surrounding areas were examined through interviews and published sources and used to develop this forecast. Sources interviewed for this report often provided information based on their expertise and judgment. Judgment of the forecaster was also used to develop the air traffic forecast. Forecasts for low, moderate, and high growth scenarios are presented in this report.

7.1 Big Lake Service Area

The community of Big Lake is in the Susitna River Valley to the southwest of the MSB core. The community lies about 60 road miles northwest of Anchorage, and about 15 road miles southwest of the Wasilla Airport via the Parks Highway. The community receives most of its freight via highway, and most of the people traveling to and from the community use the highway also. The Alaska Railroad passes near Big Lake, but it does not stop. The MSB is a popular recreation area, with a large population of pilots, and much of the aviation activity there is associated with general aviation aircraft.

BGQ is a public airport owned and managed by the DOT&PF. The airport accommodates wheeled planes in summer, and wheel/ski planes in winter. A floatplane access ramp located in the adjacent Fish Creek Park is used to transfer floatplanes into and out of the adjacent lake; these aircraft are then trailered to BGQ. There are 21 small FAA-registered landing areas (public and private) in the general vicinity of BGQ, and many of the homes on the lake have docks or hangars for floatplanes. Table 12 lists the FAA-registered airports associated with the BGQ area. There may be other airstrips and water landing areas near the lake, but they are either not FAA registered, or the FAA has grouped them with other communities or major airports.

The runway at BGQ is a gravel strip 2,450 feet in length. The airport has one commercial helicopter charter service; in general, other commercial traffic does not serve the airport. Several aviation maintenance and repair businesses are located on the airport, which attracts customers from outside the airport. In addition, several aircraft hangars are used for commercial storage of aircraft. Aviation fuel is not commercially sold at the airport. Airport management is not located on site. Because of the short gravel runway, which is like many rural runways in Alaska, the airport

is used for training by flight schools and others who seek practice in gravel strip landings. In addition, BGQ has one of the few VOR/DME approaches[8] in Alaska.Military, commercial and other aircraft approach the airport for practice using the system without landing. Many of these aircraft are too large to land at the airport (some as large as military C-130s), and approach within 300 to 400 feet of the runway.

Table 12. FAA-Registered Privately-Owned Airports in the Big Lake Area, 2016

Facility	Location ID	Landing Surface	Based Planes	Total Operations*
Beaver Lake **	D71	Water	6	430
Brocker Lake **	6A7	Water	1	50
Brown's Homestead	95AK	Turf	0	Unknown
Cowell's	68AK	Helipad	1	Unknown
Cubdivision	9AK7	Gravel	6	Unknown
Eagle's Roost	AA10	Turf	0	Unknown
Fisher	08AK	Gravel	0	Unknown
H&H Field	02AA	Gravel	3	Unknown
Hoppe's	86AK	Water	1	Unknown
Horseshoe Lake	AA02	Water	0	Unknown
Jones Landing **	L95	Water	1	160
Kramer	AK86	Turf/Gravel	2	Unknown
Kucera	91AK	Water	0	Unknown
Kucera Residence	63AK	Gravel	2	Unknown
Marion	85AK	Water	0	Unknown
Owen Field	20AK	Turf	1	Unknown
Saddleback Island	AA07	Mats	2	Unknown
Team Levine	AK87	Helipad	0	Unknown
Twin Lake	AK95	Helipad	2	Unknown
West Beaver	09AK	Turf	0	Unknown
West Beaver SPB	AA01	Water	0	Unknown
Totals			**28**	**Unknown**

Source: FAA Airport Master Records, 2016.
* The Airport Master Records showed 0 operations at many facilities listed in the Big Lake area. For the purposes of this report, the number of Total Operations was changed from “0” to “Unknown”, a more accurate description.
** Airports privately owned but airport available for public use.

[8] VOR/DME refers to combined radio navigation station for aircraft, which consists of two radio beacons, placed together, a VHF omnidirectional range (VOR) and distance measuring equipment (DME). Together, they provide the two measurements needed to produce a navigational "fix" using a chart.

7.2 Historic Data and Prior Forecasts

Because there is no scheduled air service to the BGQ, no air traffic data for this airport is gathered by U.S. Department of Transportation. Often, a nearby air traffic control tower, or FAA FSS will have historic data on flights near a subject airport, but in this case, very little of this data is available.

The FAA's Terminal Area Forecast program (TAF) develops air traffic forecasts for most Alaska airports, though for the smaller airports in the state, the data is only as reliable as what is reported. Conversations with DOT&PF staff indicate that the data currently shown in the TAF for recent activity at BGQ may have been entered in error. No other air traffic forecasts have been developed for BGQ. After studying the current aviation activity at this airport and comparing it to TAF data, it was decided to develop original current air traffic estimates as the basis for this forecast. While DOT&PF M&O keeps a good count of aircraft based at the airport, aviation activity of that aircraft was estimated mainly from interviews with on-airport carriers, aviation support businesses, airport management, and other knowledgeable parties.

7.2.1 Scheduled Air/Air Taxi/Charter Traffic

BGQ does not currently support scheduled air carrier service. One air charter helicopter operator is based at BGQ and provides on-demand charter service with a fleet of three helicopters (one Bell 412, and two Bell UH-1s). Clients of this business tend to be government agencies and parties wanting to access remote areas. They do not provide tours. This carrier estimated enplaning 50 passengers and 500,000 pounds or more of cargo on a charter basis at BGQ in 2016. They also estimated a total of 1,440 operations by their helicopters at BGQ in 2016.

Charter air taxis not based in BGQ may occasionally land there. In addition, scheduled air carriers and air taxis sometimes use BGQ to train their pilots, performing touch and go operations, and VOR approaches. These commercial carriers contribute an estimated 50 operations and 100 VOR approaches per year to the traffic at BGQ.

7.2.2 General Aviation Traffic

Most of the air traffic at BGQ is performed by privately-owned general aviation aircraft. The estimated 67 private aircraft based at BGQ make up a big part of this traffic. However, the airport also gets a large amount of itinerant general aviation aircraft, especially during the summer months. The fall hunting season is also busy at BGQ. In winter, for several weeks around the

Iditarod Sled Dog Race and the Iron Man Snow Machine Race, traffic at and around BGQ increases as the routes for these races pass near the lake.

Several aircraft maintenance and repair businesses are located at BGQ and attract many private planes and helicopters. These aircraft maintenance businesses estimated transporting 130 floatplanes per year to and from the lake by trailer for maintenance, repair, and winter storage. In addition, one lessee based at BGQ provides storage, maintenance, and repair for its aircraft fleet and occasional outside customers. Some wheeled general aviation aircraft based at private facilities around BGQ taxi across the airport boundary.

7.2.3 Military and Other Air Traffic

Occasionally, military UH 60 Blackhawk and H60 Sikorsky Seahawk helicopters land at BGQ. In mid-summer (July or August), the U.S. Army brings in about 200 personnel for one or two days of “in-water training”. They drop soldiers into the lake with full gear to learn how to maneuver in that situation. In addition, military C-130s, C-17s, C-12s, and other military aircraft approach BGQ to practice use of the VOR approach system. These aircraft do not land and approach the runway lower than 300 feet in altitude.

Several flight schools in the region use BGQ for training, performing touch and goes, and approaches, usually with single engine aircraft. While touch and goes are not considered operations in this forecast, some full takeoff and landings occur. These schools performed an estimated 250 operations at BGQ in 2016. Helicopter medivacs flights sometimes occur at BGQ (about 20 operations in 2016). Civil Air Patrol groups based in Birchwood, Anchorage, or other nearby locations perform training flights at the airport (about 120 operations in 2016).

7.2.4 Air Traffic in Big Lake Area But Not Based at BGQ

An estimated 65 general aviation aircraft are based at facilities around BGQ and associated with BGQ by the Federal Aviation Administration. Also, aircraft are based at homes on the lake itself. In addition to traffic by the based aircraft, the lake gets a lot of traffic from visiting general aviation aircraft not based there. An estimated 8,540 operations occurred on and around the lake in 2016, with most of that traffic occurring in summer months (May through September). Most of this activity occurs on the lake, but also includes a small amount of traffic at land-based strips or heliports near the lake. Some traffic by ski-equipped aircraft occurs on the lake in winter months.

7.2.5 Based Aircraft and Fleet Mix

About 60 private fixed-wing aircraft and one private helicopter are based at BGQ. Of the private fixed-wing aircraft based at the airport, 59 are single engine and one is multi engine. In addition, three commercial charter helicopters and one commercial single engine fixed wing aircraft are based at BGQ, for a total estimated 65 aircraft based at the airport in 2016.

Estimates of based aircraft at and around Big Lake include those based at the 21 FAA-registered facilities listed in Table 12, and those based at homes and hangars around the lake. Those aircraft are mostly single engine, fixed wing aircraft on floats or wheel/skis, with a few on wheels, and a few helicopters. This forecast estimates 65 aircraft based at and around Big Lake but not at BGQ in 2016.

The fleet mix of aircraft based at BGQ includes mostly single-engine aircraft on wheels and floats in summer and wheels and skis in winter, and helicopters. These aircraft may include:

- Piper single-engine fixed-wing aircraft (such as Super Cub, Super Cruiser, Family Cruiser, Pacer, Tri-Pacer, and Cherokee);
- Cessna single-engine fixed-wing aircraft (such as 170, 172, 180, 182, 185, 195, and 206);
- Miscellaneous other single-engine fixed-wing aircraft (such as Citabria, DeHavilland Beaver, Wilga, and Helio H250);
- Beech twin-engine fixed-wing aircraft (Beechcraft 18); and
- Miscellaneous helicopters (such as Bell 412, and Bell UH-1).

Because of the gravel runway surface at BGQ, many of the aircraft based there are high wing and equipped with tundra tires. Low-wing aircraft with regular tires risk damage from flying gravel.

Aircraft based at and around BGQ may include single-engine Cessnas, DeHavilland Beavers, and Piper Super Cubs, mostly on floats/skis, but some may be on wheels/skis. Several helicopters are based near the lake also.

7.2.6 Base Year (2016) Activity Estimates

Estimates of 2016 aircraft activity at BGQ and in the Big Lake area are presented in Table 13. This activity was estimated using the latest available published data, as well as results of interviews with all carriers, aviation support services, and tenants located at BGQ, airport management, and other knowledgeable parties. Much of the data derived from these interviews

was the best guess of the respondents. Professional judgment was also used in developing these estimates.

Table 13. Big Lake Area Air Traffic Activity Estimates Base Year – 2016

BGQ Based Aircraft	65
BGQ Operations - Total	12,525
Air Taxis	1,440
GA - Local	4,936
GA - Itinerant	6,149
Lake Based Aircraft	65
Lake Operations	8,450

Sources: FAA Airport Master Records, DOT&PF Aviation Leasing Office, MSB Regional Aviation System Plan 2008 and 2017, and interviews with air carriers, aircraft maintenance businesses, airport management, private pilots, and other knowledgeable parties.

A 2016 survey of parties interested in aviation in the MSB was performed as part of the MSB Regional Aviation System Plan. One question asked in that survey dealt with the number of landings by MSB-based planes equipped with various types of landing gear. Of the 92 people who responded to this question, 72 were pilots. These respondents estimated that each wheel plane based in the MSB made an average of 145 landings per year; each floatplane averaged 85 landings per year; and planes equipped with skis averaged 107 landings per year. These responses were used to help estimate operations by planes based in and visiting the Big Lake area not including BGQ.

Air traffic in the Big Lake area has several distinct peak periods. In general, the summer months of June, July, and August are busiest, and the greatest amount of annual traffic takes place between May and September. Hunting season in fall creates additional traffic. In addition, traffic increases for several weeks around the Iditarod Sled Dog and Iron Dog Snow Machine races in winter.

7.3 Air Traffic Forecast

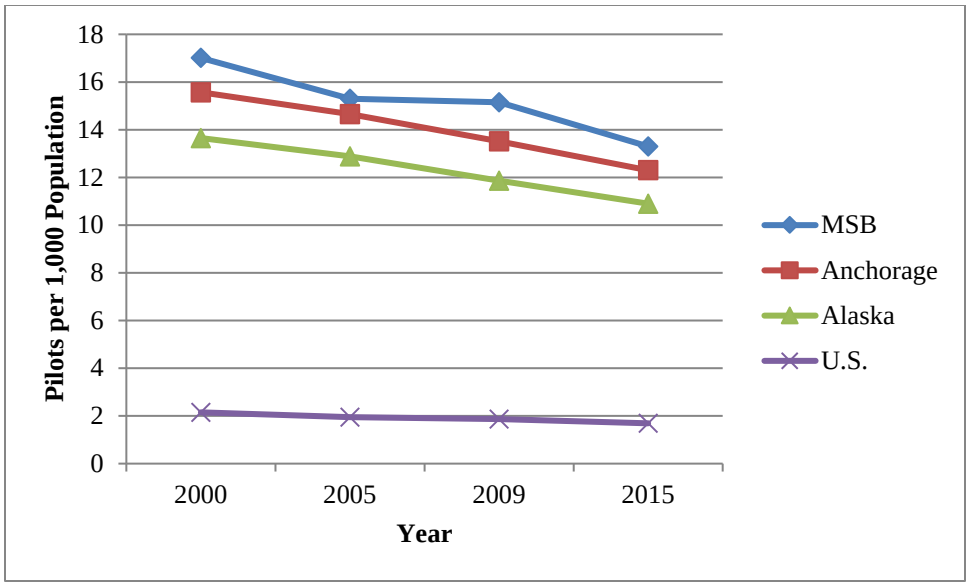
The air traffic forecast for BGQ and the Big Lake area is based on economic and aviation trends in the nation, state, MSB, and the local area. These trends were developed from published data as well as interviews of knowledgeable parties. Professional judgement of the parties interviewed as well as the forecaster was also used to develop these trends, and the resulting air traffic forecast. Negative trends are presented first in the following lists, followed by trends that will contribute positively to aviation growth.

7.3.1 Matanuska-Susitna Borough Population and Economic Trends:

- The statewide recession will negatively impact the economy and population of the entire state.
- Strong population growth in the MSB continues, with 2016 population up about 15 percent since 2010, and up about 73 percent since 2000. Population growth in the MSB is expected to continue, although at a slightly slower rate.
- The MSB economic sectors of government, tourism, and support industries such as retail trade and transportation, communication, and utilities (many of which impact aviation demand) continue strong growth.
- The tourism and outdoor recreation sectors in Alaska are strong and growing despite the statewide recession. Aviation activity associated with tours, fishing, hunting, and guiding activities in the state have shown strong growth in recent years, and that growth is likely to continue into the future. This sector strongly impacts aviation demand.

7.3.2 Aviation Trends:

- Costs and regulations have been increasing in the aviation industry.
- Nationally, fewer people are becoming certified pilots, and the average age of pilots is increasing (current average age is about 50 years).
- An annual FAA survey of general aviation and air taxi pilots in Alaska shows that the number of active aircraft and average use of each aircraft has declined slightly over the past 10 years. The latest year of data is at https://www.faa.gov/data_research/aviation_data_statistics/general_aviation/CY2015/.
- Air traffic in general across the nation has been decreasing. Ratios of pilots and based aircraft to the population have decreased consistently for many years and will likely continue to decline. Figure 17 shows the change in certified pilots per 1,000 population in the MSB, Anchorage, Alaska, and the United States. The numbers have been decreasing over time, with a greater decline in the MSB than in Anchorage, the entire state, and the nation between 2009 and 2015. The average annual growth rate for all areas between 2000 and 2015 has been about -1.6 percent per year.



Source: Federal Aviation Administration Civil Airman Statistics, and Alaska Department of Labor and Workforce Development.

Figure 17. Registered Pilots per 1,000 Residents in Selected Areas, 2000-2015

Although, due to population growth, the number of pilots per 1,000 residents has decreased in the MSB, the number of pilots in the MSB has increased by an average of 2.9 percent per year between 1999 (952 certified pilots) and 2015 (1,340 certified pilots).

Table 14 shows average annual growth in the number of registered aircraft owned by MSB and Anchorage Bowl residents. The number of aircraft owned by MSB residents continues to grow (a total growth of about 6.7 percent between 2010 and 2015), but not as fast as population (up about 12 percent in the same time period). By comparison, registered aircraft owned by Anchorage Bowl residents dropped about 11 percent between 2010 and 2015.

Table 14. Aircraft by Mailing Address of Owner in the Matanuska-Susitna Borough, 2009 to 2015

Community	2009	2011	2014	2015	Average Annual Growth
Big Lake	100	107	101	101	0.2%
Big Mountain	1	1	1	1	0.0%
Fritz Creek	8	9	8	7	-2.2%
Houston	8	7	9	8	0.0%
Palmer	381	405	394	389	0.3%
Talkeetna	108	116	108	111	0.5%
Trapper Creek	8	10	11	9	2.0%
Wasilla	811	852	900	906	1.9%
Willow	110	118	111	106	-0.6%
MSB Subtotal	1,535	1,625	1,643	1,638	1.1%
Anchorage Bowl	4,109	4,117	3,453	3,363	-3.3%
Grand Total	**5,644**	**5,742**	**5,096**	**5,001**	**-2.0%**

Source: FAA's Certified Aircraft Master Lists, 2009, 2011, 2014, and 2015.

The consolidated publicly operated MSB airport facility air traffic forecast in Table 15 was developed for the MSB Regional Aviation System Plan Study, Phase II (2017), and predicts strong growth in aviation activity in the MSB through 2040.

Table 15. Consolidated Publicly-operated Airport Forecast Matanuska-Susitna Borough, 2015 to 2050

	2015	2020	2025	2030	2035	2040	Annual Change
Based Aircraft	417	585	690	817	968	1,150	4.1%
Commercial Enplanements	67,620	75,408	84,133	93,914	104,884	117,195	2.2%
Commercial Operations	21,196	23,534	26,156	29,099	32,405	36,101	2.2%
Military Operations	996	1,112	1,240	1,383	1,547	1,730	2.2%
Local GA Operations	72,020	90,626	105,172	122,403	140,214	160,560	3.3%
Itinerant GA Operations	76,618	86,875	97,865	110,430	124,537	140,563	2.5%
Total Operations	170,830	202,147	230,433	263,315	298,703	338,954	2.8%

Sources: MSB Regional Aviation System Plan, Phase I; Palmer (2015), Wasilla (2012), Willow (2009), and Talkeetna (2001 adjusted) Airport Master Plans; FAA 5010 Airport Master Records; and FAA Terminal Area Forecasts.

- Demand is high for aircraft tie downs and hangars in the Anchorage area and most airports are running out of space (MSB Regional Aviation System Plan [RASP] Phase II, 2017). As this demand increases, some of it will expand beyond the Anchorage Bowl into adjacent areas, such as the MSB. This trend would increase if the Knik Arm Crossing were

developed (RASP forecast assumed Knik Arm Crossing would be open for traffic in 2031, but this assumption is no longer valid).[9]

- The MSB government stopped charging property tax on aircraft based in the borough, reducing the costs to base aircraft there (MSB Finance Department, 2015).
- New aviation technologies such as unmanned aerial vehicles, airships, hybrid car/aircraft and electrically powered general aviation aircraft may come into use during the timeframe of this forecast.
- Recent lowered fuel costs seem to have increased aviation activity.

7.3.3 Aviation Trends Specific to BGQ

The following aviation trends are likely to influence future BGQ aviation activity:

- About 17 state-leased tiedowns are available for rent, and an estimated ten private tiedown parking spaces on lease lots are available year around at BGQ. In addition, a few year-around parking spots may be available inside of existing hangars at the airport.
- Traffic at BGQ is constrained by the gravel surface and length of the runway. Currently, mostly aircraft with tundra tires and high wings use this airport, as other aircraft risk damage from flying gravel. While these conditions may keep some aircraft away, it also attracts those wanting to train for similar conditions in rural Alaska.
- BGQ has one of the few VOR approach procedures in Alaska, which attracts traffic to train on this type of approach equipment. This traffic generally does not land but approaches the runway to an altitude of 300 feet or higher. This traffic does not impact development at this airport.
- Hangar space is in strong demand at BGQ. All the lease lots available have hangars built on them, and additional space to build more hangars has been requested. As new hangars are developed, the number of aircraft based at BGQ will increase.

7.3.4 Trend Line Development

Low, moderate, and high rates of growth for air traffic at the Big Lake area were estimated using trend line analysis. Population trends in the borough are strongly positive but are tempered

[9] The Knik Arm Bridge and Toll Authority (KABATA), the state-funded entity formerly sponsoring the Knik Arm Crossing, is no longer in operation, there are no current actions underway to advance the project, and the long-term future of the project is uncertain. This forecast assumes the Knik Arm Crossing is not built.

somewhat by negative economic trends and the slowed or negative growth of aviation activities in general.

7.3.5 Air Traffic Forecasts

This section includes air traffic forecasts for BGQ and other Big Lake area facilities through 2036. In addition to the forecast of air traffic by type at BGQ, a forecast was prepared for Big Lake and the surrounding areas. This estimate includes the 21 other FAA-registered airports in the Big Lake area and other lake traffic. For each facility/area, low, moderate and high growth forecasts were developed.

The following assumptions were used in the development of this forecast.

- The runway at BGQ will not be paved or lengthened – the short gravel runway limits the demand for use of this airport.
- No commercial fixed-wing air carriers or air taxis will locate at BGQ – good road access makes air transportation of passengers and cargo relatively more expensive, so less desirable.
- A Knik Arm Crossing will not be developed.

Table 16 presents the low, moderate, and high growth rates developed for the Big Lake area air traffic forecasts to 2036. Following the consolidated publicly-operated airport forecast for the MSB (Table 16), the growth rates for based aircraft and local general aviation operations at BGQ are slightly higher (+0.5 percent) than the growth rates for air taxi and itinerant general aviation operations. Based aircraft and general aviation operations growth on and around BGQ are also based on the slightly higher rates.

Table 16. Air Traffic Forecast Growth Rates for the Big Lake Area

	Low	Moderate	High
Air Taxi and Itinerant General Aviation Operations	1.0%	2.0%	3.0%
Based Aircraft and Local General Aviation Operations	1.5%	2.5%	3.5%

Source: Southeast Strategies, 2018.

Table 17 presents the air traffic forecast for BGQ and the Big Lake area from 2016 through 2036 using the assumptions set out in this section. The moderate growth forecast is the most likely, and this master plan and ALP will support that level of growth.

Table 17. Air Traffic Forecast Big Lake Airport and Lake Area – 2016 through 2036

	Base Year 2016	2021	2026	2031	2036
BGQ Based Aircraft					
Low Forecast	65	70	75	81	88
Moderate Forecast	65	74	83	94	107
High Forecast	65	77	92	109	129
BGQ Operations - Total					
Low Forecast	12,525	13,294	14,111	14,982	15,908
Moderate Forecast	12,525	13,964	15,569	17,363	19,365
High Forecast	12,525	14,660	17,162	20,093	23,528
Air Taxi - Local					
Low Forecast	1,440	1,513	1,591	1,672	1,757
Moderate Forecast	1,440	1,590	1,755	1,938	2,140
High Forecast	1,440	1,669	1,935	2,243	2,601
General Aviation - Local					
Low Forecast	4,936	5,317	5,728	6,171	6,648
Moderate Forecast	4,936	5,585	6,318	7,149	8,088
High Forecast	4,936	5,862	6,963	8,270	9,822
General Aviation - Itinerant					
Low Forecast	6,149	6,463	6,792	7,139	7,503
Moderate Forecast	6,149	6,789	7,496	8,276	9,137
High Forecast	6,149	7,128	8,264	9,580	11,106
Lake Based Aircraft					
Low Forecast	65	70	75	81	88
Moderate Forecast	65	74	83	94	107
High Forecast	65	77	92	109	129
Lake Operations					
Low Forecast	8,450	9,103	9,807	10,564	11,381
Moderate Forecast	8,450	9,560	10,817	12,238	13,846
High Forecast	8,450	10,036	11,920	14,157	16,814

Source: Southeast Strategies, January 2018.

7.3.5.1 *Critical Aircraft*

Most of the aircraft based at BGQ are fixed-wing, single-engine aircraft such as the Cessna 185. The current critical aircraft designated in the AASP for the BGQ is the Cessna 185, which has an ARC of A-I. Because of the short length of the existing runway, the gravel surface, and no commercial scheduled fixed wing aviation activity anticipated here over the time period of this forecast, the critical aircraft will remain the Cessna 185 by 2036.