

MATANUSKA-SUSITNA BOROUGH

Regional Aviation System Plan

August 2008



**MATANUSKA-SUSITNA BOROUGH
REGIONAL AVIATION SYSTEM PLAN**

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LIST OF ACRONYMS

AAB	Aviation Advisory Board
AAC	Alaska Administrative Code
AFD	Airport Facility Directory
AGL	above ground level
AOPA	Aircraft Owners and Pilots Association
ARTCC	Air Route Traffic Control Center
ASOS	Automated Surface Observing System
ATC	Air Traffic Control
ATCT	Air Traffic Control Tower
AWOS	Automated Weather Observing System
CFR	Code of Federal Regulations
CIP	Capital Improvement Program
CTAF	common traffic advisory frequency
CUP	Conditional Use Permit
DME	distance measuring equipment
DNR	State of Alaska Department of Natural Resources
DOT&PF	State of Alaska Department of Transportation and Public Facilities
EA	Environmental Assessment
FAA	Federal Aviation Administration
FSS	Flight Service Station
GA	general aviation
GBT/ADS-B	Ground Based Transmitters/Automatic Dependent Surveillance-Broadcast
GIS	Geographic Information System
GPS	Global Positioning System
IFR	Instrument Flight Rules
ILS	Instrument Landing System
LPV	localizer performance with vertical guidance
LRTP	Long-Range Transportation Plan
MIRL	medium intensity runway lights
MOA	Military Operations Area
MSB	Matanuska-Susitna Borough
NAVAIDS	navigational aids
NDB	non-directional beacon
NPIAS	National Plan of Integrated Airport Systems
NWS	National Weather Service
PAPI	precision approach path indicator
RASP	Regional Aviation System Plan
RCOs	Remote Communication Outlets
REIL	runway end identifier light
RNAV	Area Navigation
RSA	runway safety area
RW	runway
SPUD	Special Land Use District
SR	slow route
SRE	snow removal equipment
TAB	Transportation Advisory Board
TAC	Technical Advisory Committee
TRACON	Terminal Radar Approach Control
VASI	visual approach slope indicator
VFR	Visual Flight Rules
VOR	Very High Frequency Omni-directional Radio-range
WAAS	Wide Area Augmentation System

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EXECUTIVE SUMMARY

The Matanuska-Susitna Borough has the highest concentration of public and private airports in the nation. With 10 public airports and over 200 private airports, over 1,000 aircraft, more pilots per capita than most of the rest of Alaska and the nation and millions of dollars of economic impacts to the region's economy, aviation is vitally important to the economy of the region and lifestyle of its residents.

The Matanuska-Susitna Borough is also the fastest growing region of Alaska, having more than doubled in population over the last 20 years and with predictions of more than doubling again in the next 20 years. With this rapid population growth has come the growth of aviation infrastructure and services as well as some conflicts within aviation and between aviation and other uses.

The Matanuska-Susitna Borough has undertaken the Matanuska-Susitna Borough Regional Aviation System Plan to identify the current state of aviation in the Matanuska-Susitna Borough, how that might change over the next 20 years, and any actions that should be taken to ensure aviation can grow in a positive way for Matanuska-Susitna Borough citizens. While the Matanuska-Susitna Borough is not currently an airport owner and operator, it does have responsibility for land use planning and promoting economic development, and is interested in working with aviation interests and the public to promote/preserve aviation and encourage compatibility with other activities in the region. A corollary Airport Location Study also examines the need for new public airport(s) to meet the future needs of the Matanuska-Susitna Borough. This Regional Aviation System Plan implements a recommendation of the MSB Long-Range Transportation Plan.

While the Regional Aviation System Plan does discuss aviation in the entire Matanuska-Susitna Borough, the geographic focus of the plan is on airports on the road system. This is because aviation needs, issues, and aviation and non-aviation growth is the greatest in areas served by roads. The study area is shown in Figure 1.

A wide range of issues and alternatives were evaluated in the Regional Aviation System Plan and discussed with a Technical Advisory Committee and the public. The recommendations of the

plan are summarized below. More detailed recommendations can be found in Chapter 5.0 of this report.

Involvement of the Aviation Community

Aviation Advisory Board - An Aviation Advisory Board shall be established to assist with implementation of Regional Aviation System Plan recommendations, address ongoing aviation issues in the Matanuska-Susitna Borough, and advise the Matanuska-Susitna Borough during detailed planning and construction of new airports recommended in the Location Study. The composition of the Aviation Advisory Board would include a diverse mix of aviation and non-aviation interests, including representatives from airport businesses, private pilots, public and private airport owners, community leaders, business leaders, airport neighbors, and others.

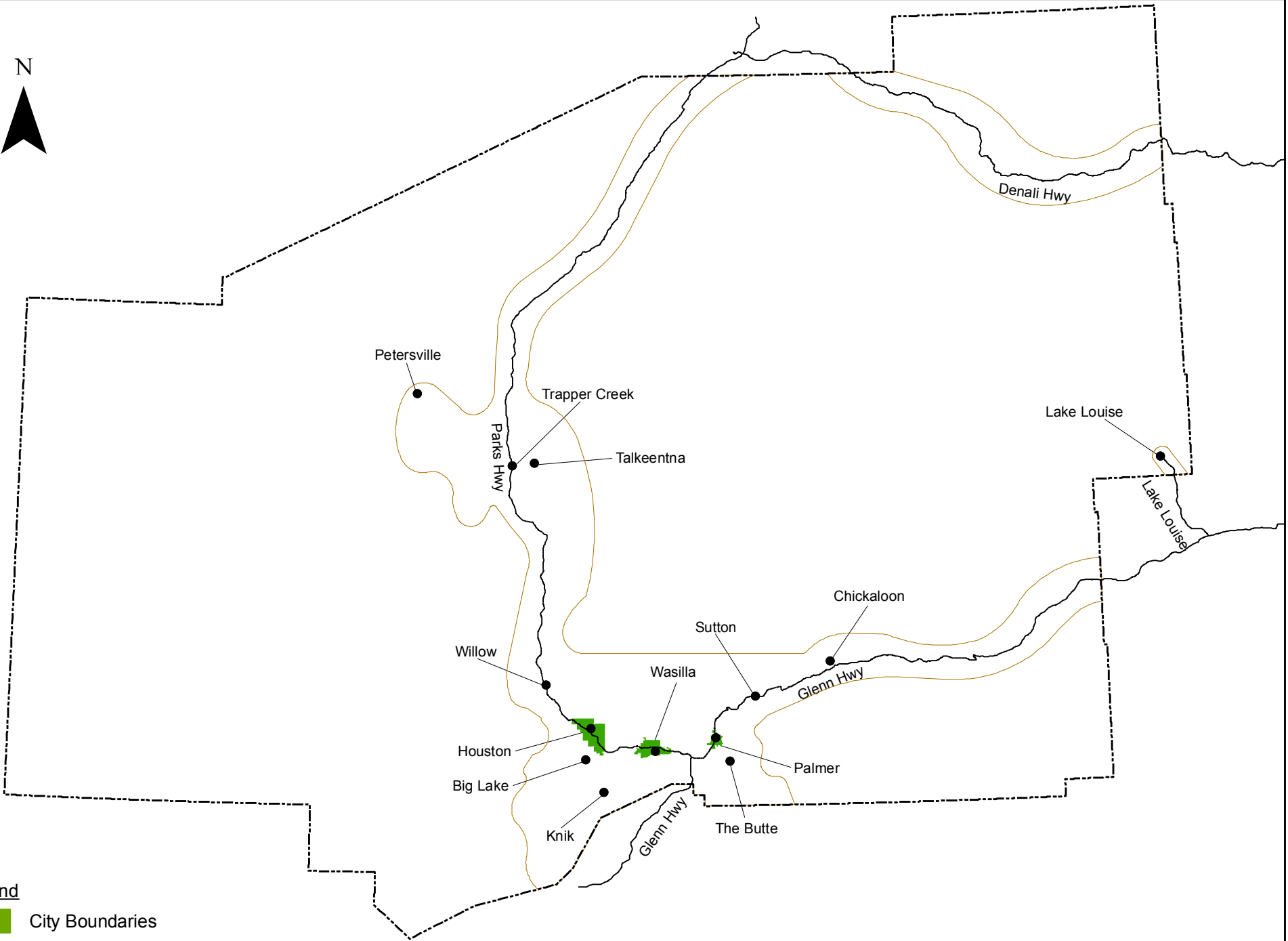
Airspace



Airport Registration - All existing and new airports, commercial floatplane bases, helipads and heliports should be required by the Matanuska-Susitna Borough to obtain a Federal Aviation Administration airspace determination and registration. Airspace determinations would help minimize airspace conflicts between existing airports. Registration would ensure the airport location is properly mapped for use by the Federal Aviation Administration in its evaluation of future airports and by Matanuska-Susitna Borough property owners who may be unaware of airport locations.

Encourage Lights-on Operation - As part of a comprehensive pilot education program in the Matanuska-Susitna Borough, pilots should be encouraged to fly with their landing lights on when possible to increase their visibility to other aircraft.

Review Low-Level Military Operations - The Matanuska-Susitna Borough, Federal Aviation Administration, and Aviation Advisory Board should continue to meet to address military airspace issues and communicate their findings to Matanuska-Susitna Borough pilots.

Support Capstone in the Matanuska-Susitna Borough - The Matanuska-Susitna Borough, Federal Aviation Administration, and State of Alaska Department of Transportation and Public Facilities should encourage the implementation of Capstone-type services in the Matanuska-Susitna Borough.



- Legend**
-  City Boundaries
 -  Study Area

Communications

Reassign Radio Frequencies - The Federal Aviation Administration should continue to ensure that radio frequencies assigned to airports in the Matanuska-Susitna Borough follow a logical geographic pattern.

Communicate about Private Airports and their Radio Frequencies - The Matanuska-Susitna Borough or State of Alaska Department of Transportation and Public Facilities should incorporate the inventory mapping from this project into their Geographic Information System and make maps of the airports available on their website for interested pilots.

Reporting Points and Military Routes/Airspace on Sectional and/or Supplement - The Federal Aviation Administration should establish a set of standard Visual Flight Rules reporting points for the Matanuska-Susitna Borough. The Federal Aviation Administration and military should provide information on military routes in the Matanuska-Susitna Borough to local pilots as part of a pilot education program. This information should be published on either the Sectional Map or in the Supplement as appropriate.

Pilot Education - A comprehensive pilot education program should be implemented by the Matanuska-Susitna Borough on topics such as the location of private strips, radio frequencies, reporting points, military airspace, “fly friendly” noise abatement procedures, and safety topics such as use of radios and landing lights in the Matanuska-Susitna Borough. Pilots and airstrip developers should be educated about land use rules to consider when siting new airports.

Expand Radio and Radar Coverage - The addition of remote communication outlets and radar coverage in the Matanuska-Susitna Borough is a lower priority recommendation compared to the other RASP recommendations.

Airport Compatibility

Property Owner Notification - The Matanuska-Susitna Borough should notify property owners of the location of airports through Geographic Information System based mapping on the Matanuska-Susitna Borough or State of Alaska Department of Transportation and Public Facilities website. The availability of the mapping should be widely communicated to real estate groups, builders, and developers with hopes that this information would be considered during

development and sale of property near an airport. Matanuska-Susitna Borough Planning staff should also communicate to property owners about airport locations when they meet with property owners about development requirements during the land use permit process. Property owners near private airparks and public-owned airports should also be formally notified of close proximity to an airport through a note written on the plat.

Comprehensive Plans and Special Land Use Districts - The Matanuska-Susitna Borough should address airport compatibility during comprehensive plans and Special Land Use Districts. Some of the alternatives identified in this plan that have been rejected for borough-wide implementation, may be appropriate in a subarea of the Matanuska-Susitna Borough.

Lake Management Plans - The Matanuska-Susitna Borough should involve the Aviation Advisory Board in Lake Management Plans that address restrictions on aviation activities.

Consolidate Antennas - The Matanuska-Susitna Borough should amend its existing tower ordinance to encourage the consolidation of tall towers and to include the input of a future Aviation Advisory Board when new towers are proposed.

Siting Public Facilities - The Matanuska-Susitna Borough should consider proximity to an airport when siting public facilities. Factors that should be considered include sensitivity of the facility users to airport noise and safety considerations of locating facilities where they would be routinely overflown by aircraft. The type of facility, frequency of aviation activity and distance from the airport should be considered in the siting evaluation.

Conditional Use Permit, Planned Unit Development, or Land Use Permit - The Matanuska-Susitna Borough should require a conditional use permit, planned unit development, or land use permit for new airports, commercial floatplane bases and helipads and heliports on the road system. Prior to applying for a conditional use permit, planned unit development, or land use permit, the applicant would first obtain a favorable airspace determination from the Federal Aviation Administration. The permit would ensure the airport has adequate runway length and meets minimum airport development standards shown on an airport template. Some examples of airport templates are described in the report. The final template to be used for this permit would be defined during the development of the ordinance creating the conditional use permit, planned

unit development, or land use permit process. These processes shall be implemented concurrently with changes to Title 27 to create a coordinated approach to approving airport locations.

Platting - The Matanuska-Susitna Borough should amend Title 27 of the code to define specific platting requirements for airports, which would specify standards to be met for airports to be implemented concurrently with changes to Title 17 creating a coordinated approach to approving airport locations. The Matanuska-Susitna Borough shall require an airport, commercial floatplane base, helipad, and heliport to be shown on a plat if subdivision of land is required. This requirement would help ensure that adequate land is provided for approach and departure clearances and development setbacks from runways, and that the aviation facility's compatibility with surrounding land uses are considered before a plat is approved. The airport template(s) adopted by the Matanuska-Susitna Borough would provide the criteria for clearances and setbacks.

Public Airport Improvements

Capital improvement needs and services for public airports were recommended by the public through the project survey and in public meetings and are reported here. The airport owners shall consider these needs when planning future airport improvements.

Table 1: Summary of Regional Aviation System Plan Recommendations

Issue	Recommendation
Involvement of Aviation Community	Form Aviation Advisory Board
Airspace	Require airport airspace reviews and registration by the Federal Aviation Administration.
	Encourage continuous operation of aircraft with landing lights on.
	Hold ongoing discussions with military on use of Matanuska-Susitna Borough airspace.
	Support implementation of Capstone in Matanuska-Susitna Borough.
Communications	Continue to reassign radio frequencies to follow a logical geographic pattern.
	Communicate frequencies and airport locations to pilots.
	Identify reporting points and military routes/airspace on the Sectional and/or Alaska Supplement.
	Conduct ongoing pilot education about all of the topics addressed in the Regional Aviation System Plan.
	Expand radio and radar coverage in Matanuska-Susitna Borough at a later date, if demand and need grows.
Airport Compatibility	Notify property owners of locations of airports on Matanuska-Susitna Borough or State of Alaska Department of Transportation and Public Facilities maps and on plat notes for properties near busier airports.
	Address airports in comprehensive plans and Special Land Use Districts.
	Involve Aviation Advisory Board in Lake Management Plans that address aviation.
	Encourage consolidation of towers and involve Aviation Advisory Board in tower reviews.
	Consider airport compatibility when siting public facilities near airports.
	Require a conditional use permit, planned unit development, or land use permit for new airports, commercial floatplane bases, helipads, and heliports. Adopt airport template(s) that address minimum airport safety standards.
	Amend Title 27 to define platting requirements specifically for airports. Require airports to be shown on a plat if subdivision of land is required.
Public Airport Improvements	Airport owners should consider RASP public comments about future airport improvement needs.

1.0 PROJECT GOALS AND TASKS

Airport system plan goals and tasks vary depending on the unique aviation needs of the region or state being planned. Since this is the first airport system plan for this rapidly growing region, a major focus of the plan involved documenting existing conditions and issues and examining whether the Matanuska-Susitna Borough (MSB) should take a stronger role in managing and supporting the growth and compatibility of aviation in the region.

Goals for the Regional Aviation System Plan (RASP) were to develop a system of public and private airports that:

- meets the short and long term aviation needs of the MSB,
- enhances aviation safety,
- encourages compatibility between airports and other land uses,
- promotes economic development, tourism, and recreational flying, and
- is consistent with other MSB plans and policies.

To accomplish these goals, the RASP included the following tasks:

- A basic inventory of public and private airports, including Geographic Information System (GIS) mapping
- A forecast of aviation growth, factoring in scenarios with and without the construction of the Knik Arm Crossing
- Consideration of the important economic impacts aviation has on the regional economy
- An examination of options to promote aviation safety and compatibility in the air and on the ground
- Identification of improvements needed at public airports
- A study of the demand for new public airports in the MSB and where they might be located
- Preliminary layouts of the highest priority new public airport sites (Location Study)
- Investigation of potential MSB roles in airport management and development (Location Study)
- Active involvement by pilots, airport owners, airport neighbors, community leaders, government officials, and other members of the public

2.0 INVENTORY OF EXISTING AVIATION SYSTEM

2.1 Description of Region

The MSB contains over 200 airports concentrated primarily along the road system. The largest concentration of airports occurs between Wasilla and Palmer, but the Willow and Talkeetna areas also have a significant number of airports.

Most of the airports in the MSB are privately owned and operated. These private strips usually have small gravel runways and are used for personal travel, sightseeing, and recreation. Most of the small private strips have relatively few operations.

The MSB does contain several large, busy airports. Some of these are public airports, but others are privately owned. Large public airports include Palmer, Wasilla, and Talkeetna. Large private airports include Shaw's Tri Lakes (Anderson Lake) and Wolf Lake. These large airports feature dozens of based aircraft and services such as fuel and/or maintenance. Each of the large private airports also features residential lots for homes, with airplane access from the lots to the runway.

The MSB also contains many active floatplane lakes. Almost all of the large lakes in the MSB experience frequent floatplane traffic, but only some of these lakes have been registered with the Federal Aviation Administration (FAA). Virtually all lakes large enough are used for floatplane operations at some time during the year.

Aviation activity in the MSB often interacts with the airspace and aviation activity of the Anchorage area to the south. Birchwood Airport is located just across Knik Arm south of Wasilla and Anchorage Approach Control provides traffic advisory services to the western half of the Matanuska-Susitna Valley. Military training activity from the military bases in Anchorage also pass through the MSB to the north.

Weather in the MSB is generally similar to other areas of south-central Alaska. However, winds in the MSB are generally dependent on local geography and can differ significantly from one airport to another. Runway alignment is often influenced by local topographic features.

There is a significant amount of miscellaneous aviation activity in the MSB, including ultralights and sport pilots, gliders, skydiving, and use of roads as runways. Although there are published warnings about the glider and skydiving activity, there are few, if any, warnings about the occasional use of roads as runways. Such use of roads is generally unreported and unregulated.

2.2 Airport Inventory

2.2.1 Overview and Methodology

An inventory of airports in the MSB was conducted based on two FAA databases, satellite photographs, and interviews with key aviation personnel in the area.

The two FAA databases were the FAA Form 5010 database and an FAA Alaskan Region database of Matanuska-Susitna and Anchorage area airports. The FAA Form 5010 Airport Master Record database contains a description of the physical facilities of each airport along with estimates of aviation activity and operating restrictions. The Alaskan Region database was locally compiled and contains more limited data, including the name, location, management, and assigned radio frequency of airports in the MSB and Anchorage. The local database was created several years ago in an attempt to better understand aviation activity in the Matanuska-Susitna Region. It should be noted that the two databases contain slightly different lists of airports and some airports were present in one database, but not the other.

The two databases also contained conflicting coordinates for some airports. Where coordinates differed by a large amount, satellite photography was used to determine which coordinates were correct. Where the coordinates only differed slightly, the FAA Form 5010 coordinates were used. Coordinates for unregistered airports were estimated from satellite photography. However, satellite photography was only available for a portion of the study area and some unregistered airports were likely not identified along the Denali Highway and along the Glenn Highway between Palmer and Chickaloon.

Numerous sites were identified during the review of satellite photography that may be used as airports occasionally or may be runways that are no longer in use. These sites were initially identified as “possible” runways, and an attempt was made to determine the current status and ownership of these sites by interviewing pilots throughout the study area.

Interviews were also conducted with managers of many of the largest airports in the MSB to obtain information about those airports and nearby airports. Comments from these interviews were incorporated into the various tables and maps in this section.

The combined list of airports and related information was compiled into a GIS database for use by the MSB and FAA. This GIS database was the basis for the various maps used during the public comment portion of this project. It is anticipated that the MSB and FAA will continue to update this database after this project is complete. The database is included in Appendix B, along with GIS maps of potential land-use conflicts and assigned radio frequencies.

2.2.2 Public Airports

For purposes of this report, a publicly-owned airport is an airport owned and operated by any of the governmental bodies within the MSB and open to the public. Ten publicly-owned airports are located in the MSB. Eight of these airports are owned and operated by the State of Alaska Department of Transportation and Public Facilities (DOT&PF). The other two are owned and operated by the cities of Wasilla and Palmer. The Big Lake, Goose Bay, Skwentna, Talkeetna, and Willow Airports have at least a moderate level of activity and are actively maintained by DOT&PF. Lake Louise, Sheep Mountain, and Summit Airports have low levels of activity and are either not maintained by DOT&PF or are a low priority for maintenance. The Wasilla and Palmer Airports are well maintained by the two cities. The following figure shows the location of the various public airports in the MSB. Available airport layout plans for these airports are included in Appendix B.

In addition to the above, the Talkeetna Village Strip (AK 44) is a public-owned but private-use airport. It is owned by the Bureau of Land Management, but its use is restricted to private individuals.



Summit
Airport

Denali Hwy

Talkeetna
Airport

Lake Louise
Airport

Lake Louise

Skwentna
Airport

Willow
Airport

Sheep Mountain

Wasilla
Airport

Palmer Municipal
Airport

Big Lake
Airport

Goose Bay
Airport

Glenn Hwy

Legend

 City Boundaries

 Public Airports

Public Airports

MSB Regional Aviation System Plan

Figure 2

Big Lake (BGQ) - The Big Lake Airport is owned by DOT&PF and is located at the northeast end of Big Lake. This airport serves primarily general aviation (GA). The gravel runway is maintained by DOT&PF, but many users have commented on the poor condition of the parallel taxiway. The airport is increasingly popular and additional apron space is needed. The airport currently has three instrument approaches.

The MSB owns a floatplane pull-out ramp on the Fish Creek canal adjacent to the Big Lake Airport. Users report that the road/taxiway between the ramp and the airport has become overgrown with trees that are a hazard to aircraft being towed between the airport and lake. The ramp area is also surrounded by a tall, locked fence that must be unlocked by the MSB to enable travel to and from the ramp.

Goose Bay (Z40) - The Goose Bay Airport is owned by DOT&PF and is located in the southwest portion of the MSB near Knik Arm. This airport is often used for pilot training, but no aircraft are based there. The airport has no hangars or utilities and is unattended. A DOT&PF maintenance building is located just north of the airport along Knik-Goose Bay Road. A runway lighting system was installed in the past, but has been removed. Pilots report vandalism and security problems. The apron area is sometimes used as a firing range for local gun owners, and abandoned cars are often found on the airport property. The State of Alaska has recently removed several old prison buildings from the airport property.

Lake Louise (Z55) - The Lake Louise Airport is owned by DOT&PF and is located on the south shore of Lake Louise at the far east side of the MSB. The airport formerly served recreational and lodge traffic, but no aircraft are currently based there. It has a gravel runway that is in poor condition and is unusable. Aircraft sometimes land on the adjacent road if necessary. This airport is currently closed indefinitely and is not maintained by DOT&PF. DOT&PF has designed a project to upgrade the runway and construction funding was recently approved.

Palmer (PAQ) - The Palmer Municipal Airport is owned by the City of Palmer and is located on the east side of the city along the bank of the Matanuska River. The airport hosts a wide range of aviation activity from small GA aircraft to helicopters and large firefighting aircraft operated by the State of Alaska Department of Natural Resources (DNR). The airport also receives occasional business jet traffic. The airport has two paved runways and a grass strip along the

shoulder of the primary runway. The airport also has a large paved apron and multiple aviation-related businesses. There is one non-precision instrument approach available for the airport.

Sheep Mountain (SMU) - The Sheep Mountain Airport is owned by DOT&PF and is located adjacent to the Glenn Highway in the eastern end of the MSB just east of the Matanuska glacier. The airport is intended primarily as an emergency landing strip, and the gravel runway does not receive regular maintenance from DOT&PF.

Skwentna (SKW) - The Skwentna Airport is owned by DOT&PF and is on the bank of the Skwentna River near the confluence with the Yentna River. The airport is located in the western part of the MSB off of the road system. The airport serves mostly small aircraft that deliver people and supplies to the roadhouse and cabins in the area. The airport has a gravel runway and a small gravel apron. There is one small hangar and a terminal building on the apron. The southeast end of the runway safety area (RSA) is being eroded by the Skwentna River.

Summit (UMM) - The Summit Airport is owned by DOT&PF and is located along the Parks Highway approximately six miles southwest of Cantwell. The airport serves primarily as an emergency landing strip. The runway is a basic gravel strip, and users report that there are occasional problems with campers on the runway.

Talkeetna (TKA) - The Talkeetna Airport is owned by DOT&PF and is located on the east side of the city of Talkeetna. The Talkeetna Airport serves as the base for most of the flightseeing and mountaineering activity in nearby Denali National Park. The airport features a 3,500-foot paved runway and a large paved apron. DOT&PF has plans to expand apron space and to add a dedicated helicopter area and lease lots to the airport. There are four non-precision instrument approaches available for the airport.

Wasilla (IYS) - The Wasilla Airport is owned by the City of Wasilla and is located on the south side of the Parks Highway just west of the city of Wasilla. This airport is primarily used by GA aircraft with a small amount of commercial air taxi traffic. The airport includes a 3,700-foot paved runway and large paved apron. The airport is currently undergoing an apron expansion that will make more tiedowns and lease lots available. There is one non-precision instrument approach available for the airport.

Willow (UUO) - The Willow Airport is owned by DOT&PF and is located on the east side of the Parks Highway on the north side of the city of Willow. The airport is used primarily by GA traffic. The airport includes a gravel runway and a large gravel apron with lease lots and several hangars. Self-serve fuel is available 24 hours/day. There are two non-precision instrument approaches available for the airport.

Table 2: Public Airports in the Matanuska-Susitna Borough

Airport	Number of RWs	Primary RW Length	Primary RW Width	Primary RW Surface	Taxiway	RW Lighting	Based Aircraft*	Services Available
Big Lake	1	2435	70	Gravel	None	MIRL	SE - 75 H - 1 UL - 3	Maintenance
Goose Bay	1	3000	75	Gravel	None	None	SE - 2	None
Lake Louise	1	700	18	Gravel	None	None	None	Airport closed
Palmer	3	6009	100	Asphalt	Full parallel	MIRL, VASI, PAPI	SE - 200 ME - 15 H - 7 G - 5	Fuel, maintenance, FSS on field
Sheep Mountain	1	2270	60' (10' usable)	Gravel	None	None	None	RW not maintained
Skwentna	1	3400	75	Gravel	None	MIRL	SE - 3	None
Summit	1	3840	80	Gravel	None	None	None	None
Talkeetna	1	3500	75	Asphalt	Full parallel	MIRL, VASI	SE - 50	Fuel, maintenance, FSS on field
Wasilla	1	3700	75	Asphalt	Full parallel (under const)	MIRL	SE - 100	Fuel, maintenance
Willow	1	4400	75	Gravel	None	MIRL	SE - 87 ME - 2	Fuel, maintenance

* Source: FAA Form 5010, SE = Single Engine, ME = Multi Engine, J = Jet, H = Helicopters, G = Gliders, UL = Ultralight, RW = runway, FSS - Flight Service Station, MIRL - medium intensity runway lights, PAPI = precision approach path indicator, VASI = visual approach slope indicator

2.2.3 Public Airport Capital Improvements

2.2.3.1 *Historic Capital Improvements*

The FAA provides most of the funding for capital improvements at public airports in the MSB that are in the National Plan of Integrated Airport Systems (NPIAS). Currently, the Big Lake, Goose Bay, Palmer, Skwentna, Talkeetna, Wasilla, and Willow Airports are included in the NPIAS. To be eligible for FAA funding and be included in the NPIAS, a GA airport must meet FAA criteria as summarized below:

1. Be 20 miles by air (or 30 minutes travel time by road) from nearest existing NPIAS airport and clear evidence that at least 10 aircraft will be based at the airport in the first year of operation...or
2. Meets all of the following criteria:
 - Airport is included in a Statewide Aviation System Plan and/or Metropolitan Airport System Plan, if these plans exist.
 - Airport serves a community more than 20 miles by air (or 30 minutes travel time) from the nearest existing or proposed NPIAS airport.
 - Airport is forecast to have at least ten based aircraft during first five years of operation.
 - There is a sponsor willing to take ownership and development of the airport...or
3. Airport has special justification showing a significant national interest such as:
 - Airport benefits exceed costs - benefits are usually measured in time saved and cost avoided by travelers.
 - Airport serves an isolated community (remote areas or on islands), serves a Native American community, supports recreation areas, or is needed to develop or protect important national resources.

Currently, the FAA pays 95 percent of the costs of an airport project and the airport owner pays 5 percent. The State of Alaska has an informal policy to pay one-half of the airport owner's costs for any locally owned airport, thereby reducing the local airport owner's costs to 2.5 percent of the total project costs. Beginning in Fiscal Year 2008, the FAA will pay only 93.75 percent of the cost of an airport project. The following table shows the FAA funded Capital Improvement Program projects for MSB airports since 1985.

Table 3: Historic Federal Aviation Administration Funded Capital Projects at Matanuska-Susitna Borough Public Airports

Airport	Year*	Project	Cost
Big Lake**			
Goose Bay	1985	Rehabilitate RW 7/25 and construct taxiway	\$651,554
	1987	Snow removal equipment (SRE) building and equipment, install runway lighting	\$492,418
		Total	\$1,143,972
Lake Louise**	--	--	\$0

Airport	Year*	Project	Cost
Palmer	1986	Acquire land for development	\$746,049
	1990	Acquire SRE	\$114,998
	1992	Improve SRE building	\$258,750
	1994	Rehabilitate apron and taxiway	\$711,419
	1995	Acquire SRE	\$244,265
	1996	Conduct airport master plan study	\$265,216
	2001	Construct runway and taxiway, extend runway, acquire SRE, improve RSA	\$518,964
	2002	Phase II of runway and taxiway construction projects and RSA improvements	\$2,033,382
	2003	Acquire SRE	\$147,172
	2004	Construct taxiway and access road, install perimeter fencing, and expand apron	\$1,939,010
	2004	Acquire land for approaches Phase I	\$259,002
	2005	Acquire land for approaches, acquire SRE, rehabilitate RW 09/27 Phase I (design), and rehabilitate lighting on RW 16/34 (design)	\$437,990
	2006	Rehabilitate lighting on RW 16/34, install new runway lighting and lighted wind cone, rehabilitate Taxiway B, and install vertical/visual guidance system, PAPIs, and runway end identifier lights for RW 16/34	\$1,850,291
	Total	\$9,526,508	
Skwentna	1987	Improve access road, acquire SRE, acquire land for development, construct apron, construct taxiway, extend RW 9/27, install runway lighting, rehabilitate RW 9/27	\$1,477,295
Summit**	--	--	\$0
Talkeetna	1986	Rehabilitate taxiway, expand apron/install lighting, extend RW 18/36	\$1,138,770
	1995	Conduct airport master plan study	\$281,250
	1996	Expand apron, improve SRE building, improve service road, acquire land for development, install apron lighting, and construct taxiway	\$3,036,591
	2005	Acquire SRE	\$20,321
		Total	\$4,476,932
Wasilla	1998	Acquire land for development	\$2,056,280
	1990	Improve access road	\$466,854
	1990	Construct apron, runway, taxiway, and install runway lighting	\$3,334,831
	1991	Noise mitigation measures for public buildings	\$925,850
	1992	Acquire SRE, improve SRE building	\$499,450
	1998	Construct RW 03/21	\$102,772
	1999	Construct RW 3/21 and install perimeter fencing	\$1,037,323
	2001	Conduct airport master plan study	\$407,072
	2002	Install perimeter fencing	\$264,264
	2003	Construct apron (design) Phase I	\$199,999
	2004	Expand apron	\$1,894,486
	2005	Construct apron (design)	\$250,000
	2006	Apron construction Phase I, RW 03/21 construction	\$3,672,748
2007	Taxiway B Extension	\$1,052,877	
	Total	\$16,164,806	
Willow	1989	Install runway lighting, improve airport drainage, and acquire land	\$242,230
	1999	Improve SRE building	\$664,418
	2005	Rehabilitate RW 13/31	\$55,000
		Total	\$961,648

* Federal fiscal year funds are obligated.

** \$0 spent on past improvements.

2.2.3.2 *Planned Capital Improvements*

Proposed maintenance and expansion projects for each of the public airports are shown in the following table. These projects were identified in an airport master plan or in the spending plans for FAA and/or DOT&PF. Where the scope and timing of projects differed between documents, a general project description is shown. Although the MSB does not own any airports, two projects were identified by the MSB for future funding.

Table 4: Capital Improvement Needs from Published Reports and Documents

Airport	Description	Timeframe	Comments
Big Lake	New lighting system		
	Apron expansion		
	Two-bay equipment building and loader		
Goose Bay	None listed		
Lake Louise	Reconstruct runway	Short	Airport currently closed. Airport reconstruction funding recently approved.
Palmer	Acquire land for RW 9-27	Short	Phase I complete Phase II in progress
	SRE equipment	Short	Complete in 2007
	Rehab airport lighting	Short	In design
	Overlay runways	Short	In design
	Master Plan Update	Short	
	Expand apron	Medium	
	Seal coat	Medium	
	GA terminal	Medium	
	Overlay Taxiway B and upgrade lights	Medium	
	Repaint FSS building	Medium	
	Construct helipad	Medium	
	Construct additional T-hangars	Long	
Overlay/seal pavements	Long		
Expand apron	Long		
Sheep Mountain	None listed		Not in NPIAS
Skwentna	Repair runway erosion	Short	River eroding runway
Summit	Grade runway	Medium	Not in NPIAS, but seeking inclusion
Talkeetna	Lease lots, apron expansion, helipad	Short	Draft Environmental Assessment (EA) completed
	Floodplain mitigation	Short	Hydrologic study completed
	Remediate abandoned landfill	Medium	
	Additional apron expansion	Long	
	Additional lease lots	Long	
Floatplane facility at airport	Long		

Airport	Description	Timeframe	Comments
Wasilla	Apron expansion	Short	Construction 2006
	Gravel/Turf Runway	Short	Construction 2007
	Taxiway B Extension	Short	Construction 2007
	Airport access road	Short	Construction 2009
	Intermodal rail terminal, gravel/ski runway, and transient parking	Short	
	SRE and expand SRE building	Short	
	RW 3-21 NAVAID Improvements	Short	
	Extend RW 3-21 (5,000 feet)	Medium	
	Acquire avigation easements	Medium	
	Fire station	Medium	
	Property acquisition for runway protection zone	Long	
	Apron expansion	Long	
	Terminal building	Long	
Extend RW 3-21 (6,000 feet)	Long		
Willow	Pave taxiway and apron		
MSB	International airport feasibility and location study		
	Floatplane facility study and construction		Under way

2.2.4 Private Airports

For purposes of this report, private airports are divided into the two categories of private airports and private airparks. A private airport is defined as a landing area for aircraft located on private property and not available for public use. A private airpark is defined as an airport owned by a group of private property owners with homes, hangars, and/or other facilities adjacent to a shared private runway.

There are approximately 106 private airports registered with FAA in the MSB. There are at least 53 additional private airports that are unregistered. Private airports are found throughout the MSB, but are generally concentrated in residential areas with road access. Private airports are generally located near the residence of the owner for the convenience of access to their aircraft. Runway lengths, locations, and alignments are not always optimal, but these factors are outweighed by the convenience of having the plane nearby. Individual private airports in the MSB generally have few based aircraft and little traffic.

There are approximately 14 private airparks in the MSB. Such airparks generally feature individual home lots with taxiway access to the runway, and the airparks are generally run by a homeowners association or other non-profit association. Several of the private airparks, such as Wolf Lake and Anderson Lake (also known as Shaw's Tri Lakes), have more than 100 based

aircraft and are, in fact, some of the largest airports in the MSB. Both of these airports are located between Wasilla and Palmer north of the Palmer-Wasilla Highway.

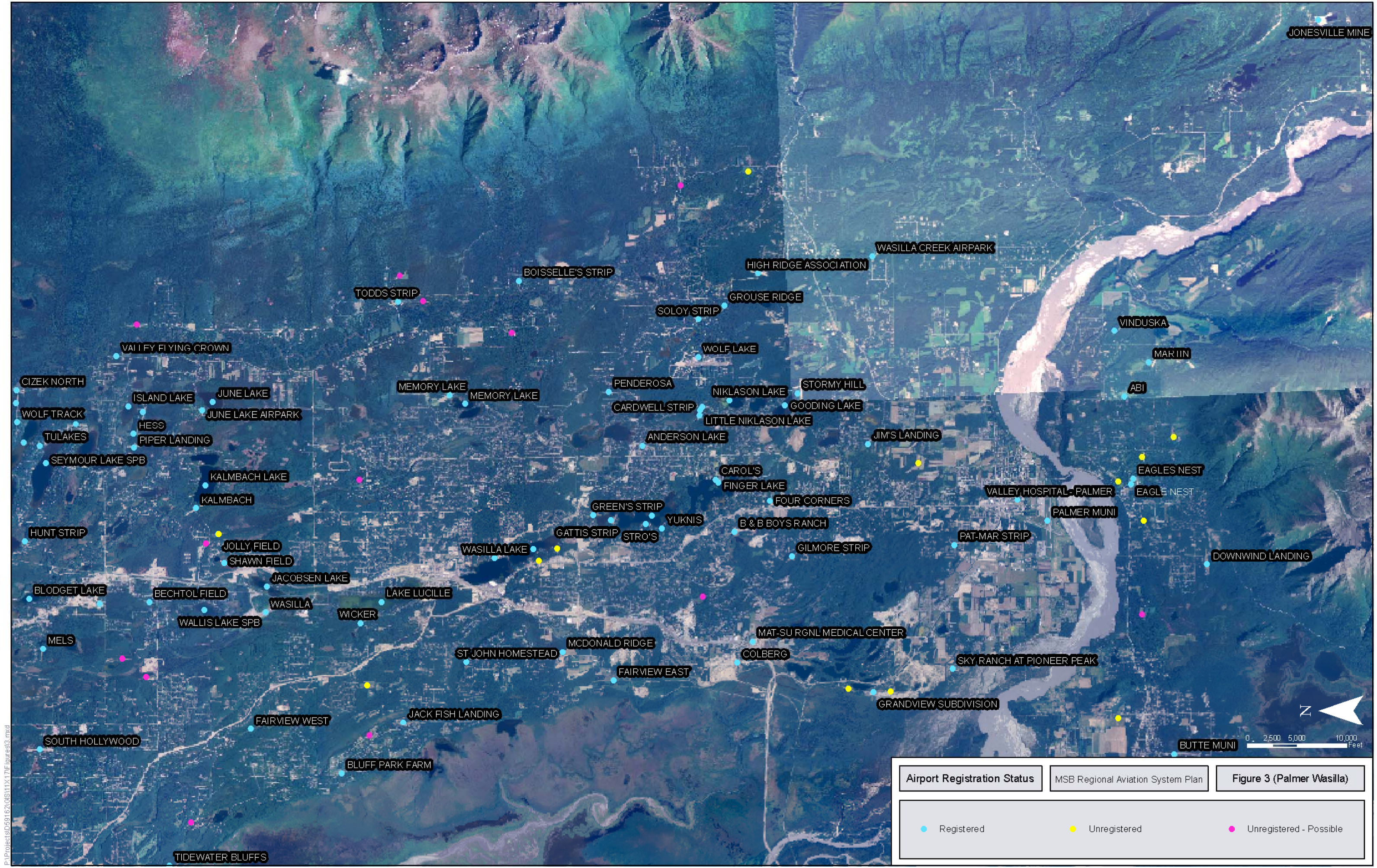
There are approximately nine other private airports registered with FAA as providing public access. These airports are:

Table 5: Privately-owned Airports with Public Access

Airport Name	FAA Site	FAA Identifier	Heliport or Airport?
Road Commission Nr 1	50147.3*A	0Z2	Airport
Clearwater	50110.*A	Z86	Airport
Rainy Pass Lodge	50642.1*A	6AK	Airport
Jonesville Mine	50730.*A	JVM	Airport
Butte Municipal	50585.14*A	AK1	Airport

Source: FAA form 5010 and FAA Alaska Region Airport Registration Records

The location and registration status of known and possible private airports and airparks in the MSB are shown in the following figures. Note that these figures also show the registration status of lakes and heliports. These two categories of facilities are described in the following sections.



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JONESVILLE MINE

WASILLA CREEK AIRPARK

HIGH RIDGE ASSOCIATION

BOISSELLE'S STRIP

TODDS STRIP

GROUSE RIDGE

SOLOY STRIP

VINDUSKA

MAR IIN

VAI I FY FLYING CROWN

CIZEK NORTH

ISLAND LAKE

JUNE LAKE

MEMORY LAKE

MEMORY LAKE

PENDEROSA

WOLF LAKE

NIKLASON LAKE

STORMY HILL

ABI

WOLF TRACK

HESS

JUNE LAKE AIRPARK

CARDWELL STRIP

LITTLE NIKLASON LAKE

GOODING LAKE

TULAKES

PIPER LANDING

ANDERSON LAKE

JIM'S LANDING

SEYMOUR LAKE SPB

KALMBACH LAKE

KALMBACH

CAROL'S FINGER LAKE

FOUR CORNERS

VALLEY HOSPITAL - PALMER

EAGLES NEST

HUNT STRIP

JOLLY FIELD

SHAWN FIELD

WASILLA LAKE

GATTIS STRIP

STRO'S

YUKNIS

B & B BOYS RANCH

GILMORE STRIP

PAT-MAR STRIP

PALMER MUNI

EAGLE NEST

BLODGET LAKE

BECHTOL FIELD

JACOBSEN LAKE

LAKE LUCILLE

WASILLA LAKE

GATTIS STRIP

STRO'S

B & B BOYS RANCH

GILMORE STRIP

PAT-MAR STRIP

PALMER MUNI

EAGLE NEST

DOWNWIND LANDING

MELS

WALLIS LAKE SPB

WICKER

ST JOHN HOMESTEAD

MCDONALD RIDGE

MAT-SU RGNL MEDICAL CENTER

COLBERG

SKY RANCH AT PIONEER PEAK

SOUTH HOLLYWOOD

FAIRVIEW WEST

JACK FISH LANDING

FAIRVIEW EAST

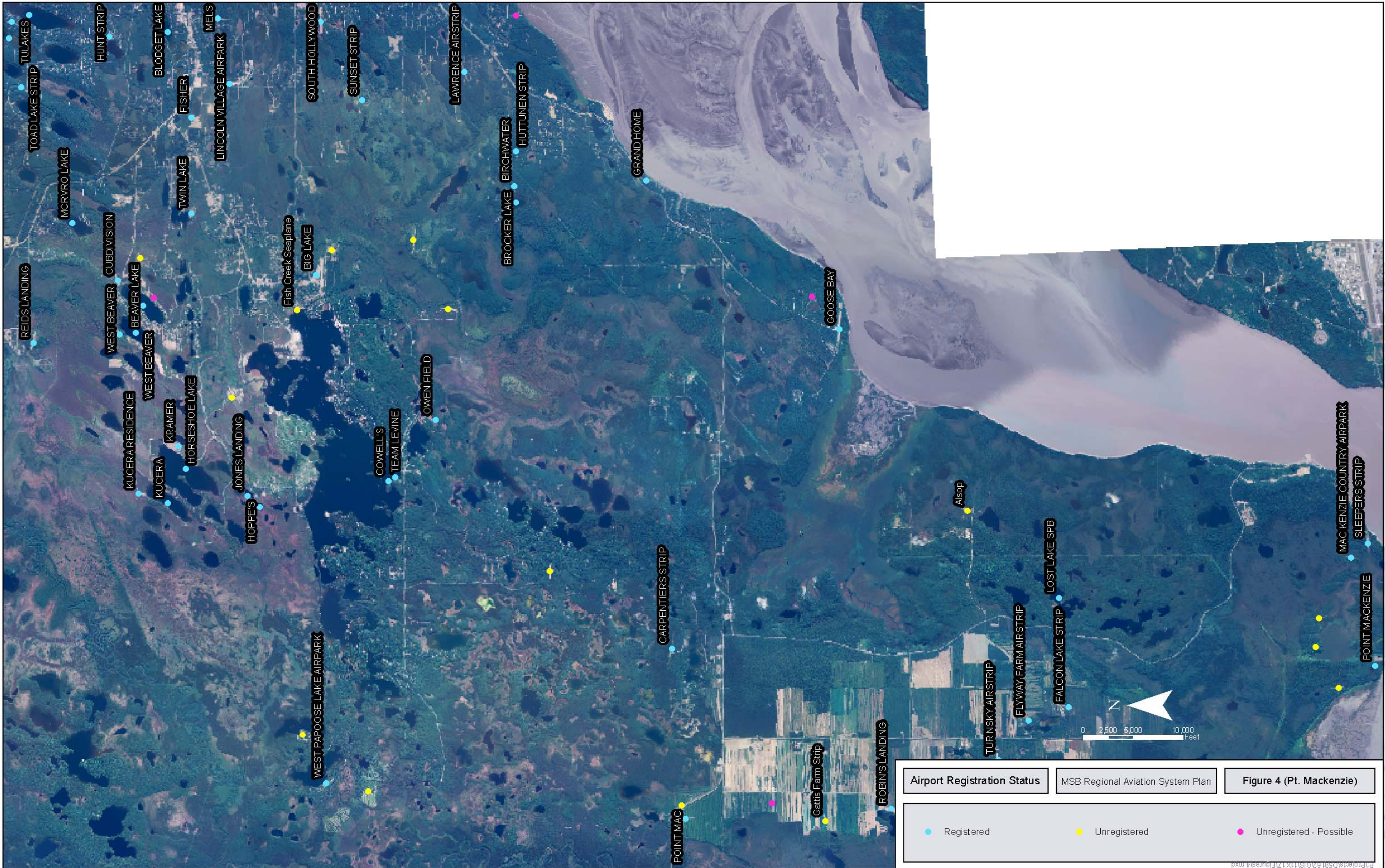
GRANDVIEW SUBDIVISION

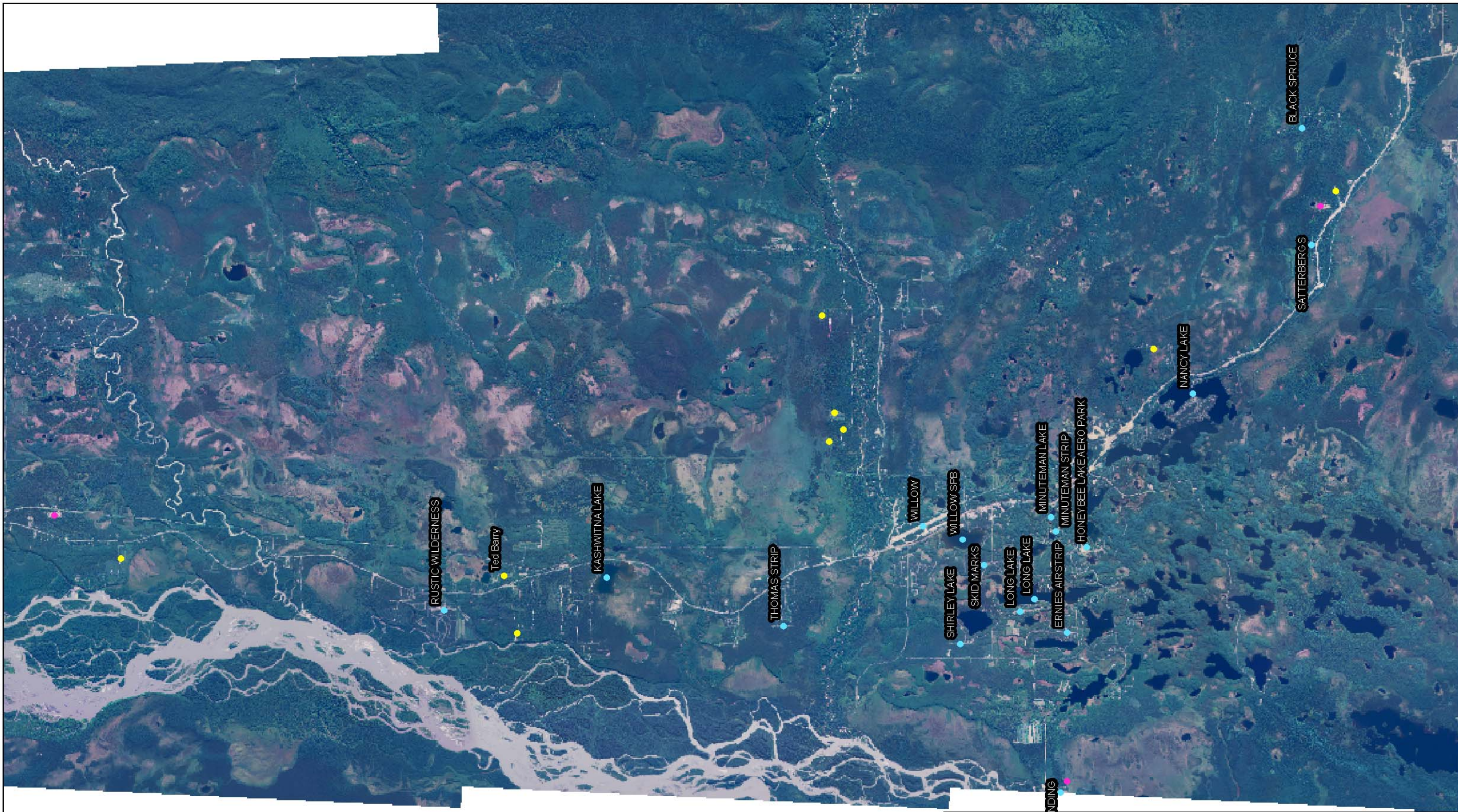
BUTTE MUNI

TIDEWATER BLUFFS

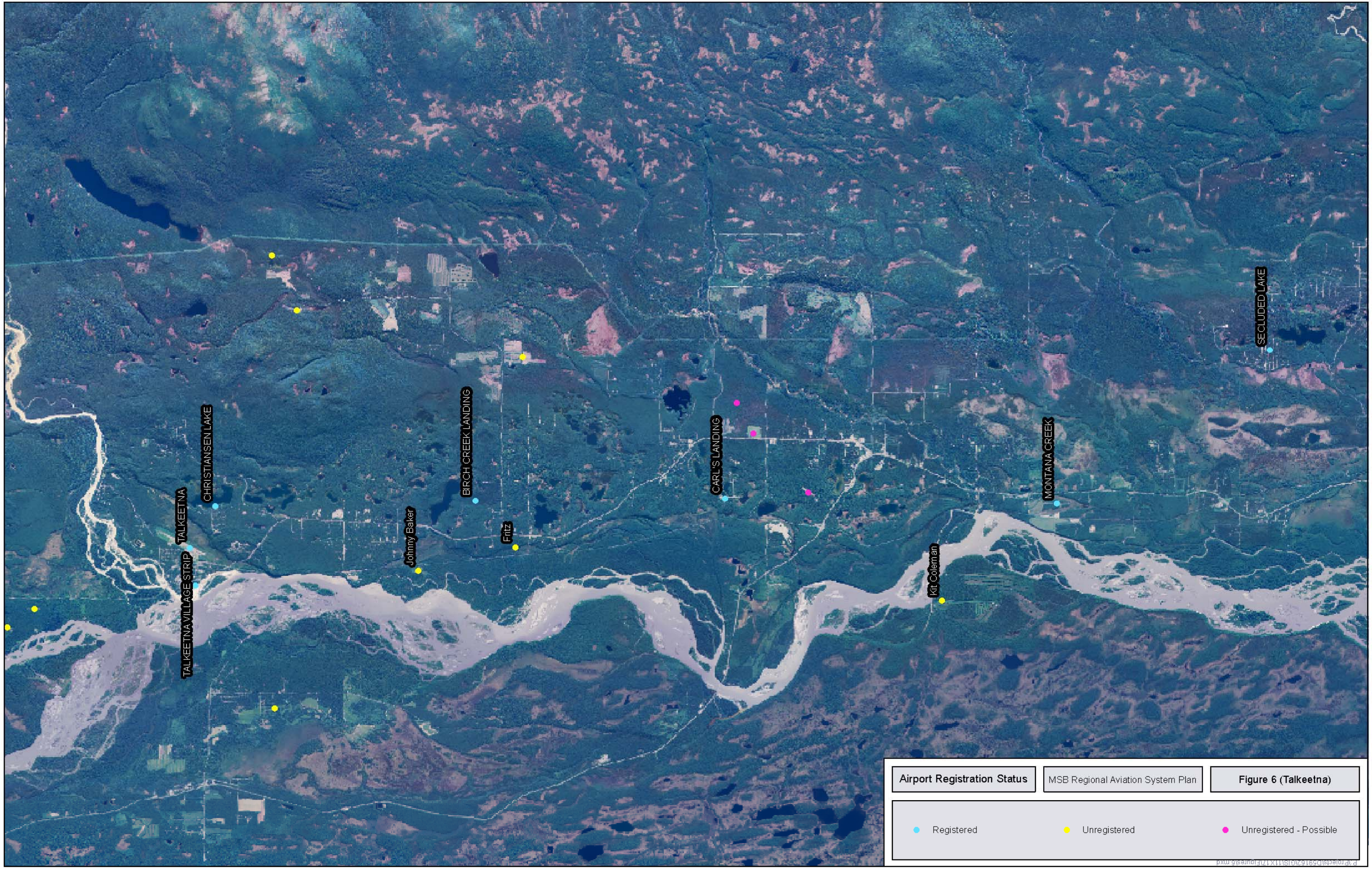


0 2,500 5,000 10,000 Feet





Airport Registration Status	MSB Regional Aviation System Plan	Figure 5 (Willow)
<ul style="list-style-type: none"> ● Registered 	<ul style="list-style-type: none"> ● Unregistered 	<ul style="list-style-type: none"> ● Unregistered - Possible



Airport Registration Status	MSB Regional Aviation System Plan	Figure 6 (Talkeetna)
● Registered	● Unregistered	● Unregistered - Possible



2.2.5 Floatplane Facilities

The MSB contains hundreds of lakes that are suitable for use by small seaplanes. Most of the larger lakes are used by at least a few aircraft at some time during each year. Currently, only 34 seaplane bases are registered with the FAA in the MSB. These lakes represent most of the major lakes near the road system, but a few busy lakes are currently not registered. Only registered seaplane bases are shown on the various figures in this report.

The most significant unregistered lake is Big Lake. This large lake has operations by dozens of floatplanes, but no registration form has ever been filed. Big Lake has not been registered because FAA does not actively request that lakes be registered, and no user of the lake has filed the registration.

In the 2006-2007 Edition of the *Water Landing Directory*, the Seaplane Pilots Association lists 24 floatplane facilities in the MSB. These facilities are shown in the following table.

Table 6: Seaplane Bases from Seaplane Pilots Association

Facility	FAA Site	FAA Identifier	Public or Private Use?
Beaver Lake Seaplane	50068.65*C	D71	Public
Big Lake	(not registered)		Public
Blodget Lake Seaplane	50870.6*C	D75	Public
Cottonwood Lake Seaplane	50870.35*C	3H3	Public
Finger Lake Seaplane	50585.12*C	99Z	Private
Flyway Farm Airstrip	50870.52*A	36AK	Private
Gooding Lake Seaplane	50584.41*C	2D3	Private
Kalmbach Lake Seaplane	50870.5*C	54AK	Private
Lake Louise	50439.1*C	13S	Public
Lake Lucille Seaplane	50870.58*C	4A3	Public
Lost Lake Seaplane	50870.43*C	57AK	Private
Mels Homestead Landing	50870.51*A	38AK	Private
Minuteman Lake Seaplane	50877.32*C	MFN	Public
Morvro Lake Seaplane	50325.01*C	4K2	Public
Nancy Lake Seaplane	50519.5*C	78Z	Public
Niklason Lake Seaplane	50870.64*C	4AK0	Public
Seymour Lake Seaplane	50870.47*C	3A3	Public
Stormy Hill	50584.42*C	9AK1	Private
Upper Wasilla Lake Seaplane	50870.62*C	3K9	Public
Visnaw Lake Seaplane	50870.18*C	T66	Private
Wallis Lake Seaplane	50870.44*C	62AK	Private
Wasilla Lake	50870.2*C	5L6	Public
Willow (instead of Willow Seaplane Base)	50878.*A	UUO	Public
Willow Seaplane	50877.01*C	2X2	Not Listed
Wolf Lake	50584.21*A	4AK6	Private

2.2.6 Heliports

There are nine heliports registered with the FAA in the MSB. Most of these are private heliports that are located adjacent to a business or a home. Four of the heliports are associated with the various hospitals and medical centers in the MSB. One of these, the Valley Hospital in Palmer, is no longer an active medical facility, and the associated heliport is no longer in use for medical flights. The future status of this heliport is uncertain.

2.2.7 Summary of Airport Inventory

In summary, there are between 200 and 250 airports in the MSB. Only about 70 of these are shown on the sectional map of the area, and only about 110 have had an airspace review by the Alaska Region of FAA. Approximately 25 to 30 percent of the airports are unregistered, and all of the unregistered airports are privately owned. There are more than 50 additional sites that appear to be airports on aerial photography, but may or may not be actual airports. Proposed airports includes airports that were proposed by property owners but have not yet been built and/or registered with the FAA. The following table summarizes the numbers and registration status of airports in the MSB.

Table 7: Airport Registration Summary

Facility Type	Registered	Proposed*	Unregistered
Airports	130	7	53
- Public	10	0	0
- Private Airport	106	6	53
- Private Airpark	14	1	0
Heliports	9	0	1
Seaplane	34	3	?
Total	173	10	>53

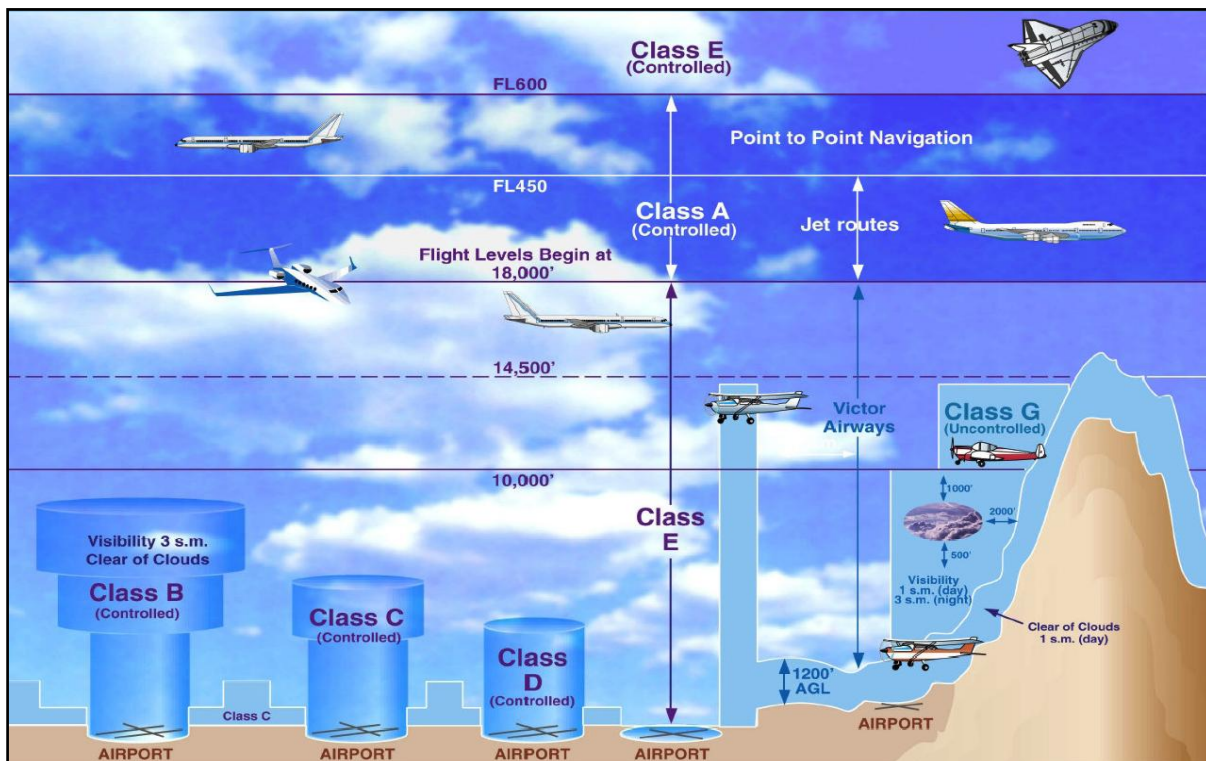
* Proposed since 2006.

2.3 **Airspace and Navigational Aids**

The airspace over the MSB is defined by FAA classification, air traffic control (ATC) designation, navigational aids (NAVAIDS), and the airports within and in close proximity to the MSB. The Federal Aviation Act of 1958 gave jurisdiction of all United States airspace to the FAA. The National Airspace System was then established to manage this system safely and efficiently among commercial, GA, military, and other competing users. It is a common network of NAVAIDS, airport and landing sites, charting and information, procedures, regulations, technical support, and resources.

2.3.1 Airspace

Airspace is either controlled or uncontrolled. Controlled airspace is managed by ground-to-air communications, NAVAIDS and air traffic services. Figure 8 shows the different classifications of airspace. Most of the MSB is covered by Class E airspace with a floor of 1,200 feet above ground level (AGL). Specified areas around some of the busier airports that have instrument approaches have Class E airspace floors of 700 feet. These airports include Big Lake, Wasilla, Palmer, and Talkeetna. There is a slightly smaller area around the Talkeetna Airport where the Class E airspace extends down to the ground. This is the only area in the MSB where this is the case. The Class E airspace surrounding the Anchorage Airports, with a floor of 700 feet, also extends into a very small part of the MSB.



Source: HNTB

Figure 8: Airspace Classifications

Class E airspace extends up to 18,000 feet AGL. Even though Class E airspace is called controlled, pilots do not need to be under the control of ATC, as long as the weather meets certain criteria. Within Class E airspace, the pilot needs to have three miles of visibility and needs to avoid clouds by staying at least 500 feet below, 2,000 feet laterally, or 1,000 feet above

them. This is called flying under Visual Flight Rules (VFR). If the weather is less than this, a pilot flies under Instrument Flight Rules (IFR) and needs to file an IFR flight plan. They are then under the control of ATC.

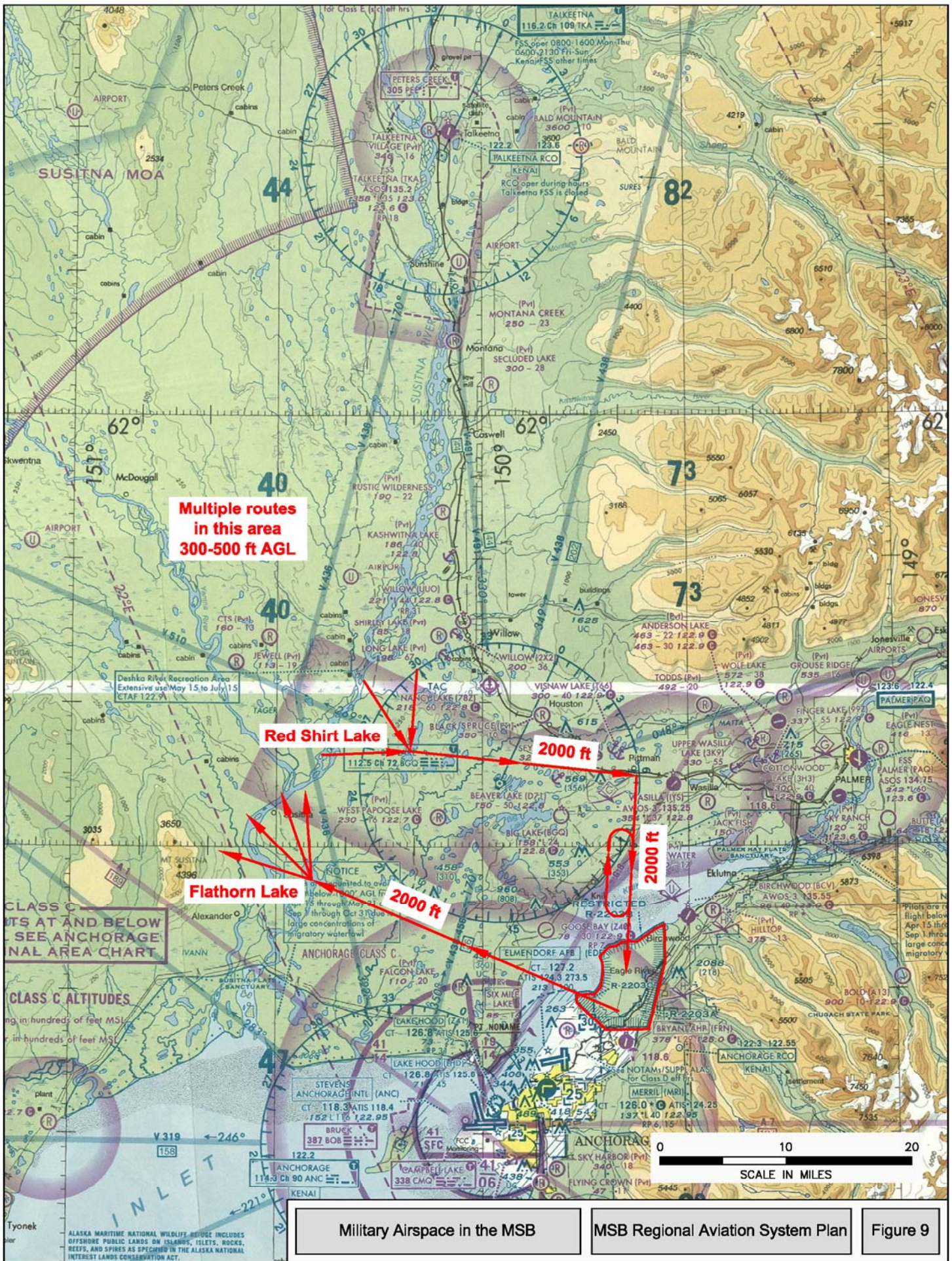
The area underneath the Class E airspace is Class G airspace, which is uncontrolled. In these areas, during daylight hours, an aircraft can fly VFR (not under ATC) as long as there is one-mile visibility and the pilot stays clear of clouds. The practical effect of this is that most of the public and private airports in the MSB are in an area where aircraft can fly during relatively poor weather conditions (visibility greater than or equal to one mile) without being under ATC, as long as they stay less than 700 feet AGL.

There are two areas in the MSB where the airspace is Class G (uncontrolled) all the way up to 18,000 feet AGL. One area is on the eastern side, somewhat centered over Lake Louise and the other is on the west side, centered, for the most part, over the Kahiltna Glacier. There are not any public airports in these areas, and few, if any, private airports.

Class C airspace associated with Anchorage International Airport extends over a small part of the MSB in the area of Point Mackenzie. Aircraft in Class C airspace need to be in contact with ATC regardless of weather conditions.

Some special use airspace also overlies the MSB. In the northeast corner is the Fox 3 Military Operations Area (MOA). The Susitna MOA lies over the northwest corner of the MSB. The floors of these MOAs are fairly high (at least 5,000 feet AGL) and do not have much impact on GA.

There are also numerous military training routes through the area, as depicted in Figure 9. Most of these routes are designated as slow route (SR). An SR is a low-level route at or below 1,500 feet AGL where aircraft fly at 250 knots indicated airspeed or less. These routes are predominantly used by cargo aircraft such as the Lockheed C-130. The floors of these routes are generally kept higher in the high-density areas of public and private airports, but at certain times may be as low as 300 to 500 feet AGL as depicted in Figures 8 and 9. The only high-speed instrument route and visual route military training routes are on the east side of the MSB.



ALASKA MARITIME NATIONAL WILDLIFE REFUGE INCLUDES OFFSHORE PUBLIC LANDS ON ISLANDS, ISLETS, ROCKS, REEFS, AND SPIRES AS SPECIFIED IN THE ALASKA NATIONAL INTEREST LANDS CONSERVATION ACT.

Flights for flight below Apr 15 thru Sep 1 thru large concentration migratory waterfowl

CLASS C AIRSPACE AT AND BELOW 1000 FT SEE ANCHORAGE REGIONAL AREA CHART

CLASS C ALTITUDES
in hundreds of feet MSL
in hundreds of feet MSL

Military Airspace in the MSB

MSB Regional Aviation System Plan

Figure 9

2.3.2 Air Traffic Control

As indicated above, pilots flying during IFR are under the control of ATC. Aircraft have to fly under IFR whenever weather is below certain specified minimums. Some GA, most corporate and military, and virtually all airline aircraft will fly under IFR even when weather conditions are good. Most of the airspace over the MSB is controlled by Anchorage Air Route Traffic Control Center (ARTCC), which is located adjacent to Elmendorf Air Force Base. The rest of the airspace, generally within about 30 nautical miles of Anchorage International Airport, is controlled by the Terminal Radar Approach Control (TRACON) portion of Anchorage Air Traffic Control Tower (ATCT), which is located on Anchorage International Airport. Big Lake and Wasilla Airports are in the area covered by Anchorage TRACON, while Palmer Airport is in the area covered by Anchorage ARTCC.

2.3.3 Navigational Aids and Instrument Approaches

The MSB has relatively few NAVAIDS, given the size of the area. The following are the NAVAIDS by type.

Table 8: Existing Navigational Aids

NAVAIDS Type	Location
VOR	Big Lake
	Talkeetna
NDB	Peters Creek (by Talkeetna)
	Summit

NDB = Non-Directional Beacons

The following are the instrument approaches that are associated with airports in the MSB. All of these approaches are non-precision type approaches.

Table 9: Existing Instrument Approaches

Airport	Available Approaches
Big Lake	RNAV (GPS) RW 7
	RNAV (GPS) RW 25
	VOR RW 7
Palmer	GPS - A
Talkeetna	GPS RW 36
	NDB RW 36
	VOR - A
	VOR/DME RW 36
Wasilla	RNAV (GPS) RW 3
Willow	RNAV (GPS) RW 13
	RNAV (GPS) RW 31

GPS = Global Positioning System

RNAV = Area Navigation

VOR = Very High Frequency Omni-directional Radio-range (radio beacon)

DME = distance measuring equipment

The FAA is in the process of implementing new precision approaches based on the GPS Wide Area Augmentation System (WAAS). These WAAS-enabled approaches are commonly referred to as localizer performance with vertical guidance (LPV) approaches and use satellite signals to provide vertical guidance similar to that provided by a traditional ILS approach. LPV approaches do not require ground-based navigational aids and may therefore enable cost-effective precision approaches at airports that do not already have a precision approach.

However, implementation of an LPV approach will have impacts on local airspace similar to those caused by an ILS approach. Controlled airspace would need to be extended downward to the ground surface within at least five miles of any airport with an LPV approach. Because of the large number of private airports that could be impacted by such a change, careful consideration will be needed prior to implementation of LPV approaches in the MSB.

2.3.4 Weather Reporting

Several of the airports in the MSB have federal weather stations that report aviation weather. Most of these are owned by FAA, but several are owned by the National Weather Service (NWS). It should be noted that one of the weather stations, Chulitna River, is located along the Parks Highway near Chulitna Pass and is not associated with an airport.

According to FAA staff, no additional weather stations are planned for airports in the MSB at this time. However, FAA is currently reviewing their weather station priorities for Alaska and new or upgraded stations might be available in the future.

Although not part of a weather station, weather cameras provide useful information to supplement official weather reports. At this time, only Sheep Mountain and Summit airports have weather cameras in the MSB. The FAA is currently performing a review of weather camera needs in Alaska and will likely recommend additional weather cameras at Chulitna Pass, Palmer, Talkeetna, and Willow Airports. FAA has also expressed a desire to install a weather camera somewhere along the Parks Highway between Trapper Creek and the Chulitna River Bridge to provide a view of weather around Mount McKinley. This camera would not be associated with an airport, but would provide weather information for use by flightseeing aircraft from Talkeetna. The following table summarizes the aviation weather stations and weather cameras in the MSB.

Table 10: Weather Stations and Weather Cameras in the MSB

Name	ID	Freq.	Type	Agency	Phone Number	Weather Camera	Location	Coordinates
Chulitna River	PAEC	---	Apaid	NWS	---	Planned	Beside highway in Chulitna Pass	62-53N 149-50W
Palmer	PAAQ	134.75	ASOS	FAA	746-6675	Planned	Palmer Airport	61-36N 149-05W
Sheep Mountain	PASP	---	Apaid	NWS	---	Yes	Sheep Mountain Airport	61-48-43N 147-30-25W
Skwentna	PASW	---	Apaid	FAA	---	No	Near Skwentna Airport	61-58N 151-11W
Summit (camera only)	---	---	---	FAA	---	Yes	Summit Airport	63-19-41N 149-07-58W
Talkeetna	PATK	135.2	ASOS	FAA	733-1637	Planned	Talkeetna Airport	62-19-14N 150-05-37W
Wasilla	PAWS	135.25	AWOS	FAA	373-3801	No	Wasilla Airport	61-34-19N 149-32-26W
Willow	PAUO	---	Apaid	NWS	---	Planned	Willow Airport	61-45N 150-03W

Apaid = weather reports from a paid observer

Source: <http://www.arh.noaa.gov/obs.php> and FAA staff

2.4 Accident Summary

The project team researched aviation accidents in the MSB using the National Transportation Safety Board accident database records from 1996 through 2006. Only 15 percent of the accidents took place at the public airports, even though these airports carry over 50 percent of the aircraft operations. About 20 percent of the accidents occurred at private or remote airstrips and 65 percent occurred at remote areas or in-flight.

Contributing factors to MSB accidents include:

- Landing on rough and uneven terrain
- Overrun during landing roll (tailwind and short landing area)
- Undershoot of the landing area, collision with terrain
- Loss of engine power, collision with terrain
- Failure to maintain directional control during landing
- Many accidents resulted from planes taking off and landing at remote sites; a contributing factor in many of these accidents is unsuitable terrain

The following table summarizes the accident data. Please note the accident data collected for Skwentna and Willow Airports is from 2000 (not 1996) through August 2006.

Table 11: Aircraft Accidents at Major Airports in the Matanuska-Susitna Borough, 1996-2006

Airport	Phase of Flight When Accident Occurred					Total Accidents
	Takeoff (at airport)	Landing (at airport)	In-Flight (emergency)	Private/Remote Airstrip	Remote Area	
Big Lake Airport	1	2				3
Chickaloon	0	1				1
Palmer Airport	3	1				4
Skwentna Airport	0	1				1
Talkeetna Airport	8	2				10
Wasilla Airport	4	8				12
Willow Airport	2	1				3
Other MSB			27	45	119	191
Total MSB						225

2.5 Government Involvement

2.5.1 Roles and Jurisdictions

The various levels of government interact with the aviation system in the MSB in a variety of roles with each having jurisdiction over certain issues. The various roles are summarized below with an explanation of the corresponding jurisdiction. Regulatory citations are provided where applicable.

Airport Owner - In most states, the role of airport owner is primarily filled by cities, counties, and private entities. In the MSB, the cities of Wasilla and Palmer operate their municipal airports. However, in Alaska the DOT&PF owns and operates many airports in addition to their role as the State aviation agency. Eight of the ten publicly-owned airports in the MSB (all except Wasilla and Palmer) are owned by DOT&PF and operated according to 17 Alaska Administrative Code (AAC) 45 - *Rural Airports*.

For airports with improvements funded by the FAA Airport Improvement Program, the FAA generally refers to airport owners as “airport sponsors.” Airport sponsors agree to abide by certain “grant assurances” intended to keep the airport open and suitable for use by the public. Grant assurances generally include maintenance of the airport, compatible land use, and compliance with federal laws. The standard FAA grant assurances are included as Appendix E.

Owners of private airstrips and airparks also have certain requirements, including registration of the airport and compliance with local land use requirements where they exist. Sponsors of private airports that accept FAA funding are subject to grant assurances similar to those of public airports.

City Government - City governments generally have jurisdiction over land development within their city limits. The Cities of Wasilla, Palmer, Talkeetna, and Houston have exercised this power through the formation of Special Use Districts, and have enacted land use or zoning maps and ordinances. These ordinances guide the land uses on and adjacent to the public airports in the cities. Wasilla and Palmer also have basic ordinances addressing the management of city-owned, public airports.

MSB - The MSB has jurisdiction over all land development in the MSB, but delegates its land use authority to Palmer, Wasilla, and Houston for lands within their boundaries. The MSB retains control over platting for the entire MSB, though it does not regulate airport development through the platting process. There is no requirement to identify an airport on a plat. MSB code does not contain a separate section addressing airports. However, airports, floatplane lakes, and airport related issues (such as tall structures) are mentioned in various parts of the code.

DOT&PF - In its role as the state aviation agency, DOT&PF is granted certain powers and responsibilities for managing statewide aviation issues. These powers, outlined in 2 AS §10-40, include:

- zoning for safety and compatibility of airports
- prevention and removal of obstructions
- providing matching funds for local airport sponsors
- collection of aviation data

DNR - The DNR is responsible for managing land and water owned by the State of Alaska. Restrictions and “generally allowed uses” are outlined in 11 AAC 96. Use of State lands and waters by aircraft (including floatplanes) is a “generally allowed use” and is explicitly allowed unless restricted by State law. The DNR can restrict “generally allowed uses” through a public process, if necessary. According to DNR staff, cities or boroughs with planning and zoning and/or public health and safety authority can restrict “generally allowed uses” through planning

processes such as Lake Management Plans. The outcome of the planning process would need to be formally adopted by the MSB or City. However, no formal Attorney General's opinion has been issued about local government's authority to regulate generally allowed uses, and it has not been tested in court.

Other DNR regulations that may affect floatplane operations on MSB lakes include requiring registration (not a permit) for commercial activities in order to compile statistical summaries of commercial activity. The DNR also issues permits (< five years) and leases (> five years) for development on State lands.

FAA - As the national aviation agency, the FAA has multiple roles related to the airports in the MSB. One of its most fundamental responsibilities is management of airspace, which includes the registration of airports. According to 14 Code of Federal Regulations (CFR) 157, airports must generally register with the FAA if they are in use for more than 30 days or have more than 10 operations per day (an operation is either a takeoff or a landing). The FAA procedure to register an airport is described in Advisory Circular 150/5200-35. Basic information on how to register an airport is included in Appendix D.

Another responsibility of FAA is to conduct aeronautical studies for land development near airports. According to 14 CFR 77, land developers must notify the FAA of proposed development that penetrates certain airspace surfaces that surround any public use airport. The FAA reviews the proposed development then issues a determination. The FAA airspace determinations are advisory only and have no enforcement authority, however, they may have implications regarding the developer's liability and ability to obtain insurance.

A third responsibility of the FAA is to provide funding for public-use airports (including some that are privately owned). The funding requirements for publicly owned airports are outlined in 14 CFR 152 and the requirements for privately owned airports are outlined in 14 CFR 169. The specific FAA procedures for funding airports are described in FAA Order 5100.38C - *Airport Improvement Program Handbook*. To be funded, an airport must be part of the NPIAS and must agree to a long list of conditions known as "grant assurances." These grant assurances are included in Appendix E.

Other responsibilities of the FAA include the installation and maintenance of NAVAIDS and management of the air traffic control system. Although there are currently no air traffic control towers (ATCTs) in the MSB, various types of controlled airspace cover much of the MSB.

3.0 SOCIOECONOMIC INVENTORY AND FORECASTS OF AVIATION DEMAND

3.1 Economic Overview

The MSB is one of the fastest growing areas of the state. Table 12 shows historic population growth in the MSB. While the rate of population growth has slowed compared to the rapid pace in the 1970s and 1980s, the MSB still grew an average of 4.3 percent per year between 2000 and 2005, compared to a 1.1 percent growth rate statewide.

Table 12: Matanuska-Susitna Borough Population Growth - 1960 to 2005

Year	Population	Annual Growth Rate
1960	5,188	
1970	6,509	2.5%
1980	17,816	17.4%
1990	39,683	12.3%
2000	59,322	4.9%
2001	61,737	4.1%
2002	64,329	4.2%
2003	67,841	5.5%
2004	70,482	3.9%
2005	74,041	5.0%
Average 1960 to 2005		6.6%
Average 2000 to 2005		4.5%

Sources: Alaska Department of Labor and Workforce Development, and United States Bureau of Census

Much of the MSB’s economy is based on supporting the resident population. Only about 55 percent of the workers residing in the MSB also work in the MSB. About 34 percent of working MSB residents are employed in Anchorage.

The largest economic sectors include local government, construction, retail trade, health care, and leisure and hospitality. Health care and leisure and hospitality are the fastest growing sectors in the MSB economy. Construction is another industry showing strong growth in the MSB and is a testament to continued growth and development there. With continued housing development, public facilities construction, major commercial development, and road work upcoming within the MSB, that sector will remain strong for years to come. Some of the larger upcoming projects include construction of new schools and renovation of existing ones, a new prison, recreation facilities at Hatcher Pass, visitor facilities at South Denali State Park, and a possible Knik Arm Bridge.

3.2 Forecast of Aviation Activity

Following are two forecasts of aviation activity in the MSB. The first is a forecast of activity at public airports only. The second forecast includes all aviation activity in the MSB, regardless of whether it takes place at public or private landing areas, and was developed independently of the public airports forecast.

3.2.1 Public Airports Forecast

The ten public airports within the MSB are located at Palmer, Wasilla, Talkeetna, Willow, Big Lake, Skwentna, Summit, Goose Bay, Sheet Mountain, and Lake Louise. Scheduled air passenger service is not available at any of the airports in the MSB, but charter service is available at most public airports and several private landing areas (wheel, ski, and floatplane charter service), and Skwentna receives scheduled mail service. In addition, aviation activity at public airports includes firefighting, search and rescue, medical evacuations, military, and private recreational activity.

Existing air traffic forecasts for the public airports in the MSB were consolidated, and the information is presented in Table 13. This consolidated public airport forecast shows a more than doubling of operations in 25 years, and a 250 percent increase in based aircraft. Commercial enplanements and operations are expected to more than triple over the same time period. Growth in private GA operations is expected to double, while military operations are expected to increase only slightly. The fastest growing public airports in the MSB are Willow and Talkeetna, followed by Palmer, Wasilla, and Big Lake.

Table 13: Consolidated Public Airport Forecast

Category	2005	2010	2015	2020	2025	2030
Based Aircraft	593	703	837	1,001	1,210	1,458
Commercial Enplanements	32,490	41,215	52,352	68,068	88,660	112,917
Commercial Operations	30,333	38,532	48,388	60,753	76,785	96,489
Military Operations	832	869	898	932	972	1,018
Local GA Operations	44,768	51,416	59,267	68,453	79,538	92,245
Itinerant GA Operations	58,505	67,370	77,809	90,240	105,761	123,797
Total Operations	134,438	158,187	186,362	220,378	263,056	313,549

Sources: Wasilla (2003), Palmer (2001), and Talkeetna (2001) Airport Master Plans; Talkeetna Airport Improvements EA (2006); Alaska Aviation System Plan (1996); Willow Airport Layout Plan (2003); and FAA's Terminal Area Forecasts (2006).

3.2.2 General Air Traffic Forecast

The following forecasts estimate aviation activity occurring on both public and private landing areas in the MSB and were developed independent of the public airports forecast presented in Table 13. The forecasts include number of aircraft and pilots based in the MSB, number of operations by based aircraft, and number of visiting (itinerant) aircraft and their operations for two scenarios; without and with building the Knik Arm Bridge.

Estimates for growth in air traffic from MSB-based aircraft were developed by finding the ratio of based aircraft and pilots to population and applying that ratio to the population growth in the MSB’s Long-Range Transportation Plan (LRTP). Estimates for growth in air traffic from itinerant (visiting) aircraft were developed by using estimates of air taxi and GA aircraft in the Anchorage area, estimating the percent of that traffic traveling to the MSB, and applying the resulting traffic estimates to the population growth in the LRTP.

The forecast of resident pilots and aircraft based in the MSB presented in Table 14 was developed using the LRTP population forecasts for two scenarios; without and with building the Knik Arm Bridge. 2005 base year estimates came from FAA pilot certification data and the MSB property tax assessor office.

Table 14: Forecast of Based Aircraft and Pilots - Without and With the Knik Arm Bridge

Category	2005	2010	2015	2020	2025	2030
Population						
Without Bridge	72,700	92,080	118,990	136,860	161,870	187,530
With Bridge	72,700	96,040	125,560	144,438	173,505	203,755
Pilots						
Without Bridge	1,134	1,436	1,856	2,135	2,525	2,925
With Bridge	1,134	1,498	1,959	2,253	2,707	3,179
Based Aircraft						
Without Bridge	973	1,215	1,571	1,807	2,137	2,475
With Bridge	973	1,268	1,657	1,907	2,290	2,690

Source: Southeast Strategies, 2006.

To estimate the itinerant (non-resident) aviation activity in the MSB for 2005, activity of GA aircraft and air taxis in the adjacent Anchorage Bowl was investigated, and estimates of that activity were borrowed from existing studies. Estimates of local Anchorage traffic traveling to the MSB were obtained from Anchorage area airport management and FAA flight service

personnel. In addition, MSB resident pilots and local businesses estimated that about one-third of all aircraft based in the MSB is equipped with floats during the summer season. Operations per plane were developed from the public airport forecast. The following tables present the forecast of aviation activity in the MSB for two scenarios; without and with a Knik Arm Bridge.

Table 15: Forecast of Air Traffic without Knik Arm Bridge

Category	2005	2010	2015	2020	2025	2030
Aircraft	3,369	4,076	4,987	5,886	7,008	8,292
Based	973	1,215	1,571	1,807	2,137	2,475
On Floats	324	405	524	602	712	825
On Wheels	649	810	1,047	1,204	1,424	1,650
Itinerant	2,396	2,861	3,416	4,079	4,871	5,816
On Floats	759	906	1,082	1,292	1,543	1,842
On Wheels	1,637	1,955	2,334	2,787	3,328	3,974
All Aircraft	3,369	4,076	4,987	5,886	7,008	8,292
On Floats	1,083	1,311	1,605	1,894	2,255	2,667
On Wheels	2,286	2,765	3,381	3,992	4,753	5,624
Operations	249,407	301,863	369,460	435,964	519,036	614,042
Based	73,456	91,760	118,576	136,384	161,307	186,878
On Floats	24,485	30,587	39,525	45,461	53,769	62,293
On Wheels	48,971	61,173	79,051	90,923	107,538	124,585
Itinerant	175,951	210,103	250,884	299,580	357,729	427,164
On Floats	55,725	66,541	79,457	94,879	113,295	135,286
On Wheels	120,226	143,562	171,427	204,701	244,434	291,878
All Operations	249,407	301,863	369,460	435,964	519,036	614,042
On Floats	80,210	97,128	118,982	140,340	167,064	197,578
On Wheels	169,197	204,735	250,478	295,624	351,972	416,464

Source: Southeast Strategies, 2006.

Note: Itinerant aircraft are aircraft based outside of the MSB that travel to the MSB.

The no-bridge forecast (Table 15) reveals that by 2030 all air traffic in the MSB will increase about 146 percent to 8,292 planes and 614,042 operations. Local traffic will increase by 154 percent to 2,475 planes and 186,878 operations, and itinerant traffic will increase by about 142 percent to 5,816 planes and 427,164 operations by 2030. Floatplanes are estimated to make up about 32 percent of all aircraft operating in MSB airspace.

Comparison between the public airports forecast in Table 13 and the air traffic forecast for the no-bridge scenario presented in Table 15 reveals that about 50 percent of the aircraft operations in the MSB will occur on existing public airports by 2030. This forecast does not speculate about additional public airports being developed by 2030, but that is a distinct possibility.

Table 16: Forecast of Air Traffic with Knik Arm Bridge

Category	2005	2010	2015	2020	2025	2030
Aircraft	3,369	4,168	5,169	6,159	7,439	8,923
Based	973	1,268	1,657	1,907	2,290	2,690
On Floats	324	423	552	636	763	897
On Wheels	649	845	1,105	1,271	1,527	1,793
Itinerant	2,396	2,901	3,512	4,252	5,148	6,233
On Floats	759	919	1,112	1,347	1,630	1,974
On Wheels	1,637	1,982	2,400	2,905	3,518	4,259
All Aircraft	3,369	4,168	5,169	6,159	7,439	8,923
On Floats	1,083	1,341	1,665	1,982	2,394	2,871
On Wheels	2,286	2,827	3,505	4,176	5,045	6,052
Operations	249,407	308,738	383,052	456,223	551,004	660,834
Based	73,456	95,706	125,123	143,936	172,902	203,046
On Floats	24,485	31,902	41,708	47,979	57,634	67,682
On Wheels	48,971	63,804	83,416	95,957	115,268	135,364
Itinerant	175,951	213,032	257,929	312,288	378,102	457,787
On Floats	55,725	67,469	81,688	98,904	119,747	144,984
On Wheels	120,226	145,564	176,241	213,384	258,355	312,803
All Operations	249,407	308,738	383,052	456,223	551,004	660,834
On Floats	80,210	99,371	123,396	146,882	177,381	212,666
On Wheels	169,197	209,368	259,657	309,341	373,622	448,167

Source: Southeast Strategies, 2006.

Note: Itinerant aircraft are aircraft based outside of the MSB that travel to the MSB.

The forecast with development of a Knik Arm Bridge (Table 16) shows a higher rate of growth in air traffic by 2030. That forecast reveals similar relationships between local and itinerant traffic, and between wheel and float plane traffic, but with larger increases of planes and operations in MSB airspace overall. This forecast estimates that by 2030 there will be an additional 631 planes using MSB airspace, 215 of which will be based in the MSB over the scenario without a Knik Arm Bridge. An additional 46,792 operations are estimated by 2030 under this forecast, with 16,168 operations by local planes and 30,623 operations by itinerant planes.

Comparison of the forecast in Table 16 (scenario with a Knik Arm bridge) with the public airports forecast in Table 13 reveals that about 47 percent of the aircraft operations in the MSB will occur on existing public airports by 2030. This forecast does not speculate about additional public airports being developed by 2030, but that is a distinct possibility.

3.3 Economic Impact of Aviation in the Matanuska-Susitna Borough

Due to the limited economic data and research resources available to estimate the economic impact of aviation activity in the MSB, it is not possible to fully quantify the potential economic impacts generated from aviation activity. As a result, the very narrowly defined Alaska Department of Labor and Workforce Development industry category of Air Transportation was used to estimate indirect impacts, to show how impacts are multiplied in an economy. The following estimates in no way account for all economic impacts to the MSB from aviation activity.

According to the Alaska Department of Labor and Workforce Development, the industry category of Air Transportation employed 46 full-time equivalent workers in the MSB in 2005. This specific industry category includes only companies whose primary business is transporting passengers and cargo by air, such as Talkeetna Air Taxi. It does not include workers on public airports, such as the Cities of Palmer or Wasilla airport personnel, DOT&PF airport maintenance personnel, or FAA personnel, as they are counted in the government sector. It does not count companies that list their primary industry as flight training, aviation repair, providers of aviation fuel, providers of tours, or other aviation-linked categories. In addition, this calculation does not include air transportation industry employees who might work in the MSB, but their main office is in Anchorage and employees are reported as being in Anchorage. Also, since this employment count is by place of employment, air transportation workers living in the MSB but working elsewhere are not included in this count.

Table 17 shows direct, indirect, and induced impacts of reported 2005 employment in the Air Transportation industry in the MSB. This information came from the Impact Analysis for Planning Model, a community and regional level input/output model initially developed by the United States Forest Service to assist in land and resource management planning. The model uses census area level data about employment, income, and other indicators to determine how direct economic impacts will produce multiplier effects (indirect and induced economic impacts) within an area. This analysis uses 1999 MSB specific data, adjusted for inflation to 2005 dollars. While this analysis represents only a small portion of the impact that aviation activity has on the MSB, it can indicate the expansion of the impact beyond direct employment of personnel.

Table 17: Economic Impacts of 2005 Reported Air Transportation Employment

Impact Category	Direct	Indirect	Induced	Total
Business Income	\$3,625,427	\$369,805	\$1,788,386	\$5,783,618
Employment	46	5.1	23.6	74.7
Payroll	\$1,526,566	\$158,366	\$810,826	\$2,495,757
Rents and Dividends	\$635,398	\$69,578	\$304,659	\$1,009,636
Local Fees and Taxes	\$273,654	\$15,628	\$85,494	\$374,776

Source: Southeast Strategies, 2006.

Definitions of Table 17 terms:

- **Direct** impacts are primary impacts in the local area that are a direct result of employment in the air transportation industry in the MSB that would not exist without that activity.
- **Indirect** impacts are secondary impacts created by additional spending in the MSB by businesses earning revenue directly from air transportation businesses reporting employment in the MSB.
- **Induced** impacts are secondary impacts created by additional spending in the MSB by households who earn income (usually as wages and salaries) directly from air transportation businesses reporting employment in the MSB.

The Table 17 impact categories are:

- **Business Income** - Total income to local businesses as a result of activity by air transportation businesses reporting employment in the MSB.
- **Employment** - Total number of jobs created as a result of activity by air transportation businesses reporting employment in the MSB. Jobs are counted as the equivalent of full-time year-round jobs.
- **Payroll** - Total wages and salaries paid to employees and payments received by self-employed individuals as a result of activity by air transportation businesses reporting employment in the MSB.
- **Rents and Dividends** - Total lease and rent payments, royalties, and dividends that are paid by impacted businesses as a result of activity by air transportation businesses reporting employment in the MSB.

- **Local Fees and Taxes** - Total sales, property, and other local taxes paid, as well as local fees and commission paid by impacted businesses as a result of activity by air transportation businesses reporting employment in the MSB.

In addition to the above impact on MSB employment in the narrowly defined Air Transportation industry and similar impacts in aviation-linked industries, economic impacts are received in many other economic sectors in the MSB. Visitors using aviation services may also rent hotel rooms and cars, purchase tours, meals, gifts, and other goods and services. Pilots residing in the MSB, but working outside of the MSB, bring home their paychecks and spend it with MSB businesses. Retired aviation industry employees spend retirement and insurance income in the MSB. Construction and maintenance activities related to airports or airstrips bring economic impacts to the MSB, and many other impacts occur which are not easily quantified. Also, for each of those economic activities, indirect and induced impacts multiply the dollars circulating within the MSB. Although a full evaluation of economic impacts to the MSB of aviation activity is not within the scope of this study, the above brief analysis hints at the large size of that economic impact. Future statewide aviation or regional plans should consider developing a more complete evaluation of economic impacts in the region. The need to communicate the economic impacts of aviation was also discussed at several Technical Committee meetings.

The detailed air traffic forecast for the MSB is in Appendix A.

4.0 ISSUES AND CONCERNS

4.1 Identification of Issues

Aviation in the MSB is multi-faceted and complex and there are many issues that could be addressed in a system plan. To better focus the efforts of this plan and to develop meaningful alternatives, the project team relied on input from the general public, a Technical Advisory Committee (TAC), and several governments and government agencies.

RASP issues were identified through a variety of methods. Initially, airport owners, government officials, aviation businesses, and airport neighbors were contacted by telephone and interviewed. Next, a TAC examined and prioritized issues. The Alaska Airmen's Association and the Aircraft Owners and Pilots Association helped create a survey that was widely publicized and placed on the project website. Project staff visited several community councils, airport board meetings and other aviation functions. Public meetings were held in Palmer, Talkeetna, Wasilla, and Willow. Below is a more detailed summary of the issues identification process and public outreach.

4.1.1 Technical Advisory Committee

The TAC met twice to discuss RASP issues and develop an initial list of ideas to address the issues. In general, the issues relate to compatibility of new airports with existing airports and non-aviation development around them, concerns about the use of airspace and pilot radio communications, the need to develop existing and new public airports and protect existing airports, and the need for more public awareness about the benefits of aviation. There were also concerns about not becoming over-regulated while also encouraging more involvement by the aviation community in addressing issues. The TAC identified relevant issues and suggested some initial ideas on how to address those issues. These are summarized in the table below.

Table 18: Summary of Technical Advisory Committee Issues/Preliminary Ideas

Issues	Preliminary Ideas
<ul style="list-style-type: none"> Floatplane access to lakes needs to be protected. 	<ul style="list-style-type: none"> None identified
<ul style="list-style-type: none"> Existing and new private airstrips and airparks need to be protected. 	<ul style="list-style-type: none"> “Grandfather” in existing airports. Consider removing grandfather rights when the property is sold.
<ul style="list-style-type: none"> New airports are built without proper consideration of airport layout standards, land uses and potential airspace conflicts with other airports. 	<ul style="list-style-type: none"> Establish MSB standards for development of new airports on/near the road system. Require FAA registration of airports on/near the road system. Establish a notification/coordination process for review of new airport proposals. Provide airport templates and educate private airstrip owners about FAA airport design standards and setbacks.
<ul style="list-style-type: none"> Floatplane noise at busier lakes bothers residents. 	<ul style="list-style-type: none"> Develop standards and a process to review/approve new commercial floatplane bases on MSB lakes.
<ul style="list-style-type: none"> Development around airports occurs without proper consideration of compatibility with surrounding airports. 	<ul style="list-style-type: none"> Inform the public and real estate and builders groups about the location of airports. Disclose the proximity to airports and floatplane use of lakes to purchasers of property on plat notes and real estate disclosure statements. Develop standards for setbacks and land uses around airports.
<ul style="list-style-type: none"> Towers are not well-lighted and are scattered around the MSB. 	<ul style="list-style-type: none"> Require lighting and clustering of towers in centralized locations.
<ul style="list-style-type: none"> Public facilities and utilities are sited without proper consideration of the location of airports. 	<ul style="list-style-type: none"> Develop standards for location of public facilities and utilities near airports.
<ul style="list-style-type: none"> Safety concerns of pilot training near population centers and high traffic corridors. 	<ul style="list-style-type: none"> Designate practice areas away from population centers and high traffic areas.
<ul style="list-style-type: none"> Safety concerns of mixing ultralights, sport aircraft, and gliders with faster moving aircraft. 	<ul style="list-style-type: none"> Designate an airport for these uses. Chart existing glider and ultralight use areas.
<ul style="list-style-type: none"> Inadequate pilot radio communication. 	<ul style="list-style-type: none"> Encourage use of radios. Establish reporting points. Redesignate Common Traffic Advisory Frequencies (CTAFs).
<ul style="list-style-type: none"> DNR and DOT&PF do not consistently apply standards throughout the state. DNR does not understand aviation. 	<ul style="list-style-type: none"> None identified
<ul style="list-style-type: none"> Future need to provide new public or private airstrips as the MSB and Anchorage grow and improve existing public airports. 	<ul style="list-style-type: none"> Consider needs for new airports caused by growth in the MSB and Anchorage and by major new developments such as the Knik Arm Crossing, Denali Park visitor center, and the new prison.
<ul style="list-style-type: none"> Future need to provide new public floatplane facility with facilities and services as the MSB grows. 	<ul style="list-style-type: none"> Look for sites that are less likely to be attractive for residential development and swimming/boating.
<ul style="list-style-type: none"> Avoid too much government control of aviation in the MSB. 	<ul style="list-style-type: none"> More active involvement by the aviation community in self-policing. Establish an on-going MSB Aviation Advisory Commission.
<ul style="list-style-type: none"> The public does not appreciate the positive economic impact of aviation. 	<ul style="list-style-type: none"> Commission an economic impact study.

4.1.2 Public Survey

A survey was created and made available to all interested parties from September 2006 through April 2007. The survey asked for input on the following areas:

- Safety of flight in the MSB
- Important aviation issues in the MSB and how to address these issues
- Land use compatibility
- Growth of aviation in the MSB over the next 20 years

The survey contained several open-ended questions (asking the respondent to write in answers), as well as questions asking the survey respondent to rank certain issues based on their importance (as shown in the following tables). Project staff received 92 responses to the survey.

4.1.2.1 Survey Demographic Overview

The following is a summary of some demographical and statistical information from the survey. It should be noted this was not a random survey, but consisted of voluntary information from interested individuals. Most of the responses were from individuals involved in and supportive of aviation.

- Survey responses: 92
- Pilot responses: 79 percent
 - Wheel planes conduct an average of 145 landings per year
 - Ski planes conduct an average of 107 landings per year
 - Float planes conduct an average of 85 landings per year
- Primarily fly for recreation: 72 percent

4.1.2.2 Survey Multiple Choice Responses

The following tables show the responses to the survey multiple choice questions that asked about encouraging safety of flight and promoting compatibility of development. The responses are listed with those showing the highest number of agree/strongly agree first. More detailed graphics of the responses can be found in Appendix C.

Table 19: Survey Results - Safety of Flight

Survey Question: How should the FAA and MSB encourage safety of flight in the MSB?			
Response Choices:	Agree/ Strongly Agree	Disagree/ Strongly Disagree	Undecided/ No Opinion
Restrict heights and development around public airports.	88%	6%	6%
Require radio communication in high traffic areas.	70%	21%	15%
Consolidate antenna farms in the MSB.	68%	14%	18%
Reassign radio frequencies in the MSB and publish maps.	68%	16%	16%
Restrict heights and development around private runways/airstrips.	67%	16%	17%
Require FAA airspace reviews of new airports to avoid overlapping airspace.	56%	16%	18%
More instrument approaches.	45%	29%	26%
The current system is safe and no improvements are needed.	39%	49%	12%

Table 20: Survey Results - Thoughts on Issues

Survey Question: What are your thoughts on the following issues?			
Response Choices:	Agree/ Strongly Agree	Disagree/ Strongly Disagree	Undecided/ No Opinion
Protection of PUBLIC airports from encroaching development is a major concern.	87%	8%	5%
Floatplane access to lakes in the MSB is a concern.	70%	14%	6%
Protection of PRIVATE airports from encroaching development is a major concern.	65%	19%	16%
Special facilities should be established for float operations.	47%	30%	23%
Special facilities should be established for ultralight aircraft.	29%	37%	34%
Floatplane operations should be restricted in noise sensitive areas.	29%	59%	12%
Aircraft noise is a problem in residential areas near airports.	26%	61%	13%
Conflicts between floatplanes and non-pilot land owners are a problem.	26%	33%	41%

Table 21: Survey Results - Incompatible Development

Survey Question: How should the MSB and others protect airports from incompatible development?			
Response Choices:	Agree/ Strongly Agree	Disagree/ Strongly Disagree	Undecided/ No Opinion
Notify landowners of the proximity to an airport prior to purchasing property.	90%	4%	6%
Prevent construction of public infrastructure (overhead utilities, school, and roads) that conflict with airport operations.	90%	5%	5%
Identify development setbacks from runways.	82%	11%	7%
Require private airstrips to be identified during the platting process.	81%	16%	3%
Require a conditional use/land use permit for private airstrip construction.	50%	42%	8%
The current system is working well and no changes are needed.	23%	51%	26%

4.1.2.3 Preference for Public or Private Airport

Respondents were almost evenly split over preferences for choosing to locate their aircraft at a public or private airport. Survey respondents provided a variety of reasons for choosing to base their aircraft at either a public or private airport. Their responses are summarized as follows:

Public Airports

- Security
- Maintenance
- Snow removal
- Better facilities
- Services
- Safer because they are built to higher/better standards
- Weather reporting and FSS
- Accessibility for clients of airport businesses
- Space is available
- Makes general aviation accessible to the general public - this is needed if GA is to grow

Private Airports

- Avoid state regulations for leasing land and operating at a state airport
- Difficulty in getting land for a hangar at state airports
- Convenience of living next to plane allows for more frequent flying
- Less traffic
- Security, maintenance, and protect airplane in storms
- Hangars cheaper and easier to build and use at private airport
- Less wind
- Cheaper fuel
- Fewer costs
- No tie-down fees
- Ability to own the land where plane is kept

4.1.3 Public Meetings

The first public meeting was held in fall 2006. The meeting was held twice (in Talkeetna and again in Wasilla) in an effort to reach as many members of the public as possible. The primary purpose of the initial public meeting was to explain the purpose and scope of the RASP and to get feedback on issues and ideas.

The second public meeting was held in spring 2007. The meeting was held twice, once in Willow and again in Palmer. The purpose of the second public meeting was to provide an update on RASP findings to-date, as well as discuss potential alternatives and recommended improvements. All the public meetings were well attended and generated many helpful comments and suggestions. Copies of the public meeting minutes are included in Appendix C.

The third public meeting was held in fall 2007. The meeting was held in Sunshine (near Talkeetna) and Wasilla. The purpose of the third meeting was to present and receive comments on the draft RASP and Location Study reports. Over 100 people attended the meetings. Over 120 written comments were submitted following the meeting. Copies of the public meeting minutes and all written comments on the draft reports are included in Appendix C.

4.1.4 Policy Issues

Based on the issues identified by the public, project staff identified several policy issues that will likely require decisions by MSB staff and elected officials. Some of the policy questions were answered during the latter part of this project; other issues will require decisions in the future. The policy issues are outlined below.

MSB Management of Airports and Adjacent Land Uses. Does the MSB want to take a more active role in managing development of airports and land uses around them? If so, should this MSB role extend to all airports or only those on the road system? Examples of an increased MSB role could include:

- Implementing minimum development standards on and/or around airports - heights, safety zones, buffers etc. (advisory or mandatory).
- Mandatory notification of proximity to an airport on plats or real estate disclosure statements.
- Requiring FAA registration as a precondition to MSB airport approval.
- Consolidating antenna farms.
- Restricting basing of commercial floatplane operations to certain lakes.
- Considering proximity to airports when selecting sites for certain public facilities.
- Providing public transient mooring spaces on selected floatplane lakes on the road system to facilitate seaplane access.

Commercial Service Airport. Does the MSB want to preserve the flexibility for long range development of one or more new commercial service airport (scheduled air service, larger aircraft, longer runways, precision instrument approach), even if:

- The future need is uncertain.
- A large amount of land will need to be reserved/acquired.
- Use of adjacent lands would need to be restricted.
- Airspace around the site would need to be protected from tall structures and private strips.

Precision Instrument Approaches to Support Economic Development. Does the MSB want to encourage the development of a future precision instrument approach to an existing or new airport, as a means of supporting economic development, if it means restricting airspace and land uses around that airport?

MSB Ownership/Management of Airports. Does the MSB want to consider becoming an airport owner/operator for new or existing public airports? Some possible reasons to consider MSB ownership include:

- DOT&PF allocates capital project funding to state operated airports on a statewide basis, giving priority to capital projects for airports without road access. This practice limits the development of airports on the highway system like Talkeetna, Willow, Big Lake, Goose Bay, Sheep Mountain, and Lake Louise. Under MSB ownership, local priorities could be applied to the allocation of capital improvement funding for these airports and the total funding available for capital improvements at these airports may increase. For example, since 1996 the city-operated airports at Palmer and Wasilla each spent over \$7 million in federal funds while the state airports at Big Lake, Talkeetna, and Willow each spent \$0, \$3 million, and \$0.7 million, respectively.
- MSB would have the ability to take a direct, more proactive approach to fostering economic development at airports.
- MSB may be better able to manage land use issues on and off airports.

Ongoing Advocacy/Implementation by MSB and Aviation Users. Does the MSB want to provide a forum for continuing aviation user input on implementation of the RASP and other ongoing aviation issues? This could be accomplished through creation of an Aviation Advisory Board (AAB), and/or adding aviation expertise to an existing board/commission (planning or planning commission), and/or defining MSB staff with expertise and responsibility for aviation.

4.2 Prioritization of Issues

The project team tabulated and grouped the various issues into fifteen categories and asked the TAC to prioritize these categories at their second meeting. Each attendee at the meeting was given several votes and asked to vote only for the highest priority issues. Issues with a larger number of votes were classified as “higher priority” and issues with a smaller number of votes

were classified as “lower priority.” The categories prioritized at this meeting were as follows (number of TAC votes in parentheses):

4.2.1 Higher Priority Issues

- New private airports are built without proper consideration of airport layout standards, land uses and potential airspace conflicts with other airports. (11)
- Inadequate pilot communication (i.e. radio, radar, and air traffic control). (11)
- Public facilities and utilities are sited without proper consideration of the location of airports. (10)
- Future need to provide new public floatplane facility with facilities and services. (9)
- The non-flying public does not appreciate the positive impact of aviation. (9)
- Existing and new private airstrips and airparks need to be protected (both facility and airspace). (9)
- Future need to improve existing public airports. Also, future need to provide new public airports or private airstrips as the MSB and Anchorage grow. (9)
- Non-aviation development around airports occurs without proper consideration of compatibility with the airports. (8)
- Floatplane access to lakes needs to be protected. (8)

4.2.2 Lower Priority Issues

- Towers are not well-lighted and are scattered around the MSB. (5)
- Floatplane noise at busier lakes bothers residents. (5)
- Avoid too much government control of aviation in the MSB. (3)
- DNR land managers and DOT&PF do not consistently apply standards throughout the state. DNR does not understand aviation. (3)
- Safety concerns of pilot training near population centers and high traffic corridors. (3)
- Safety concerns of mixing ultralights, sport aircraft, and gliders with faster moving aircraft. (2)

4.2.3 Grouping of Issues

After further evaluation of the high-priority issues identified by the TAC, the project team determined that these issues basically fell into several broad categories. These categories are:

- Involvement of the aviation community in government
- Airspace
- Communications
- Airport compatibility
- Public airport improvements
- Need for new public airports

The first five broad categories were carried forward for the remainder of the project with each category having several related sub-issues as described below. The last category was addressed in a separate Location Study Report.

4.3 Description of Priority Issues

4.3.1 Involvement of the Aviation Community

During discussions about aviation with the various stakeholders, a common theme emerged regarding the impact of non-aviation activities on aviation. Many people felt that the aviation community should have a stronger voice in local government actions that affect them. Involvement by the aviation community was ranked as a high priority by the TAC.

The TAC and the aviation public also expressed strong sentiments that MSB involvement in aviation should be limited to only the most essential issues. Not all agreed what level of involvement was “essential.” The TAC felt that one way to minimize government intrusion into aviation was to have the aviation community be more proactive in dealing with the various aviation issues in the MSB. Voluntary government programs with low impact were preferred over mandatory programs with a much higher impact. The project team was asked to look for ways that the aviation community could be more proactive and organized in the MSB.

4.3.2 Airspace

In discussions with MSB pilots and in the responses to the public survey, airspace conflicts were one of the most frequently mentioned items. The most common concern was that airports are often too close together and with conflicting runway alignments.

Airport owners are required by 14 CFR Part 157 to obtain an FAA airspace determination prior to constructing an airport. An airspace determination is a brief FAA evaluation of the safety of the airspace around the airport.

The FAA also requires that airports be registered, which means that each airport owner formally notifies the FAA when an airport will be built or has been built. Registration involves providing a limited amount of data about the airport so that the FAA can protect the airport from airspace conflicts.

Although an airspace determination and registration are required by the FAA, many airport developers in the MSB have not requested an airspace determination by FAA prior to construction. Many airport owners indicated that they did not understand that an airspace determination and registration are required. Airport owners also did not understand why these steps are important or how to go about registering an airport. Because of this, the project team prepared a Frequently Asked Questions handout about airspace determinations and airport registration (Appendix D).

Some owners of unregistered airports eventually do request an airspace determination and registration, but the spacing and alignment problems prevent the FAA from assigning standard traffic pattern boxes for each airport. As a result, many traffic pattern boxes overlap, have unusual shapes, or conflict with nearby airports. In some cases, private airports are built too close to public airports, creating possible conflicts and potentially limiting the growth of these busier public facilities.

The continuing construction of new airports in the MSB has the potential to exacerbate these problems. A complicating factor is that many older airports in the MSB are still unregistered and are therefore unknown to FAA. The following figure illustrates this problem. While this figure shows some of the highest concentrations of airports, even airport owners in remote areas off the

road system, such as in popular recreation areas, report airspace conflicts between airports built too close to each other.



Figure 10: Area of Congested Private Airports

Another concern is the busy mix of aircraft taking off and landing in and transiting through the MSB and particularly through popular flightseeing areas. Some pilots asked for more formal or informal ways to segregate aircraft such as by defining flight corridors or providing better information on high traffic areas.

Another airspace issue is the potential conflict between general aviation aircraft and military aircraft that use training routes in the MSB. Several pilots report near misses with military aircraft in recent years. Part of this concern is related to a lack of published data on types and locations of training routes used by the military. Pilots asked for publication of better information and better coordination regarding military training activity in the MSB. Figure 9 in the inventory section of this report shows the various training routes currently being used by the military in the MSB.

4.3.3 Communications

Another leading concern was aviation communication, more specifically aircraft radio communications and air traffic control issues in the MSB. Pilots noted that not all airplanes have radios so some planes have no means of communicating. They also complained about not

knowing what frequencies were assigned to other private airports in the area and about the lack of ATC service in certain portions of the MSB.

In fact, the FAA has been assigning frequencies to private airports based on location for quite some time. This pattern and the associated frequencies were not being widely communicated to pilots. Also, because this pattern was not in place when some of the frequencies were first assigned, there are still a few airports that have an assigned frequency that does not match the pattern. Pilots requested that these frequencies be corrected and that information on assigned frequencies be made more readily available to pilots.

Several comments were received about the lack of air traffic control services in the eastern portion of the MSB near Palmer. Pilots in the western portion of the MSB can access Anchorage Approach Control for traffic advisories, but this service is generally terminated as pilots fly east and approach Palmer. FAA staff speculate that this is because of a lack of radar coverage in the Palmer area due to a line-of-sight problem between this area and the Anchorage radar. There are also areas in the north/central part of the MSB where radio service is spotty. This is due to a lack of Remote Communications Outlets (RCOs) in the area that would allow pilots to reach ATC on the radio. Pilots requested that FAA consider expanding both the RCO and radar coverage of the MSB to alleviate both of these problems.

4.3.4 Airport Compatibility

While airports are often recognized as important for regional transportation and for their benefits to the local economy, airport neighbors often consider them a “Not in My Back Yard” type of land use. Citizens who do not own an aircraft may desire the convenience of a public airport within close driving distance, but often do not want it next door, in their “backyard.” Citizens that do own an aircraft may desire that the airport be as close as possible to their home. The desires of the aviation community can often be in sharp contrast to the non-aviation community. Reasons for this conflict can include aircraft accidents, noise, light pollution, aviation related development, vehicle traffic, and sometimes air quality. While airport noise is usually the primary concern, other concerns may also be significant at busier airports.

4.3.4.1 Accident Locations

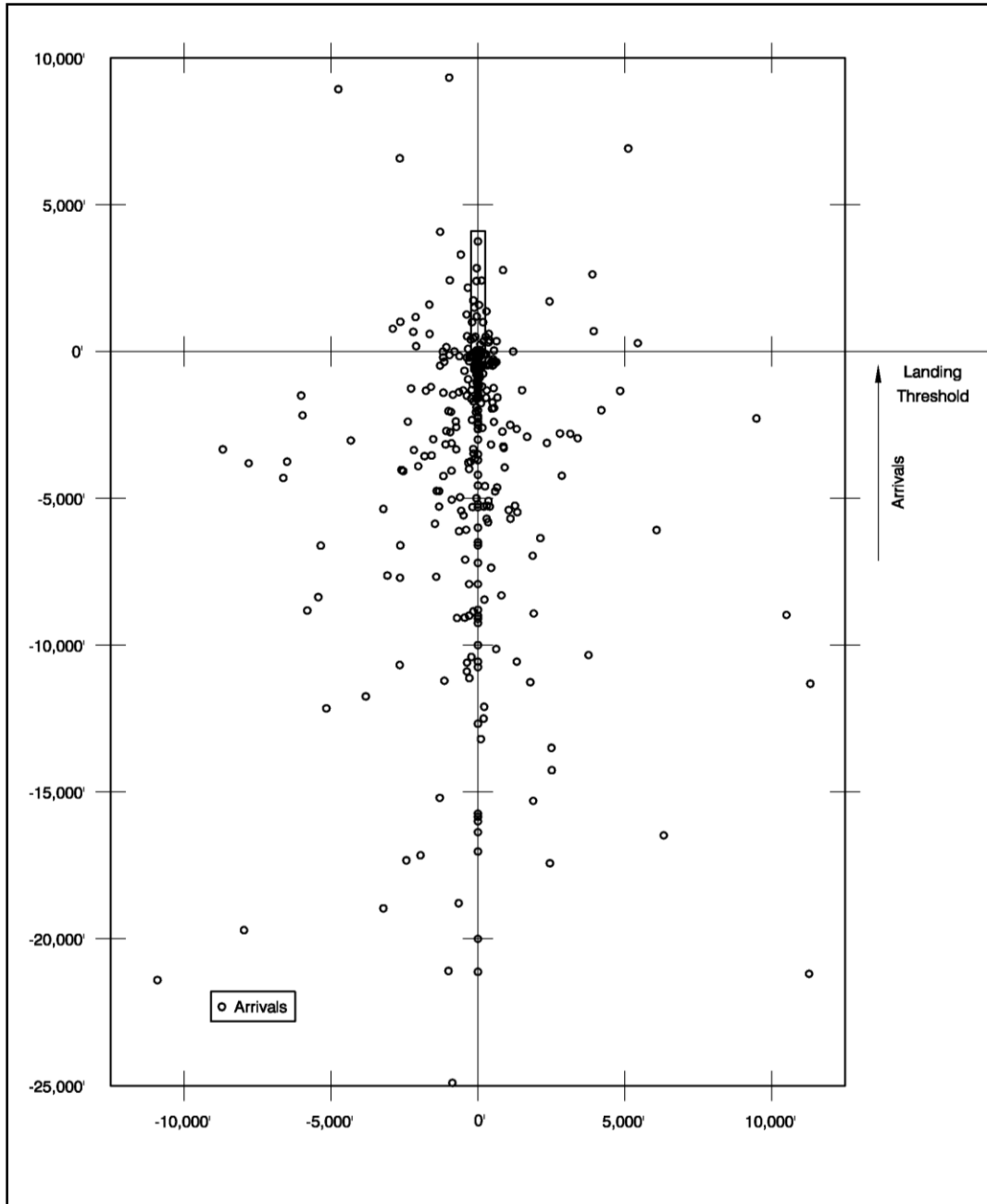
One of the most important issues is to avoid incompatible land use in the areas near an airport that are most likely to experience an aircraft accident. Although there is very little data available on the exact location of aircraft accidents near airports, a few studies do exist. One of the best was conducted as part of the 2002 edition of the *California Airport Land Use Planning Handbook*. This study includes a National Transportation Safety Board database of general aviation accidents at general aviation airports. The database used for the *Handbook*:

- Encompasses all 50 states (although several have no accidents represented);
- Covers a time period from 1983 into 1992;
- Contains data only on accidents, not incidents;
- Contains a total of 873 aircraft accident records (445 arrivals and 428 departures); and
- Includes all types of general aviation airplanes, but not airline aircraft, helicopters, or other aircraft types (ultralights, blimps, etc.), or military aircraft.

Based on this database, arrival and departure accidents were plotted relative to the end of a standard runway. The resulting accident location figures are shown below.

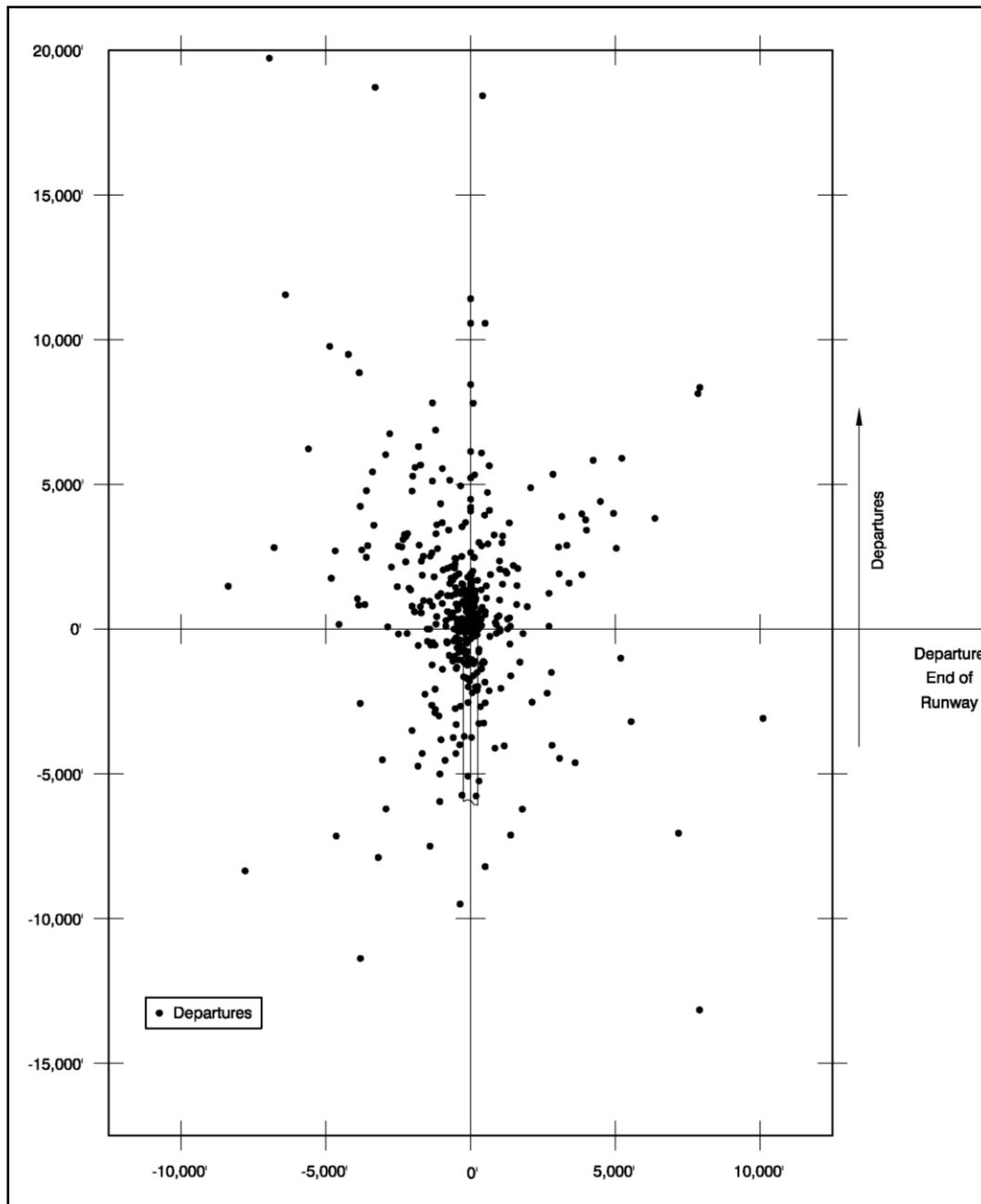
As shown in these figures, the most likely location for an accident is near the ends of a runway. These areas are typically protected by clear zones (called Runway Protection Zones by the FAA) and compatible land use is normally enforced by the local land use authority for these area at the ends of a publicly-owned runway. FAA also requires that these areas be protected as a condition of receiving FAA grant money for airport improvements.

The need for protection of these areas is a long-standing item that dates back to the 1952 report of the President's Airport Commission chaired by retired General James Doolittle. This report, titled *The Airport and Its Neighbors*, suggested the creation of clear zones at the ends of the runway to promote compatible land use between airports and the surrounding communities.



Source: California Land Use Planning Handbook, January 2002, Figure 8-E

Figure 11: Arrival Accidents



Source: California Land Use Planning Handbook, January 2002, Figure 8G

Figure 12: Departure Accidents

Much of the following discussion focuses on publicly-owned airports that accept FAA funding. Several of the publicly-owned airports in the MSB have accepted FAA funding and must follow FAA policy. Although no similar policy exists in the MSB for private airports, many of the same issues apply on a smaller scale.

4.3.4.2 Federal Aviation Administration Requirements for Public Airports

Upon acceptance of an FAA grant, an airport owner accepts the obligation to operate and maintain the airport to certain standards defined in airport grant assurances. Grant assurance number 21 (Appendix E), which addresses compatible land use, requires the airport owner to take appropriate action, including the adoption of zoning laws to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including the landing and take-off of aircraft.

The first step in determining land use compatibility measures for a typical publicly-owned airport involves development of an airport master plan and/or airport layout plan. These plans typically identify how the airport will be developed, safety zones and noise zones around the airport, airspace protection requirements, and land uses and land use controls (such as zoning) that exist around the airport. From this information an assessment can be made whether the existing and planned development of the airport is and will continue to be compatible with surrounding land uses.

Incompatible land uses around an airport can affect the safety of airport operations. Examples include wetlands and landfills that may attract wildlife and waterfowl, towers, antennas or other structures that may be hazards to flying aircraft or interfere with radio communications and/or navigational aids, and lights which may affect a pilot's ability to navigate the aircraft.

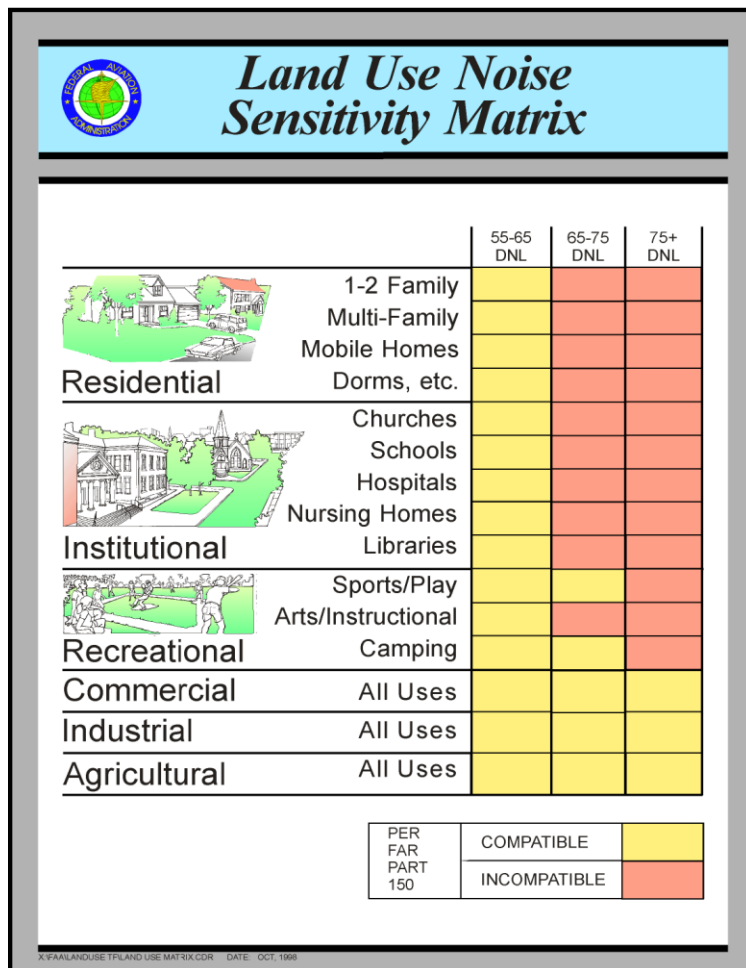
The airport master plan and airport layout plans for public airports should identify any existing or future land use compatibility issues. Airport master plans and airport layout plans should be considered in the development of a comprehensive plan for the surrounding community or region. The comprehensive planning process should consider airport land use compatibility issues and other master plan recommendations.

4.3.4.3 Noise-Sensitive Land Uses

Areas immediately adjacent to an airport or off the approach and departure ends of a runway have the highest noise levels. The FAA has developed measurement tools used to determine if noise levels are significant enough to warrant land use compatibility actions or other measures. Using these tools, noise contours are developed on and around busier public airports to show where the highest noise levels are found and what properties are affected. In some cases, noise

mitigation is required. These contours are generally expressed in terms of DNL which is a weighted average noise level.

Some land uses are less sensitive and more suitable for high noise levels than others. These uses, which include agricultural, industrial, and commercial uses should generally be encouraged near airports as long as they generally do not create safety hazards or conflict in other ways with airport operations and development plans. Certain kinds of recreation and open space uses can also be compatible with an airport. Uses such as residential and institutional are more noise sensitive and should be discouraged near an airport. The figure below summarizes FAA's findings about noise sensitive land uses.



Source: Land Use Compatibility and Airports; FAA Southeast Region

Figure 13: Land Use Noise Sensitivity Matrix

4.3.4.4 Public Airport Compatibility in the Matanuska-Susitna Borough

Although public airports that receive FAA funding are required to pursue compatible land use for the property surrounding the airport, this is sometimes not done. Reasons that compatible land use may not be implemented include multiple government entities with overlapping authority for the airport and surrounding areas, inadequate funding, lack of land use rules that adequately address the issues, public opposition, and preexisting conditions that may be difficult to change.

The two municipally owned airports in the MSB, Palmer and Wasilla, are both subject to municipal zoning within their respective city limits. Both cities are working to ensure compatible land use where possible, but achieving an optimum land use situation may be difficult because, in some cases, incompatible land uses predated the current zoning.

Several of the publicly-owned airports in the MSB have never received FAA funding and are therefore not subject to the FAA grant assurances. These airports have been funded solely by the DOT&PF which has not made land use compatibility around airports a priority in the past.

For all of these reasons, most of the larger publicly-owned airports in the MSB have some incompatible land uses nearby. The following table briefly summarizes these issues.

Table 22: Compatibility Issues at Publicly-owned Airports

Airport	Airport Compatibility Issues
Big Lake	- Recreational and residential development north and west of the airport - Aircraft occasionally towed across road
Goose Bay	None known
Palmer	- Residential and commercial development on three sides of the airport - Some noise complaints
Lake Louise	None known
Sheep Mountain	None known
Skwentna	None known
Summit	None known
Talkeetna	- Residential and commercial development around airport. - Frequent noise complaints - Inadequate space for growth of city and airport
Wasilla	- Existing and planned residential development north and west of airport
Willow	- Frequent noise complaints (mostly from lake operations) - Aircraft occasionally taxied or towed across Parks Highway

Source: DOWL Engineers

4.3.4.5 Private Airport Compatibility in the Matanuska-Susitna Borough

The policies and accident data discussed above were derived from publicly-owned airports which are somewhat different from the private strips in the MSB. The main difference between publicly-owned airports and the private strips in the MSB is that many, but not all, of the private airports have comparatively few aircraft operations. Also, the most likely types of aircraft operating from the private airports are small general aviation aircraft.

The most challenging aspect of the private airports is that many are located in developed areas and are surrounded by residential or commercial areas. Many runways were constructed to provide convenient access to their owners with little consideration given to surrounding land uses. The main factor in their dimensions and location is the land available to the airport owner for development. Because of this, other factors such as prevailing winds, airspace, obstacles and setbacks, and compatible land use are often neglected.

As development in the MSB has increased, conflict has slowly arisen between certain airports and the surrounding community. Owners of private airports almost never acquire airspace rights over surrounding property (avigation easements) and lack any means to control the height of structures on surrounding land. Other airports have faced frequent noise complaints from adjacent neighbors. Some private airports have closed and others have had to restrict their activities because of incompatible off-airport development.

The following aerial photographs illustrate several examples of incompatible development at the ends of private airports in the MSB. There are dozens more airports with similar conflicts, but this small sample is included here to illustrate the problem.

The first photograph shows commercial development at both ends of the east-west runway (this runway has been closed due to the incompatible commercial development) and residential and commercial development at the south end of the north-south runway. The next photograph shows residential development at the end of a very busy private runway. The homes across the road from the end of the runway are not associated with the runway or its residential airpark.

The third photograph shows residential development at the end of a private airstrip. These homes are not associated with the airstrip. The fourth photograph shows a busy public road and

commercial development at the south end of a private runway. This roadway and the commercial development present the risk of tall objects being present in the approach to the runway.

The fifth photograph shows an industrial gravel pit at the end of a private runway. The industrial area currently presents a potential hazard for dust and tall objects, but there is the potential for development of a residential subdivision with a runway on the industrial land. Depending on the layout, the subdivision and runway could be incompatible with the existing runway; the owners of the existing runway do not control development of the adjacent industrial property.

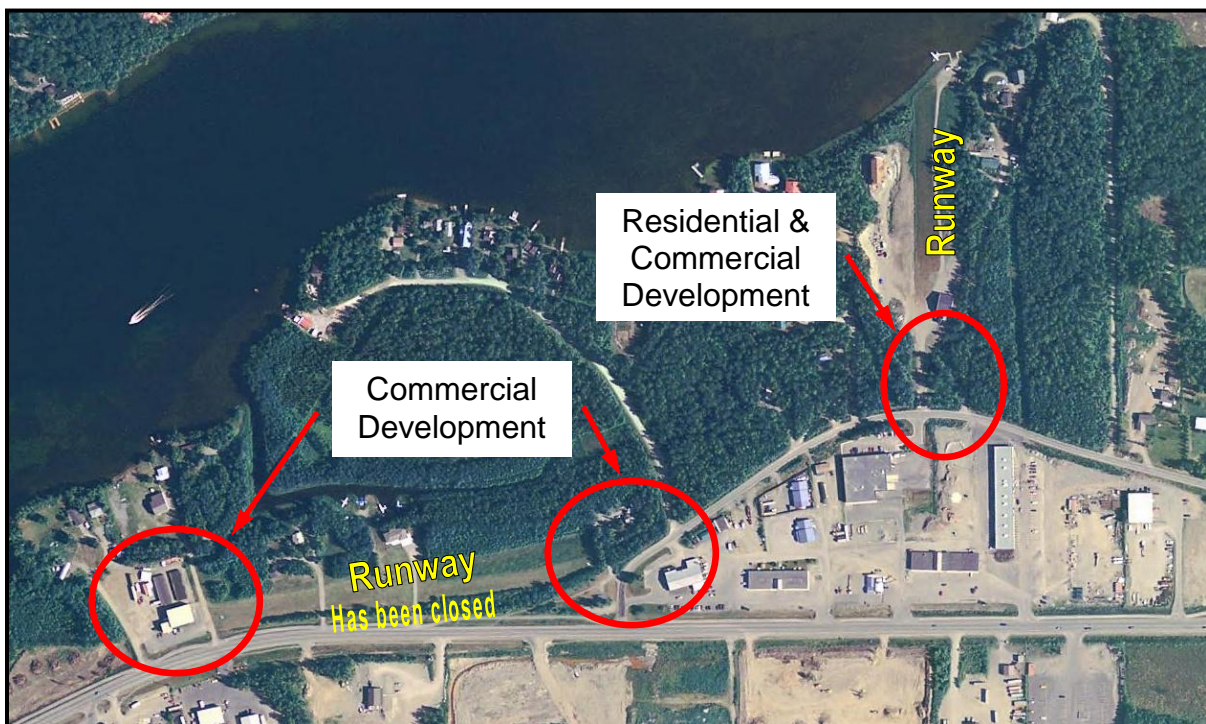


Figure 14: Private Airport Conflicts - Example No. 1

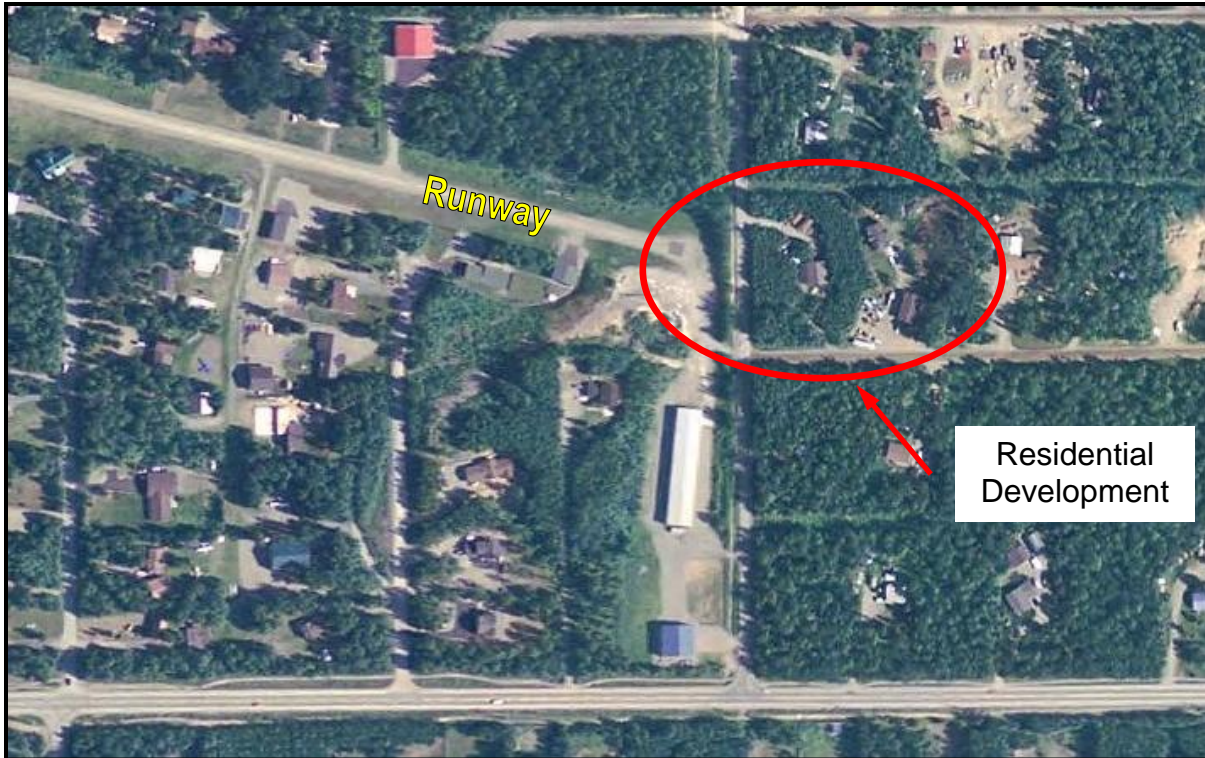


Figure 15: Private Airport Conflict - Example No. 2



Figure 16: Private Airport Conflict - Example No. 3



Figure 17: Private Airport Conflict - Example No. 4



Figure 18: Private Airport Conflict - Example No. 5

There is some agreement within the aviation community in the MSB that these sorts of conflicts should somehow be addressed. However, there are a wide variety of ideas of how this should be done and which airports should be included.

4.3.5 Public Airport Improvements

The TAC and public expressed the need for ongoing upgrades and development of public airports. While some expressed a preference for basing their aircraft at private strips, most supported a strong system of public airports with a wider range of services and facilities than can be found at most private airports. Specific improvements were recommended in the project survey and at public meetings. A related issue is that DOT&PF does not give high priority to improvements to airports on the road system. Consequently needed projects at Big Lake, Goose Bay, Lake Louise, Sheep Mountain, Summit, Talkeetna and Willow airports may be deferred until higher priority projects are completed at other DOT&PF airports off the road system.

5.0 ALTERNATIVES, RECOMMENDATIONS AND IMPLEMENTATION

Using the ideas generated by the survey, public meetings, and TAC meetings, the project team created a list of alternatives. The initial list was far-reaching and contained a wide variety of ideas. Following discussions with the MSB, DOT&PF, and the FAA, this list was narrowed slightly to only include alternatives that were generally feasible to implement.

At the third and fourth TAC meetings, the committee was asked to prioritize and modify the various alternatives. The committee generally reached consensus on the priorities of the airspace and communications issues, but had a more difficult time achieving consensus on the airport compatibility issues. The TAC suggested that some alternatives might prove useful in the long term, but would not be needed in the immediate future.

At the second set of public meetings (Willow and Palmer), the refined and prioritized alternatives were presented to the public as a series of preliminary recommendations, but with requests for additional feedback and comments. At the third set of public meetings in Sunshine and Wasilla, the project recommendations were presented and subsequently over 120 written comments were received. The outcome of these meetings can be found in Appendix C.

5.1 Involvement of the Aviation Community

5.1.1 Involvement of the Aviation Community - Alternatives

There are a variety of ways that aviation user involvement in aviation issues in the MSB could be improved. These range from private organizations to official government committees. The following ideas have all been mentioned at some point in this project.

Table 23: Aviation Community Involvement Alternatives

Alternative	Description
Involve Aviation Community	<ul style="list-style-type: none"> - Encourage more pilot involvement in aviation issues in the MSB. - Encourage more aviation organization involvement in aviation issues in the MSB. - Restructure existing MSB Transportation Advisory Board (TAB) and Planning Commission to include aviation interests. - Continue the RASP TAC while the RASP and Location Study are being implemented. - Form a MSB Aviation Advisory Board.

Individual Pilots - As part of the education and awareness portion of this project, individual pilots could be encouraged to promote aviation issues within various local governments. This effort would likely be somewhat scattered and unorganized, but could help advance aviation issues somewhat.

Private Aviation Organizations - Private aviation organizations such as the Aircraft Owners and Pilots Association (AOPA) and the Alaska Airmen's Association could take the lead for monitoring local government issues and organizing individuals to respond to key governmental actions. These organizations already do this to some degree, but it may be possible to increase their presence in the MSB. They also may encourage formation of local airport support groups to be proactive in dealing with airport issues at the individual airport level.

Emphasize Aviation within TAB and Planning Commission - The MSB already has a TAB and Planning Commission, but these groups have not traditionally emphasized aviation and have not had many pilots as members. It may be possible to modify the structure and responsibilities of the TAB and the Planning Commission to better represent aviation within the MSB. One example would be to create an aviation subcommittee of the TAB.

Continue RASP TAC - The existing RASP TAC could be continued for an indefinite time until the primary recommendations of the RASP and Location Study have been implemented.

Create an Aviation Advisory Board - This would be a new advisory committee to the MSB similar to the TAB. The AAB would focus exclusively on aviation issues within the MSB. This group would also meet with the management of publicly owned airports within the MSB on a regular basis. The composition of the AAB would likely be similar to the TAC that was created for this project. The members would represent a range of aviation and non-aviation interests and geographic locations within the MSB. While the intent originally was to form an ongoing AAB, some have also suggested the AAB could be disbanded after it has helped implement the primary recommendations of the RASP.

5.1.2 Involvement of the Aviation Community - Recommendations/Implementation

AAB - An AAB should be established to assist with implementation of RASP recommendations and address ongoing aviation issues in the MSB. If the Location Study results in the

development of new airports, the AAB would also advise on the detailed planning and construction of the new airports. The AAB would be created by the MSB, but would advise all public airport owners, the FAA, the military, other entities such as the MSB Planning Commission, Planning Board, planning groups involved with Lake Management Plans or Special Land Use District's (SPUDs) and other groups that address aviation issues.

The composition of the AAB would include a good mix of aviation and non-aviation interests, including representatives from airport businesses, private pilots, public and private airport owners, community leaders, business leaders, airport neighbors, and others. Government representatives such as public airport owners, the military, and FAA could be regular members or could participate on an ad-hoc basis as issues arise that affect them.

Table 24: Aviation Community Involvement Recommendations/Implementation

Aviation Community Involvement Recommendations	Implementation Actions	Responsibility	Implementation Issues
Establish MSB AAB to assist with implementation of the RASP and Location Study and ongoing input on aviation issues in the MSB.	Amend MSB Title 15	MSB	Sunset clause effective in 5 years.

The AAB would be created through an ordinance of the MSB. The AAB should continue for at least five years, until the primary recommendations of the RASP and Location Study are implemented. After five years the MSB and aviation community could determine if the AAB is still needed or if other options can better address how to continue to involve the aviation community.

5.2 Airspace

5.2.1 Airspace - Alternatives

Each of the airspace alternatives is shown in the following table. The priority for each alternative was based on comments from the TAC.

Table 25: Airspace Alternatives

Alternative	Description
Higher Priority	
Airport Registration	- Require airspace determination and registration with FAA for existing and new airports, commercial floatplane bases, helipads and heliports*
Encourage Lights-on Operation	- Encourage lights-on aircraft operations through an education program for pilots and instructors
Review Low-Level Military Operations	- Meet with military liaison to FAA to seek ways to minimize conflicts - Education program for pilots and instructors
Support Capstone in MSB	- Advocate implementation with FAA and elected representatives
Lower Priority	
Advisory Routes/Corridors	- Publish in official publication such as sectional/ supplement when traffic warrants
Alternatives Dismissed	
Airport Registration	- Separate MSB registration.

* Already required by 14 CFR 157, but not aggressively enforced by FAA

Airport Registration - This alternative requires an FAA airspace determination and registration for all existing and new airports, commercial floatplane bases, helipads and heliports in the MSB. Airspace determinations will help minimize airspace conflicts between existing airports and registration will ensure the airport is in properly located and mapped. While this is already required by the FAA, MSB support for airspace determinations and registration will help ensure airport owners are aware of the requirement and comply with it. A separate MSB registration of airports was not recommended because it would be redundant, add an unnecessary level of government review, and because the MSB does not have airspace expertise on staff.

Encourage Lights-on Operation - This alternative is intended to increase safety in congested areas by making aircraft more visible to other aircraft through continuous use of landing lights. This is already recognized by many pilots as a good idea, but is not widely implemented. Increased use of landing lights would undoubtedly increase the visibility of aircraft, but would cause aircraft landing lights to burn out faster. Aircraft operation in the air is an area of Federal jurisdiction and any MSB effort to increase the use of landing lights would need to be advisory in nature. This kind of information could easily be added to a pilot education program.

Review Low-Level Military Operations - This alternative would seek to increase pilot awareness of existing training routes in the MSB and to decrease potential conflicts. This effort would likely include ongoing coordination between local military bases, DOT&PF, FAA, and local

pilots groups. Depending on the outcomes of these meetings, additional pilot education may be necessary and military procedures may need to be modified.

Support Capstone in the MSB - This alternative would seek to promote ATC services in the MSB that are similar to those provided by the FAA's Capstone office to western and southeast Alaska. Although the functions of the Capstone Program office are being dispersed throughout the FAA and will be implemented nationwide under Ground Based Transmitters/Automatic Dependent Surveillance-Broadcast (GBT/ADS-B), the MSB would appear to be a high priority area for these services. The MSB and local pilots groups should continue to work with FAA to ensure that the MSB receives Capstone-like services as soon as possible.

Advisory Routes/Corridors - This alternative would establish preferred routes into and out of certain high-traffic areas within the core area of the MSB. Such corridors are commonly used in large urban areas for VFR traffic and over National Parks for all traffic. The Anchorage Part 93 airspace even includes designated routes for small aircraft.

Areas in the MSB that might require corridors include the Knik Glacier, the Matanuska River valley, and the core area between Willow and Palmer. Most members of the TAC and public felt that these sorts of corridors are not yet required, but should be kept as long-term ideas to be implemented when necessary.

5.2.2 Airspace - Recommendations/Implementation

Each of the airspace recommendations is shown in the following table. Each recommendation and any implementation issues are also discussed in the following paragraphs.

Table 26: Airspace Recommendations/Implementation

Airspace Recommendations	Implementation Actions	Responsibility	Implementation Issues
Require airspace determination and registration with FAA for existing and new airports, commercial floatplane bases, helipads and heliports - would apply to aviation facilities on and off the road system.	Amend MSB Title 17.	MSB	Compliance deadlines for existing airports? Incentives/penalties? Consequences of not obtaining favorable airspace determination?
Encourage lights-on aircraft operations.	Pilot education program.	MSB AAB FAA AOPA Airmen's Association	None
Review low-level military operations for compatibility with general aviation.	Meet with military liaison to FAA to seek ways to reduce conflicts and maintain ongoing communications. Pilot education program.	Military MSB AAB FAA AOPA Airmen's Association	None
Encourage implementation of Capstone (GBT/ADSB) in MSB.	Support ongoing implementation efforts.	MSB AAB FAA AOPA Airmen's Association	None
Advisory only arrival/departure routes/corridors to direct aircraft away from the highest concentration of airports and minimize conflicts in high traffic areas.	Reconsider later. Publish on Sectional or in Alaska Supplement when traffic warrants. Monitoring by AAB.	MSB AAB FAA	Implement later when traffic warrants.

Airport Registration - All existing and new airports, commercial floatplane bases, helipads and heliports should be required by the MSB to obtain an FAA airspace determination and registration. This requirement would apply to aviation facilities on and off the road system.

Airspace determinations would help minimize airspace conflicts between existing airports and registration would ensure the airport is properly located and mapped.

Registration would ensure the airport will be considered by the FAA when completing airspace determinations for other proposed or expanded airports. It would also enable the MSB to map the airport and notify property owners in the MSB of its location prior to their purchasing a home (see section on Airport Compatibility).

This requirement would be implemented through an amendment to MSB code. When the code is amended the MSB will need to determine whether it will establish a deadline for compliance for existing airports. Consequences for not complying will need to be determined as well as how to address any airport that is unable to receive a favorable airspace determination from the FAA because of unsafe airspace conditions. A related issue is whether the MSB should establish any incentives or penalties for complying or not complying with the airspace determination and registration requirement.

Encourage Lights-on Operation - As part of a comprehensive pilot education program in the MSB, pilots should be encouraged to use their landing lights when possible to increase their visibility to other aircraft. Other methods of increasing visibility should also be encouraged as appropriate.

Review Low-Level Military Operations - The MSB and FAA should convene a series of meetings between local pilots and military representatives to discuss military activity in the MSB and identify potential safety issues. These meetings may be conducted through the MSB AAB or other similar forum. Topics for discussion could include types of routes and aircraft used by the military, improved communication with local pilots, and potential changes to routes or airspace to improve safety. This topic should also be included in the pilot education program.

Support Capstone in the MSB - The MSB, FAA, and DOT&PF should emphasize the implementation of Capstone-type services in the MSB. Although this system will eventually be implemented nationwide, the MSB, FAA, and DOT&PF should seek to make the MSB a high-priority area for implementation due to the high number of airports in the area.

Advisory Routes/Corridors - Advisory routes are not recommended at this time, but should be retained as a potential future tool for managing future air traffic in the MSB. The MSB AAB should periodically reexamine the concept of routes or corridors to determine the evolving level of need.

5.3 Communications

5.3.1 Communications - Alternatives

Each of the communication alternatives is shown in the following table. The priority for each alternative was based on comments from the TAC.

Table 27: Communications Alternatives

Alternative	Description
Higher Priority	
Radio Frequencies	- Reassign radio frequencies to match established pattern
Mapping of Airports and Airspace	- Private airports/CTAFs in supplement and on Borough website - Reporting points on sectional/supplement - Military routes/airspace on sectional/supplement - Education program for pilots and instructors
Lower Priority	
Radio Coverage	- Expand RCO coverage in MSB
Radar Coverage	- Expand radar coverage in eastern MSB
Alternatives Dismissed	
Radio Use	- Mandate radio use
Sectional Mapping	- All private strips on sectionals

Radio Frequencies - This alternative would continue to assign radio frequencies to airports in the MSB based on a geographic pattern. Airports that do not meet this pattern and do not have a specific reason for deviating from the established pattern would be assigned a new frequency that is consistent with the pattern. This alternative also includes a pilot education component to ensure that pilots are aware of the frequency pattern and know how to find frequency information for the private airports in the area.

Mapping of Airports and Airspace - This alternative would provide mapping of all private airports in the MSB to pilots. This could be accomplished through a web site (MSB, FAA, etc), on the sectional map, in the Alaska Airport Facility Directory (AFD) Supplement, and/or through one of the pilot organizations. The purpose would be to increase pilot situational awareness regarding the many unmapped, private airports. Such mapping might also include the various training routes used by the military in the MSB.

A related item is the establishment of standard reporting points for pilots in the southern part of the MSB. Pilots currently use a variety of non-standard landmarks for location reports. A series of standard reporting points on either the sectional map or in the AFD Alaska Supplement would lessen pilot confusion and assist transient pilots who are unfamiliar with the area.

Radio Coverage - This alternative would increase the remote radio coverage available to ATC in the MSB. Currently, there are portions of the MSB where low-level pilots cannot reach ATC for traffic advisories. Expanding radio coverage involves the installation of additional RCOs and will be somewhat expensive and time-consuming.

Radar Coverage - This alternative would increase the radar coverage available to ATC in the MSB. Currently, there are areas of the eastern MSB that do not have radar coverage. The only radar coverage in the MSB is provided by the Anchorage approach control radar, which cannot see areas from Palmer eastward. An upgrade to the Anchorage radar is already in progress, but still will not cover all of the areas mentioned by local pilots. The mountainous terrain east of Palmer would still require additional radars to fully cover the area. The installation of additional radars is a very expensive and time-consuming issue.

Radio Use - This alternative would mandate the use of two-way radios for all aircraft flying in or through the southern part of the MSB. The intent of this alternative is to improve pilot situational awareness and decrease conflicts between aircraft. Difficulties with this alternative include the fact that some aircraft are not equipped with radios or even electrical systems. Although pilots of these aircraft could use a hand-held radio, hand-helds are not required under existing FAA regulations. Any MSB rule regarding aircraft radio use would conflict with these existing Federal regulations.

Sectional Mapping - This alternative would place all private airports in the MSB on the Anchorage Sectional map. Due to the scale of a sectional map and the hundreds of airports in the south MSB area, it would be necessary to show these airports on an inset or other special map. Another difficulty would be the frequent number of changes related to private airports in the area. These private airports are often sold, closed, or modified and this fact would require frequent changes to the sectional map.

5.3.2 Communications - Recommendations/Implementation

Each of the communications recommendations is shown in the following table. Each recommendation and any implementation issues are also discussed in the following paragraphs.

Table 28: Communications Recommendations/Implementation

Communications Recommendations	Implementation Actions	Responsibility	Implementation Issues
Reassign radio frequencies (CTAFs) to match established pattern.	Continue process already under way.	FAA	None
Identify and communicate about private airports and their CTAFs.	Publish in Supplement. Maps on MSB or DOT&PF web site. Posted at public airports, airport businesses, and with AOPA and Airmen's Association.	FAA MSB or DOT&PF MSB Public airports AOPA Airmen's Association	MSB or DOT&PF revise maps as new airports are registered or closed.
Identify reporting points on Sectional and/or the Alaska Supplement.	Amend Sectional and/or Supplement.	FAA	Reporting points are normally only for use by ATC
Identify military routes/airspace on Sectional and the Alaska Supplement.	Amend Sectional and Supplement.	FAA Military	None
Pilot education about airspace use, private strips, CTAFs, reporting points, military airspace, and to encourage radio use in the MSB.	Pilot education program.	MSB AAB FAA AOPA Airmen's Association	None
Expand RCO coverage in MSB.	Reconsider at a later time - lower priority.	FAA	Funding
Expand radar coverage east of Palmer.	Reconsider at a later time - lower priority.	FAA	Funding

Reassign radio frequencies - The FAA should continue to ensure that radio frequencies assigned to airports in the MSB follow a logical geographic pattern. Radio frequencies should be changed for airports that do not follow this pattern unless a specific reason is established. Pilots should be made aware of this frequency pattern. As of this writing, FAA has recently published an advisory regarding this issue and will add this advisory to the Alaska Supplement in the near future.

Identify and communicate about private airports and their radio frequencies - The FAA and MSB or DOT&PF should incorporate the inventory mapping from this project into their GIS systems and make maps of the data available on their web sites for interested pilots. The GIS data and the associated maps should be updated according to an established schedule and the availability of these maps should be made known to the local community. Although these maps will not be included in the Alaska AFD Supplement, their availability from the MSB should be identified in

the Supplement and through educational posters posted at local airports and aviation businesses. Aviation organizations such as AOPA and the Alaska Airmen's Association should also be notified of the location of these maps and any updates to them.

Identify reporting points on Sectional and/or the Alaska Supplement - The FAA should establish a set of standard VFR reporting points for the southern part of the MSB. These points should be published on either the Sectional map or in the AFD Supplement as appropriate. A potential issue with implementation is that ATC normally only establishes reporting points for their own use and some of the areas in question do not have ATC service. At a minimum, some informal reporting points could be identified and communicated to pilots as part of the pilot education program.

Identify military routes/airspace on Sectional and the Alaska Supplement - The FAA and military should provide information on military routes in the MSB to local pilots as part of a pilot education program. This would preferably include some sort of mapping either on the Sectional or in the Alaska AFD Supplement.

Pilot education - A comprehensive pilot education program should be implemented by the MSB. The AAB should recommend the types of information to be distributed and which agencies should participate. Based on concerns expressed during this project, topics for the education program might include, location of private strips, radio frequencies, reporting points, military airspace, "fly friendly" noise abatement procedures, and safety topics such as use of radios and landing lights in the MSB. Pilots and airstrip developers should be educated about land use rules to consider when siting new airports.

Expand radio coverage in MSB - The addition of RCOs in the MSB is a lower priority recommendation compared to the other RASP recommendations. However, this alternative should be reconsidered as aviation activity in the MSB increases.

Expand radar coverage east of Palmer - Additional radars in the east MSB are a lower priority recommendation compared to the other RASP recommendations. The existing situation should improve slightly when the new Anchorage radar is installed. Additional radars should be reconsidered as aviation activity increases in the MSB.

5.4 Airport Compatibility

5.4.1 Airport Compatibility Measures Used Elsewhere

In order to provide a wide range of alternatives for land use compatibility, the project team compiled a list of land use measures used by airports in other parts of the United States. Many of these items are more suitable for public airports and would not be applicable or practical for private airports in the MSB, but might still provide ideas for similar measures that would work. Examples of airport compatibility measures used across the nation, mostly at public airports, include:

- Compatible Use Zoning - Commercial, industrial or agricultural zoning near the airport
- Zoning Density - Control lot sizes and density of residential development around airports
- Noise Overlay Zoning - Special regulations within high-noise areas covering a variety of land use measures
- Transfer of Development Rights - Authorizes sale of development rights to encourage sparse development in high-noise areas
- Land Banking - Acquisition of vacant land in noise sensitive areas
- Subdivision Regulation Changes - Dedication of noise/aviation easements and plat notes identifying the property is within a high noise level area
- Building Code Changes - Requires sound insulation in new construction
- Fair Disclosure Regulations - Requires seller to notify buyer of aircraft noise
- Comprehensive Planning - Policies supporting land use compatibility to guide rezoning, conditional uses, variances, and construction of public facilities
- Capital Improvement Programming - Discourage expenditures for construction of non-compatible public facilities
- Guaranteed Purchase - Purchase of property with the intent of removing the incompatible use
- Development Rights Purchase - Purchase of rights to develop property
- Redevelopment - Acquisition and redevelopment of property

- Purchase assurance - Airport buys property, sound-insulates house, and resells with a noise/aviation easement
- Sound Attenuation - Sound insulation of homes, noise sensitive institutions and obtain a noise/aviation easement
- Noise/Aviation Easement - Purchase of easement

5.4.2 Airport Compatibility Measures Currently Available in the Matanuska-Susitna Borough

Of the measures listed above, several are currently in use in the MSB. Zoning is in effect within the city limits of Palmer, Wasilla, and Houston. For portions of the MSB outside of these cities, the MSB has an existing Conditional Use Permit (CUP) process. This process does not currently apply to airports. The MSB has also recently passed a Land Use Permit process. This permit will be used to determine if construction within the MSB complies with other existing MSB land use requirements.

The following table summarizes the existing MSB and local government land use regulations that directly or indirectly relate to airports, including floatplane facilities.

Table 29: Existing Land Use Management Tools

Entity/Document	Citation	Land Use Management Conditions
MSB		
Planning	15.04.015.A.2	Gives Planning Commission authority to investigate and report on location and design of public facilities (does not specifically mention public airports, but may be implied).
Nancy Lake State Recreation Area, Palmer Hay Flats, Denali State Park, SPUDs	17.04.120 17.08.130 17.17.050	Limits uses primarily to recreation and residential uses. Airports are not identified as a permitted use.
Residential Land Use Districts, Single-Family Residential Land Use Districts	17.52 17.75 17.76	Restricts to only residential land uses in residential land use districts.
Motorized Uses on Lakes and Waterways	17.58.100	Limits aircraft to central portions of Cottonwood, Finger and Wasilla Lakes, limits speeds within 100 feet of shore, and restricts 11 PM to 8 AM operations to operations “transiting en route to their destinations” to minimize noise.
Lake Management Plan Implementation	17.59.060	Restricts touch and goes and engine testing during nighttime hours at: Big Lake, West Papoose Lake, Whiskey Lake, Crystal Lake, John Lake, Lake Five, Little Question Lake, Memory Lake, Question Lake, Rainbow Lake, Unnamed Lake, Walby Lake, Diamond Lake, Christiansen Lake, Neklasen and Lower Neklasen Lakes, Marion Lake, Long Lake (Houston), Three Mile Lake, Wolverine Lake, Little Lonely Lake, Honeybee Lake, Blodgett Lake, Knik Lake, and Twin Island Lake. Establishes no-wake zones near shore on various lakes.
Conditional Uses	17.60	Requires CUPs for tall structures throughout most of the MSB.
Land Use Permit	17.01	Requires a land use permit for certain types of development in the MSB.
Houston		
Houston Land Use Ordinance	Various 17.41.550	Prohibits uses which cause excessive noise, vibration, odor, smoke, dust ...beyond the lot lines of the lot on which it is located...”. Does not specifically address airports. Adopts FAA Part 77 and 157 by reference. Requires filing notice with FAA before constructing, activating, or deactivating of an airport and notification to FAA for construction that will affect navigable airspace.
Palmer		
Zoning Code	Title 17	Identifies zoning on and around the Palmer Airport.
Wasilla		
Land Development Code	16.20.020	Excludes heliports and helipads from residential districts and provides for conditional use, use permits, or administrative approvals in other districts.
	16.24.040	Defines vehicle parking standards for aircraft hangars.
	16.16.060	Restricts location of helipads to airports or heliports or in other locations where it is for “incidental emergency use as an accessory to a permitted principle use such as a hospital or public facility.”

5.4.3 Airport Compatibility - Alternatives

Each of the airport compatibility alternatives is shown in the following table. The priority for each alternative and the decision to retain or dismiss each alternative was based on comments from the TAC and MSB staff.

Table 30: Airport Compatibility Alternatives

Alternative	Description
Retained	
Property Owner Notification	<ul style="list-style-type: none"> - Mapping on MSB web site - Communication about MSB mapping to real estate groups, builders and developers - Informal MSB staff communication about airport locations during land use permit processing - MSB plat notes for properties near airparks or public-owned airports
Comprehensive Plans and SPUDs	- Airports and land uses around them addressed in comprehensive plans and SPUDs
Lake Management Plans	- Involve an MSB AAB when considering floatplane operations in Lake Management Plans
Consolidate Antenna Farms	- Amend tall tower ordinance to encourage tower consolidation and involve AAB when considering new towers
Siting Public Facilities	- Consider airport proximity when developing public facilities and other noise sensitive or potentially unsafe land uses (schools, roads, overhead utilities, hospitals, landfills.)
CUP or Land Use Permit	<ul style="list-style-type: none"> - Require a CUP or land use permit for new airports, commercial floatplane bases, helipads and heliports - Identify minimum airport development parameters on an airport template
Platting	- Show airports, commercial floatplane bases, helipads and heliports on a plat if subdivision of land is required
Dismissed	
Property Owner Notification	<ul style="list-style-type: none"> - Plat notes to property owners around ALL airports - MSB ordinance to require real estate sales disclosure of proximity to an airport
Height Restrictions Around Airports	- Mandate height restrictions (without compensation) for properties around airports
Noise regulations	<ul style="list-style-type: none"> - Mandate soundproofing building standards for properties around airports - Restrict airport operating hours - Restrict low flying aircraft
CUP or Land Use Permit	- Require a CUP or land use permit for existing airports, commercial floatplane bases, helipads and heliports
Platting	- Platting of all airports
Zoning	- Zoning of properties around all airports

5.4.3.1 *Property Owner Notification*

One of the most widely supported alternatives identified during the project was to notify property owners, in particular those considering purchasing or renting a home, of the location of nearby

airports. The notion is that an informed property owner can then choose whether to purchase a home near an airport and/or will have a less valid complaint about the airport after purchasing/renting the home. The notification would be through mapping on the MSB or DOT&PF website that is communicated to the general public as well as those involved with selling and developing residences. MSB staff would also communicate this information to the public during the land use permitting process. Property owners near busier airports such as private airparks and public-owned airports would also be formally notified of close proximity to an airport through a note on the plat for their property.

5.4.3.2 Comprehensive Plans and Special Land Use Districts

The primary way the MSB is currently regulating land use and development is through comprehensive plans and SPUDs. Currently development of airports and land uses around them are not always considered in these planning documents or are considered in a very limited way.

This alternative would have the MSB take a more proactive approach toward addressing airports and land uses around them during these planning processes. Aviation compatibility might be improved through these plans by designating certain areas for airport development, by establishing airport minimum development standards or regulating the density and type of development or buffers around airports. In particular, these plans could give greater attention to land uses around public-use airports or airparks since they are busier airports and are more likely to be permanent uses.

The advantage of this alternative is that it uses existing planning processes initiated by local residents to address airports and land uses for specific geographic areas of the MSB. A possible disadvantage is that it may lead to widely different approaches to addressing airports and land uses around them for various areas of the MSB.

5.4.3.3 Lake Management Plans

Some of the Lake Management Plans in the MSB address aviation activity on some MSB lakes. Usually this involves restricting touch and go operations and engine testing during nighttime hours and limiting operations and speeds near shore areas. This alternative would have the MSB AAB participate in these discussions and provide an aviation perspective to the planning process,

in situations where restrictions on floatplane operations are being considered. AAB involvement would help provide a more consistent level of aviation expertise to the planning process.

5.4.3.4 Consolidate Antennas

Tall towers can be a hazard to flying aircraft, particularly in the MSB with its large number of airports and aircraft in the region and transiting the MSB from other regions. As the MSB grows, so will the demand for additional antennas to serve the growing population. One way to minimize conflicts between towers and aircraft is to consolidate towers, where possible. The MSB has an existing tower ordinance that seeks to encourage co-location of towers. This ordinance could be amended to more strongly encourage consolidation of towers and to include the input of a future MSB AAB.

5.4.3.5 Siting Public Facilities

Some public facilities such as schools, community centers, health care facilities, and public housing are considered noise sensitive and should also avoid being sited near the ends or sides of runways. Others can create hazards for aircraft operations, such as roads or utility lines at the end of a runway or a landfill that attracts birds into the runway approach. This alternative would require the MSB to consider the safety and noise implications of airports when siting these and other public facilities.

5.4.3.6 Conditional Use Permit or Land Use Permit

The RASP TAC and some members of the public expressed strong support for MSB oversight of development of new airports, commercial floatplane bases, and helipads and heliports. While there was little interest in trying to fix existing airport development problems, there was strong support for making future airport development safer and more compatible with surrounding uses. This alternative requires a CUP or land use permit for new airports, commercial floatplane bases, and helipads and heliports. An airspace determination from the FAA would be required prior to submittal of the CUP application and airport registration would be a condition of the permit. The permit would ensure the airport meets minimum airport development standards shown on an airport template as well as other relevant land use criteria. Some examples of airport templates are described in a later section of the report.

5.4.3.7 *Platting*

Currently airports are not identified on MSB plats. This alternative would require airports, commercial floatplane bases, helipads, and heliports to be shown on a plat if subdivision of land is required. This requirement would help ensure that issues of approach and departure clearances, development setbacks from runways, and airport compatibility with surrounding land uses are considered before the plat is approved. MSB's Title 27 Subdivision Code does not specifically address platting requirements for airports. In a recent platting case where an applicant was platting an airpark (an airstrip and the adjacent lots that could access the airstrip with an airplane), the MSB determined that a variance was required by Title 27 because the block length would exceed 1,400 feet (MSB 27.20.065 [A]) and the airstrip tract would exceed a 3:1 length to width ratio (MSB 27.20.065 [B]). While these requirements were not specifically included in the code to address airports, their effect will be to trigger a variance for all future airport developments where land is to be subdivided.

A variance process in the code requires that the development can only exceed 1,400-foot block length and 3:1 length requirements if the platting board finds that:

- (1) the granting of the variance shall not be detrimental to the public health, safety or welfare, or to adjacent property; and*
- (2) the conditions upon which the variance application is based are unique to the property; and*
- (3) the strict application of MSB 27.20 shall result in undue substantial hardship to the owner of the property due to unusual physical surroundings, shape, or topographical conditions of the property for which the variance is sought, the taking of a part of the property through condemnation, or surrounding development or conditions.*

These variance requirements are difficult, at best, for a developer to meet when proposing a subdivision with public road access to a private airstrip. Airstrip safety considerations are not addressed within the current code.

Requiring a variance for all airports was not necessarily the intent of Title 27. Singling out airports for variances and not providing more precise guidance to determine under what conditions a variance should be granted is also not prudent. Therefore, this alternative proposes that Titles 27 and 17 be concurrently amended to specifically address the platting requirements for airports where subdivision of land is required.

5.4.3.8 Alternatives Considered but Dismissed

Several other alternatives were considered but dismissed during the discussions with the TAC, public and MSB staff. They include:

- Requiring plats to note proximity to all airports in the MSB. This was dismissed because plats are infrequently updated and not always carefully reviewed by homeowners, the need to notify homeowners on a permanent record like a plat would be less effective for private airstrips that may be temporary uses and which would have low levels of aviation activity, and it would create extra administrative burden if applied to all airports in the borough.
- Amending the real estate disclose form to disclose proximity to an airport. This was dismissed because the current form already provides an opportunity to disclose if the owner is annoyed by an airport; the form is used statewide and an amendment specifically for MSB needs would not likely receive approval of the Real Estate Commission. The option of the MSB creating its own disclosure form exclusively for airports was viewed as creating additional unnecessary administrative paperwork during a property sale.
- Creating height zones around airports. This was dismissed because of concerns that it would overly restrict development by airport neighbors without compensating them for those restrictions. It was thought that the airport owner should be responsible for purchasing easements to restrict heights of development and protect the airspace around his airport.
- Noise regulations. Mandating soundproofing of noise sensitive development around airports was dismissed because of the costs and generally low levels of noise around low activity airports. Restricting airport operating hours at private airports was viewed as

overly burdensome to aviation operations and safety and probably in violation of Alaska Statute 34.75.030. Since regulation of low flying aircraft is an FAA responsibility this was dismissed as an alternative for MSB involvement. Alternatively the aviation community and AAB could undertake a “fly friendly” program as part of the pilot education program.

- Platting of all airports. Platting of all airports was dismissed because such a requirement would generate substantial administrative burdens for the MSB and significant costs for airport owners with comparatively small benefit. In many cases, it would also run contrary to the essential purpose of platting laws, which is to facilitate and record the subdivision of land. Most existing private airports are located on larger tracts of unsubdivided land.
- Borough-wide zoning. Zoning of properties around all airports was dismissed because it was inconsistent with the borough-wide land use controls currently being implemented in the MSB. Zoning may be considered on a more limited basis for SPUDs created for subareas of the MSB.

5.4.4 Airport Compatibility - Recommendations/Implementation

The following table shows the recommendations and implementation measures and responsibilities for the airport compatibility issue. While the TAC and public initially expressed the most uncertainty and diverging opinions on how to address this issue, the recommendations appeared to be accepted by most participants as a reasonable, balanced, and implementable approach to addressing airport compatibility. More stringent measures, such as borough-wide zoning could be reconsidered at a future date if there is more community acceptance.

Table 31: Airport Compatibility Recommendations/Implementation

Airport Compatibility Recommendations	Implementation Actions	Responsibility	Implementation Issues
<p>Notify landowners of proximity to an airport:</p> <p>Airport mapping on MSB web site.</p> <p>Communication about airport mapping to real estate groups, builders and developers.</p> <p>MSB staff communications about airport locations during land use permit processing.</p> <p>MSB plat notes for properties near airparks or public-owned airports.</p>	<p>Make RASP mapping a permanent part of MSB or DOT&PF web site, with regular updates.</p> <p>Send notification of availability of airport maps on MSB or DOT&PF web site.</p> <p>Have latest MSB or DOT&PF airport maps on-hand in planning office to show public. Add to staff checklist.</p> <p>Amend MSB Title 27.</p>	<p>MSB or DOT&PF</p> <p>MSB</p> <p>MSB</p> <p>MSB</p>	<p>Regular updates by MSB or DOT&PF as FAA registers new airports.</p> <p>None</p> <p>None</p> <p>Plat notes would extend to properties how far away from the airport/airpark?</p>
<p>Address airports and land uses around them in comprehensive plans and SPUDs. Involve AAB in reviewing these documents.</p>	<p>Amend MSB 15.24</p> <p>Form AAB.</p>	<p>MSB</p> <p>AAB</p>	<p>None</p>
<p>Involve AAB when addressing floatplane operations in Lake Management Plans.</p>	<p>Form AAB.</p>	<p>MSB</p>	<p>None</p>
<p>Consolidate antennas into antenna farms.</p> <p>Notify AAB when reviewing new proposed tall structures under MSB 17.60.140.</p>	<p>Amend MSB 17.60.140 to encourage tower consolidation.</p> <p>Form AAB</p>	<p>MSB</p> <p>MSB</p>	<p>See MOA ordinance example. MSB ordinance update under way.</p> <p>None</p>
<p>Consider airport proximity when developing public facilities and other noise sensitive or potentially dangerous land uses (schools, roads, overhead utilities, hospitals, landfills).</p>	<p>Public Facilities Plan Update under way.</p>	<p>MSB</p>	<p>None</p>
<p>Require a CUP or land use permit for new airports, commercial floatplane bases, helipads, and heliports, based on compliance with minimum airport development standards in airport templates. CUP or land use permit would be obtained after favorable FAA airspace determination.</p>	<p>Amend MSB Title 17 and develop associated final templates with involvement of MSB AAB.</p>	<p>MSB</p> <p>AAB</p>	<p>When to require CUP vs. land use permit?</p> <p>Should a major change in use at an existing airport trigger a CUP or land use permit?</p>
<p>Amend code to define platting requirements for airports and show airports, commercial floatplane bases, helipads, and heliports on a plat if land subdivision is required.</p>	<p>Amend MSB Title 27</p>	<p>MSB</p>	<p>None</p>

Property Owner Notification - The MSB should notify existing and potential property owners of the location of airports, particularly those who are considering purchasing a home near an

airport. The notification would be through GIS-based mapping on the MSB or DOT&PF website. GIS information about the airports that was compiled during this project could be included with the mapping. The availability of the mapping should be widely communicated to real estate groups, builders, and developers with hopes that this information would be considered during development and sale of property near an airport and would be shared with prospective home buyers. The MSB or DOT&PF would need to work with the FAA to ensure that as new airports are registered with the FAA, they are added to the MSB or DOT&PF mapping.

Airport mapping should also be communicated to property owners by the planning staff when they inquire about development requirements during the land use permit process. Property owners inquiring about developing airports would also be notified of existing and proposed development near a proposed airport. Airports should be added to the checklist of items the staff routinely discusses with the public.

Property owners near private airparks and public-owned airports should also be formally notified of close proximity to an airport through a note written on the plat. The plat note should apply to any property within 2,000 feet of a runway. The note should be a simple statement that the property is within 2,000 feet of an airport and could be subject to airport noise and overflights. This notification would be limited to properties close to busier airports, including airparks and public-use airports. The MSB would amend borough subdivision code to implement this plat note recommendation.

Comprehensive Plans and SPUDs - The MSB should address airport compatibility during comprehensive plans and SPUDs. Some of the alternatives identified in this plan that have been rejected for borough-wide implementation, may be appropriate in a subarea of the MSB. Some may at least be implemented near busier public-use airports and airparks. Some examples could include regulating the type, intensity, proximity, and heights of development near airports or developing different airport templates than are implemented by this borough-wide plan. The AAB should be invited to review and provide comment on these plans. Implementation of this recommendation would require an amendment to MSB code.

Lake Management Plans - The MSB should involve the AAB in Lake Management Plans that are addressing restrictions to aviation activities. This would help provide a broader aviation

perspective and expertise in the planning process and may help achieve a more consistent approach to addressing aviation in Lake Management Plans in the MSB.

Consolidate Antennas - The MSB should amend its existing tower ordinance to encourage the consolidation of tall towers and to include the input of a future MSB AAB when new towers are proposed. This recommendation is timely since the ordinance is currently being updated.

Some difficulties with implementing tower consolidation are that tower consolidation is not always practical or is resisted by tower owners. Some reasons include:

- Close proximity of towers may affect communication signals
- A specific location that reaches the desired audience for one user may not reach the targeted audience of another user
- Government tower owners sometimes are reluctant to co-locate with other users.

Methods to overcome these concerns might be borrowed from the Municipality of Anchorage tower ordinance. The MOA ordinance tries to encourage concentration of towers by providing incentives for consolidation such as allowing higher towers at consolidated sites.

Siting Public Facilities - The MSB should consider proximity to an airport when siting public facilities. Factors that should be considered include sensitivity to airport noise and safety considerations of locating facilities where they would be routinely overflown by aircraft. The type of facility, frequency of aviation activity and distance from the airport should be considered in the siting evaluation. An animal control shelter located near the side of a seldom used private strip would be less of a concern than a school located at the end of a runway at a busy public airport. Examples of facilities that would be more sensitive to noise and safety considerations include schools, community centers, health care facilities, and public housing.

The MSB should also consider proximity to an airport when siting facilities that may create airport hazards. Examples include siting roads or utility lines at the end of a runway or a landfill that attracts birds into the runway approach.

This alternative will require amendment to MSB code and should be considered in the Public Facilities Plan update currently under way.

CUP, PUD (Planned Unit Development), or Land Use Permit - The MSB shall require a CUP, PUD, or land use permit for new airports, commercial floatplane bases and helipads and heliports on the road system. Prior to applying for a CUP, PUD, or land use permit, the applicant would first obtain a favorable airspace determination from the FAA. The permit would ensure the airport has adequate runway length and meets minimum airport development standards shown on an airport template. Registration of the airport with the FAA would be a condition of approval for the permit.

Some examples of airport templates are described in the next section of this report. The final template to be used for this permit would be defined during the development of the ordinance creating the CUP, PUD, and land use permit process. The permit should also consider whether the airport would be located too close to existing or planned public facilities. The AAB should participate in the development of the final template and ordinance.

When the ordinance is drafted, consideration should be given to handling the simplest private airstrips through an administrative review under the land use permit process. For example, helicopter facilities, commercial floatplane bases, airparks, and other private strips with commercial activity should be permitted under a CUP or PUD. These would normally have more aircraft operations, handle larger aircraft, have commercial operations, and create more noise and other potential impacts on adjacent parcels. The ordinance should also consider whether a new permit is required for airports that have a significant change in use, such as an increase in based aircraft or operations, frequent use by larger aircraft, or shift to use by commercial operations or helicopters.

Conditional Uses Permit, Planned Unit Development, Platting - The MSB should amend Titles 27 and 17 (CUP and PUD) of code to define specific land use and platting requirements for airports, which would specify standards to be met for airports.

Considerations for this amendment to Titles 27 and 17 include:

- FAA airspace determination prior to plat submittal.

- Opportunity for public comment (public hearing at the Platting Board with newspaper ads and notices of hearing mailed to nearby property owners are already required for platting actions).
- Meeting minimum standards defined in MSB airport templates.
- Measures to prevent vehicle traffic across the airport by the general public, particularly if the parcel is adjacent to a public easement.
- Initiate airport registration with the FAA after the airport is constructed (registration by FAA sometimes takes up to 2 years, so only a record that the applicant has applied to register with the FAA should be required).
- Providing a variance process if there are extenuating circumstances such as unique land features like undevelopable public lands, waters or other features that would mitigate the need for meeting all of the template standards.
- Requiring warning signs appropriately placed at all public or private road crossings. Proof of signage could be verified via photograph, and/or inspection by MSB personnel prior to recordation of subdivision.
- Plat notes regarding airstrip issues – possibly to include location, road crossings, noise and ownership of strip.
- Neighborhood acceptance.
- Compatibility with surrounding land use.
- Will not be detrimental to the public health, safety, welfare, or to adjacent property.

The MSB should require an airport, commercial floatplane base, helipad, and heliport to be shown on a plat if subdivision of land is required. This requirement would help ensure that adequate land is provided for approach and departure clearances and development setbacks from runways, and that the aviation facility's compatibility with surrounding land uses are considered before a plat is approved. The airport template(s) adopted by the MSB would provide the criteria for clearances and setbacks.

5.4.5 Airport Compatibility Template Examples

The airport compatibility recommendations in the section above include establishment of airport development standards on templates that show setbacks, height restrictions, clear zones, and other applicable areas relative to the airport runway. Although no specific template is recommended by this report, the following section provides some template examples and summarizes the discussions of these examples that occurred between the MSB, the TAC and the general public. This information is intended to assist with the selection of a future compatibility template when the RASP is implemented, as discussed in the previous sections.

It must be noted that most existing airport templates are generally applied to public airports and are based on FAA standards. Airports that receive FAA funding agree to meet all FAA standards and to attempt to ensure compatible development around the airport. As a result, most existing examples of templates are intended for airports that are larger than the private strips found in the MSB.

5.4.5.1 *Template Examples from Oregon and California*

Generic land use templates have been developed by several states for use by small general aviation airports. Examples of templates from the states of Oregon and California were both identified during this project. These templates are discussed below.

The Oregon template was originally developed as part of the 1994 *Oregon Airport Land Use Compatibility Guidelines*. The Oregon document included templates for three different types of airports:

- Small general aviation airport with visual approaches
- Medium-sized general aviation airport with at least one non-precision approach
- Small commuter service or business class airport with one precision approach

Of these three, the first category seems the closest in size and function to the many private airports in the MSB. The template for small, general aviation airports is intended to identify potential areas of incompatible land use and to suggest areas of undeveloped land that should be reserved for compatible land uses.

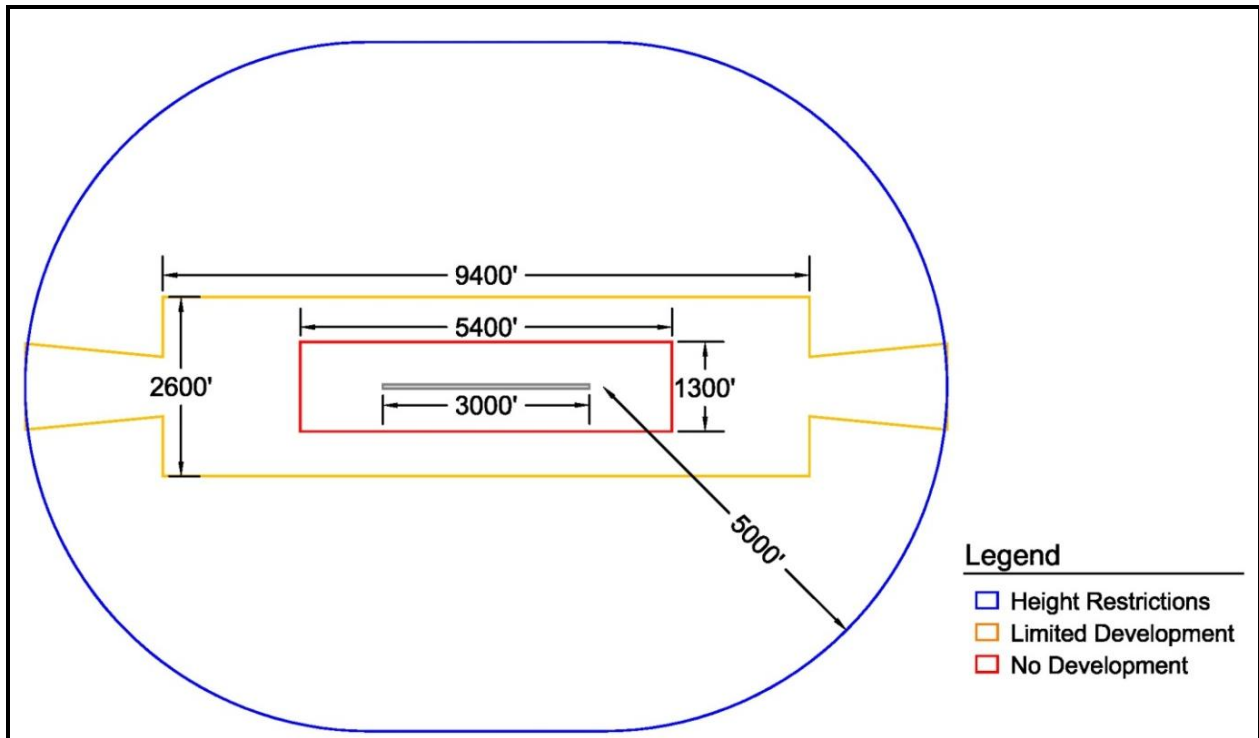


Figure 19: Oregon Template for Small General Aviation Airports

Based on the accident location data discussed in Section 4.3.4.1, the 2002 edition of the *California Airport Land Use Planning Handbook* recommended several types of templates that might be appropriate for reducing conflicting land uses near an airport. Templates were provided for several different sizes and types of airports, but the small, general aviation template is probably most appropriate for the private airports found throughout the MSB. This template is shown in Figure 20.

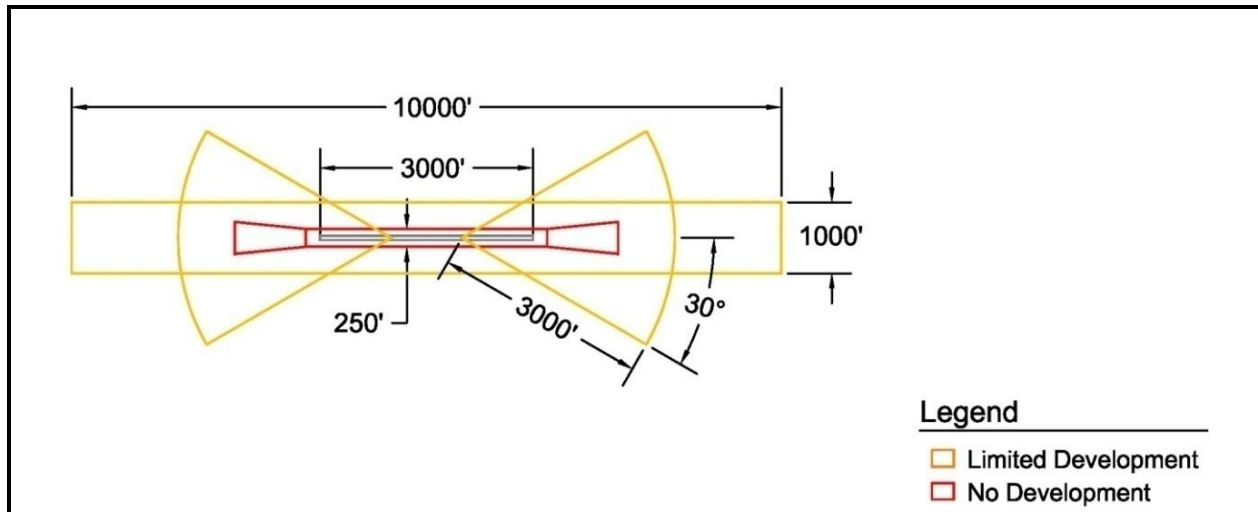


Figure 20: California Template for Small General Aviation Airports

5.4.5.2 Template Examples Developed for This Project

As an alternative to the complex FAA-style templates developed for Oregon and California, it may be appropriate to develop smaller, simpler templates for private runways in the MSB. Although the FAA has many different types of clear zones and setbacks, the most important principles are to establish a runway long enough for the aircraft intended to use it, a clear zone around the runway to increase safety, and an area free of incompatible development at the ends of the runway to reduce conflicts with incompatible land use. It is also appropriate that small low activity airports not be subjected to the same level of regulation as larger airports with many more aircraft and operations.

With this principle in mind, the project team developed three template examples based on simplified FAA standards. These template examples are similar to FAA standards but have fewer components and simpler dimensions.

The first template example is the most complex and most similar to FAA standards used at smaller public owned general aviation airports. It includes the following features:

- Runway length appropriate for the aircraft intended to use the runway
- Mandatory limited development areas at the ends of the runway where congregations of people (inhabited buildings) and airport hazards (garbage dumps) are restricted.

- Mandatory clear areas (setbacks) along the sides and ends of the runway where development is not allowed except if it is lower than the runway elevation.
- Mandatory overrun areas along the sides and ends of the runway where aircraft that overshoot or undershoot the runway or veer off to the side can safely land without hurting the passengers or seriously damaging the aircraft. The overrun area in this example is 120 feet wide.
- Mandatory height limits for the approach slopes at the ends of the runway. No object may penetrate an imaginary surface that extends out and up from the runway at a slope of 20:1. In other words, for every twenty feet of distance from the runway, the elevation of the height limit increases in height by one foot.
- Advisory height limits for the side slopes and areas within 5,000 feet of the runway. Side slopes extend out and up from the edges of the clear area at a slope of 7:1. The height limit is relative to the runway, so objects that extend more than 150 feet above the runway elevation would be discouraged.

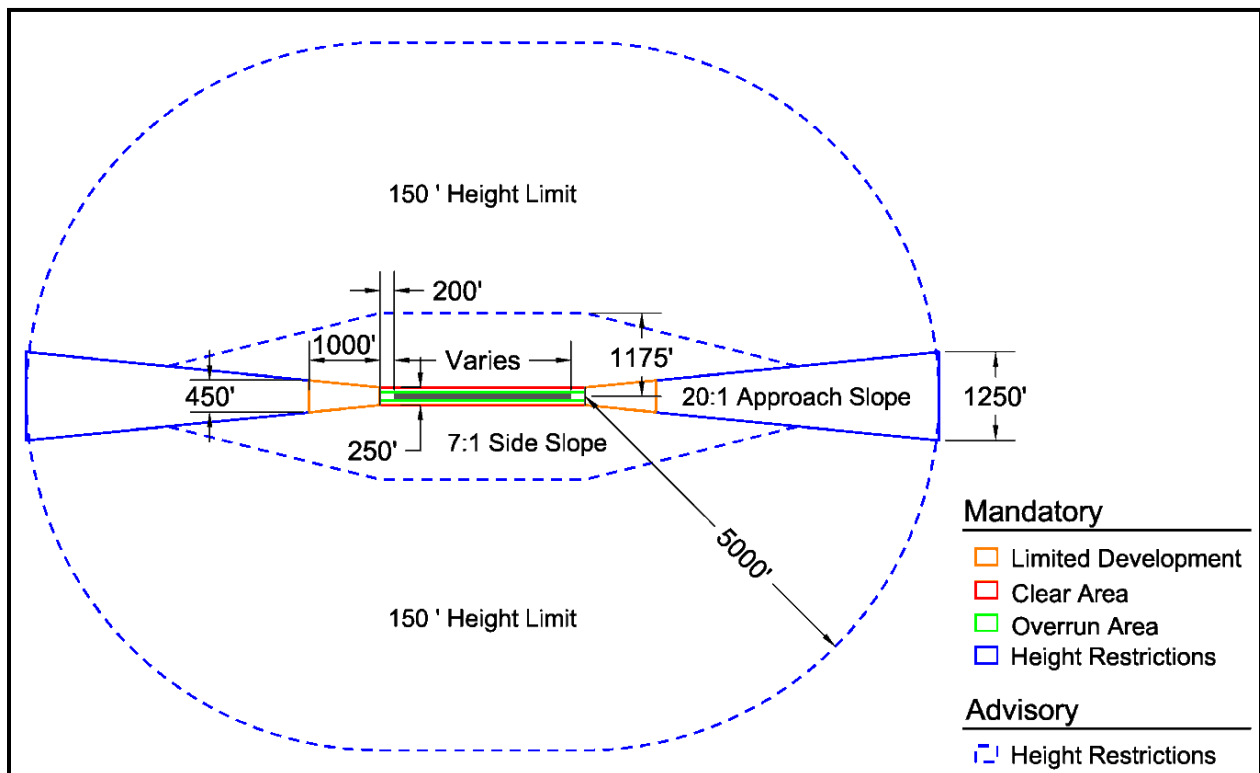


Figure 21: Large Airport Template Example

The second template example is smaller and simpler than the first. The only mandatory items are the clear area around the runway and limited development areas at the ends of the runway. The only height limits are for the approach slopes and these are not mandatory. The template example consists of the following components:

- Runway length appropriate for the aircraft intended to use the runway
- Mandatory 1,000-foot limited development areas at the ends of the runway
- Mandatory clear area along the sides and ends of the runway
- Advisory height limits for the 20:1 approach slopes at the ends of the runway

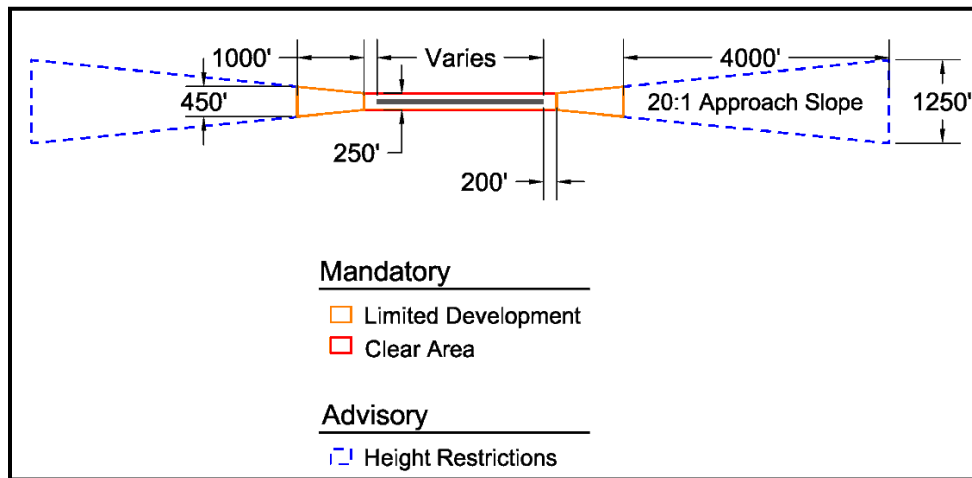


Figure 22: Medium Airport Template Example

The third template example is the smallest and simplest of the three. This example is similar to the previous example, but much smaller. It consists of the following items:

- Runway length appropriate for the aircraft intended to use the runway
- Mandatory 500-foot limited development areas at the ends of the runway
- Mandatory clear area along the sides of the runway
- Advisory height limits for the 15:1 approach slopes at the ends of the runway

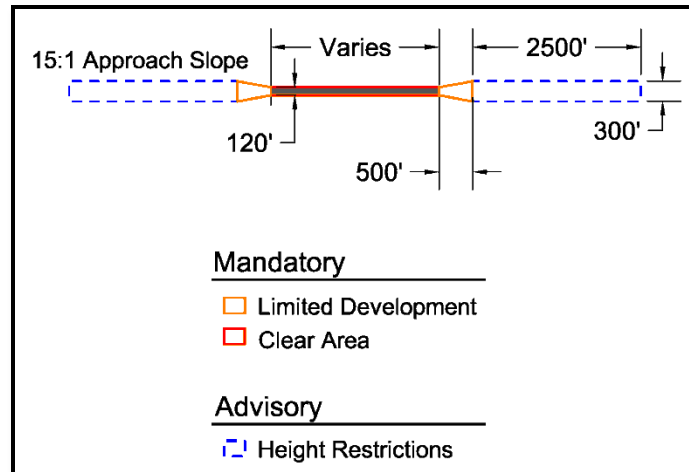


Figure 23: Small Airport Template Example

Note that none of the template examples specifies a dimension for runway length. This is because runway length requirements vary and depend on many factors. These factors include temperature, wind, elevation, runway surface, aircraft performance, payload, and pilot skill. Because runway length requirements vary so much, the project team recommends that the airport owner specify what runway length is appropriate for his airport based on the types of aircraft and operations that are anticipated. This assumption would be documented with the MSB and the remainder of the template would be based on this runway length.

A fourth template example was developed for private helipads. This template is based on FAA standards for small helicopters. The main feature of this template is an area of limited development beneath the approach and departure areas of the helipad. The clear area around the helipad is a square, 50 by 50 feet.

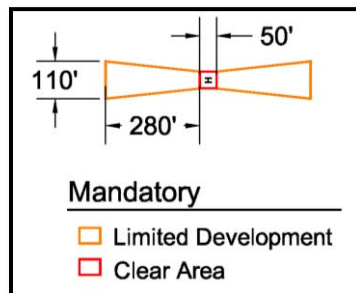


Figure 24: Helipad Template Example

5.4.5.3 *Comments of the Technical Advisory Committee and Public*

Initially, only the first two template examples developed by the project team were presented to the TAC. The intent was that the more complex template would be applicable to only the largest private airports and airparks and the smaller template would be applicable to small private strips.

The TAC felt that both of the first two templates might be too complex and/or too large for the average private airport. They liked the general idea of some sort of template, but felt that a smaller example might be more appropriate. The TAC also requested an example of a helipad template.

Subsequently, the project team developed the third template which is the smallest template possible using FAA standards as a basis. This template is based on FAA threshold siting criteria for small airports. These criteria are what FAA uses to site the runway thresholds at public airports. If the threshold siting criteria cannot be met at an FAA-funded airport, then the runway threshold must be displaced or relocated in order to achieve a minimum acceptable level of safety. These are the smallest, least restrictive standards in use by FAA at small general aviation airports.

The team also developed the helipad template example from some of the FAA helipad standards found in FAA Advisory Circular 150/5390-2B *Heliport Design*.

All four template examples were presented to the public at the second public meeting. Public comments appeared to be generally supportive of some sort of template for new airports, but were strongly against applying a template to existing private airports. Comments from the public also were to apply realistic templates for the limited use airports serving small slow aircraft.

Some were not supportive of any template or any MSB regulation of aviation. Some questioned what would happen if the aircraft size or type changed after the airport was permitted by the MSB. The public also expressed concern about the impacts of airport noise on surrounding property and wondered if there was a way to incorporate noise impacts into these template examples.

5.5 Public Airport Improvements

Capital improvement needs and services for public airports were recommended by the public through the project survey and in public meetings. The following table summarizes the improvements suggested by the public.

This study was not originally intended to evaluate Capital Improvement Program (CIP) needs of public airports in the MSB. However, since improvements to public airports was identified as an issue by project participants, CIP ideas were collected during the project and are reported here. This study does not evaluate the validity of these needs. The airport owners should consider these needs when planning future airport improvements.

Table 32: Proposed Improvements to Publicly-owned Airports

Airport	Proposed Improvements Suggested By The Public
Big Lake	Weather station
	Repair taxiway surface
	Cut down trees in runway approach
	Pave and extend runway; pave run-up areas
	Fencing and limited access
	Fuel, bathroom, telephone
	Improve gravel floatplane ramp; clear trees along road connecting the ramp to the airport
	Provide fueling facilities at or near the floatplane ramp area
	Provide floatplane tie downs for transient aircraft
Goose Bay	Security - Fencing, perimeter road, enforcement, restrict firearms use, prevent cars from being pushed over bluff, airport tenants or manager living on site
	Instrument Landing System (ILS) for training purposes
	Pave runway
	Encourage development on lease lots and hangars. Consider a plan to allow homes on private property adjacent to hangars owned by the homeowner.
	Encourage flight schools, fueling facilities and charter services
Lake Louise	Reconstruct airport. One of few public airports in East Mat-Su/Copper River Basin with adequate runway length. Important for recreation use and emergencies.
	More sources of aviation fuel
	Reconstruct airport (funding has recently been approved)
Palmer	Apron expansion
	Instrument approach
	RW 9-27 rehabilitation
	Floatplane facility
	Crack sealing
	Campground
	Fencing
	Electrification of tie downs

Airport	Proposed Improvements Suggested By The Public
SheepMountain	Trim trees near runway
Skwentna	None mentioned
Summit	Shack with telephone for those who are weathered in Signs to keep campers away from the runway/taxiway
Talkeetna	Seasonal air traffic control tower More hangar space Need another vendor for av-gas Improve existing gravel area. Construct grass strip/ski strip next to runway. City strip encroachment Fencing and signage to keep people and vehicles off the taxiway and ramp Establish floatpond on airport
Wasilla	Extend utilities to lease lots Gravel or grass strip and ski strip (recently completed) Extend runway and establish an ILS approach Establish floatplane facility at Jacobsen Lake
Willow	IFR approach Keep trees to reduce wind problems during crosswinds Paved runway Lease area needs apron space, hangars and vehicle parking Install automated weather station Transient floatplane parking at Willow Lake
Other	Provide gravel runway option at every public airport Provide paved lighted runways at every public airport Provide more aircraft parking at public airports in MSB More services; transient facilities: telephone, fuel, basic shelter, outhouse, access to weather and FSS Airports like Willow and Big Lake need FAA funding like that used at Wasilla Better maintenance of runway lighting/more timely snow removal Fewer regulations would make public airports more attractive than to private strips Safe fuel storage and dispensing facilities Affordable hangar space with better land lease terms Weather webcams and AWOS facilities Instrument approaches
MSB	Provide floatplane tie downs on MSB land on certain lakes with road access Fueling facility on a floatplane lake

The airport improvement ideas proposed by the public can be grouped into five main categories. The first is basic airport maintenance such as tree removal, maintaining airport paved and gravel surfaces and fencing. Fencing and security concerns were most notably mentioned at the Big Lake, Goose Bay, Palmer, and Talkeetna Airports.

The second category included more significant capital improvements such as airport reconstruction at the Lake Louise Airport, a runway extension at the Big Lake Airport, electric plug-ins at tie down areas at Palmer, and apron expansion at the Willow Airport. There were

several comments relating to the need to provide more types of operating surfaces on the busier airports, such as grass/gravel runways, ski strips, paved runways, and floatplane bases. As noted earlier in this report, capital improvement needs at the state-owned airports is partially hampered by the DOT&PF funding priorities, which favor improvements to airports serving communities without road access.

A third category involved the desire for more instrument approaches at various MSB airports. An instrument approach was mentioned to provide for operations in poor weather conditions, provide for IFR training facilities in the MSB (currently pilots fly to Kenai or Anchorage for training), and in the longer term as an incentive for attracting economic development to the more populated areas of the MSB. A complicating factor has been that installation of a precision instrument approach typically means restrictions on airspace use by other airports within five miles of the runway. The potential for a precision approach at possible new airport sites will be evaluated in the Location Study.

A fourth category involved a desire for more lease space at airports. Some also reported frustration with the complexity, difficulty, and cost of leasing space at public airports.

A fifth category, perhaps somewhat related to lease lots, is the desire for more services at MSB airports. Examples include fueling, phone, toilets, basic shelter, weather stations/webcams, and flight schools.

