MATANUSKA-SUSITNA BOROUGH

Regional Aviation System Plan

Airport Location Study

August 2008

DOWL HKM

MATANUSKA-SUSITNA BOROUGH
REGIONAL AVIATION SYSTEM PLAN

AIRPORT LOCATION STUDY

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LIST OF ACRONYMS

ANC ..... Ted Stevens Anchorage International Airport
BGQ ..... Big Lake
CIP ..... Capital Improvement Program
DGPS ..... Differential Global Positioning System
DOT&PF ..... State of Alaska Department of Transportation and Public Facilities
DOWL ..... DOWL Engineers
EDF ..... Elmendorf Air Force Base
EIS ..... Environmental Impact Statement
FAA ..... Federal Aviation Administration
FRA ..... Federal Railroad Administration
GPS ..... Global Positioning System
IFR ..... instrument flight rules
IYS ..... Wasilla
MSB ..... Matanuska-Susitna Borough
NPGPS ..... Nationwide Differential Global Positioning System
NPIAS ..... National Plan of Integrated Airport Systems
NPS ..... National Park Service
PAQ ..... Palmer
RASP ..... Regional Aviation System Plan
RPZ ..... Runway Protection Zone
SKW ..... Skwentna
SMOA ..... Susitna Military Operations Area
SMU ..... Sheep Mountain
TKA ..... Talkeetna
UMM ..... Summit
USGS ..... United States Geological Survey
UUO ..... Willow
VFR ..... visual flight rules
Z40 ..... Goose Bay
Z55 ..... Lake Louise

EXECUTIVE SUMMARY

The second phase of the Matanuska Susitna Regional Aviation System Plan is the siting and conceptual layout of additional public airports in the Matanuska-Susitna Borough, with the focus on sites with access to the road system.

This Airport Location Study report includes an overview of 10 existing public airports owned by the State of Alaska Department of Transportation and Public Facilities and the Cities of Palmer and Wasilla. It also identifies the 25 privately owned airports and seaplane bases that are available for public use. Most of these privately owned facilities are seaplane lakes or small or remote airstrips.

The Airport Location Study identifies the demand for new airport facilities through a review of prior studies that evaluated demand and through an evaluation of growth areas in the Matanuska-Susitna Borough. Prior studies have mostly focused on the fact that existing airports in Anchorage cannot meet Anchorage's current and forecasted demand for floatplane slips. This is relevant to the Matanuska-Susitna Borough because some airport sites in the southern Matanuska-Susitna Borough could potentially serve both Matanuska-Susitna Borough and Anchorage residents. Prior studies also concluded that there was no need to build an airport in the Matanuska-Susitna Borough to replace or supplement Ted Stevens Anchorage International Airport.

The analysis of future population growth suggested that the primary growth areas are in the South Matanuska-Susitna Borough area and in the Upper Susitna area. The South Matanuska-Susitna Borough area is where the highest concentration of population growth is already under way and expected to continue. The Upper Susitna area is anticipated to grow as a result of tourist-related facilities recently constructed and major tourist facility expansion expected over the next five to twenty years.

The Airport Location Study recommends a floatplane facility in the South Matanuska-Susitna Borough area with a water runway length of between 4,000 and 5,000 feet with associated space for tie-downs and lease areas. Ideally, it should be aligned with winds in generally a north-south alignment. For maximum use and flexibility, it should initially include a gravel strip for wheeled

aircraft and should have the flexibility to ultimately be expanded to a paved instrument flight rules runway of up to 6,000 feet in length.

Because the Talkeetna Airport meets the current needs for a public airport in the Upper Susitna area, the long-term need for another airport is somewhat speculative and other site alternatives for a future public airport lack public support, preliminary siting of an airport should not be made at this time. The site at Mile 131 should not be reconsidered in any future studies. The site at Mile 121 may be reconsidered by other future planning studies in the region if the need for an airport becomes clearer.

The Airport Location Study evaluates a wide range of methods to address the demand for new public airports in the South Matanuska-Susitna Borough and Upper Susitna areas:

- Do nothing - let private facilities address the need
- Upgrade existing public facilities
- Develop a floatplane facility at a non-lake site
- Develop a floatplane facility on an existing lake

Over 23 sites were evaluated in the South Matanuska-Susitna Borough area in an initial screening evaluation. The initial screening primarily considered airspace, land/water suitable for the airport, surrounding compatible development, driving distance to Palmer/Wasilla and Anchorage, road condition, and availability of public land for the airport. Most of the sites were west of Palmer/Wasilla and south of Big Lake where much of the population growth is occurring, there are many existing lakes, and the population density and residential development may not yet be so great as to prevent construction of an airport. Of the original 23 sites identified, three were recommended for further evaluation:

- Upgrade and add a floatplane pond at the existing Goose Bay Airport
- Upgrade and add a floatplane pond at the existing Big Lake Airport
- Construct facilities for wheeled aircraft and develop a floatplane base at Seven Mile Lake.

Over 10 sites were evaluated in the Upper Susitna area in an initial screening evaluation. The initial screening used similar evaluation factors as South Matanuska-Susitna Borough sites, but its focus was more on meeting the needs for an airport for wheeled aircraft and it considered

driving distance to the Upper Susitna area. Of the original 10 sites identified, two were recommended for further evaluation:

- A site near Mile 121 of the Parks Highway
- A site near Mile 131 of the Parks Highway

The Airport Location Study includes possible layouts and a more detailed evaluation and cost estimates for each of these sites. Some sites have more than one possible layout. The following is a summary of the evaluation of each of these sites.

Table 1: South Matanuska-Susitna Borough Airport Location Alternatives - Detailed Analysis

Evaluation Factors	Goose Bay Airport (new pond)	Big Lake Airport (new pond)	Seven Mile Lake
Airspace	Good	Good	Good
Winds	Poor	Fair	Good
Topography	Good	Good	Good
Geotechnical Data	None	Some	None
Land Ownership	Good	Good	Good
Land Use	Good	Fair	Good
Driving Distance/Road Access	P- 33 mi W- 20 mi A- 27 mi*/Good	P- 28 mi W- 15 mi A- 29 mi*/Good	P- 37 mi W- 24 mi A- 22 mi*/Poor
Utilities	Fair	Fair	Poor
Environmental Impacts	Few	Some	Many
Public Support	Minimal	Some	More
Conceptual Layout Runway Length**	W - 4,000' L - 5,000'	W - 4,000' L - 6,000'	W - 6,000' L - 6,000'
Cost: Short-term/Long-term	$27M/$26M	$28M/$55M	$37M/$38M

* With Knik Arm Crossing

** W = Potential length of floatplane (water) runway; L = Potential length of land runway

Table 2: Upper Susitna Alternatives – Detailed Evaluation

Location	Mile 121 of Parks Highway	Mile 131 of Parks Highway
Airspace	Good	Good
Winds	Good	Good
Topography	Good	Good
Geotechnical Data	None	None
Land Ownership	Good	Good
Land Use	Fair	Poor
Driving Distance/Road Access	11 miles/Good	1 mile/Good
Utilities	Poor	Poor
Environmental Impacts	Many	Many
Public Support	Minimal	Minimal
Conceptual Layout RW Length	6,000'	6,000'
Cost: Short-term/Long-term	$25M/$29M	$25M/$29M

If the Matanuska-Susitna Borough or others are interested in new airports in the South Matanuska-Susitna Borough or Upper Susitna areas, these sites should be evaluated further. Additional engineering and environmental evaluations would include:

- Wind data.
- Topographic and geotechnical data.
- Environmental studies.
- More focused public input on these final sites with an emphasis on potential airport users and adjacent residents.
- A Master Plan and Airport Layout Plan for the final selected sites.

The final chapter of the Airport Location Study addresses options for airport ownership and operation, including possible airport ownership by the Matanuska-Susitna Borough. Also addressed is the possible formation of an airport commission or airport authority to operate the airport. This would be most applicable where multiple airports are operated together by one entity.

1.0 OVERVIEW OF EXISTING FACILITIES

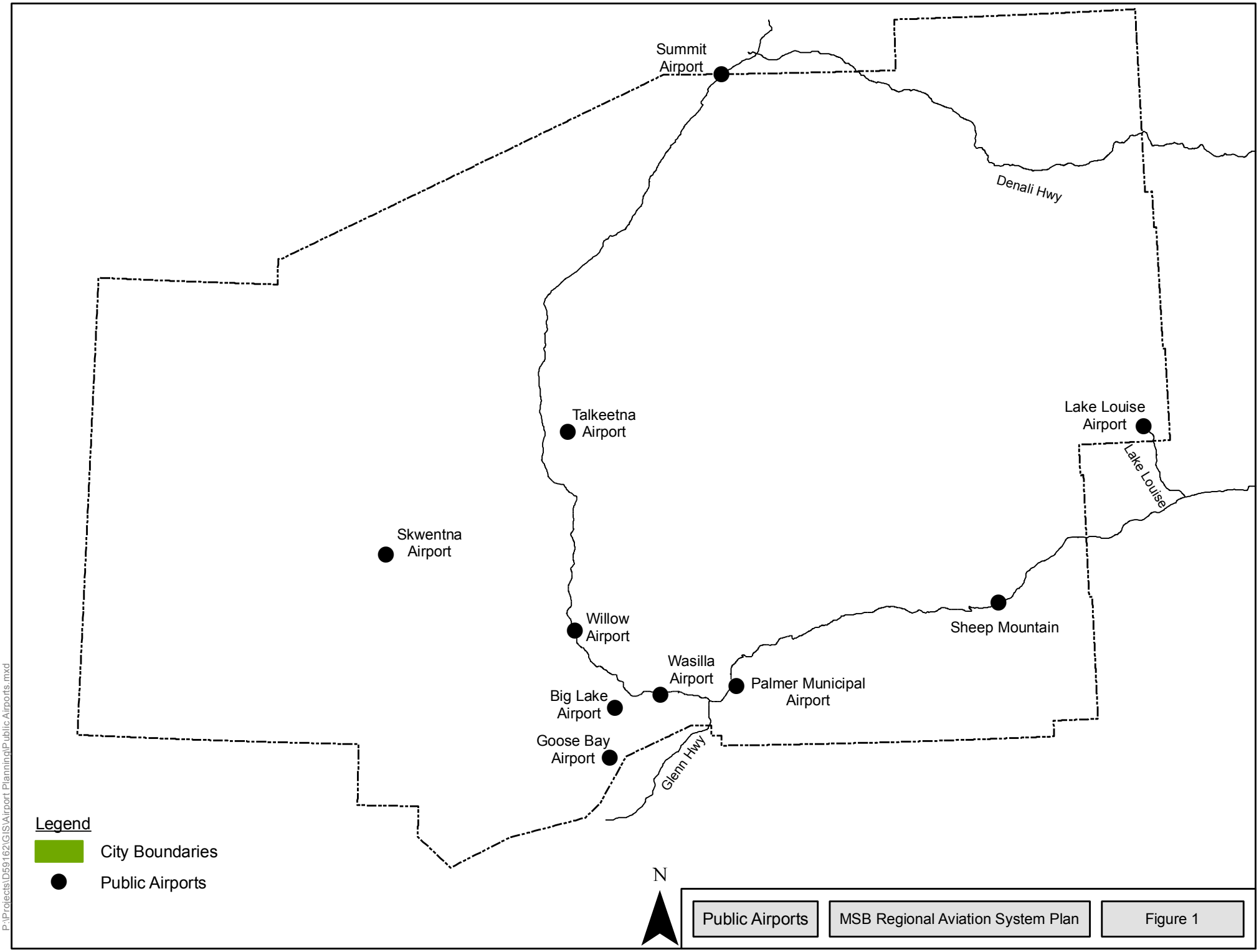
The Matanuska-Susitna Borough (MSB) contains 10 publicly owned airports and several additional privately owned airports that are available for public use. These airports, their facilities, and their services are briefly outlined below.

1.1 Public Airports and Floatplane Bases

There are 10 publicly owned airports in the MSB. These airports and their Federal Aviation Administration (FAA) identifiers are:

- Big Lake (BGQ)
- Goose Bay (Z40)
- Lake Louise (Z55)
- Palmer (PAQ)
- Sheep Mountain (SMU)
- Skwentna (SKW)
- Summit (UMM)
- Talkeetna (TKA)
- Wasilla (IYS)
- Willow (UUO)

Of the 10 publicly owned airports in the MSB, all but Palmer and Wasilla airports are owned and operated by the State of Alaska Department of Transportation and Public Facilities (DOT&PF). Palmer and Wasilla Airports are owned and operated by the cities of Palmer and Wasilla. The Big Lake, Goose Bay, Skwentna, Talkeetna, and Willow Airports have at least a moderate level of activity and are maintained by DOT&PF. Lake Louise, Sheep Mountain, and Summit Airports have low levels of activity and receive a minimum amount of maintenance. The Palmer and Wasilla Airports are well maintained by the two cities and have a moderate level of activity. The following figure shows the location of the various public airports in the MSB.


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
N
Public Airports
MSB Regional Aviation System Plan
Figure 1
P:\Projects\D59162\GIS\Airport Planning\Public Airports.mxd

From the figure, it appears that the existing airports are well-spaced to provide airport service to the most populated areas of the MSB. Most of the airports have fuel, maintenance, and other services needed by wheeled aircraft. The following table summarizes these services.

Table 3: Public Airports in the Matanuska-Susitna Borough

Airport	Facilities	Services
Big Lake (BGQ)	• Floatplane access (through city park) • Lease Lots • Tiedowns	• Maintenance
Goose Bay (Z40)	• None	• None
Lake Louise (Z55)	• None	• None
Palmer (PAQ)	• Lease Lots • Tiedowns	• Maintenance • Fuel
Sheep Mountain (SMU)	• None	• None
Skwentna (SKW)	• Lease Lots • Tiedowns	• Fuel
Summit (UMM)	• None	• None
Talkeetna (TKA)	• Lease Lots • Tiedowns	• Maintenance • Fuel
Wasilla (IYS)	• Lease Lots • Tiedowns	• Maintenance • Fuel
Willow (UUO)	• Floatplane access (across highway) • Lease Lots • Tiedowns	• Maintenance • Fuel

Note that only two of these airports have any access to a lake or a floatplane pond. These two, Big Lake and Willow, both require that a floatplane be towed from the lake across a highway before reaching the airport. None of the facilities in the table offers fuel or maintenance for floatplanes that remain on the water.

1.2 Private Airports and Floatplane Bases

In addition to the publicly owned airports, there are several privately owned airports available for public use. These private facilities are generally either small private airstrips that are not near a lake or they are lakes registered as airports (open to the public) that are small or lack a nearby public runway. These airports, their FAA identifiers, and any issues related to the airports are listed in the following table:

Table 4: Private Airports Available for Public Use in the Matanuska-Susitna Borough

Airport	Identifier	Type	Issues
Butte Municipal	AK1	Airport	No floatplane facility
Clearwater	Z86	Airport	No floatplane facility Remote location
Jonesville Mine	JVM	Airport	No floatplane facility
Rainy Pass Lodge	6AK	Airport	No floatplane facility Remote location
Road Commission No. 1	0Z2	Airport	No floatplane facility Remote location
Beaver Lake Seaplane	D71	Floatplane Base	No public runway
Brocker Lake Seaplane	--	Floatplane Base	Very small lake
Cottonwood Lake Seaplane	3H3	Floatplane Base	No public runway
Finger Lake Seaplane	99Z	Floatplane Base	No public runway
Gooding Lake Seaplane	2D3	Floatplane Base	No public runway
Jones Landing Seaplane	--	Floatplane Base	Very small lake No runway
Lake Louise	13S	Floatplane Base	Public runway closed
Lake Lucille Seaplane	4A3	Floatplane Base	No public runway
Morvro Lake Seaplane	4K2	Floatplane Base	No public runway
Nancy Lake Seaplane	78Z	Floatplane Base	No public runway
Niklason Lake Seaplane	4AK0	Floatplane Base	No public runway
Seymour Lake Seaplane	3A3	Floatplane Base	No public runway
Upper Wasilla Lake Seaplane	3K9	Floatplane Base	No public runway Recreational lake
Visnaw Lake Seaplane	T66	Floatplane Base	No public runway
Wasilla Lake	5L6	Floatplane Base	No public runway Recreational lake
Willow Seaplane	2X2	Floatplane Base	Public runway across highway Noise complaints

It should be noted that none of the airports or the heliport is located in the most populated Palmer-Wasilla core area of the MSB. The airports and heliport are located in either the far-east portion of the MSB or along the Denali Highway in the far northern portion of the MSB. Several of the floatplane bases are in the core area.

The "public" status of the lakes is less clear. By law, all lake waters are owned by the State of Alaska and are open to the public. Floatplane activity is a specifically allowed use of the lakes. By this principle, all lakes are "public." Many of these "public" lakes do not offer any services to the public and none of them has access to a public runway directly from the lake.

The floatplane base that comes closest to having access to a public runway is the Willow Seaplane Base. Although Willow Airport and the Willow Seaplane Base on nearby Willow Lake are publicly owned airports, the Willow Seaplane Base is currently registered separately by a

private individual. Transfer of the registration to DOT&PF is under way, since DOT&PF operates the airport and manages some of the land around the lake for aviation uses. It is permitted to tow or taxi planes across the Parks Highway to the Willow Airport.

1.3 Previous Efforts to Develop Public Floatplane Bases

Over the past 25 years, several efforts have been made to develop a public floatplane base in the MSB. Some of these efforts were by private individuals and others were part of long-range plans conducted by government agencies. A brief summary of those efforts follows.

1.3.1 Public Efforts

The need for a public floatplane base has been mentioned repeatedly over the past 20 years and has been included or considered in several previous master plans and regional plans. Specifically, the issue was considered as part of the Wasilla Airport Master Plan and the Talkeetna Airport Master Plan. Users of the Palmer Airport have also informally discussed the idea of a floatplane pond at that airport. The need for additional floatplane capacity was also a key feature in the Lake Hood Master Plan and the Anchorage General Aviation System Plan. Since portions of the MSB could be served by an airport in Anchorage, these previous Anchorage studies are also discussed in this report.

1.3.2 Private Efforts

Several private individuals have proposed development of a public floatplane base coupled with a land runway. One of the earliest private efforts was along the Glenn Highway between the Knik River and Palmer near the Palmer Hay Flats Game Refuge. Wetland permits were obtained and construction was begun in the late 1970s, but construction was later abandoned due to lack of funds.

Other more recent proposals were for a floatplane base at the far south end of Point MacKenzie. Several proposals for a facility in this area were submitted to FAA, but the FAA objected due to the proximity of this area to the Anchorage airspace and the approaches to Elmendorf Air Force Base (EDF) and Ted Stevens Anchorage International Airport (ANC).

1.3.3 Earmark

In 2004, a congressional earmark directed the FAA to support planning and development of public floatplane facilities in the MSB. It should be noted that no specific amount of money was allocated for floatplane development, but FAA agrees that such facilities are needed and will support such development. The earmark was at least partly a result of interest expressed by private individuals in developing a public use floatplane base in the Point MacKenzie area. The earmark ultimately resulted in the grant to the MSB for this Airport Location Study.

2.0 FUTURE DEMAND

2.1 Prior Studies

Several prior studies have evaluated the need for new public airports in the MSB and Anchorage. The primary findings of these studies, as they relate to aviation in the MSB, are summarized below. Anchorage studies are included here because these studies include aviation demand that might be partly addressed in the MSB if road access is improved and airports are a short driving distance from Anchorage. These studies address two different areas of need in the MSB. The first need is for a floatplane base somewhere in the southern part of the MSB and/or in Anchorage. The second need is for an airport in the North MSB in the Upper Susitna area.

It should be noted that in the last 20 years, the only new public airports that have resulted from these studies have been the Goose Bay Airport (a former military airfield) and the relocation of the Wasilla Airport.

In summary, the key findings of these prior studies include:

- A new international airport to supplement or replace ANC is not needed in the next 20 years or the foreseeable future.
- The Anchorage Bowl needs more floatplane slips, but there is no existing suitable space. Lake Hood cannot be expanded to meet the demand. A feasibility study for a new floatplane base in Anchorage will be completed in 2007, but the future of a new floatplane base is far from certain. If a floatplane base is built at possible sites identified at Eklutna Gravel Pit or Eklutna Flats, the 12- to 17-mile driving distances to Palmer and Wasilla would make these sites potentially suitable for some pilots in the core area of the MSB.

- Existing airports in the Anchorage Bowl can meet Anchorage's demand for wheeled general aviation facilities for the next 20 years, but after that time the demand will likely need to be met outside Anchorage.
- The MSB could meet some of Anchorage's general aviation demand if a Knik Arm Crossing is built and a new airport/floatplane base is within reasonable driving distance of Anchorage.
- Significant development is anticipated in the Upper Susitna area over the next 20 years.

2.1.1 Upper Cook Inlet Airport System Plan (1982)

The study area for this plan was the Municipality of Anchorage and portions of the MSB north of Palmer and Tyonek to Cantwell. While the study did inventory 71 public and private airports in the region, its primary focus was on public airports. Principal recommendations and their status are summarized in the following table.

Table 5: 1982 Upper Cook Inlet Airport System Plan - Recommendations/Status

Recommendations	Status
Anchorage International retained as principal air carrier airport in the region	Implemented.
Aviation training airport in the Point MacKenzie area, potentially at Goose Bay	Implemented. Goose Bay airport transferred to DOT&PF, upgraded, and operated primarily as a training airport.
Site selection and construction of a relocated Wasilla Airport.	Implemented. Study completed and new airport constructed by the City of Wasilla.
Site selection and construction of a public floatplane facility in the Wasilla area, potentially co-located with the new Wasilla Airport.	A new public floatplane facility has not been implemented, though options for floatplanes at the Wasilla Airport have been studied, but not adopted.
Site selection and construction of a new public floatplane facility to serve Anchorage, potentially built in Point MacKenzie if the Knik Arm Crossing is built.	Potential sites in northeast Anchorage have been identified in Anchorage General Aviation System Plan. Airport feasibility study under way.
Limited development of Christiansen Lake near Talkeetna as a floatplane base.	A limited floatplane operation has been implemented, but the base is not registered with the FAA.
Site selection and development of a new airport in Willow to serve the State Capital.	Not implemented. State capital was not built in Willow.
Form an ongoing Regional Airport Policy Committee to guide regional airport development.	Not implemented.

Source: Upper Cook Inlet Airport System Plan and DOWL Engineers (DOWL)

2.1.2 Ted Stevens Anchorage International Airport Master Plan (2002)

The 2002 ANC Master Plan identified the need for a new runway at ANC during the 20-year planning horizon. Because new runways at urban international airports can be controversial,

have environmental impacts, are expensive, and can have regional implications, the Master Plan considered "regional" airport alternatives at Fire Island and at the Point MacKenzie agricultural area as alternatives to new ANC runways. Alternatives were evaluated based on airspace impacts, operational impacts, community and environmental impacts, costs, and financial feasibility. The site at Point MacKenzie assumed construction of a Knik Arm Bridge. The Point MacKenzie site considered the feasibility of moving the entire airport or only international cargo and air taxi/general aviation operations. The costs of the alternatives are summarized below.

Table 6: Anchorage Alternative Costs

Alternative	Cost (Billons)
No New ANC Runways	$1.2
ANC North-South Runway	$1.5
ANC North-South Runway and Fire Island Airport	$3.1
ANC North-South Runway and Supplemental Airport at Point MacKenzie	$4.1
ANC North-South Runway and East-West Runway	$2.4
Close ANC and Develop new Point MacKenzieAirport	$6.3

Source: ANC 2002 Master Plan

The Master Plan ultimately recommended a new north-south runway at ANC. It concluded there was no need for regional airport alternatives at Point MacKenzie or Fire Island during the 20-year planning horizon. If demand were to grow beyond that forecasted, Fairbanks International Airport could handle some of the international cargo demand as it already does.

The study concluded a supplemental airport or replacement airport at Point MacKenzie would be costly (capital and operating costs), have questionable financial feasibility, would be less convenient to the public, would have new environmental impacts, and would have airspace conflicts with ANC and EDF. The study also concluded splitting off international cargo into a separate supplemental airport was not practical or cost-effective because of the need to transfer cargo between passenger and cargo aircraft and because of the high costs to develop and operate two airports. These conclusions will be revalidated as part of the ANC Master Plan Update in 2007 and 2008.

The ANC Master Plan did not address the benefits or need for a separate air taxi/general aviation airport in the MSB.

2.1.3 Anchorage General Aviation System Plan (2003)

The Anchorage General Aviation System Plan evaluated the need for facilities for wheeled and floatplane aircraft in Anchorage. The plan identified a deficit of 270 floatplane slips by 2020. It recommended construction of a new floatplane facility in the Eklutna Gravel Pit or Eklutna Flats area with a 4,000 by 20-foot water runway and 270 slips and lease lots with capability to expand to a 5,000-foot water runway with 400 slips.

The plan predicted excess capacity of 235 wheeled tie-downs by 2020, mostly at Birchwood and Merrill Field Airports. However, it was noted that after 2020 there would be limited capability to expand existing general aviation airports or construct new airports in the Anchorage Bowl. Therefore, demand after 2020 would need to be met outside the region. A long-term site for a new airport in Anchorage for wheeled aircraft was considered, but not found.

The study noted the potential for a new Point MacKenzie airport to meet some Anchorage general aviation demand, but it did not assume this would occur; primarily because of the uncertainties associated with the Knik Arm Crossing. When surveyed, Anchorage general aviation pilots indicated they would drive up to 20 to 34 miles to access an airport, which makes some parts of the MSB within reasonable driving distance for some Anchorage pilots, particularly if they have no other closer options.

2.1.4 Lake Hood Master Plan (2006)

The 2006 Lake Hood Master Plan addressed the need for additional floatplane and wheeled aircraft at Lake Hood. The study had the following conclusions for floatplanes:

- Current floatplane waitlist is 250
- Actual unmet demand is 75 percent of waitlist (190)
- Only nine new slips will be added in the future at Lake Hood; no space to add more
- Forecasted floatplane slip demand for 2025 exceeds capacity by 243 slips

Because floatplane demand exceeds Lake Hood's capacity, the study recommended that demand be met at other facilities in Anchorage or the MSB. The study found that Lake Hood would have

excess capacity for wheeled aircraft through the year 2025 because of the expansion of public and private tie-downs.

2.1.5 Anchorage Floatplane Facility Feasibility Study (2007)

DOT&PF will be completing an Anchorage Floatplane Facility Feasibility Study in 2007. The study will evaluate potential costs, revenues, financial feasibility, and airport ownership options for a floatplane facility at either the Eklutna Gravel Pit or Eklutna Flats sites identified in the Anchorage General Aviation System Plan project.

DOT&PF gives highest priority to airport projects that serve communities off-the-road system that have no other access options. General aviation airports on the road system, such as the proposed floatplane facilities, are usually ranked low priority and have trouble receiving capital funding. Therefore, based on current DOT&PF policy, DOT&PF thinks it unlikely that it would finance the construction and operation of a new floatplane base in Anchorage. Part of this study will include an evaluation of other ownership options such as ownership by the Municipality of Anchorage or the private sector.

The Eklutna Gravel Pit site would be about 16 miles driving distance from either downtown Palmer or Wasilla and the Eklutna Flats site would be about 12 miles from either Palmer or Wasilla. Therefore, either site would be capable of satisfying at least some of the demand for a public floatplane facility in this part of the MSB.

2.1.6 South Denali Implementation Plan and Environmental Impact Statement (2006)

This Environmental Impact Statement (EIS) evaluated two alternatives for visitor center development. The first alternative was for a visitor center at the west end of the Petersville Road. The second alternative was for a visitor center along the Parks Highway just north of the Chulitna River Bridge. The EIS selected the Parks Highway location as the preferred alternative because it provides the best access for visitors and has the least cost. It also has the smallest impacts on the rural lifestyle of residents in the area.

Appendix E to the EIS also included some forecasts of visitors to any new South Denali facilities. The following table, from page 310 of the report, shows three scenarios. All three scenarios anticipate more than 200,000 visitors per year.

Table 7: Visitation Scenarios for South Denali Visitor Center

South Denali Visitor Facility	2010	2015
Low Growth Scenario (2%)	218,149	240,854
Medium Growth Scenario (4%)	245,105	298,208
High Growth Scenario (6%)	274,781	367,719

2.1.7 Trapper Creek Comprehensive Plan (2007)

The MSB is currently working with the Trapper Creek Community to develop a Comprehensive Plan for much of the area between Trapper Creek and the Chulitna River Bridge. Initial drafts of the plan identify the need for a public airport in the area, but do not recommend any specific location or type of airport. However, residents of Trapper Creek do appear to favor a location outside of the "downtown" area so that noise conflicts will be minimized.

2.2 Future Population Growth/Densities

Based on recent population data, the MSB has one of the fastest-growing populations of any area in the state of Alaska. The population there is expected to double in the next 20 years. The location of much of this growth depends on the fate of the Knik Arm Crossing. Without this bridge, most growth will happen along the Parks Highway and in the area between Wasilla and Palmer. This scenario is shown in the following figure. The figure also shows the location of the growth relative to existing public airports and the 20-air-mile radius around those airports that the FAA considers when deciding whether to help pay for a new public airport.

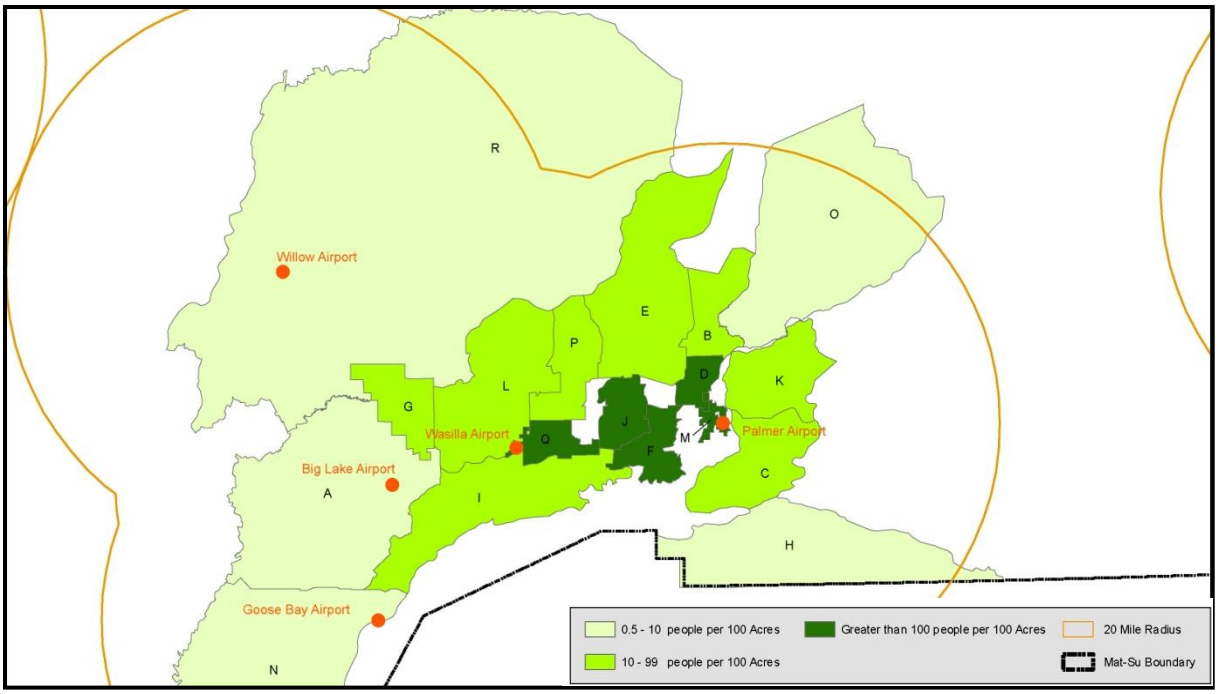


Figure 2: 2025 Population Density without Knik Arm Bridge

If the Knik Arm Crossing is built, then the area of population growth shifts towards the west, with much of the growth happening west of Wasilla. This scenario is shown in the following figure.

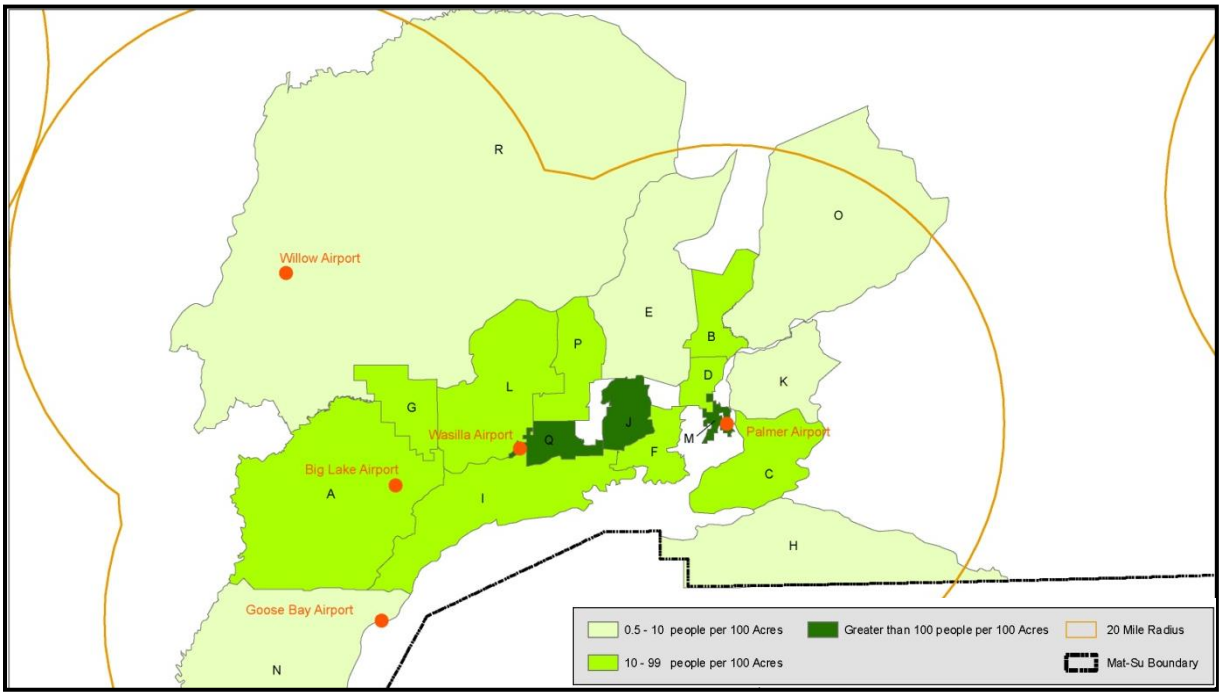
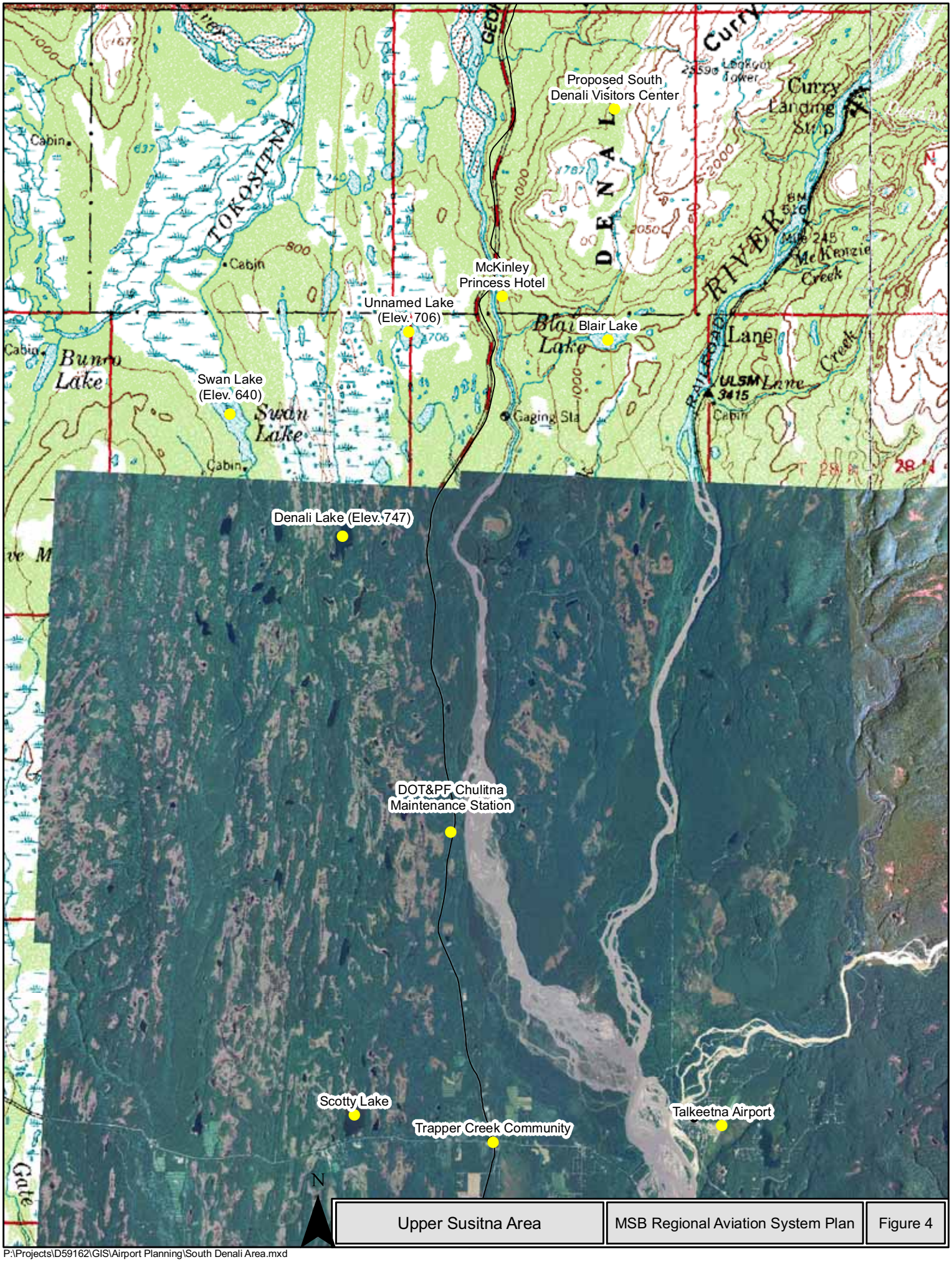


Figure 3: 2025 Population Density with Knik Arm Bridge

Another area of the MSB that is anticipated to experience rapid growth in the next decade is the Upper Susitna area. This area, along the Parks Highway just south of Denali State Park, will soon be the location for the South Denali Visitors Center. As noted earlier, the *South Denali Implementation Plan and Environmental Impact Statement* estimates between 250,000 and 350,000 annual visitors to the area within 20 years. This area is expected to be the location for multiple tourist hotels, restaurants, and lodges. Already, Princess Cruises operates a hotel just inside Denali State Park. At least one other hotel chain has purchased property in this area and several others are considering doing so.

In addition to the hotels, the Boys Scouts are planning to construct a large camp nearby on Blair Lake. There has also been strong interest from tour operators in establishing themselves in the Upper Susitna area. An increasing number of tour operators are working with Princess Cruise lines and with property owners in Trapper Creek to provide services to this area. It appears that the Upper Susitna area may be one of the fastest growing areas of the MSB in the next decades other than the South MSB area.



Upper Susitna Area	MSB Regional Aviation System Plan	Figure 4

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2.3 Other Considerations

2.3.1 Federal Aviation Administration Criteria and Coverage Areas

This study assumes construction of a new publicly owned airport would be financed in part by the FAA. The FAA provides most of the funding for capital improvements at public airports in the MSB, but airports must be in the National Plan of Integrated Airport Systems (NPIAS) to be eligible. Currently, the Big Lake, Goose Bay, Palmer, Skwentna, Talkeetna, Wasilla, Lake Louise, and Willow Airports are included in the NPIAS. To be eligible for FAA funding and be included in the NPIAS, a general aviation 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 10 based aircraft during first 5 years of operation
   - There is a sponsor willing to take ownership and development of the airport…or

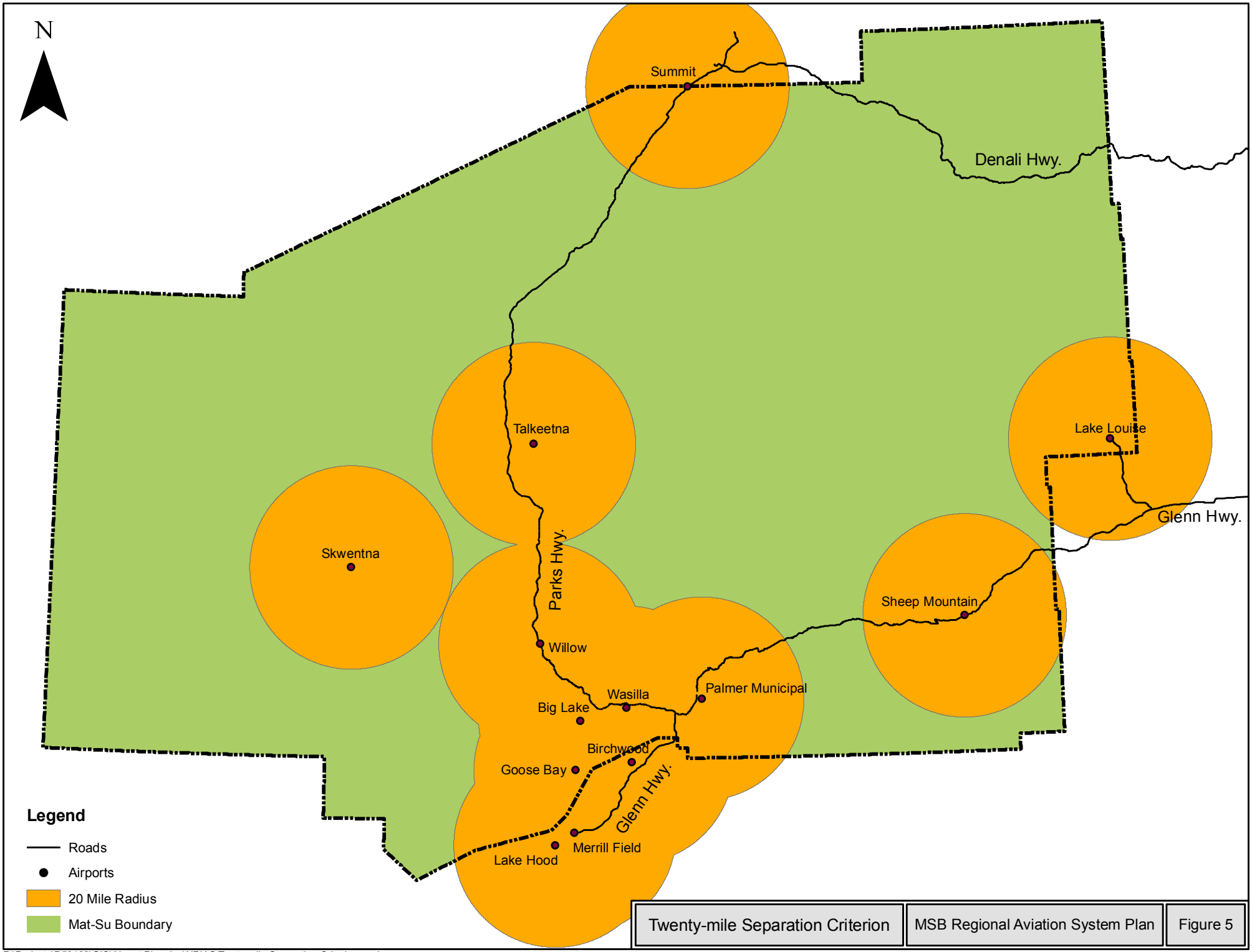
3. Airport has special justification showing a significant national interest such as:

   - 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.

The NPIAS criteria of 20 air miles or 30 minutes driving time was initially used to identify parts of the MSB populated areas that were not served by existing public airports serving wheeled aircraft. The following figure shows that, aside from a small area between Palmer Airport and Sheep Mountain Airport, and a larger area between Talkeetna and Summit Airports, most of the heavier populated areas of the Southern MSB are already served by airports serving wheeled aircraft. An area about half way between Willow and Talkeetna is about 20 miles from either airport, but the area is lightly populated; so consideration of a public airport there may be unnecessary.



Twenty-mile Separation Criterion | MSB Regional Aviation System Plan | Figure 5

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The NPIAS 20-air-mile criterion in the above figure only addresses airports for wheeled aircraft. Since there are no NPIAS floatplane airports in the MSB, the 20-air-mile restriction does not limit where a **new floatplane base** could be considered; with one exception. If a Knik Arm Crossing is built, the 20-mile criterion might be applied to Lake Hood and could limit where a new floatplane base would be built. However, because Lake Hood cannot accommodate future growth in floatplane activity, the 20-mile NPIAS criterion probably would not apply to airports within 20 miles of Lake Hood.

The area between Trapper Creek and the Chulitna River Bridge also meets the NPIAS criteria for an additional airport. The Chulitna River Bridge is approximately 48 miles from the Talkeetna Airport and 70 miles from the Summit Airport. Although the community of Trapper Creek is only 5 air miles from the Talkeetna Airport, the driving distance to Talkeetna is approximately 30 miles and still meets the FAA criteria. Note that sites south of Trapper Creek are closer than 30 miles to Talkeetna and do not meet the FAA criteria.

2.3.2 Commercial Service Airport with Precision Approach

There is currently not a commercial service airport in the MSB with a precision instrument approach. Some reasons to consider a precision instrument approach include the ability to operate in poor weather conditions, for training purposes, to support economic development in the MSB, and for a South MSB Airport to ultimately serve some commercial aviation activity that might otherwise have to use ANC. The FAA has previously proposed a precision approach for the Wasilla Airport, but this offer was declined by the City of Wasilla due to the airspace impacts such an approach would have on surrounding private airports. The Palmer Airport does not have a precision approach due to the terrain obstructions that surround that airport.

While the Airport Location Study does not recommend a replacement airport for ANC, there appears to be some justification to at least plan for an airport in the South MSB that has the capability of relieving ANC and Lake Hood of some of its general aviation, air taxi, and other commercial aviation traffic and to serve the growth of the MSB. While the need is somewhat speculative at this point, prudent planning suggests retaining the flexibility to develop a future precision approach at any new airport in the South MSB.

Therefore, the need for a precision approach and the capability to serve a wide range of commercial aircraft may be a factor in the development and siting of any new airport in the MSB. While the initial phase of development may be built to serve smaller aircraft with a non-precision approach, the long-range airport plan should have the flexibility to handle larger wheeled and float equipped aircraft than those normally associated with a floatplane base and should provide for a precision approach.

2.3.3 Wheels to Floats

One of the key issues for many public floatplane bases is the availability of a nearby runway to allow planes to change from floats to wheels or skis as necessary. In spite of the many public lakes in the MSB, there is no lake with direct access to a public runway. The Willow Airport and Willow Lake come closest to this combination, but the access between the lake and airport is across the Parks Highway. Siting of any future public floatplane base should therefore consider the necessity for an adjacent runway. Likewise, siting of a new land airport in the Upper Susitna area should consider the possibility of a future floatplane facility nearby.

2.4 Public Comments

As part of the public survey, the public was asked:

Where are NEW public airports needed over the next 20 years in the MSB? Should these airports serve floatplanes, wheeled planes, or both?

Of the 59 respondents to this question, 29 respondents stated that new public floatplane facilities are needed in the MSB. Most of these respondents requested that floatplane facilities be co-located with a public runway and that maintenance and fuel service be available for both float and wheel planes. An additional 14 respondents requested that existing public airports be expanded, or that new public airports be constructed.

The most common locations suggested for the new public airports and floatplane bases were in the area between Wasilla and Point Mackenzie. The following table shows the areas suggested for new airports and the number of times each was suggested by survey respondents. Note that 61 percent of the suggested locations are Wasilla, Big Lake, or Point Mackenzie.

Table 8: Survey Suggestions for New Airport Locations

Suggested Area	Number of Times Suggested
Point Mackenzie	7
Wasilla	6
Big Lake	4
Trapper Creek/Talkeetna	3
Sheep Mountain/Eureka	2
Palmer/Butte	2
Skwenta/Red Shirt Lake/Remote areas	2
Summit	1
Hatcher Pass	1

Although this trend is based on a small number of respondents, this trend is consistent with the population data and with comments received during multiple Technical Advisory Committee and public meetings. There was a general sentiment among those supporting this location that an area in the South MSB between Wasilla and Point Mackenzie will require additional or expanded airports in the future especially if the Knik Arm Crossing is constructed.

The number of comments suggesting a new airport at Point Mackenzie may be somewhat influenced by the belief among some members of the MSB public that ANC might someday relocate to the Point Mackenzie area. While this idea was dismissed in the most recent ANC Master Plan, some residents of the MSB still feel that a commercial airport in the Point Mackenzie area would be a good idea, especially if the Knik Arm Crossing is built.

2.5 Development Areas

Given the preceding information, it appears that the need for new public airports is concentrated in two areas. The primary need is for a public floatplane base located in the south part of the MSB near the highest concentration of population, the fastest growing area of the MSB and possibly within a reasonable driving distance of Anchorage. For the remainder of this report, this area will be referred to as the South MSB area.

The other area of potential long-term need is the Upper Susitna area. This area may eventually need a land airport, with a potential adjacent floatplane base as a secondary and more speculative need. For the remainder of this report, this area will be referred to as the Upper Susitna area.

2.5.1 South Matanuska-Susitna Borough Area

Regardless of whether the Knik Arm Crossing is built, the area south and west of Wasilla is currently the fastest growing area of the borough. It also currently has fewer private airports which could conflict with a new public airport and has more areas that are sparsely developed and which could potentially be compatible with an airport. In contrast, the more populated areas in and near Palmer and Wasilla have greater concentrations of airports, residences, recreation uses, and related development that would be incompatible with a new public airport. For these reasons, most of the sites considered in the Airport Location Study are located to the west and southwest of Palmer and Wasilla. As noted earlier, with the Knik Arm Crossing, some sites in this area also have the potential of serving Anchorage residents and pilots, if the driving distance is not too far.

The area south and west of Wasilla already is served by the Wasilla Airport, Big Lake Airport, and Goose Bay Airport. The Wasilla Airport has recently experienced strong demand for apron space and lease lots and is currently constructing a large apron expansion. Demand at the Big Lake Airports has been steady and demand at Goose Bay has been limited, partly due to its location and security problems. Several people contacted during this project indicated they would base an aircraft at Goose Bay if it were more secure.

The area south and west of Wasilla also contains many natural lakes that might be candidates for development of a floatplane base. However, roads in this area do not provide access to all of the lakes and many of the roads that do reach the larger lakes are inadequate for a busy public airport. Road improvements would likely be required for any new public airport in this area.

The airspace in this area has a few airspace constraints that should be noted. The Class C airspace for the Anchorage area extends approximately as far north as Point Mackenzie Road. There are routes used for military training that pass east and west of the Big Lake area, but not directly south of Big Lake. If a precision approach is ever implemented for the Wasilla Airport, then that approach may pass through this area at a high altitude. All things considered, the airspace in this area has fewer complications than most of the core area of the MSB between Wasilla and Palmer. Airspace issues in this area are discussed in more detail in the various Alternatives sections of this report.

A new airport in this area should be planned to provide both public runways and public floatplane facilities. Space should be reserved for future expansion of the airport to provide a precision approach and commercial service with larger aircraft such as business jets, commuter jets, and small cargo aircraft.

2.5.2 Upper Susitna Area

The Upper Susitna area is anticipated to be a fast-growing area for future tourism and recreation. While some of this demand may be seasonal in nature, there will certainly be a large number of visitors to the area and this area is almost 50 miles by road from the nearest public airport. There is one tourist hotel in the area already and at least one more tour company has purchased land in the area. There is an abundance of private land in or along the south edge of Denali State Park and much of this land is expected to be developed soon.

There is already a private effort to offer aerial tours from the small airstrip in Trapper Creek. Some air taxi operators from Talkeetna will likely use the Trapper Creek strip to pick up customers from the Upper Susitna area. An airport located even closer to Upper Susitna hotels and amenities and Denali Park sight-seeing destinations will be more attractive to tourists and other airport customers, will offer shorter flying distances for air taxis, and could potentially draw some customers away from the Talkeetna Airport and the private strip at Trapper Creek.

The only airspace issue anticipated in the area is the presence of the Talkeetna Airport. Any new airport located in the Upper Susitna area will need to be located to avoid the Talkeetna Airport pattern and approaches. Airspace issues in this area are discussed in more detail in the various Alternatives sections of this report.

A new airport in the Upper Susitna area would primarily be a wheeled aircraft facility with helicopter facilities. The initial need would be for a medium-length paved runway similar in size to the Talkeetna Airport runway. Provisions should be made for future expansion to include a 6,000-foot runway capable of handling business jets, commuter jets, and small cargo aircraft. Other improvements might also include a co-located floatplane pond to provide floatplane access to the area. A large apron and abundant lease lots should be constructed to provide space for the various tour operators and air taxi businesses.

3.0 AIRPORT CONCEPT

This section describes the basic design parameters and required facilities for future airports in the MSB. It is anticipated that a new airport would be constructed in the South MSB and that this facility would initially be a floatplane facility with an adjacent gravel runway. Ultimately the runway may be expanded to serve larger aircraft and associated aviation-related commercial development. Another airport would be constructed in the Upper Susitna area and would be primarily a medium-sized paved airport with the possibility of an adjacent floatplane pond.

The following paragraphs provide more details and design rationale for each of the proposed facilities.

3.1 Floatplane Base

3.1.1 Floatplane Pond Length, Width, and Depth

The length of the floatplane pond in the South MSB and Upper Susitna areas should be based on the requirements of the floatplanes expected to use the facilities. Pilots have generally expressed interest in a floatplane pond about 3,000 to 4,000 feet long. However, large floatplanes with a heavy load can sometimes need up to 5,000 feet for takeoff, depending on conditions.

The following table shows the water lane length for similar existing and proposed floatplane ponds in Alaska. The table shows that most facilities similar to those proposed for the MSB have a floatplane runway more than 4,500 feet long. These facilities, Fairbanks, Juneau, Lake Hood, and Kenai, handle a variety of large floatplanes with heavy loads. This represents a significantly longer runway length than the minimum recommendation of the FAA Advisory Circular. It is, however, consistent with the older FAA Seaplane Facilities Manual. The proposed floatplane pond recommended in the Anchorage Bowl General Aviation System Plan was initially to be 4,000 feet long with expansion capability to 5,000 feet. Based on the table and the recommendations of local pilots, it appears that any new public floatplane facilities in the MSB should have a floatplane runway length of between 4,000 and 5,000 feet.

Table 9: Comparison of Floatplane Water Lane Lengths

Airport	Water Lane Length
FAA Advisory Circular 150/5395-1	2,500' (minimum)
FAA Seaplane Facilities Manual (1984)	3,780'-5,000'
Fairbanks International Airport	5,400'
Juneau Airport	4,900'
Lake Hood	4,540'
Kenai Airport (existing)	3,500'
Kenai Airport (proposed)	4,500'
Bettles (VOR Lake)	4,100'
Kodiak Trident Basin	3,800'
Nenana	3,601'
Homer (Beluga Lake)	3,000'
Anchorage General Aviation System Plan (proposed)	4,000'-5,000'

Source: DOWL, AFD Alaska Supplement, Airport Master Plans

The width of the floatplane landing area should be at least 200 feet wide. This width allows for safe landing during crosswind conditions and allows some room for taxiing prior to takeoff. This width is consistent with the recommendations for similar facilities in Anchorage and Kenai. Where possible, a parallel water taxiway should be constructed to allow planes to taxi to both ends of the takeoff area and remain outside of the 200-foot-wide landing area.

The floatplane pond should have a minimum depth of 3 feet during all seasons to provide adequate safety for floatplane operations. To minimize the growth of aquatic vegetation and minimize maintenance costs, the depth of the floatplane pond should be at least 6 to 10 feet.

3.1.2 Floatplane Pond Alignment

In addition to runway length, another primary factor in new floatplane base planning should be pond alignment. Floatplane ponds should be roughly aligned with the prevailing winds. In the Wasilla area, the winds are predominantly northeast to southwest. Recent wind data from the Wasilla airport confirms this fact and it is evident in the most common alignment of public and private runways in the area, including the Wasilla Airport. Farther south, near Point Mackenzie, the predominant winds are slightly more north-south in alignment according to pilot observations and wind data for ANC.

In the Upper Susitna area, prevailing winds tend to be mostly north-south due to surrounding terrain features. This area features north-south valleys and runway and wind alignment tends to follow this topography.

Because winds are not always in one direction, consideration should also be given to sites that allow for crosswind takeoffs and landings. Sites with space available for a crosswind operation would have advantages over sites that do not. During final site selection studies and airport master plans, wind studies would be completed to confirm the direction of prevailing winds and whether the frequency and intensity of crosswinds supports the need for a floatplane pond with space for crosswind operations.

3.1.3 Floatplane Slips and Lease Lots

A new floatplane base will need to have floatplane slips for parking of float-equipped aircraft. The exact number of slips will depend on the forecast developed for each airport, but for preliminary planning purposes we recommend long-term planning for at least 100 to 200 slips in the South MSB area and 25 to 50 slips in the Upper Susitna area. These slips may consist of shoreline parking areas and/or docks placed in a lake or natural body of water or they may consist of manmade canals dug in the ground as part of a floatplane pond. The floatplane base should also have lease areas for businesses that service floatplanes and wheeled aircraft using the adjacent land airport.

3.2 Runway

In addition to a floatplane landing area, any new airport should include a gravel or paved runway. This runway should initially be designed to handle small general aviation aircraft, but should include a plan for extension. The exact size and length of the runway will depend on the type of aircraft forecasted to use the airport. The runway should also be constructed so that a taxiway connects the runway and the floatplane landing area. This taxiway will provide the ability for aircraft to switch from floats to wheels as necessary.

3.2.1 Length

The length of the runway should initially be appropriate to serve small, general aviation aircraft at each of the airports. The initial strip should be approximately 3,300 feet. This is the standard length used by DOT&PF for general aviation airports throughout Alaska.

This length was originally based on FAA Advisory Circular 150/5325-4B *Runway Length Requirements for Airport Design*. According to this document, 100 percent of aircraft with 10 or fewer passenger seats can be served by a 3,200-foot runway at sea level with a mean maximum temperature of 60°F. These criteria match well with the aircraft anticipated to use the new airports in the MSB. DOT&PF uses a runway length of 3,300 feet because they add an additional 100-foot buffer to account for variations in temperature and elevation across Alaska.

However, there is the potential that the South MSB Airport and the Upper Susitna Airport could both someday serve even larger aircraft such as business jets, commuter jets, or medium-sized cargo aircraft. Therefore, the airport design should include room for these two runways to be extended up to 6,000 feet. This extended length will be adequate to serve these more demanding aircraft.

3.2.2 Alignment

The alignment of the land runway should be similar to that of the water runway as discussed in the previous sections. An airport in the Wasilla/Point Mackenzie area should have a northeast-southwest alignment. An airport in the Upper Susitna area should have a north-south alignment.

Because winds are not always in one direction, consideration should also be given to sites that allow for a crosswind runway. Sites with space available for a crosswind runway would have advantages over sites that do not. During final site selection studies and airport master plans, wind studies would be completed to confirm the direction of prevailing winds and whether the frequency and intensity of crosswinds supports the need for a crosswind runway.

3.2.3 Surface

Each of the runways may initially be gravel, but should be upgraded to pavement as future needs dictate. It is anticipated that the Upper Susitna runway might need to be paved the soonest due to the high-performance planes that are used to provide flight-seeing services for tourists. The

runway in the South MSB area might not need to be paved until it is extended because it will initially primarily serve small general aviation planes that prefer to operate from an unpaved strip.

3.2.4 Instrumentation and Lighting

The airports in the South MSB and Upper Susitna areas should initially be lighted and instrumented to serve a non-precision Global Positioning System (GPS) approach. Although much of the flying from these strips will likely be visual flight rules (VFR), there may ultimately be a need for instrument flight rules (IFR) access to the airports. An instrument approach would be especially useful to air taxi and other commercial operations that could eventually use both facilities on a regular basis.

3.2.5 Apron and Lease Lots

Each of the new airports should have sufficient apron space and lease lots to meet the demands of based aircraft and businesses. It is expected that dozens of aircraft will initially be based at each airport. In the case of the South MSB facility, the number of based aircraft could eventually reach into the hundreds if the Knik Arm Crossing is constructed.

The airports should also include lease lots for aviation businesses. One of the purposes of constructing the airports is to provide space for aviation businesses. In the case of the South MSB Airport, one existing need is to provide floatplane and airplane maintenance and fuel. Other businesses, including air taxis, flight-seeing, cargo, etc., could develop over time. In the case of the Upper Susitna Airport, an expected need is for lease space for air taxis, flight-seeing businesses, and medevac services to the tourists and residents of the area. Lease lots for these types of business should be large enough for bulk hangars, parking, and private apron development.

3.3 Road Access

Because the new airports would be publicly owned, there should be good, reliable road access via a public road. Access roads should be paved and maintained year-round. For some sites it may be necessary to construct a short access road between the existing road system and the new

airport location, or to upgrade an existing road. However, the length and difficulty of building this access road should be a consideration when choosing the airport site.

4.0 SITE SELECTION CRITERIA

Based on discussions with the public, Technical Advisory Committee, and airport planning considerations discussed earlier in this report, the project team developed a list of siting criteria to be used for the site selection process. Although other criteria will also likely be considered, these factors are those which will have the greatest bearing on whether a new airport site is feasible during the initial screening phase. Additional factors such as environmental considerations and cost will be considered after the initial screening process is complete and several sites are selected for a more detailed study.

4.1 Airspace

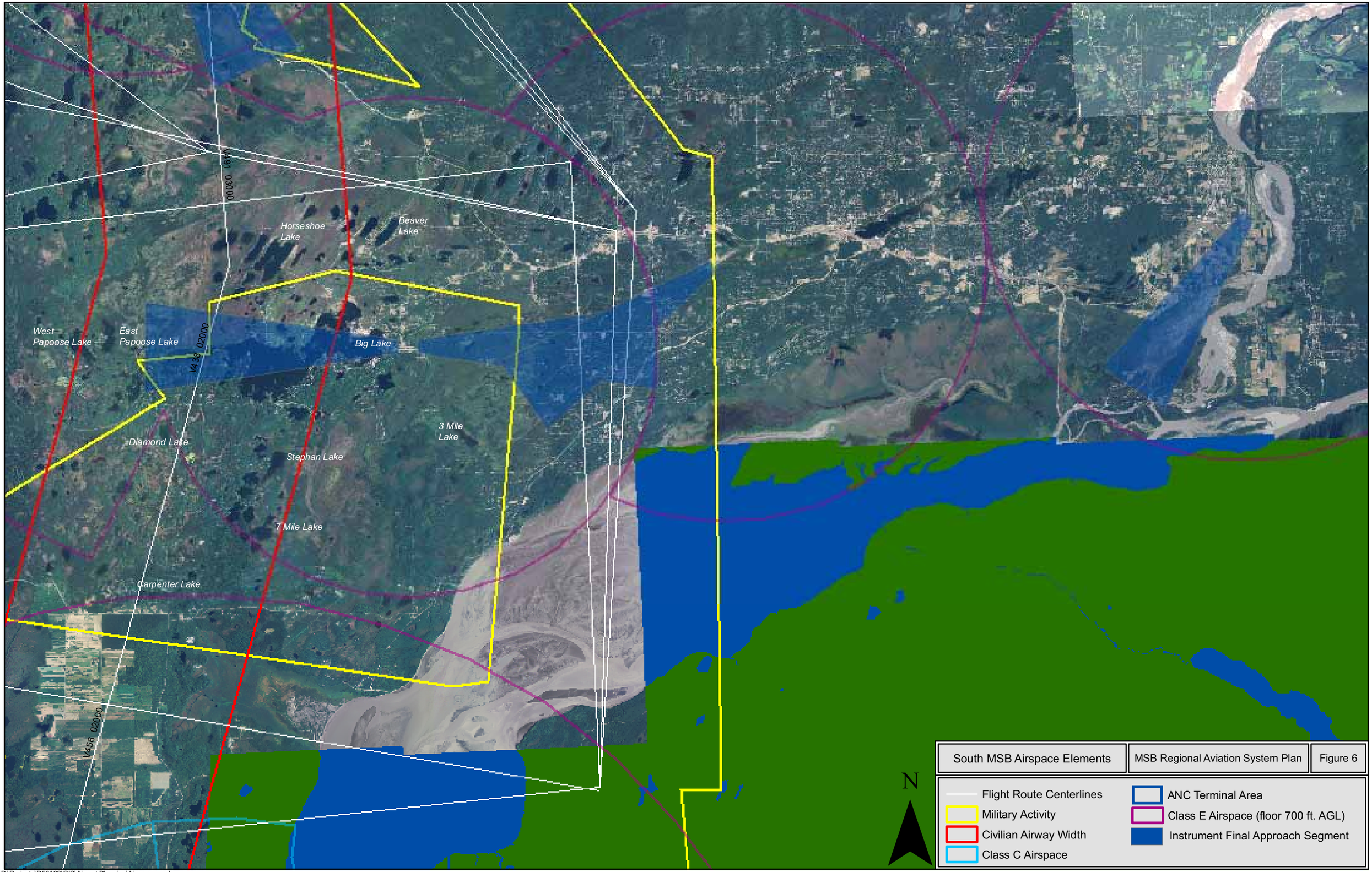
A new airport site must have airspace that is compatible with the many other public and private airports in the MSB. The airspace should be as free of existing conflicts as possible while also having the potential for future expansion and more demanding instrument approaches. Factors that might affect airspace compatibility:

- Anchorage Class C and Part 93 airspace
- Existing patterns and approaches at publicly owned airports in the MSB
- Future precision approach at Wasilla Airport
- Existing patterns for private airports
- Training routes used by the military

Areas of potential airspace conflicts are shown in the following figures. These figures show charted areas and altitudes where aircraft activity is planned or known to occur. The figures are not intended to exclude specific locations from consideration as part of this study, but only indicate where consideration should be given to airspace issues. Each of the charted airspace elements on these maps highlights areas where there is potential for aircraft interactions between existing aircraft operations and those introduced by any new airport. Interactions between aircraft occur when there is a dependency between any aircraft intending to utilize the same airspace at the same time. Interactions require aircraft-to-aircraft and/or air traffic control tower communication and coordination that have the potential to reduce airspace capacity.

The first figure depicts airspace elements for the South MSB. These include FAA airways with relatively low altitude limits, instrument approach areas, Class E airspace, and military activity.

The second figure depicts airspace elements for the Upper Susitna area. These include FAA airways and instrument approach areas and Class E airspace for the Talkeetna Airport.



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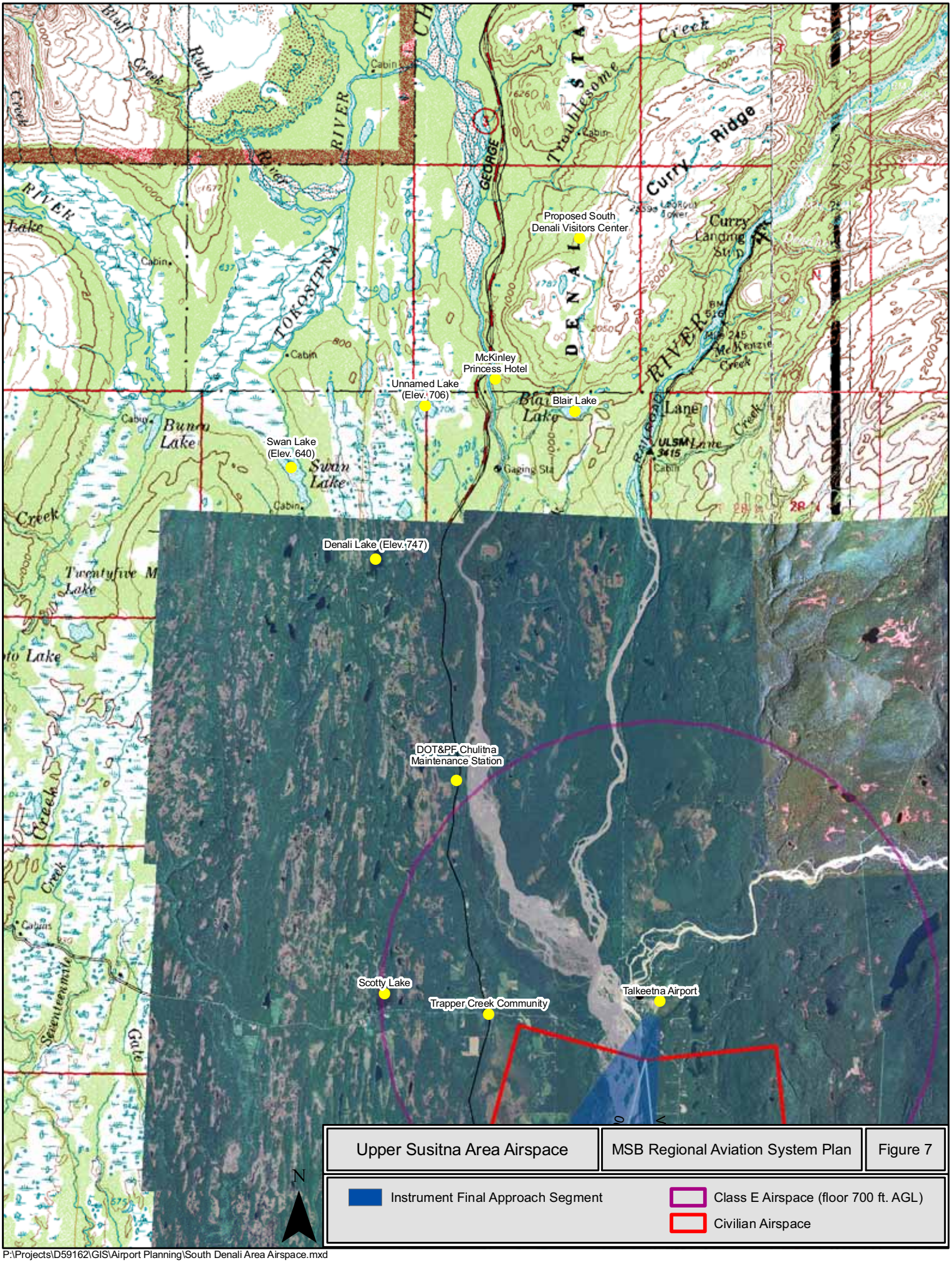

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4.2 Incompatible Development

Airports should be sited to avoid conflicts with incompatible development such as residential land uses, certain institutional facilities that are particularly noise sensitive, and certain recreational land uses. Potential airport hazards such as landfills or other areas that attract large numbers of birds should also be avoided. Any new airport sites should have sufficient compatible land uses or undeveloped land to ensure that conflicts are minimized between airport activity and the surrounding land use. Sites that are otherwise acceptable may need to be removed from consideration if residential or recreational activity is too dense. This criterion may particularly affect floatplane sites on certain lakes that are heavily developed with homes and are heavily used by recreational watercraft.

4.3 Potential Runway Length

As discussed above, the desired runway length for floatplanes is between 4,000 and 5,000 feet. Therefore, sites should have at least 4,000 feet water available for floatplanes. The site should also have adequate space for the future construction of a 6,000-foot runway and the associated safety areas. Most important of these safety areas is the runway protection zone (RPZ) which normally extends 1,200 feet beyond each end of the runway (but extends 2,700 feet beyond each end of a runway with a precision instrument approach). There should be no incompatible development within the RPZ for either the water runway or the land runway.

4.4 Driving Distance

Because a new airport in the South MSB area would be intended primarily as a floatplane base, the FAA NPIAS criterion of 20 driving miles between public airports does not apply. However, this criterion would apply to airport sites in the Upper Susitna area.

All airports should be located so that driving distance to the primary users is minimized. In the South MSB this would include consideration of the distance to the most populated Palmer-Wasilla area as well as to Anchorage.

4.5 Existing Road Access

The availability of existing public roads near any new airport site should be considered. The condition and maintenance of existing roads should be evaluated along with the type and amount

of any new roads that must be constructed. Sites should be selected so that difficult road building is minimized.

4.6 Public Land Ownership

Because land acquisition can be expensive and difficult, it is preferable to locate potential airport sites on land already owned by the MSB or another public entity. It may be possible to locate an airport on land owned by the State of Alaska or a large private landowner in certain cases. Regardless, it is preferable that the number of landowners at any new airport sites be kept to as few as possible.

5.0 SOUTH MATANUSKA-SUSITNA BOROUGH ALTERNATIVES

As discussed above, the area south and west of Wasilla was identified as the most likely site for a new public floatplane base in the MSB because of the large relatively undeveloped space available, fewer conflicts with existing airports, proximity to the most populated areas of the MSB and potentially Anchorage (with the Knik Arm Crossing), and presence of potential lakes that could be used for a floatplane base. However, there were a wide range of other alternatives for providing floatplane service to the South MSB. Some of these alternatives were actually not in this target area, but might still meet many of the aviation needs identified.

For purposes of analysis, the various ideas and alternatives were grouped into five general categories. Each category represents a different approach to finding a site for a public floatplane base. These categories are:

- Do nothing - Let private facilities address the need.
- Upgrade existing floatplane facility - Willow, Big Lake, private airport, etc.
- Add a floatplane facility to an existing airport - Big Lake, Goose Bay, private airport, etc.
- Develop a floatplane facility at a non-lake site - Gravel pit, dredged area.
- Develop a floatplane facility on an existing lake.

Alternatives within each of these categories are discussed in the following sections. Some of these alternatives were dismissed early in the process, and other alternatives were carried forward through the second public meeting. Those alternatives were then narrowed further to a few alternatives for detailed evaluation.

5.1 Do Nothing

The most basic alternative for providing floatplane services to the MSB is to allow the private market to meet the demand. There are several ongoing and recent efforts for individuals to provide public floatplane facilities in the area.

5.1.1 Private Floatplane Base in Palmer

Just south of Palmer on the Glenn Highway is a large gravel pit owned by an Anchorage construction company. Preliminary information from this company indicates that they plan to develop a subdivision on this property in phases as the gravel is extracted. One possible configuration could include a lake up to 3,000 feet long for use by floatplanes. A subdivision with floatplane pond would lie directly underneath the western approach to the Skyranch Airpark and in the flight path for aircraft approaching the Palmer Airport. A floatplane pond at this site would need to be evaluated further for airspace conflicts.

This site would also have concerns about potential incompatibility between the floatplane pond and the large amount of residential development in the subdivision. Furthermore, the timing of any floatplane lake development is uncertain, but would not be any sooner than 10 years in the future. Recently, this site has also been considered as the future location of an electrical generation plant and may not be available for development as a floatplane pond. For these reasons, this alternative was dropped from further consideration as a major seaplane base for the South MSB.

5.1.2 Wasilla Lake/Other Existing Core Area Lakes

A local air taxi business recently attempted to obtain approval to operate a commercial floatplane service on Wasilla Lake. The air taxi business planned to locate an office in the Fred Meyer shopping center on the south end of the lake and install a small dock nearby. This proposal was rejected by the City of Wasilla due to surrounding residential areas and the high level of use of the lake for boating and other recreation purposes. Because of the decision of the City of Wasilla, development of a private floatplane base on Wasilla Lake was dropped from further consideration as a major seaplane base for the South MSB.

Although this particular incident is specific to Wasilla Lake, many other lakes in the MSB have similar issues. While floatplane operations by homeowners on the lakes are generally tolerated, there will likely be opposition to frequent floatplane operations on lakes with heavy recreation use and significant development around them, such as is especially found on lakes within the core area of the MSB.

5.1.3 Existing Airparks

There are other existing private floatplane facilities in the MSB that might be able to meet some of the demand for additional floatplane services. Two of the largest private airports are Wolf Lake and Anderson Lake. Both of these airports feature airpark subdivisions and provide access to a lake for floatplanes. Wolf Lake has a few private slips. Anderson Lake has no slips available for lease, but some of the homes on the lake have floatplane docks and there is a pullout ramp at the end of the land runway.

Because of lack of space and potential liability problems, it is unlikely that either of these facilities, or any of the other smaller airports in the MSB, will be able to meet the long-term demand for public floatplane services. These facilities will likely remain an important part of the aviation system in the area, but will not be able to meet the need for additional major floatplane facilities for the South MSB.

5.2 Upgrade Existing Floatplane Facility

5.2.1 Willow

The Willow Airport is located just across the Parks Highway from Willow Lake just north of Willow. Willow Lake is approximately 4,000 feet long and is often used by floatplanes as a landing area. It has a small island in the middle of the lake. The lake and runway are roughly parallel and have a north-south alignment. The lake has some DOT&PF property and an air taxi business along and near the Parks Highway and residential development along much of the rest of the shoreline. Floatplanes based on the lake include private aircraft, the commercial operation Willow Air Service, and at least one hangar owned by another aviation business. Although the primary commercial floatplane facility on Willow Lake is owned by Willow Air Service, there is DOT&PF-owned land that may be suitable for additional floatplane slips and lease areas.

The Willow Airport has a well-maintained gravel runway and apron that could support the expansion of the adjacent floatplane base, but additional lease lots might need to be developed. A large drawback for this facility is that the Parks Highway passes between the lake and the airport. This is not an ideal situation, but has been made to work so far. An additional drawback to this alternative is that Willow is more than 25 miles from Wasilla and is not near enough to the greatest demand for slips in the Palmer/Wasilla area. There has been much public opposition lately about the existing commercial floatplane operation on Willow Lake. A significant increase in public slips and commercial floatplane operations would likely be strongly opposed by some community members. For these reasons, a major seaplane base expansion at this site was dropped from further consideration as a major seaplane base for the South MSB.

5.2.2 Big Lake

The Big Lake Airport provides rudimentary access to floatplanes via a small MSB-owned ramp on Casey Drive. This ramp, located in a public park, allows floatplanes to be removed from Fish Creek and towed across Big Lake Road to reach the Big Lake Airport.

To reach the ramp from the main lake, planes must be taxied or towed 2,000 feet down Fish Creek. There are many private docks on both sides of the creek in this area. In places, the total width of the creek is as narrow as 70 feet. To exit the park, aircraft must pass through a relatively narrow gate in a 5-foot high fence. This gate is normally locked and cannot be opened without a key.

It should be noted that the park in question is used for swimming by the public. Pilots report that the ramp has not been well maintained, and that brush and trees frequently crowd the ramp making it difficult to remove aircraft from the water. Furthermore, there is no taxiway from the park to the airport. Casey Drive, Big Lake Road, and a dirt road on the airport are used as makeshift taxiways.

A major seaplane base at this site would be impossible without a large amount of land acquisition of park and residential development. It might be possible to improve the current arrangement by creating a more formal takeout ramp in the park and by constructing a taxiway from the airport apron to the south end of Casey Avenue. However, the restricted access along Fish Creek and the high number of recreational activities and vehicles would increase use

conflicts and potential safety hazards. Furthermore, development of an expanded seaplane base on other nearby areas of the lake is limited by space and would likely be opposed by homeowners and recreation users of the lake. For these reasons, a major seaplane base expansion at this site on Big Lake was dropped from further consideration.

5.2.3 Private Floatplane Bases

Although not explicitly identified during this project, there may be private floatplane bases or airports in the MSB that could be expanded with government funding to provide additional floatplane capacity. Some of the larger airparks already have joint floatplane and runway facilities, but lack capacity. Other sites may have space for expansion, but lack facilities. This alternative is similar to the "Do Nothing" alternative described above, except that it refers to improvements to existing floatplane facilities that would be developed by government funding. No private airport sites have been identified that would have sufficient space to meet the demand for floatplane tie-downs and lease areas, have room for a land runway, would be located near areas within reasonable driving distance of the demand, and which would have limited conflicts with other airports or non-compatible development.

5.3 Add Floatplane Facility to an Existing Airport

These alternatives involve constructing a floatplane pond on an existing publicly owned airport. The advantages and disadvantages of each alternative are discussed briefly below.

5.3.1 Talkeetna Airport

The idea of adding a floatplane pond to the Talkeetna Airport has been discussed during the 2001 Master Plan and 2006 Environmental Assessment, but no formal alternatives were presented. DOT&PF concerns with a floatplane pond have included affects on local hydrology, impacts on traffic at the wheeled runway, and affects on other airport development. Another factor associated with this idea is the local opposition to additional noise and development at the Talkeetna Airport. Talkeetna is also over 60 miles from Wasilla and the area of greatest demand for floatplane facilities, making this an unrealistic alternative for the South MSB area. For these reasons, this site on the Talkeetna Airport was dropped from further consideration as a major seaplane base for the South MSB. However, DOT&PF may wish to reevaluate the need and feasibility in future planning studies for the Talkeetna area.

5.3.2 Palmer Airport

The idea of adding a floatplane pond to the Palmer Airport has been proposed by some members of the public and users of the Palmer Airport. Construction of a pond on the airport would be difficult due to a lack of space and would add noise to the surrounding community. Much of the surrounding community is residential and commercial and is already sensitive to airport noise. While a floatplane base at Palmer would be well situated to meet floatplane demand in the core area, it would probably be too far from Anchorage to be used by Anchorage residents. For these reasons, this site on the Palmer Airport was dropped from further consideration as a major seaplane base for the South MSB.

5.3.3 Wasilla Airport

Several floatplane facility layouts were considered, but dismissed, in the most recent Wasilla Airport Master Plan. Two options were proposed for a floatplane base at Jacobsen Lake. This was deemed infeasible due to community opposition, high costs, lack of line-of-sight between the airport and lake, and the excessive cost of implementing an air traffic control tower.

Two options were shown for constructing a floatplane pond on the airport adjacent to the existing runway. One option involved rerouting Lucille Creek into a constructed basin on the south side of the existing runway. This option was dismissed because of development costs, poor terrain clearances, and because it would create converging traffic with the existing runway. The other option on the airport was to construct a float pond on the north side of the existing runway, between the runway and the apron, and use a well to fill the excavated basin with water. This option was rejected because it conflicted with plans for other airport facilities and was not supported by the aviation community. A final alternative at Lake Lucille was dismissed because a high degree of public opposition due to noise, water quality, and other concerns. For these reasons, these sites on the Wasilla Airport were dropped from further consideration as a major seaplane base for the South MSB.

5.3.4 Goose Bay Airport

The Goose Bay Airport is located on a high bluff along the north shore of the Knik Arm of Cook Inlet. Although a floatplane pond has never previously been proposed for this airport, there may be space available on existing airport property. The area along the south side of the runway is

very flat and naturally holds water during wet weather. A floatplane runway of up to 4,000 feet would likely fit along side the runway, but there is very little room for a floatplane parking area. A potential problem is that the east end of the runway is very near the top of a high bluff along the shore of Knik Arm. There would likely be geotechnical and hydrological problems constructing such a large pond so near the top of the bluff.

There is also space on existing airport property for a floatplane runway northeast of the existing runway. This area is somewhat level and has more space for parking, taxiways, and lease lots than the site south of the runway. While this site would have fewer problems with construction and layout, it may lack a line-of-sight to the existing runway that could present safety problems without an active Air Traffic Control tower.

Another potential issue is that the airport is adjacent to the Goose Bay State Game Refuge. Because this alternative is at the site of an existing publicly owned airport, there would be fewer costs of construction of access, a runway for wheeled aircraft, lease space, and other infrastructure. The Goose Bay Airport site should be retained for a more detailed evaluation of its potential as a major seaplane base for the South MSB.

5.3.5 Big Lake Airport

Based on aerial photographs and a brief site visit, it appears that there may be space for a floatpond on the Big Lake airport property just east of the existing lease lot area. This area consists of a long natural bog that extends approximately 5,000 feet parallel to the existing runway. The airspace at both ends of the runway is generally free of obstructions other than a small hill just north of the existing apron. There is little development to the east of the airport, but significant development west of the airport along the shore of the lake. Although existing airport property extends several hundred feet east of the existing runway end, additional property acquisition would likely be required east of the airport. The large parcel immediately east of the airport is currently owned by the MSB.

This area is very near the water table and has recently experienced a fire. Most of the trees in the area are dead and brush has not yet grown up between them. There are several four-wheeler trails through the area and the area is only a short distance from roads on either the north or south sides of the airport. Because this alternative is at the site of an existing publicly owned airport,

there would be fewer costs of construction of access, a runway for wheeled aircraft, lease space, and other infrastructure. The Big Lake Airport site should be retained for a more detailed evaluation of its potential as a major seaplane base for the South MSB.

5.3.6 Private Airports

Much like the option of expanding an existing private floatplane facility, it may be possible to construct a new floatpond at an existing private airport. However, such private airports have not been identified in this project due to the difficult issues associated with government funding of private facilities and other related legal and financial issues. Furthermore, most of the private airports are in the more populated areas with conflicting land uses, limited space, and, sometimes, other conflicting airports.

5.4 Floatplane Facility at a Non-Lake, Non-Airport Site

There may be locations that are not on an existing airport or lake that could be good locations for a floatplane facility. Because of the many natural bogs in the MSB, there are hundreds of sites that might have suitable water levels and clear airspace. However, these sites often lie on private land or have other restrictions. For purposes of this project, one specific site was identified in the MSB for an initial analysis. This was the only site in this category where a previous attempt was made to develop an airport.

5.4.1 Palmer Hay Flats

In the late 1970s, a private individual attempted to construct a floatplane base and gravel runway on a parcel of land on the west side of the Glenn Highway midway between the Knik River and the Parks Highway interchange. Although the project had proper environmental permits, it was never completed due to limited funding. The project was abandoned with a portion of the floatplane pond dug and only a small gravel runway in place.

The ponds and runway are still there, but have become overgrown with brush and trees. The location has road access via the existing service road beside the Glenn Highway, but the site and several adjacent private parcels are surrounded on several sides by the Palmer Hay Flats State Game Refuge. The airspace at this site is clear at both ends of the runway except for a few high-mast lights at the new Parks Highway interchange to the northeast.

The east-west orientation of the runways is well-aligned with the winds in this area, but the maximum possible runway length for either runway is only 2,700 feet due to the length of the parcel. This parcel was recently sold and any future plans for the property are unknown. Due to the parcel's limited size and the environmental issues, the Palmer Hayflats site was dropped from further consideration as a major seaplane base for the South MSB.

5.5 Floatplane Facility on an Existing Lake

Because constructing a floatplane pond can be relatively expensive, a number of existing lakes were considered as possible sites for a new floatplane facility. There are many lakes in the MSB, but this study is focused on lakes in the general area between Wasilla and Point McKenzie where there is less incompatible development, more space and fewer conflicts with other airports. This area is also relatively close to the most populated and fastest growing areas of the MSB, and potentially within a reasonable driving distance to Anchorage if the Knik Arm Crossing is built.

Some of the lakes considered are in more-developed areas and others have limited development. Most of the lakes have existing road access, but those that do not are generally near a road. Some of the more remote lakes have road or trail access, but only across private property.

5.5.1 Jacobsen Lake

Located just north of the Wasilla Airport, Jacobsen Lake is approximately 3,500 feet long with an east-west alignment. There is moderate development around the lake especially along the north side of the lake near the Parks Highway. This lake was previously considered as a potential floatplane base in the Wasilla Airport Master Plan, but the idea was discarded due to a lack of line-of-site between the airport runway and the lake, the conflicting flight paths for the lake and the runway, and high costs. There was also opposition to the potential noise and environmental impacts from residents that live on the lake. For these reasons, this site on Jacobsen Lake was dropped from further consideration as a major seaplane base for the South MSB.

5.5.2 Christensen Lake

This lake is located on the east side of the Talkeetna Airport. The lake is approximately 3,700 feet long and has several homes and cabins around its perimeter. There are some existing

commercial and private floatplane operations on this lake, but there is also some public opposition to the noise and environmental issues associated with these floatplane activities. The lake alignment is generally north-south, but is not parallel with the runway at the Talkeetna Airport. A control tower would likely be required to de-conflict traffic from the lake and the Talkeetna Airport. Christensen Lake is also located over 65 miles from Palmer/Wasilla area where most of the demand for floatplane facilities is found. Primarily because the lake is far from the South MSB area and because of likely concerns about airport noise, this site on Christensen Lake was dropped from further consideration as a major seaplane base for the South MSB.

5.5.3 Fish Lake

Located just 3.5 miles south of Christensen Lake near the midpoint of the Talkeetna Spur Road, Fish Lake is 4,500 feet long and oriented in an east-west direction. There are several homes on the lake and also some commercial floatplane operations. There has been some public opposition to the noise and environmental issues associated with floatplane operations on the lake. Fish Lake is also located over 65 miles from Palmer/Wasilla area where most of the demand for floatplane facilities is found. Primarily because the lake is far from the South MSB area and because of likely concerns about airport noise, this site on Fish Lake was dropped from further consideration as a major seaplane base for the South MSB.

5.5.4 Wasilla Lake

Wasilla Lake is located just east of downtown Wasilla on the north side of the Parks Highway. This lake is a major recreation area for the southern portion of the MSB and has been designated as a "recreational lake" by the City of Wasilla. The lake is oriented northeast-southwest and is divided into two sections by two narrow spits of land near the midpoint of the lake. The southwest section of the lake is approximately 4,300 feet long and the northeast section of the lake is approximately 5,200 feet long.

There are multiple private floatplanes based on the lake. As mentioned earlier, the City of Wasilla has denied a permit to at least one commercial air taxi business that intended to set up a commercial floatplane base on the lake. Because of the large amount of residential development

and recreational activity and the past decision of the City of Wasilla, this site on Wasilla Lake was dropped from further consideration as a major seaplane base for the South MSB.

5.5.5 Lake Lucille

Located just southwest of Wasilla Lake across the Parks Highway, Lake Lucille has many of the same issues as Wasilla Lake. The lake is surrounded by development and is very near the Wasilla Airport. The lake has an east-west alignment and is approximately 1.5 miles long and is over 1,100 feet wide at its narrowest point. The lake is an active recreation area. As noted earlier, it was considered and rejected as a floatplane base during the Wasilla Airport Master Plan for the above reasons and because of significant public opposition. For these reasons, this site on Lake Lucille was dropped from further consideration as a major seaplane base for the South MSB.

5.5.6 Beaver Lake

Beaver Lake and nearby West Beaver Lake are located approximately 1.7 miles north of Big Lake midway between Big Lake and the Parks Highway. Both of these lakes are oriented northeast-southwest and align well with the prevailing winds. Beaver Lake is approximately 5,100 feet long and West Beaver Lake is 3,900 feet long. Both lakes are surrounded by a significant amount of residential development and road access to both lakes is via several small gravel roads. For these reasons, this site on Beaver Lake was dropped from further consideration as a major seaplane base for the South MSB.

5.5.7 Horseshoe Lake

Horseshoe Lake is located roughly two miles west of Beaver Lakes and approximately 1.5 miles north of Big Lake. Horseshoe Lake is composed of two long, parallel lakes connected at the north end to form an inverted horseshoe shape. These two halves of the lake are both oriented northeast-southwest. The eastern side of the lake is approximately 6,800 feet long, and the western side is 5,300 feet long. Roughly half the lake is surrounded by residential development and there are several private runways nearby. Because of the residential development and conflicts with nearby private airports, this site on Horseshoe Lake was dropped from further consideration as a major seaplane base for the South MSB.

5.5.8 Papoose Lakes

East Papoose Lake and West Papoose Lake are both located roughly three miles west of Big Lake. These lakes are aligned north-south and are surrounded by numerous cabins and homes. East Papoose Lake is approximately 5,200 feet long, but the lake is curved and the longest straight landing area is about 3,800 feet. West Papoose Lake is approximately 5,200 feet long, but has a maximum straight landing area of only 4,000 feet. Road access to both lakes is via narrow, curvy, gravel roads. Because of the relatively remote location of these lakes and the existing development, these sites on the Papoose Lakes were dropped from further consideration as a major seaplane base for the South MSB.

5.5.9 Red Shirt Lake

Red Shirt Lake is located in the western portion of the MSB and is the largest lake between the Susitna River and the Little Susitna River. This lake does not have road access, but does have many cabins around its perimeter. The nearest road access is approximately 1.5 miles north of the lake via Nancy Lake Parkway. The lake is approximately 3.3 miles long and varies in width from 1,500 feet to 4,500 feet. The lake has a north-south alignment and ample space for floatplane operations. However, its remote location within the Nancy Lake State Recreation Area was sufficient to drop this site on Red Shirt Lake from further consideration as a major seaplane base for the South MSB.

5.5.10 Three-Mile Lake

This lake is located just north of Knik-Goose Bay Road midway between Wasilla and Knik. The lake is approximately 5,200 feet long and is aligned northwest-southeast. The lake is almost completely undeveloped except for the Togowoods Girl Scout Camp at the south end and a few additional cabins. The lake has relatively good road access via a gravel road and the airspace around the lake is generally free of obstructions. The prevailing winds in the area are generally northeast-southwest which is perpendicular to the alignment of the lake.

The most significant issue regarding this lake is Camp Togowoods. The camp either owns or has land-use agreements with approximately half the land surrounding the southeastern end of the lake. Land north of the lake is owned by the Alaska Mental Health Trust and lands west of the lake are privately owned. The camp has existed at this location for many years and hosts over

100 campers each week during the summer. The camp has a master plan that calls for additional facilities and campers in the near future.

The camp recently facilitated a Lake Management Plan in 2003 that attempts to protect the quiet, recreational uses of the lake. Comments from camp management and from the general public have reiterated this intent and their opposition to the use of Three-Mile Lake for a floatplane base. Because of the scout camp and existing private property ownership around this lake, this alternative was dropped from further consideration. However, this alternative may become a viable candidate again if none of the other sites is suitable.

5.5.11 Diamond Lake

Located south of Big Lake off South Big Lake Road, Diamond Lake is approximately 4,500 feet long and aligned north-south. There is a large island near the north end of the lake that makes the length available for floatplane use slightly shorter than 4,500 feet. The lake has good road access via the paved South Big Lake Road and a well-maintained gravel road along the west side of the lake. The west side of the lake is fully developed with private homes, but the east side of the lake is completely undeveloped. The airspace around the lake is generally free of obstructions, but the terrain around the lake is somewhat hilly. However, due to the existing development and lack of MSB land on the perimeter of the lake, this site on Dimond Lake was dropped from further consideration as a major seaplane base for the South MSB.

5.5.12 Stephan Lake

Located 1.3 miles south of Big Lake, Stephan Lake is approximately 5,300 feet long and aligned north-south. The lake is in a remote area with very little development around it. There are several private homes on the west side of the lake on private property. Much of the property along the west side of the lake is owned by the MSB and is completely undeveloped.

Road access is only available to the private homes on the west side of the lake. The gravel road leading to these homes is narrow and curvy and connects to the equally narrow and curvy Burma Road. There is no public road access to the lake. The terrain on the west side of the lake is quite hilly and the terrain on the east side of the lake is flatter with several large bogs. The airspace around the lake is generally free of obstructions and there is sufficient space east of the lake for a land runway and apron. Because of the residential development around this lake and the poor

road access, this alternative was dropped from further consideration. However, this alternative may become a viable candidate again if none of the other sites is suitable.

5.5.13 Seven Mile Lake

Located south of Stephan Lake and north of Point MacKenzie Road, Seven Mile Lake is approximately 4,000 feet from north to south and 3,500 feet from east to west. The lake has a shape somewhat like an inverted "T" with the longest portion in a north-south alignment and the second-longest portion in an east-west alignment.

The lake is located in a remote undeveloped area with no existing road access. There is road access to within one mile to the west via the Burma Road and within 1.8 miles to the south via Point MacKenzie Road. The Iditarod Trail crosses the southern portion of the lake and provides access for sled dog teams and snow machines in the winter months.

Prevailing winds in the area are generally north-south or northeast-southwest and align well with the north-south portion of the lake. The east-west portion of the lake might be useable by floatplanes as a crosswind runway in certain circumstances.

Most of the property surrounding Seven Mile Lake is owned by the MSB. There are only two small parcels on the west side of the lake that are privately owned. Due to the size and configuration of the lake, lack of incompatible development, and availability of MSB land, this alternative should be retained for detailed analysis.

5.5.14 Carpenter Lake

Carpenter Lake is located at the west end of the paved portion of Point Mackenzie Road. This lake is approximately 4,800 feet long and is aligned east-west. The lake is surrounded by private cabins around most of the perimeter, but much of the property is undeveloped. The north side of the lake features a large home and private runway with a taxiway between the lake and the runway.

Terrain around the lake is rolling hills, but is otherwise free of obstructions. Road access is via several small gravel roads, including the south end of the Burma Road, that connect to Point MacKenzie Road. There is only one small parcel of publicly owned land on the lake. This

parcel, owned by the MSB, is located at the southeast corner of the lake and is quite hilly. Because of the residential development around this lake and the lack of suitable public land, this alternative was dropped from further consideration. However, this alternative may become a viable candidate again if none of the other sites is suitable.

5.5.15 Other Lakes Near Point Mackenzie

Some consideration was given to lakes south of Goose Bay and nearer to Anchorage. Lakes such as Lost Lake, Twin Island Lake, and Lake Lorraine are of a suitable size, but lie beneath the Anchorage Class C airspace, near the Anchorage Part 93 airspace, and near the VFR corridor for aircraft departing Anchorage to the northwest. An airport too close to Anchorage could also impact the approach paths for EDF and ANC. For these reasons, these lakes were dropped from further consideration.

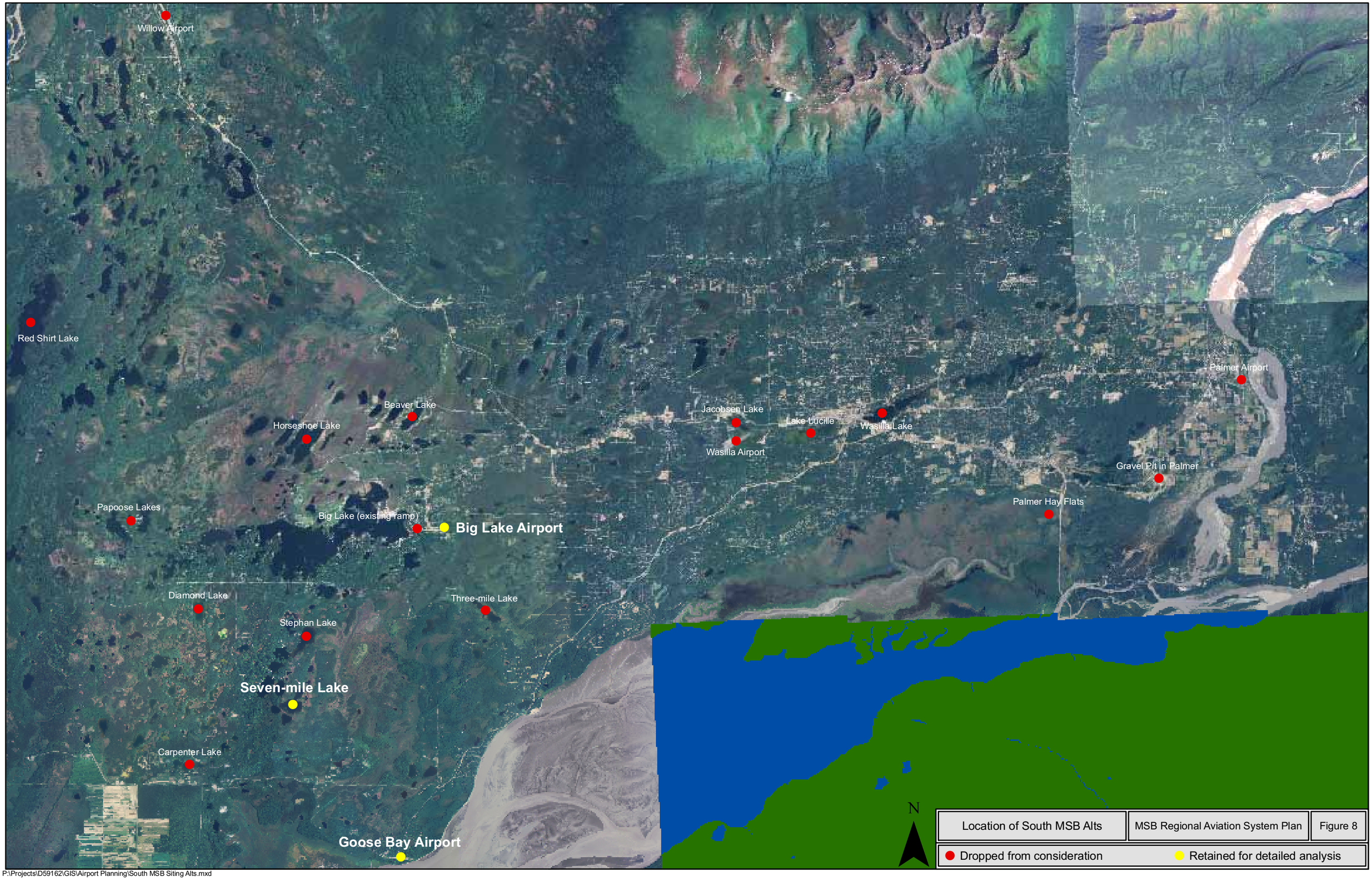
5.6 South Matanuska-Susitna Borough Preliminary Screening Analysis - Summary

The following table summarizes the previous discussions about alternatives that have been dropped from further consideration. The Goose Bay, Big Lake, and Seven Mile Lake alternatives were retained for a more detailed analysis in the next section of this report. As noted in the table below, if Goose Bay, Big Lake, and Seven Mile Lake are later found to be unsuitable, Three-Mile Lake, Stephan Lake, and Carpenter Lake may need to be reconsidered as potential sites. The figure following the table shows the location of each of the alternatives.

Table 10: South Matanuska-Susitna Borough Airport Location Alternatives - Dropped from Further Consideration

Alternative	Reasons Dropped from Consideration
Subdivision in Palmer	May not be available to public Uncertain timeline Conflict with Skyranch Airpark Proposed residential development
Wasilla Lake	Existing recreation and residential development
Existing Private Airports	Lack of capacity May not be available to public Existing recreation and residential development
Willow Airport	Existing recreation and residential development Existing community concerns about existing air taxi operations Highway between lake and runway
Big Lake (existing ramp)	Existing recreation and residential development Highway between park and Big Lake Airport
Talkeetna Airport	Community opposition to floatplane activity Hydrologic issues of constructing a pond on the airport
Palmer Airport	Limited space for pond
Wasilla Airport	Use of Jacobsen Lake would require a control tower Community opposition during last Master Plan
Palmer Hay Flats	Runway length of only 2,700 feet Conflicts with surrounding Game Refuge
Jacobsen Lake	Conflict with Wasilla Airport would require a control tower Community opposition during last Master Plan
Christensen Lake	Community opposition to floatplane activity
Fish Lake	Community opposition to floatplane activity
Wasilla Lake	Prior City opposition to a floatplane base there
Lake Lucille	Existing recreation and residential development
Beaver Lake	Existing recreation and residential development
Horseshoe Lake	Existing recreation and residential development
Papoose Lakes	Existing recreation and residential development Remote location Poor road access
Red Shirt Lake	Remote location
Three-Mile Lake*	Existing Girl Scout camp Lack of publicly owned land
Diamond Lake	Existing recreation and residential development
Stephan Lake*	Existing residential development Lack of good road access
Carpenter Lake*	Existing recreation and residential development Lack of suitable publicly owned land
Other Lakes near Point Mackenzie	Potential conflicts with Anchorage airspace

*May become a candidate site if other sites are not suitable.



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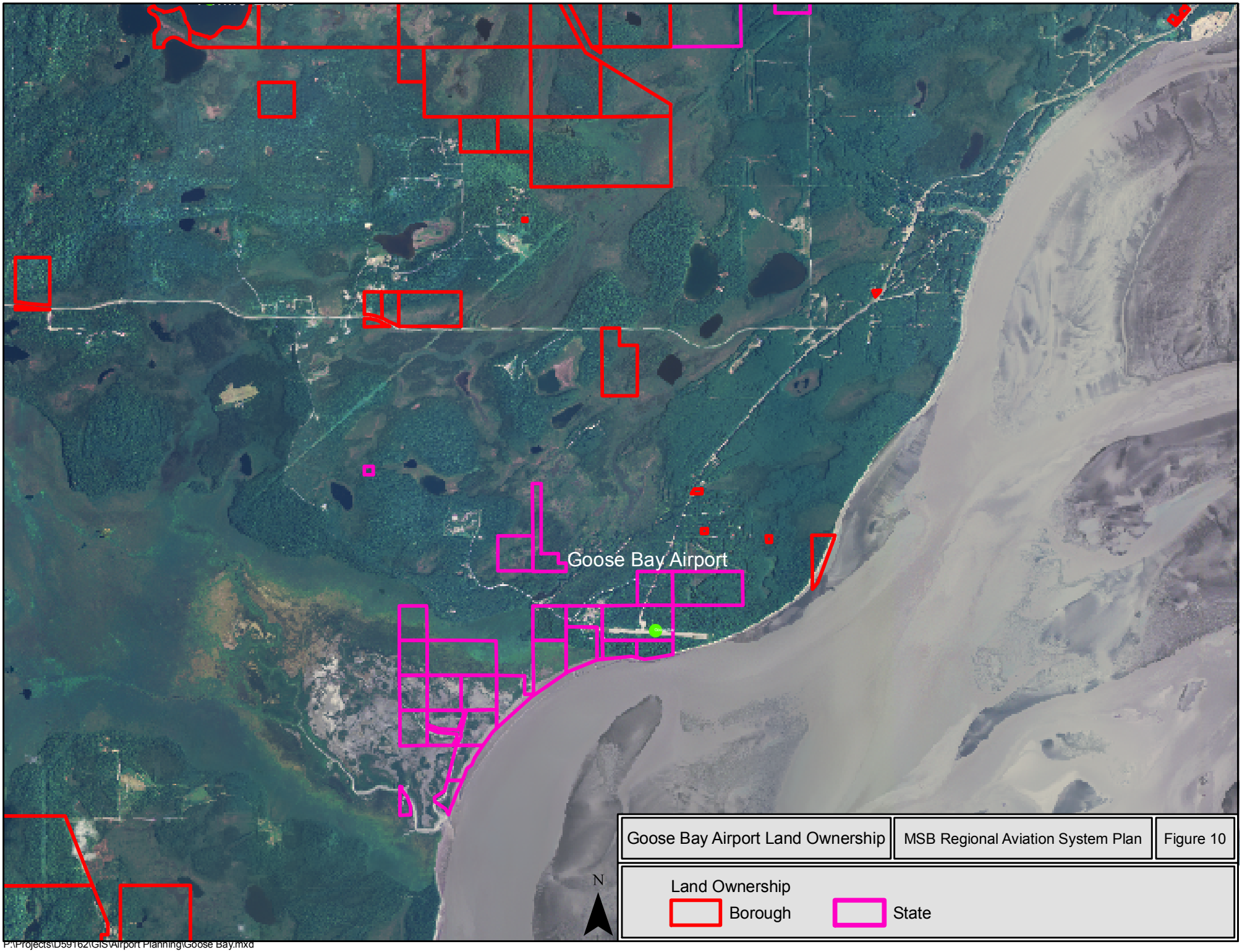
5.7 South Matanuska-Susitna Borough Detailed Analysis

The following is a detailed analysis and concept sketches for airport location alternatives for the Goose Bay, Big Lake, and Seven Mile Lake sites. The detailed analysis included a site visit (except for Seven Mile Lake which has no road access) and discussions with local planning authorities.

5.7.1 Goose Bay Airport

This site is located at the south end of the Knik-Goose Bay Road on the shore of Knik Arm. The following photographs depict this site. The first photograph shows the view towards the east from the midpoint of the Goose Bay runway. In the first photograph, north is toward the left. In the second photograph, north is toward the top.

Figure 9: Goose Bay Airport Runway



Goose Bay Airport Land Ownership	MSB Regional Aviation System Plan	Figure 10

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Airspace

There are no significant airspace issues related to the Goose Bay Airport. This airport lies beneath the Anchorage Class C airspace, but does not interfere with any of the Anchorage-related airspace. It is oriented east-west and appears to be a candidate for a future instrument approach. The airport does lie just beneath the edge of military Slow Route 1009, but this should not cause any conflicts.

Winds

There is no wind data available for the Goose Bay Airport, but wind data for Anchorage and Wasilla indicate that prevailing winds are likely north to northeast. This suggests that the existing runway alignment is not ideal, and that crosswinds may be common at the airport. This is supported by pilot comments that Goose Bay Airport is often used for crosswind training for student pilots.

Topography

The area around the airport is generally flat or small rolling hills. The airport sits on the bluff overlooking Knik Arm and Goose Bay. There are no significant obstructions in the area other than trees and a radio tower located about one mile northwest of the airport.

Geotechnical Data

No historical geotechnical data was available from the files of DOWL or DOT&PF. However, soils in the area tend to be gravel and sand and appear to be well drained. Groundwater is likely far below the surface due to the height of the bluff and the proximity of Knik Arm.

Land Ownership

DOT&PF currently owns and operates the airport. Airport property extends about 350 feet on either side of the existing runway and about 3,000 feet west and 2,000 feet east of the runway. The airport also includes a large area northwest of the runway approximately 5,500 feet long and 2,000 feet wide. This second area is completely undeveloped, but borders private property to the north.

Land Use

There are no existing land use controls on the airport or surrounding area, but the existing surrounding land uses are primarily rural residential and a wildlife refuge. The west end of the airport was, at one time, used as a prison, but most of the prison buildings have now been demolished.

Driving Distance and Road Access

The airport is about 33 miles from the center of Palmer and 20 miles from the center of Wasilla. Assuming the Knik Arm Crossing is built, the airport would be 27 miles from downtown Anchorage. The airport has good road access via Knik-Goose Bay Road. The southern portion of this road leading to the airport was recently paved, and the road "dead ends" into the airport apron.

Utilities

There are no water or sewer utilities in the area of the airport, but telephone and electricity are available to the homes just north of the airport.

Environmental Impacts

The primary environmental issue associated with this site is the adjacent Goose Bay State Game Refuge. The refuge lies south and west of the airport underneath the western approach to the runway. The refuge provides habitat to a variety of birds, mammals, and anadromous fish. Although additional development of the airport would not create any direct impacts on the refuge, additional noise and aircraft over-flights might have indirect impacts. Construction of a new public facility would concentrate these impacts that may have previously been spread across multiple facilities.

Conceptual Layout

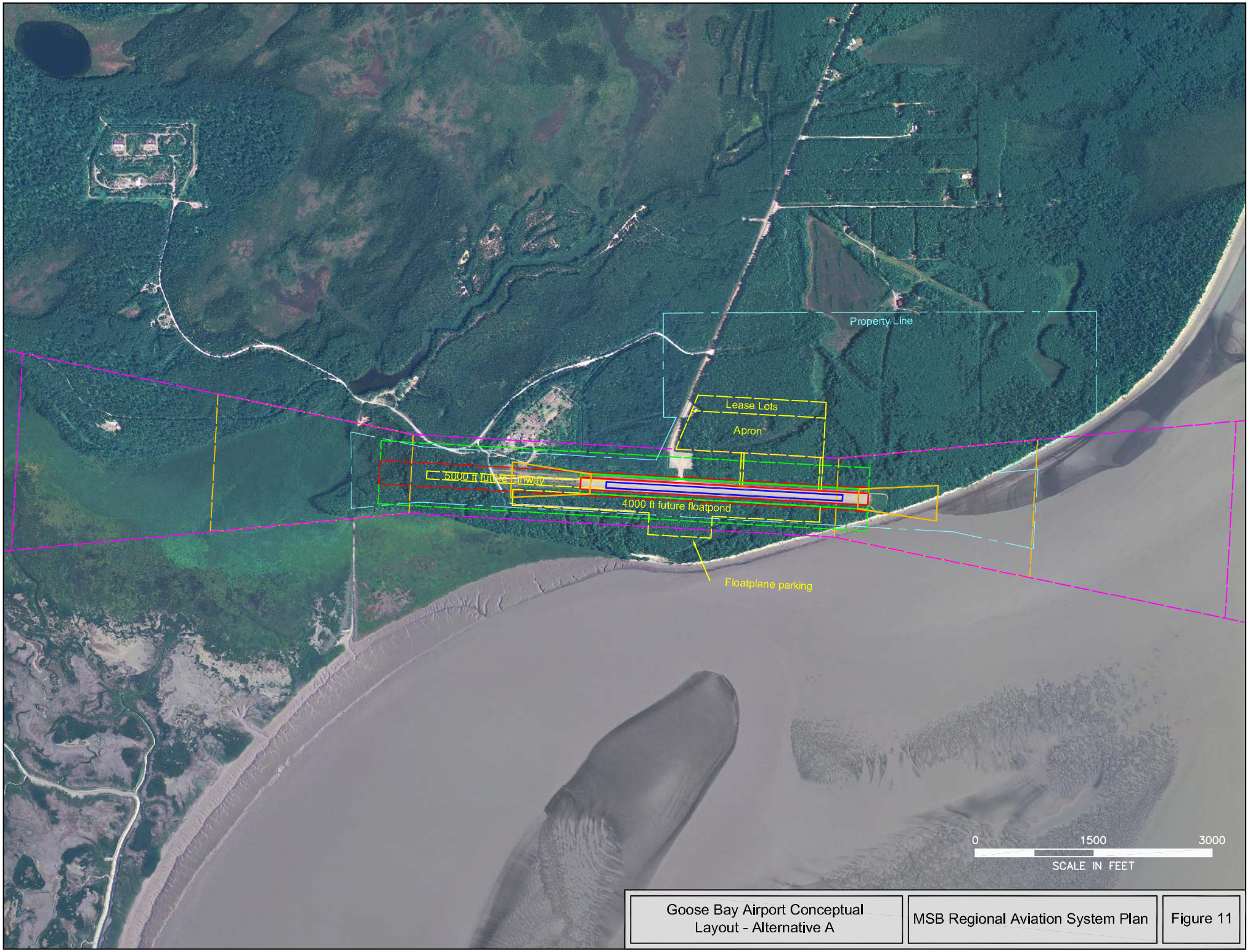
The existing airport includes a 3,000-foot-long gravel runway. There is sufficient space west of the runway to expand the runway to 5,000 feet in the future and to develop a precision approach to that runway. If this is done, the RPZs would extend off airport property, but most of the other safety zones would remain on airport property.

There is additional room for development northeast of the existing runway. This area could host additional apron and lease lot development or possibly floatplane facilities.

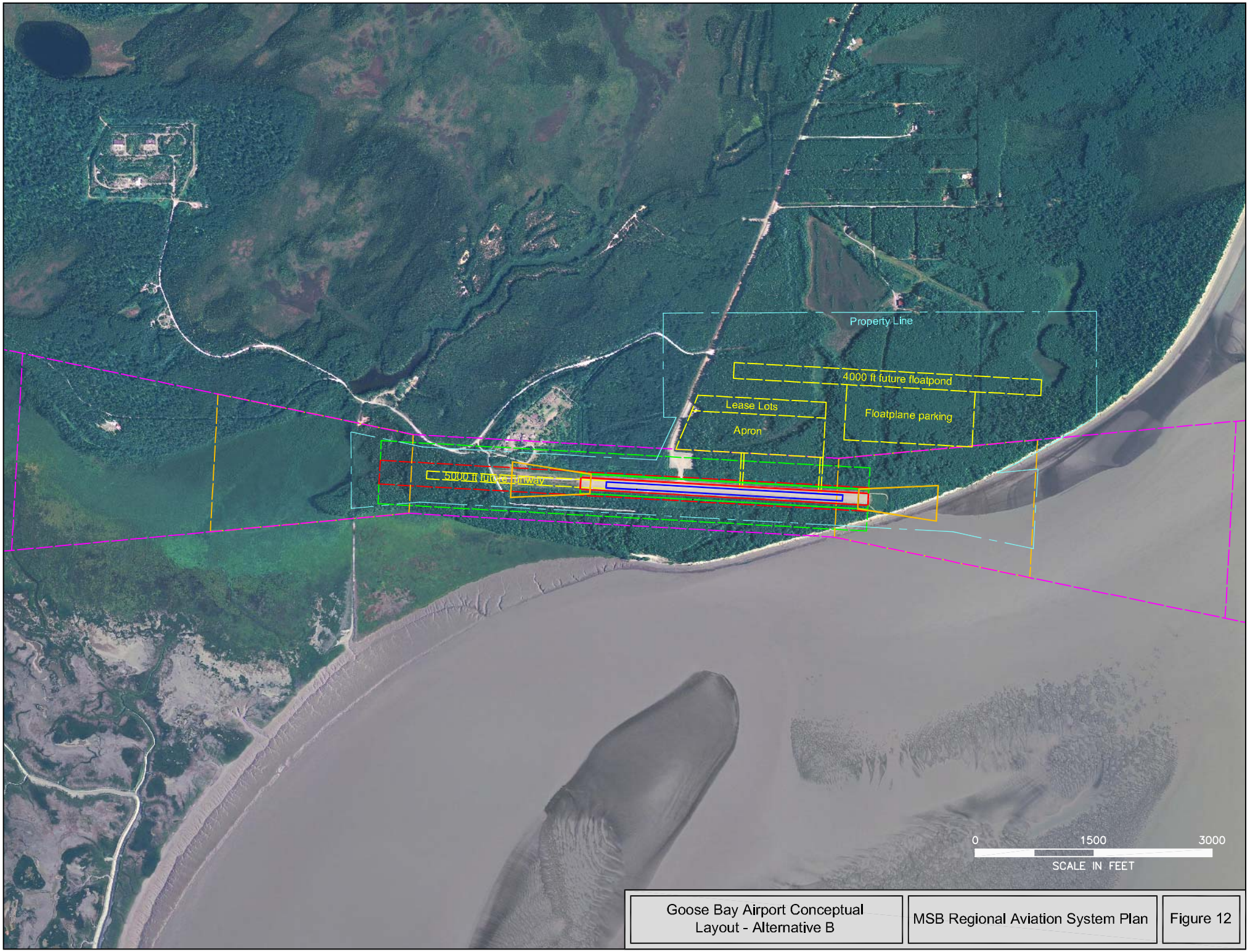
The two most likely locations for floatplane facilities on the airport are in the area northeast of the runway or along the south side of the runway. The area to the northeast is relatively flat, but with some small hills. This area is bisected by a ditch that drains a bog located just north of the airport. A floatplane pond in this location would likely have RPZs that extend slightly off airport property to the east and the west. There is room for floatplane parking between a future floatplane pond and the existing runway.

The other potential location for a floatplane pond would be along the south side of the runway between the runway and an existing gravel road. Based on a site visit to the airport, this area is very flat and appears relatively wet. However, space is very limited for a floatplane parking area and a pond in this location would be very near the bluff. Groundwater in this area would be far below the surface and some sort of liner would likely be required to keep water in the floatplane pond. There would also be very little space for lease lots around the floatplane parking area.

Considering the information outlined above, the location along the south side of the runway is likely unfeasible. However, the location northeast of the runway is likely feasible if the line-of-sight safety issues can be resolved.



Goose Bay Airport Conceptual Layout - Alternative A	MSB Regional Aviation System Plan	Figure 11



Goose Bay Airport Conceptual Layout - Alternative B	MSB Regional Aviation System Plan	Figure 12

Cost

Based on the conceptual drawing above, preliminary cost information is shown in the following table. These numbers reflect 2007 costs and will likely change over time.

Table 11: Cost Estimates for Goose Bay Airport Development

Alternative	Short-Term Cost	Long-Term Cost
Goose Bay - Alt A (south side of runway)	$26 million	$24 million
Goose Bay - Alt B (north side of runway)	$27 million	$26 million

The short-term cost estimates include construction of a floatplane pond and a gravel apron with lease lots. The long-term costs include extension of the gravel runway to 5,000 feet with an asphalt surface and the development of a precision instrument approach. At the Goose Bay Airport, future runway extension is limited to only 5,000 feet due to terrain. In preparation for the instrument approach, the long-term cost also includes some land acquisition west of the airport. Both sets of costs assume a mobilization cost of 10 percent, a design cost of 15 percent, a construction management fee of 15 percent, and environmental analysis cost of $500,000. A contingency of 25 percent has been applied to each of the final costs. A detailed cost estimate can be found in Appendix A.

The difference in cost between the two alternatives above is primarily due to the differences in the size of floatplane pond and lease lots. These differences are strictly based on the very limited area available for development south of the runway. The larger alternative north of the runway would likely provide a more functional facility with room for future expansion.

5.7.2 Big Lake Airport

This site is located on Big Lake Road at the east end of Big Lake. The following photographs depict this site. The first photograph shows the view towards the east from several hundred yards beyond the east end of the Big Lake runway. In the first photograph, north is toward the left. In the second photograph, north is toward the top.

Figure 13: Bog at the East End of the Big Lake Runway

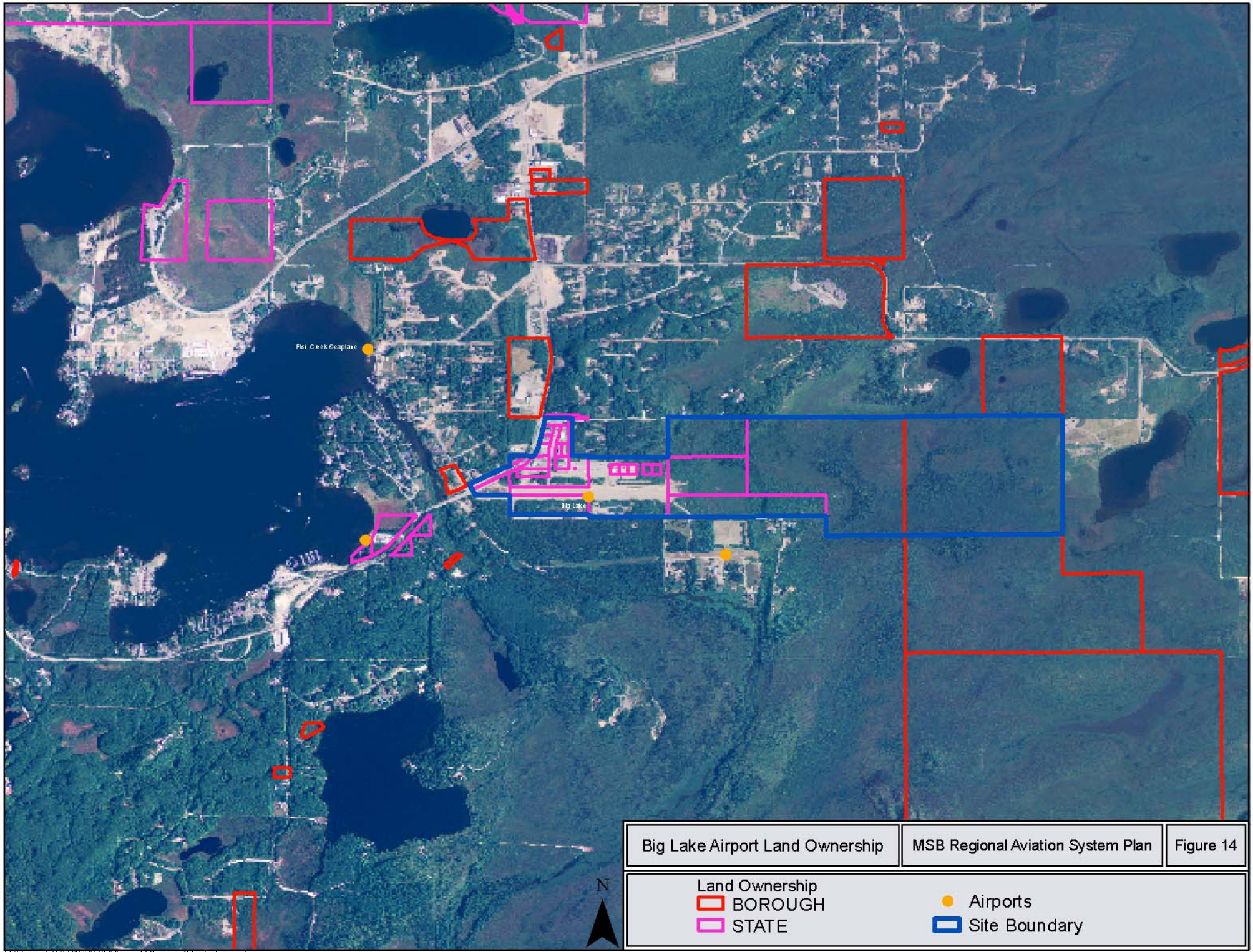
Airspace

There are no significant airspace issues related to the Big Lake Airport. This airport lies far enough north that it does not interfere with any of the Anchorage-related airspace. An instrument approach from the east might overlap the southern part of a future precision approach to the Wasilla Airport. Both approaches would be at a similar elevation in this area, but conflicts could likely be resolved by air traffic control.

There are several Victor airways that converge at the Big Lake very high frequency omni-directional range approximately five miles northwest of the airport. However, none of these airways passes over the airport. The Class E airspace that surrounds the airport is associated with the non-precision approach to Runway 6 at the airport.

Winds

There is no wind data available for the Big Lake Airport, but wind data for Anchorage and Wasilla indicate that prevailing winds are likely north to northeast. This suggests that the existing runway alignment is not ideal and that crosswinds may be common at the airport.


Fish Creek Seaplane
Big Lake
N
Big Lake Airport Land Ownership
MSB Regional Aviation System Plan
Figure 14
Land Ownership
BOROUGH
STATE
Airports
Site Boundary
P:\Projects\D59162\GIS\Airport Planning\Big Lake.mxd

Topography

The area around the airport consists of a mixture of small, rolling hills and flat bogs. There are small hills directly north of the existing apron area and east of the existing runway. Although neither of these hills penetrates the airport's airspace, it will be necessary to remove part of the eastern hill if the runway is ever extended toward the east. The remainder of the undeveloped property at the east end of the airport is flat bog with bushes and a few trees. Much of the area east of the airport has experienced a recent fire.

Geotechnical Data

DOT&PF completed a geotechnical investigation at the Big Lake Airport in July 1978 prior to construction of the existing apron. The report indicates that soils in the vicinity of the airport are primarily glacial outwash and glacial moraines consisting of sands and gravels with only a minor amount of silt. Some of the moraine hills around the airport contained boulders up to 2 feet in diameter, but most of the gravel was less than 3 inches in diameter. Organic overburden on the airport was between 1.5 and 5 feet thick. The water table at the west end of the airport was approximately 10 feet below grade and gradually became shallower until reaching the large bog east of the runway.

Land Ownership

DOT&PF currently owns and operates the airport. Airport property includes the existing aprons and lease lots and the area on the south side of the runway between the runway and the gravel road. Airport property extends approximately 3,700 feet east of the existing runway. Property east of the airport, which may be needed for a future runway extension of floatplane pond construction, is currently owned by the MSB. Property south and north of the airport is generally privately owned.

Land Use

There are no existing land use controls on the airport or surrounding land, but the existing land use is a combination of rural residential and urban residential. The area west of the airport is well developed with homes and commercial businesses related to recreation on Big Lake. A state recreation area lies west of the airport on the shores of Big Lake.

A Lake Management Plan was completed for Big Lake in 1998. This plan does not include land use restrictions, but does recommend formation of a Lake Advisory Committee to review and advise on land use issues. Other items included in the Lake Management Plan include quiet hours, requirements for operation of watercraft, and water quality monitoring by volunteers.

Driving Distance and Road Access

The airport is about 28 miles from the center of Palmer and 15 miles from the center of Wasilla. Assuming the Knik Arm Crossing is built, the airport would be 29 miles from downtown Anchorage. The airport has good road access via Big Lake Road. The road passes through the RPZ at the west end of the runway and would likely be an obstruction for any future precision approach to that end of the runway. Either the road would need to be relocated or the end of the runway would need to be displaced.

As part of an ongoing update to the MSB Official Streets and Highways Plan Update, a road has been proposed to be constructed around the east end of the Big Lake Airport runway. This road would provide a bypass for a portion of Big Lake Road, but the precise alignment of the proposed road has not yet been determined. Based on the conceptual layout discussed below, there appears to be space for the road to pass around the east end of the runway with only minor issues related to the airport.

Utilities

Telephone and electricity are available at the airport. Water and sewer is provided through on site wells and septic systems.

Environmental Impacts

The primary environmental issue with expanding the Big Lake Airport would be wetlands impacts east of the existing runway. Much of this area is a bog or moderately wet and would likely require mitigation for any new construction in this area. Other environmental issues that might affect the airport include the anadromous Fish Creek just south of the airport, community noise impacts, and water quality impacts. Construction of a new public facility would concentrate these impacts that may have previously been spread across multiple facilities.

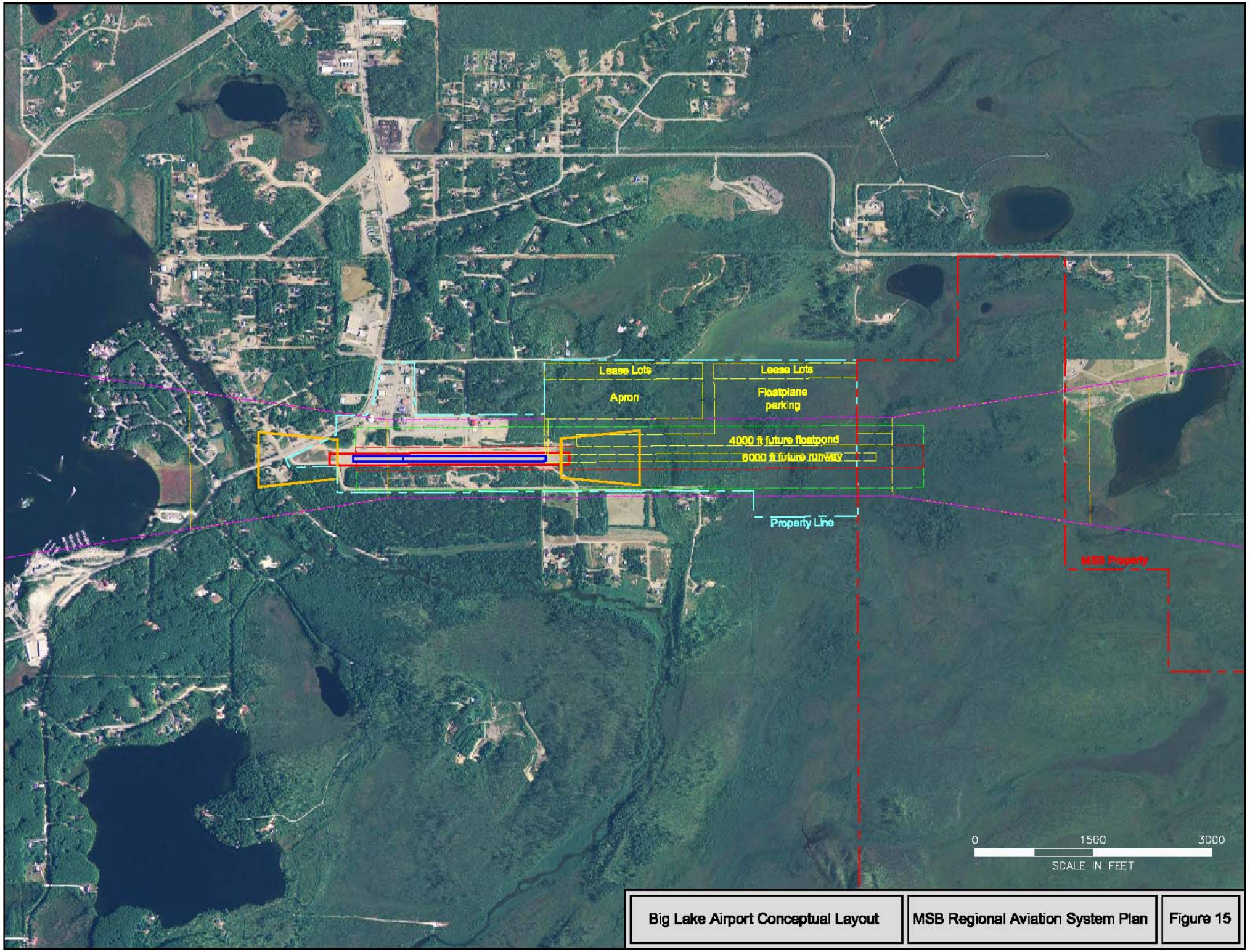
Conceptual Layout

The existing airport includes a gravel runway 2,435 feet long. There is space on existing airport property to extend the runway to approximately 5,500 feet. If a portion of the MSB parcel to the east is available, the runway can be extended up to 6,000 feet or more.

The most likely location on the airport to add a floatplane pond would be parallel to the existing runway on the north side of the runway. This area is generally flat except for one small hill that could easily be removed. The remainder of the area is either open water bog or wetlands with a shallow water table. There is enough space between the apron and the edge of the airport property to construct a 4,000-foot floatplane pond. If the MSB parcel to the east is available, the floatplane pond could be extended to 5,000 feet or more.

If a floatplane pond is constructed north of the runway, the remainder of the airport property north of the runway could be used to construct both an apron for land aircraft and a large pond for floatplane parking. The floatplane parking would probably best be located toward the eastern end of the airport where the terrain is flatter and the groundwater is closer to the surface. The area just east of the existing apron would be available for additional apron development. Road access to both parking areas and adjacent lease lots would be via a perimeter road originating at the existing apron.

As mentioned above, implementation of an instrument approach to the land runway would require that the west end of the runway be displaced to provide clearance above the road, homes and businesses to the west of the airport. The enlarged RPZs associated with an instrument approach would include at least 15 homes and one church. The private airport immediately south of the airport could also complicate development of an instrument approach.



Big Lake Airport Conceptual Layout	MSB Regional Aviation System Plan	Figure 15

Cost

Based on the conceptual drawing above, preliminary cost information is shown in the following table. These numbers reflect 2007 costs and will likely change over time.

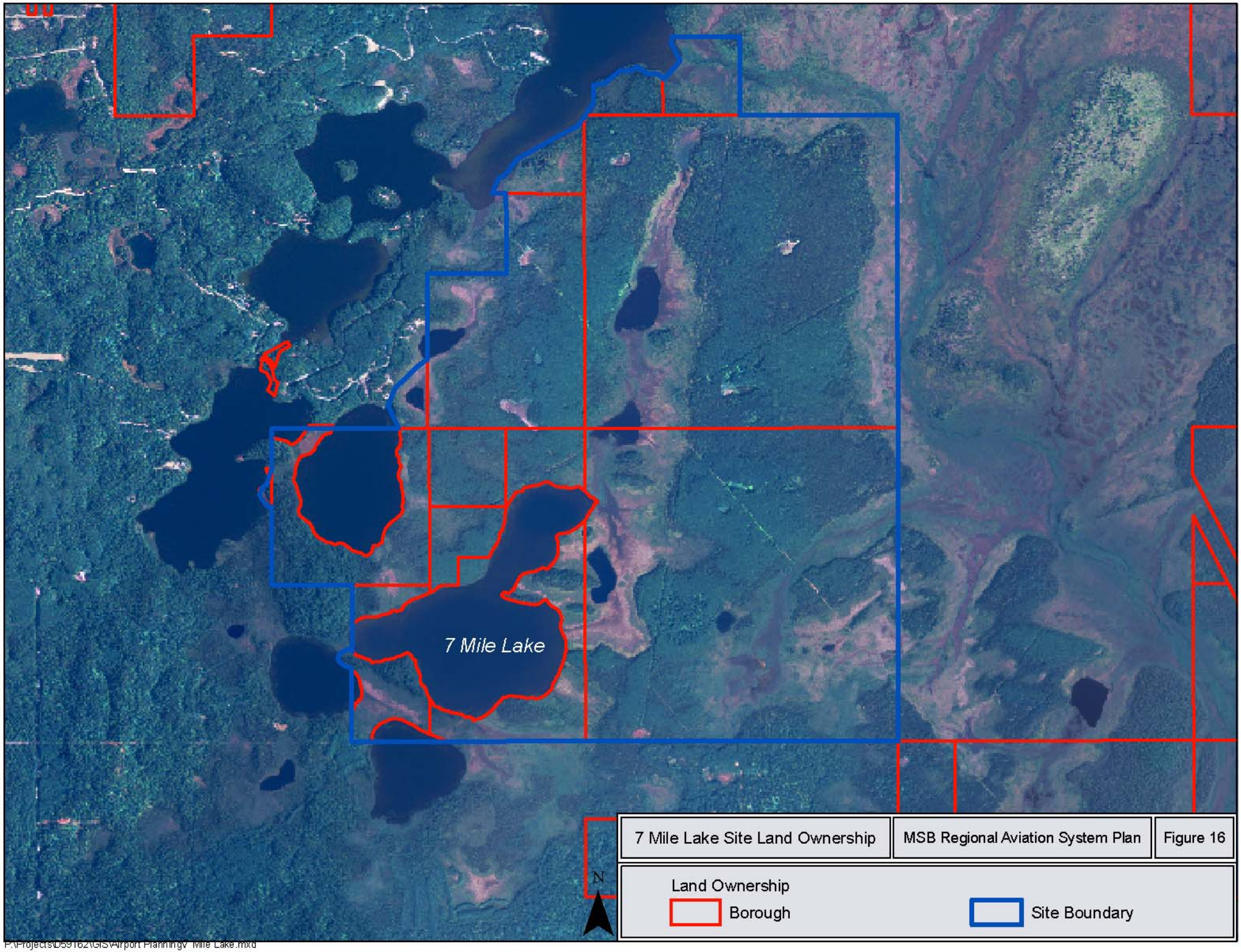
Table 12: Cost Estimate for Big Lake Airport Development

Alternative	Short-Term Cost	Long-Term Cost
Big Lake Airport (new floatplane pond)	$22 million	$55 million

The short-term cost estimate includes construction of a floatplane pond with lease lots. The long-term costs include extension of the gravel runway to 6,000 feet with an asphalt surface, the construction of additional paved apron space, and the development of a precision instrument approach. In preparation for the instrument approach, the long-term cost also includes some land acquisition west of the airport. Much of this land is residential or commercial land on the lake shores, so an acquisition cost of $10 million has been assumed. The cost estimate assumes a mobilization cost of 10 percent, a design cost of 15 percent, a construction management fee of 15 percent and environmental analysis cost of $500,000. A contingency of 25 percent has been applied to the final cost. A detailed cost estimate can be found in Appendix A.

5.7.3 Seven Mile Lake

This site is located at the south end of the Knik-Goose Bay Road on the shore of Knik Arm. The following photograph depicts this site. In the photograph, north is toward the top.


7 Mile Lake
7 Mile Lake Site Land Ownership
MSB Regional Aviation System Plan
Figure 16
N
Land Ownership
Borough
Site Boundary
P:\Projects\D59162\GIS\Airport Planning\7 Mile Lake.mxd

Airspace

There are no significant airspace issues related to Seven Mile Lake. This site lies far enough north that it would not interfere with any of the Anchorage-related airspace. An airport at this site would likely be oriented north-south and would not conflict with existing or future instrument approaches (including a future precision approach to Wasilla Airport). The northern portion of an instrument approach to Seven Mile Lake would likely pass over Big Lake near the Big Lake Airport, but would likely not interfere with the air traffic pattern at the Big Lake Airport.

The lake does lie underneath the edge of the Big Lake Class E airspace that is used for the non-precision approach into Runway 6 at Big Lake. If an instrument approach was added to Seven Mile Lake, then this Class E airspace, or other airspace appropriate for the new approach, would need to be extended to fully encompass Seven Mile Lake.

Winds

There is no wind data available for the Seven Mile Lake area, but wind data for Anchorage and Wasilla indicate that prevailing winds are likely north to northeast. The longest dimension of the existing lake is aligned southwest-northeast with the prevailing winds. This prevailing wind also aligns well with likely runway alignments on the uplands next to the lake. It is likely that any runway or seaplane base at this location would provide excellent crosswind coverage.

Topography

The area west of Seven Mile Lake consists of rolling hills and the area east of the lake is mostly flat with a few small hills. Most of the perimeter of the lake consists of bog or flat areas of brush. There are no significant terrain features that would obstruct the airspace in the area.

Geotechnical Data

No historical geotechnical data was available from the files of DOWL or DOT&PF. However, soils in the region tend to consist of gravel and sand from glacial outwash and moraines. Groundwater appears to be near the surface due to the large number of lakes and bogs in the area.

Land Ownership

Almost the entire perimeter of the lake is owned by the MSB. There is one small privately owned parcel on the northwest shore of the lake and one small private parcel at the extreme west end of the lake. MSB property extends approximately one mile east of the lake and 1.5 miles north of the lake. This MSB-owned property includes the entire west side of Stephan Lake and several smaller lakes north of Seven Mile Lake.

Land Use

The entire MSB-owned parcel, including the entire lake, is currently undeveloped. There are several cabins and homes approximately three-quarters of a mile northwest of the lake around the southern and eastern sides of Stephan Lake. There are also a few homes a mile southeast of the lake. There are no special land-use controls in the area.

Driving Distance and Road Access

The airport is about 37 miles from the center of Palmer and 24 miles from the center of Wasilla. Assuming the Knik Arm Crossing is built, the airport would be 22 miles from downtown Anchorage. There is no road access to the lake. The Iditarod Trail passes across the southern portion of the lake and is used in winter to access the area by dog sled and snow machine. In summer, the land portion of the trail provides access via all-terrain vehicles.

The nearest paved road is Point MacKenzie Road approximately two miles to the south. The Burma Road provides access to residences around Stephan Lake, but the condition of the Burma Road and the private drives in the area is primitive and relatively unimproved.

Utilities

There are no utilities in the area. Electricity and phone are available to the residences around Stephan Lake and along Point MacKenzie Road.

Environmental Impacts

The major environmental issues associated with development near Seven Mile Lake are likely to be related to wetlands and wildlife habitat. Construction would seek to minimize wetlands impacts, but with such a large amount of wetlands surrounding the lake, some impacts are inevitable and would need to be mitigated. The lake and surrounding wetlands are likely habitat

for several species of birds and mammals. Impacts to these species would require study prior to development of an airport at this site. Construction of a new public facility would concentrate these impacts that may have previously been spread across multiple facilities.

Another issue is the 4(f) recreational impacts to the Iditarod Trail. It is likely that a portion of the Iditarod Trail would need to be relocated if an airport were developed at Seven Mile Lake. However, the airport would provide an additional access point to the trail and might increase recreational activity in the surrounding area.

Conceptual Layout

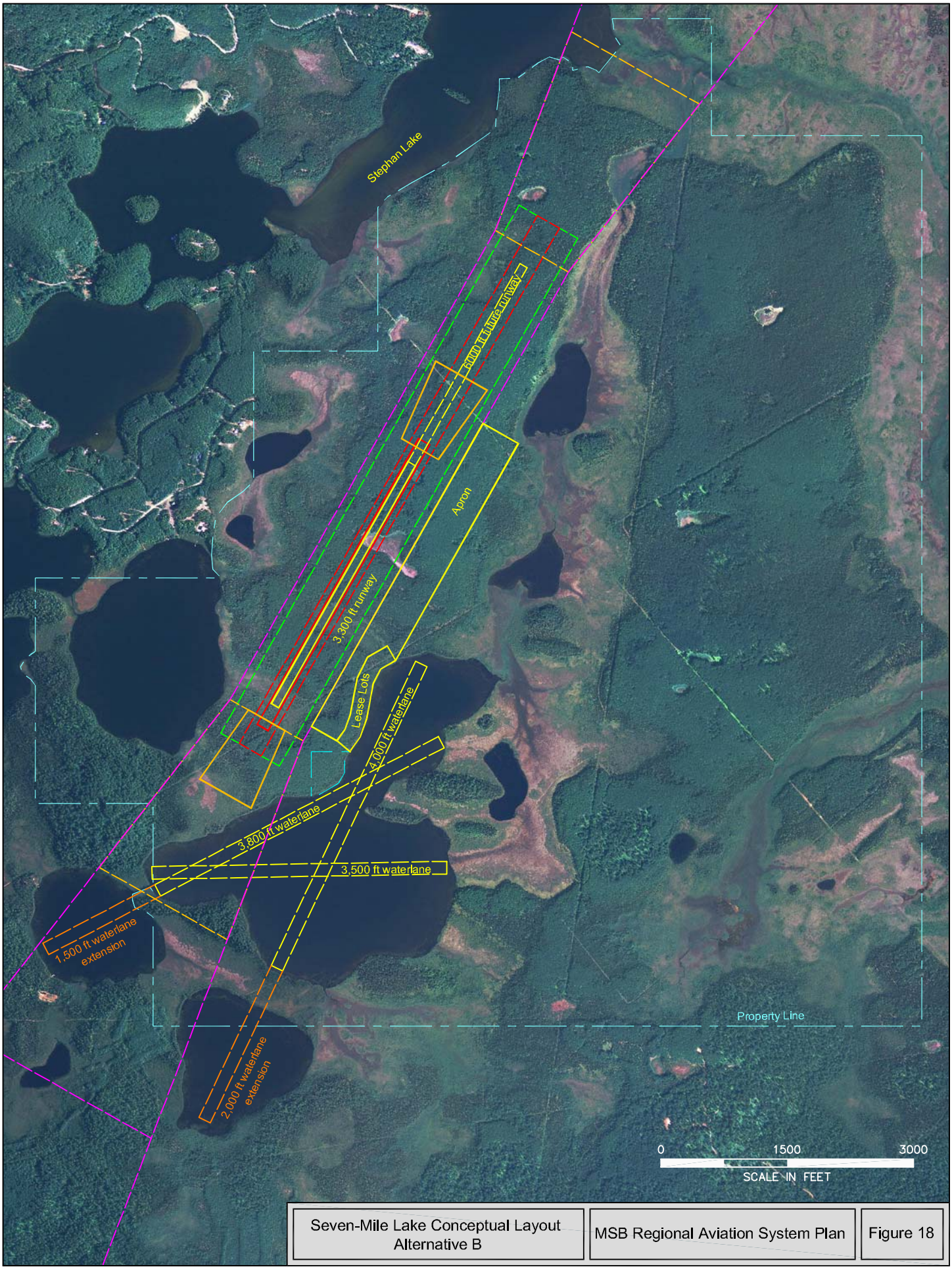
Because of the unusual shape of the lake, it appears that at least three floatplane water lanes could be established on the lake. The longest of these water lanes would be approximately 4,000 feet long in the north northeast direction. Other, slightly shorter, water lanes could be established in an east-northeast direction and an east-west direction. It might be possible to extend two of these water lanes significantly by dredging a connection between Seven Mile Lake and the two smaller lakes to the southwest.

There appear to be two primary locations for a land runway on the site. The first location is east of Seven Mile Lake on the area of uplands that lies in a north-south direction. There is adequate space to extend a future runway in this location to over 6,000 feet. However, the large RPZs associated with a precision approach might extend off of MSB property slightly. All other runway safety zones would remain on MSB property.

The other potential location for a land runway on the site is northwest of Seven Mile Lake on the area of uplands that is oriented northeast-southwest. There is adequate space to extend a future runway in this location to over 6,000 feet. Most of the RPZs for a precision approach would lie on MSB property, but road access to this area would be more difficult due to the surrounding wetlands.

Apron space for either runway location would be located between the runway and the lake. For the eastern runway location, the apron would most likely be somewhat square in shape. For the western runway location the apron would most likely be a long rectangle. The actual shape would be dictated by the presence of wetlands and the local topography.

Seven-Mile Lake Conceptual Layout Alternative A	MSB Regional Aviation System Plan	Figure 17



Seven-Mile Lake Conceptual Layout Alternative B	MSB Regional Aviation System Plan	Figure 18

Cost

Based on the conceptual drawing above, preliminary cost information is shown in the following table. These numbers reflect 2007 costs and will likely change over time.

Table 13: Cost Estimate for Seven Mile Lake Development

Alternative	Short-Term Cost	Long-Term Cost
Seven Mile Lake - Alt A	$35 million	$38 million
Seven Mile Lake - Alt B	$37 million	$34 million

The short-term cost estimates include construction of a gravel runway and a gravel apron with lease lots. The short-term cost also includes an access road and a small amount of dredging in the lake. The long-term costs include extension of the gravel runway to 6,000 feet with an asphalt surface and the development of a precision instrument approach. In preparation for the instrument approach, the long-term cost also includes some land acquisition for RPZs north and south of the airport. Both sets of costs assume a mobilization cost of 10 percent, a design cost of 15 percent, a construction management fee of 15 percent, and environmental analysis cost of $500,000. A contingency of 25 percent has been applied to each of the final costs. A detailed cost estimate can be found in Appendix A. The difference in cost between the two alternatives above is primarily due to the differences in the amount of access road that must be built and in the amount of land that must be purchased for future RPZs.

5.8 Public Comments

There were not many public comments on the South MSB alternatives. A complete set of public comments can be found in Appendix C of the Regional Aviation System Plan (RASP) report. The comments are summarized as follows:

- Seven Mile Lake. Several comments in favor of the Seven Mile Lake option. Concerns about lack of Seven Mile Lake road access, other infrastructure, and costs to build. Questions about anadromous fish or waterfowl at Seven Mile Lake. The Technical Advisory Committee commented in favor of this site because of land use compatibility and the space available to develop a more optimum long-term facility.
- Big Lake. Concerns about existing congestion at Big Lake. Comments in favor of Big Lake as a floatplane base and that it already has that use.

- Goose Bay. Concerns about environmental issues, remote location, wind problems, migratory birds, and military airspace.
- Comments that this plan does not address short-term needs and that a floatplane water lane length should be 5,000 feet or have a very clear and long approach/departure path.

5.9 South MSB Detailed Analysis - Summary and Recommendations

The following table summarizes the results of the detailed analyses above.

Table 14: South Matanuska-Susitna Borough Airport Location Alternatives - Detailed Analysis

Evaluation Factors	Goose Bay Airport (new pond)	Big Lake Airport (new pond)	Seven Mile Lake
Airspace	Good	Good	Good
Winds	Poor	Fair	Good
Topography	Good	Good	Good
Geotechnical Data	None	Some	None
Land Ownership	Good	Good	Good
Land Use	Good	Fair	Good
Driving Distance/Road Access	P- 33 mi W- 20 mi A- 27 mi*/ Good	P- 28 mi W- 15 mi A- 29 mi*/ Good	P- 37 mi W- 24 mi A- 22 mi*/ Poor
Utilities	Fair	Fair	Poor
Environmental Impacts	Few	Some	Many
Public Support	Minimal	Some	More
Conceptual Layout RW Length**	W - 4,000' L - 5,000'	W - 4,000' L - 6,000'	W - 6,000' L - 6,000'
Cost: Short-term/Long-term	$27M/$26M	$28M/$55M	$37M/$38M

* With Knik Arm Crossing

** W = Potential length of floatplane (water) runway; L = Potential length of land runway

A review of the table reveals that Goose Bay Airport has the worst crosswinds and would potentially require the most land acquisition. However, development at Goose Bay Airport would probably have fewer environmental impacts than the other alternatives.

Big Lake Airport would probably have the most conflicts with the surrounding residential properties, but already has some geotechnical data available. Seven Mile Lake would be the most expensive site, but has the fewest conflicts due to the limited amount of development in the area. Because the area is undeveloped, Seven Mile Lake would likely have the greatest environmental impacts. Seven Mile Lake has advantages of space for longer runways and the

ability to have a crosswind floatplane runway. Seven Mile Lake would be closer to Anchorage (with a Knik Arm Bridge) but farther from Palmer and Wasilla.

Based on the detailed analysis, the study recommends further engineering, environmental evaluation of the final three South MSB Airport locations at the Goose Bay Airport, Big Lake Airport and at Seven Mile Lake. The engineering and environmental analysis would address the following:

- Wind data
- More detailed engineering evaluation of final sites considering topography, geotechnical conditions, hydrology, and costs
- More detailed environmental studies of final sites
- More focused public involvement with an emphasis on potential airport users and residents near the alternative sites
- Master Plan and ALP for the final site

Both the Big Lake and Goose Bay sites already have most of the land needed for the proposed floatplane and wheeled runway facilities. To retain the option for a floatplane base at Seven Mile Lake, the MSB should reserve land at the Seven Mile Lake area for a possible airport site.

6.0 UPPER SUSITNA ALTERNATIVES

As discussed earlier, the Upper Susitna area, an area along the Parks Highway South of Denali State Park, is expected to experience rapid growth over the next 20 years. For purposes of this alternatives analysis, an area from Trapper Creek north to the Chulitna River Bridge was evaluated for suitability for a future airport site. A site suitable for an ultimate 6,000-foot wheeled runway with potential for an adjacent floatplane base was sought.

Alternatives were grouped into several categories. Each category represents a different approach to finding a site for an airport, potentially with an adjacent floatplane base. The categories include:

- Do nothing - let existing facilities address the need
- Develop airport on an existing lake
- Develop an airport at a non-lake site

Alternatives within each of these categories are discussed in the following sections. Some of these alternatives were dismissed early in the process and other alternatives were carried forward through the second public meeting. Those alternatives were then narrowed further to a few alternatives for detailed evaluation.

6.1 Do Nothing

6.1.1 Trapper Creek Inn Runway

The Trapper Creek Inn owns and operates a gravel runway in downtown Trapper Creek. This runway, located on the east side of the Parks Highway behind the Trapper Creek Inn has recently been upgraded. A new hangar and a large gravel apron have been constructed. According to information from the new owner of the Trapper Creek Inn, he is attempting to establish an air taxi business at the airport and to create additional aviation activity in the area. He has had discussions with various tourism businesses about providing flight-seeing flights from this airport.

However, this site is over 21 miles from the proposed South Denali Visitor Center where most of the aviation demands will originate, and it is 30 highway miles from the existing Talkeetna Airport. Furthermore, some members of the Trapper Creek community are opposed to the noise associated with airports, there is limited space for expansion or construction of an airport in downtown Trapper Creek, and there is not much space for a floatplane base. For these reasons, the Trapper Creek Inn Runway site was dropped from further consideration as an airport for the Upper Susitna area.

6.1.2 Summit Airport

The first publicly owned airport along the Parks Highway north of Trapper Creek is the Summit Airport located approximately 70 miles north of the Chulitna River Bridge. This airport is a simple gravel strip with no facilities and is located too far from the Upper Susitna area to meet the anticipated need. For this reason, the Summit Airport was dropped from further consideration as an airport for the Upper Susitna area.

6.1.3 Talkeetna Airport

The Talkeetna Airport already provides air taxi, flight-seeing, and helicopter air service to Denali National Park and Denali State Park. However, it is 14 miles off the Parks Highway and it is approximately 50 miles from the new hub of tourist demand anticipated in the Upper Susitna area. Because of its location and these distances, we would expect some tour companies and individual travelers to bypass Talkeetna altogether and forgo making aviation part of their visitor experience. It is also possible that another site closer to Upper Susitna may draw some of the existing air traffic away from the Talkeetna Airport over the long term. Further, there is some opposition in Talkeetna to major growth in aviation activity of the type that will likely be triggered by the Upper Susitna development. For these reasons, the Talkeetna Airport was dropped from further consideration as an airport for the Upper Susitna area.

6.2 Airport on an Existing Lake

6.2.1 Swan Lake

Swan Lake is located four to five miles west of the Parks Highway at approximately Mile 129. There is no road access to the lake. This lake is aligned generally north-south and is over 8,000 feet long. Most of the property around the lake is owned by the State of Alaska, but there are several private cabin lots at the south end of the lake. The north end of the lake consists of a large wetland that drains north into the Tokositna River. If an access road were constructed, the distance from the lake to the South Denali Visitor Center would be approximately 10 miles.

The lake is large enough to accommodate a floatplane base, but the distance from road access on the Parks Highway and the presence of cabins on the lake are drawbacks for this alternative. For these reasons, Swan Lake was dropped from further consideration as a location for an airport for the Upper Susitna area.

6.2.2 Denali Lake

Denali Lake is located about 1.5 miles west of the Parks Highway at Mile 127. The lake is not named on all maps, but some United States Geological Survey (USGS) maps identify the lake with the number "747" which indicates the elevation of the lake in feet. There is no road access to the lake, but if an access road were constructed, the lake would be approximately nine miles from the Upper Susitna Visitor Center.

This lake is aligned north-south and has a large dogleg in the west side of the lake. The length available for use by floatplanes is over 4,000 feet. Land around the lake is mostly privately owned and there are over 30 private cabin lots around the lake. These lots and the distance from road access on the Parks Highway are disadvantages with this alternative. For these reasons, Denali Lake was dropped from further consideration as a location for an airport for the Upper Susitna area.

6.2.3 Unnamed Lake (Elevation 706)

This lake is located about 1.3 miles west of the Parks Highway at Mile 131.5. There is no road access to the lake, but if an access road were constructed, the lake would be approximately five miles from the South Denali Visitor Center. The lake is not named on any maps, but some USGS maps identify the lake with the number "706" which indicates the elevation of the lake in feet.

The lake is aligned north-south and is over 4,200 feet long. The lake appears to be fairly shallow on aerial photographs and the north half of the lake lies within the boundaries of the Denali State Park. Most of the property around the lake is privately owned and there are over 10 private cabin lots around the south half of this lake. Because of the lack of road access to the Parks Highway, the fact that a portion of the lake lies within the State Park, and because of the cabins on the lake, this unnamed lake was dropped from further consideration as a location for an airport for the Upper Susitna area.

6.2.4 Blair Lake

Blair Lake is located approximately 1.8 miles east of the Parks Highway at Mile 131.5. The lake is aligned east-west and has high hills to both the north and south. The lake is over 4,200 feet long and is mostly surrounded by private land. The northwest portion of the lake is state property, but the other ¾ of the perimeter is private. The Boy Scouts own some of this property and plan to construct a large camp near the lake in the near future.

There is currently no road access to the lake, but the Scouts are attempting to secure funding for a bridge across the Chulitna River that would provide road access to the Parks Highway. If this funding cannot be secured, then road access might be possible from the McKinley Princess Hotel just north of the existing Chulitna River Bridge on the Parks Highway. Because of road access

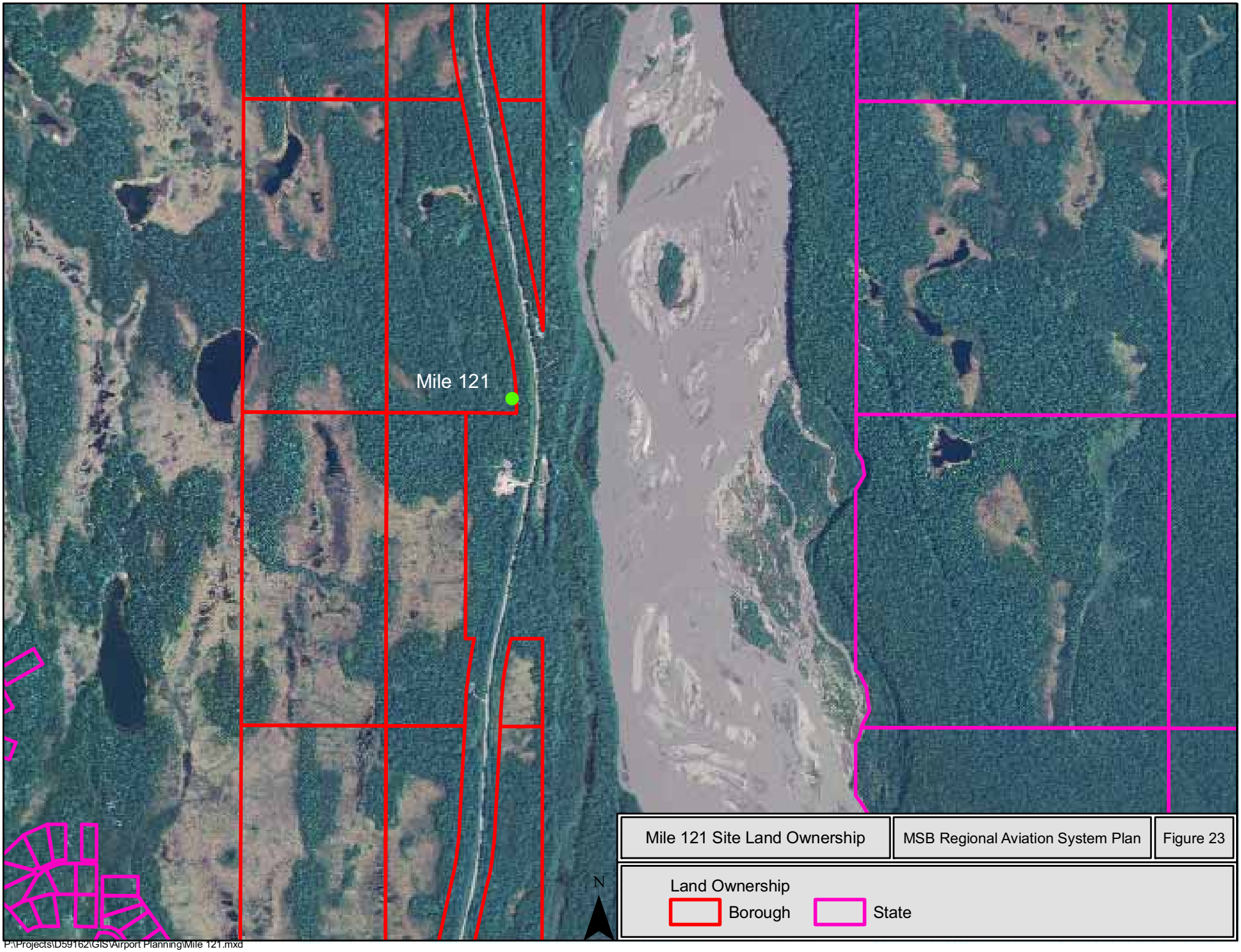
6.5 Upper Susitna Detailed Analysis

The following are a detailed analysis and concept layouts for airport location alternatives for the Mile 121 and Mile 131 sites. The detailed analysis included a site visit and discussions with National Parks Service staff and local planning authorities.

6.5.1 Mile 121 Site

This site is located west of the Parks Highway just north and west of the DOT&PF Chulitna Maintenance Station. The following photographs depict this site. Note the existing cell tower just northwest of the maintenance station building. In the first photograph, north is toward the top right corner. In the second photograph, north is toward the top.

Figure 22: Mile 121 Site


Mile 121
Mile 121 Site Land Ownership
MSB Regional Aviation System Plan
Figure 23
N
Land Ownership
Borough
State
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Airspace

There are no conflicts with existing special-use airspace or nearby airports. However, air traffic between Talkeetna Airport and Denali National Park often travels over this site. The altitude of this air traffic over the site varies, but is generally at least several thousand feet above the ground.

The Susitna Military Operations Area (SMOA) lies to the west of the site, but begins at a minimum altitude of 5,000 feet above ground level. This SMOA would not be expected to interfere with airport operations.

A potential future problem with this site is a Coast Guard proposal to construct a Nationwide Differential Global Positioning System (NDGPS) tower in the area. The Coast Guard has proposed that a tower 295 feet above ground level (AGL) be constructed just north of the DOT&PF Maintenance Station. The tower and guy wires would occupy a site 800 by 800 feet. The tower would be part of the NDGPS System and provide 1- to 2-meter positioning accuracy to receivers capable of receiving the differential correction signal.

The NDGPS System is an expansion of the U.S. Coast Guard's Maritime DGPS network. The Federal Railroad Administration (FRA) was the original Federal program sponsor of the (NDGPS) Program and intended to use DGPS for a Positive Train Control system. However, FRA has recently switched focus to other technologies and the DGPS program is currently without a program sponsor. The Coast Guard anticipates that a decision on future funding will be made by late FY08.

At this point in the site selection process, the Coast Guard has only done a preliminary site visit and the coordinates for the tower (N 62°24'32.1", W 150°15'27.9") were determined by a computer site selection program. No formal site selection or environmental analysis has been done. A Coast Guard representative did perform a brief site visit and discuss possible leasing options with DOT&PF. According to the Coast Guard representative, the proposed tower could be located at another site within several miles of the Mile 121 site with minimal consequences for the NDGPS system. The Coast Guard would prefer that any alternate sites have utilities and government-owned land available.

Winds

According to wind data from the Talkeetna Airport, prevailing winds in the area are generally either north or south. A new runway at the Mile 121 site would best align with the winds if it was constructed parallel with the highway. Coincidentally, the most likely arrangement for a runway at this site would be north-south. This site is anticipated to provide adequate crosswind coverage.

Topography

The area around this site is generally flat or small hills. The main topographical feature on the site is a small creek that flows south approximately 1,200 feet west of the highway. This creek is connected to a small pond about 1 mile north of the maintenance station. Most of the remainder of the site consists of uplands forested with trees and brush.

Geotechnical Data

No historical geotechnical data was available from the files of DOWL or DOT&PF. However, the maintenance station is constructed in a former gravel pit and there are multiple gravel pits in the area. Soils in the area likely consist primarily of gravel and sand, but the presence of wetlands indicates that there may be substantial organic overburden in the area. Groundwater may be at a moderate depth due to the height of the site relative to the nearby Chulitna River.

Land Ownership

DOT&PF currently owns and operates the Chulitna Maintenance Station. All other property in the vicinity of the site is owned by the MSB. Depending on the layout of an airport at the site, some portion of the airport might extend onto State property slightly. The majority of any airport would lie on MSB land.

Land Use

The area is generally undeveloped now. However, the recent South Denali Implementation Plan and EIS suggests that the area around the maintenance station and nearby rest area might be suitable as a development cluster along the highway. By concentrating development in this location, other locations along the highway can remain undeveloped and retain some of their scenic beauty.

Another issue is the East-West Expressway trail at the center of the site. The trail is a winter snow machine route that is surveyed with easement and is groomed. The trail leads from the Parks Highway to the Petersville community.

There are a considerable number of remote recreational cabins and subdivisions to the west of the site, as shown in the prior figure. Since many of these cabin owners access their property from trails near Mile 121 and have developed cabins in this area because of its remote, pristine, quiet location, there would likely be concerns about an airport's impacts on their recreation experience and on the land and wildlife resources near their cabins. According to the State, there are no new land sales planned for the State land west of the site, and some of the existing lots have not sold or have not yet been developed.

Driving Distance and Road Access

The site is approximately 11 miles from the center of the expected demand at the Chulitna River Bridge and 6 miles from Trapper Creek. The site has excellent road access via the Parks Highway. The airport would likely be built very close to the highway and would require only a very short access road to reach the apron and runway.

Utilities

Electricity and phone are available at the maintenance station, but are not available north of the station. Water and sewer are not available and would need to be developed locally.

Environmental Impacts

Primary environmental impacts will be disturbances to recreation use of the surrounding areas, airplane noise, land clearing, wildlife and habitat disturbance, viewshed impacts along the highway, and wetlands and water quality impacts.

Conceptual Layout

This site is bisected by a small creek that runs parallel to the west side of the Parks Highway. One of the goals of the conceptual layouts for this site was to minimize impacts to the creek where possible. Because of this, three concepts were developed for this site. Two concepts have the initial runway development north of the creek and one has the initial runway south of the creek.

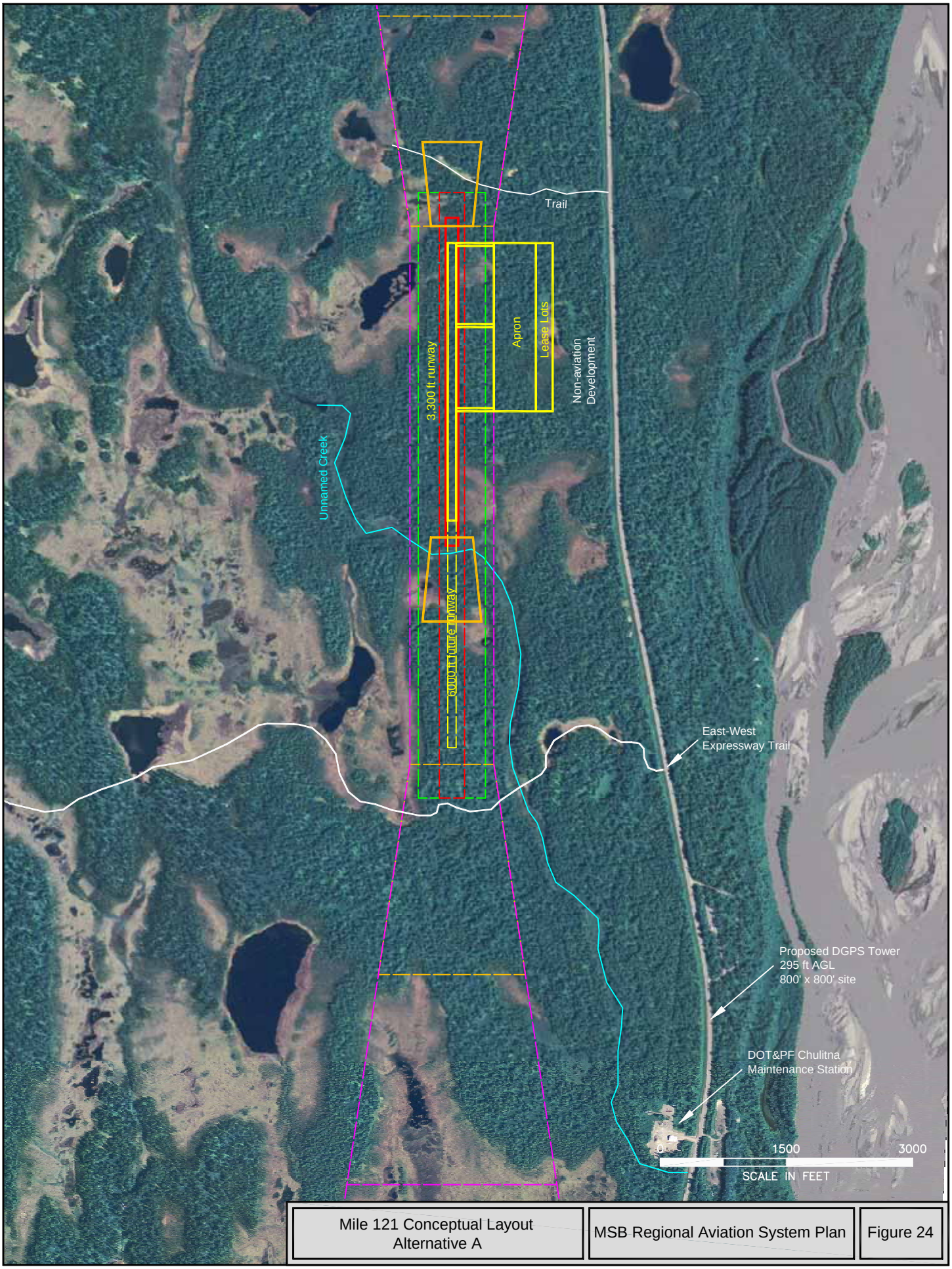
All of the concepts have an initial runway length of 3,300 feet with space for future runway extension to 6,000 feet. Space has been reserved so that the future runway could have a precision instrument approach and with the various safety zones remaining on airport (or State) property. All of the concepts also include an apron and lease lots between the runway and the Parks Highway. Additional space is identified for non-aviation development that might want to be associated with an airport. While not shown on the drawings, if a floatplane pond were needed, one would be developed by damming the small creek and digging a pond that parallels the runway. The DGPS tower is shown in each conceptual sketch according to the coordinates supplied by the United States Coast Guard. These coordinates conflict with the Parks Highway and the actually tower site would likely be slightly to the west of the highway.

Alternative A for this site shows the initial runway construction north of the creek with a future runway extension across the creek to the south. This layout is intended to keep the runway as close as possible to the maintenance station, but still allow adequate space between the runway and the highway for other development. It also minimizes conflicts between the southern approach to the runway and the DGPS tower and maintenance station. This alternative would not impact the East-West Expressway Trail.

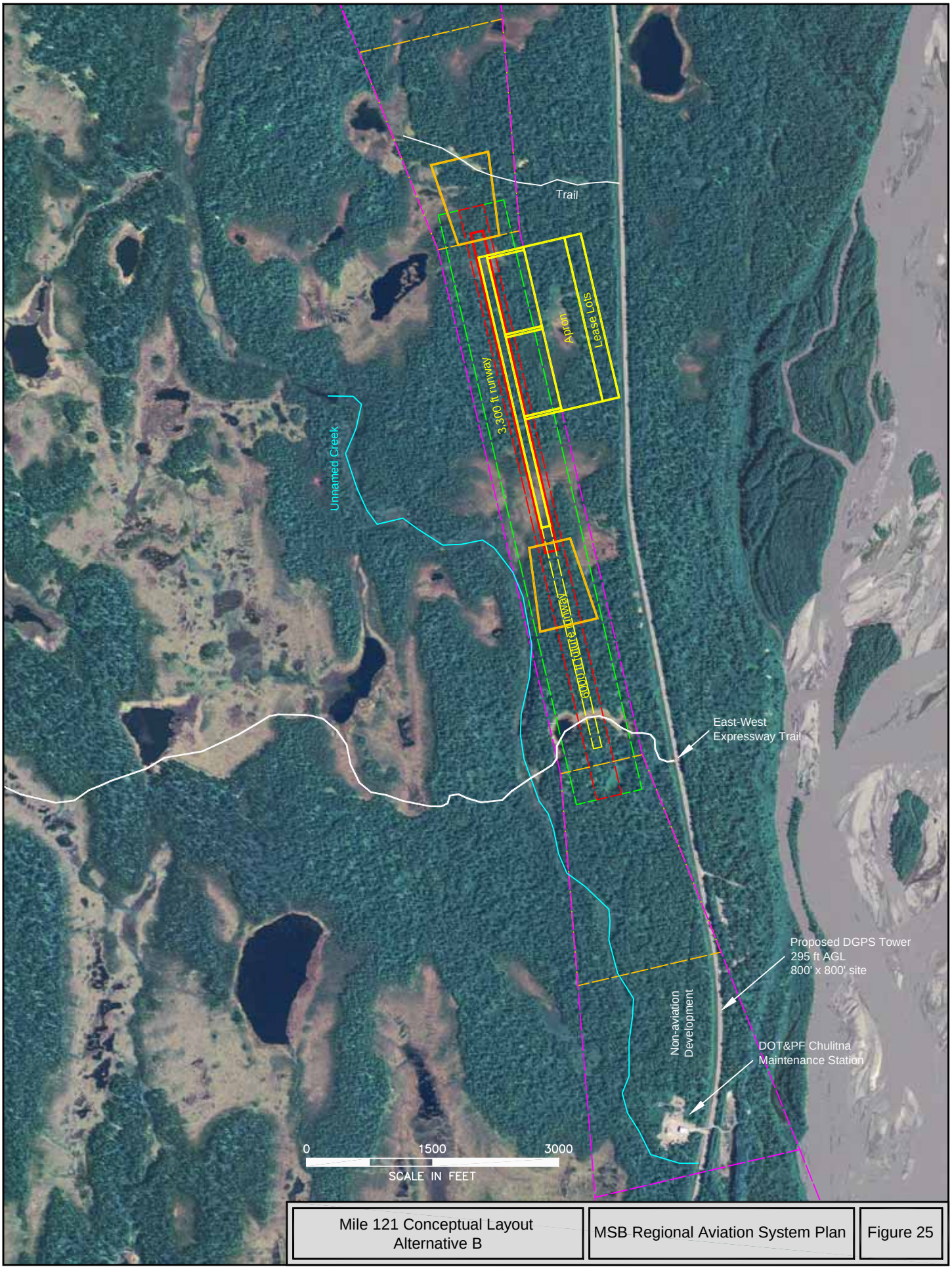
Alternative B for this site shows the initial runway construction in a similar location to Alternative A, but with the south end of the initial and long-term runway located east of the creek. This location minimizes impacts to the creek in the long term, but creates potential conflicts with the southern approach to the runway and the DGPS tower and maintenance station. This alternative would not impact the East-West Expressway Trail. However, if the runway were ever extended towards the north, approximately one-mile of the trail might need to be relocated. There is also less space available for non-aviation development between the runway and the highway. There may be space for some non-aviation development beneath the approach to the runway, but only for certain types of land uses.

Alternative C for this site shows the initial runway located south of the creek, but with taxiways that cross the creek to reach the apron and lease lots. This alternative is intended to keep the runway as close as possible to the maintenance station and to reduce conflicts between the runway approaches and the maintenance station. Impacts to the creek would initially be

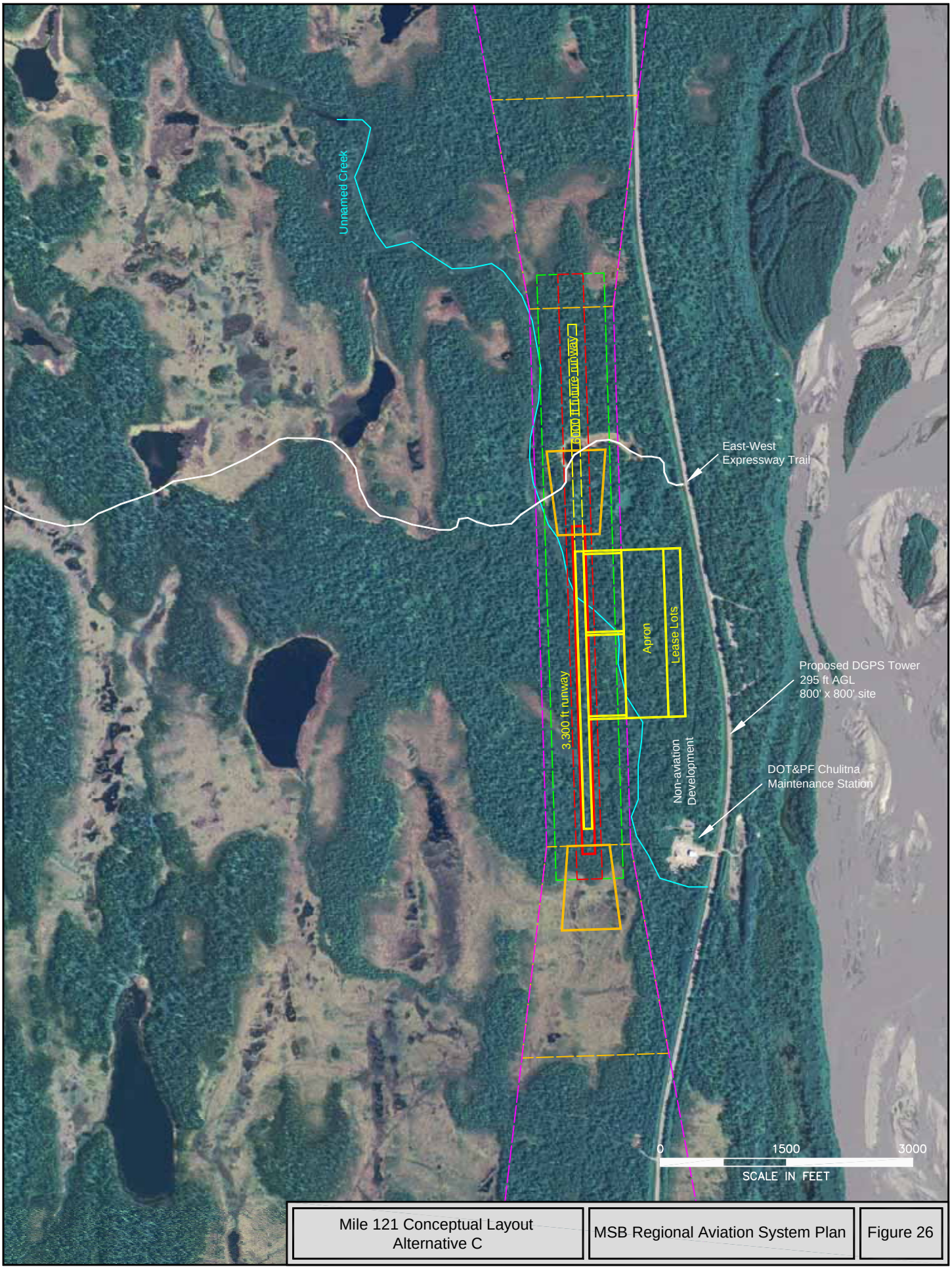
relatively small because the taxiways are not as wide as the runway. The long-term runway extension would cross the creek and also impact the small pond about a mile north of the maintenance station. It may be possible to shift the runway in this alternative to the south, but doing so would increase impacts to the large bog at the south end of the runway. This alternative would not impact the East-West Expressway Trail. However, if the runway were ever extended towards the north, approximately one-mile of the trail might need to be relocated. This alternative would probably be the most advantageous to the airport tenants, because the airport lease lots would be located directly across the highway from the proposed tourist facilities at the rest area.



Mile 121 Conceptual Layout Alternative A	MSB Regional Aviation System Plan	Figure 24



Mile 121 Conceptual Layout Alternative B	MSB Regional Aviation System Plan	Figure 25



Mile 121 Conceptual Layout Alternative C	MSB Regional Aviation System Plan	Figure 26

Cost

Based on the conceptual drawing above, preliminary cost information is shown in the following table. These numbers reflect 2007 costs and will likely change over time.

Table 16: Cost Estimate for Mile 121 Site Development

Alternative	Short-Term Cost	Long-Term Cost
Mile 121 Site - Alt A (north of creek)	$25 million	$29 million
Mile 121 Site - Alt B (east of creek)	$25 million	$29 million
Mile 121 Site - Alt C (west of creek)	$25 million	$29 million

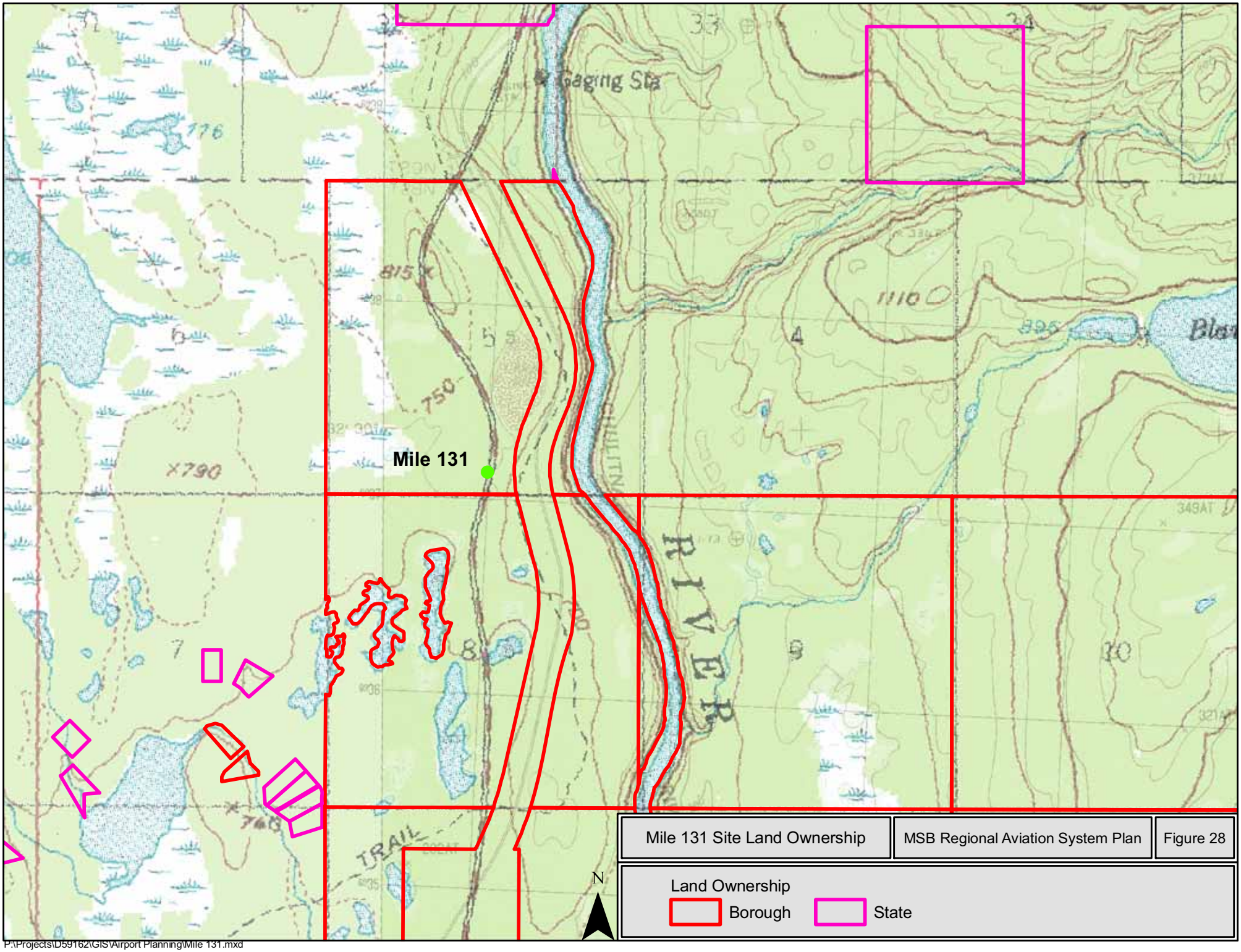
The short-term cost estimates include construction of a gravel runway and a gravel apron with lease lots. The long-term costs include extension of the gravel runway to 6,000 feet with an asphalt surface and the development of a precision instrument approach. Both sets of costs assume a mobilization cost of 10 percent, a design cost of 15 percent, a construction management fee of 15 percent, and environmental analysis cost of $500,000. A contingency of 25 percent has been applied to each of the final costs. A detailed cost estimate can be found in Appendix A.

Although there are minor differences in cost for the three alternatives, these differences are small and are not evident in the small amount of information available about the site. Detailed topographic information would likely provide some differences in the amount of fill and earthwork required for each alternative and wetlands impacts would also be slightly different. Other large, expensive items, such as asphalt, apron, and clearing are essentially similar for all three alternatives.

6.5.2 Mile 131 Site

This site is located west of the Parks Highway just south of the Chulitna River Bridge adjacent to an old gravel pit. The following photographs depict this site. Note the old gravel pit at the right side of the photograph. In the first photograph, north is toward the right. In the second photograph, north is toward the top.

Figure 27: Mile 131 Site



P:\Projects\D59162\GIS\Airport Planning\Mile 131.mxd

Airspace

There are no significant airspace issues related to the Mile 131 site. There are no airports nearby, but the SMOA lies to the west of the site. This SMOA begins at a minimum altitude of 5,000 feet above ground level and would not be expected to interfere with airport operations.

Winds

According to wind data from the Talkeetna Airport, prevailing winds in the area are generally either north or south. A large valley just north of the Mile 131 site is also aligned north and south and likely causes prevailing winds to be from the north or south. The best crosswind coverage at this site would likely result from a runway aligned north-south. Such a runway would be likely to provide adequate crosswind coverage.

Topography

This site is generally flat, but with a few small hills nearby. The most prominent hill is just north of the site. This hill might pose a minor conflict with a future precision approach to the site from the north depending on the exact location of the runway. The other main obstructions would be the mountains to the east and west of the large valley north of the airport. If properly aligned, a future precision approach can likely be created that will stay within this valley and not conflict with the surrounding terrain.

Geotechnical Data

There is no geotechnical data available for this site, but the site is located in an old gravel pit. Soils in the area appear to be a mix of gravel and sand. The site is located high above the nearby Chulitna River, so groundwater is likely not very near the surface in this area. However, the two small lakes on the site indicate that there may be perched groundwater in the area or that water is retained in these lakes by the organic overburden in the area.

Land Ownership

The entire site is owned by the MSB.

Land Use

There are a considerable number of remote recreational cabins and subdivisions to the west of the site, as shown in the prior figure. Since many of these cabin owners access their property from trails near Mile 131 and have developed cabins in this area because of its remote, pristine, quiet location, there would likely be concerns about an airport's impacts on their recreation experience and on the land and wildlife resources near their cabins. According to the State, there are no new land sales planned for the State land west of the site, and some of the existing lots have not sold or have not yet been developed.

To the north and east of the site, across the Chulitna River, are additional private lots, including the McKinley Princess Hotel and a Boy Scout Camp. The South Denali Implementation Plan and EIS suggest that the area near the Hotel will continue to expand as a development cluster along the highway. Similar to impacts discussed above for remote recreational cabins, an airport at this site could be viewed as having negative impacts on the visitor experience for hotel and other commercial development customers as well as for others using the adjacent State Park for recreation purposes.

Driving Distance and Road Access

The site is approximately 1 mile from the center of the expected demand at the Chulitna River Bridge. The site has excellent road access via the Parks Highway. The airport would likely be built very close to the highway and would require only a very short access road to reach the apron and runway.

Utilities

There are no utilities available at the site. However, there is a cell tower located on the ridge just east of the river that provides coverage to the area.

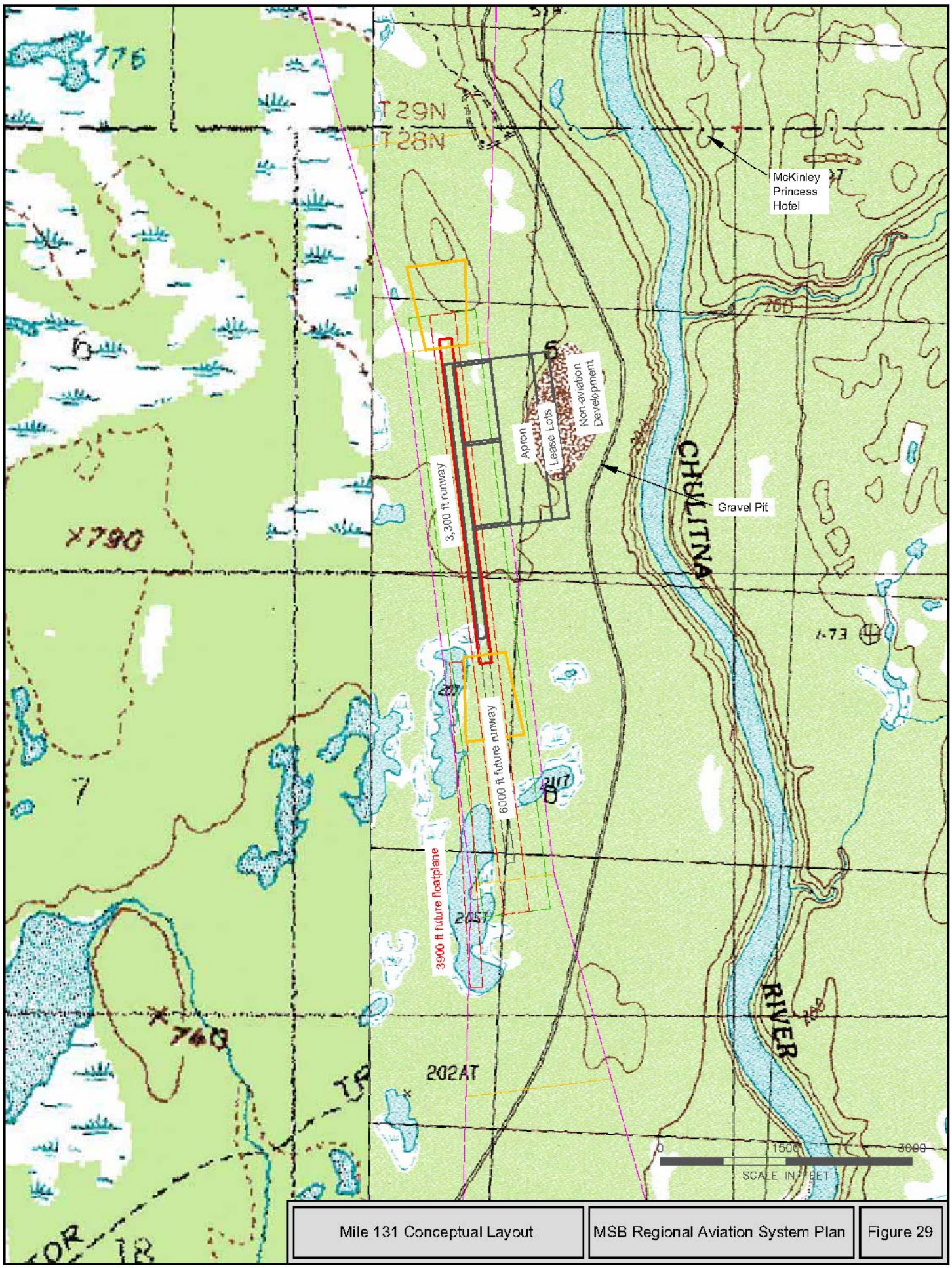
Environmental Impacts

Primary environmental impacts will be disturbances to recreation use of the surrounding areas, airplane noise, land clearing, wildlife and habitat disturbance, viewshed impacts along the highway and from higher trails overlooking the area, and wetlands and water quality impacts, particularly if local ponds are converted into a floatplane base.

Conceptual Layout

The concept for this site includes an initial runway 3,300 feet in length with an ultimate runway 6,000 feet in length. The runway would be aligned north-south roughly parallel to the two existing lakes on the site. The initial runway would be located just west of the gravel pit area with a future extension to the south near the two lakes. The alignment of the runway would be such that a future precision instrument approach would be free of terrain obstructions in the large valley north of the site. There might be a minor obstruction from a small hill just north of the runway, but the type and magnitude of this small obstruction would depend on the exact location and elevation of the runway.

The apron and lease lots would be developed on the site of the gravel pit, and non-aviation development could take place between the runway and the highway. If desired, the two long lakes could eventually be connected by a small amount of dredging to provide a floatplane pond approximately 3,900 feet long.



Mile 131 Conceptual Layout	MSB Regional Aviation System Plan	Figure 29

Cost

Based on the conceptual drawing above, preliminary cost information is shown in the following table. These numbers reflect 2007 costs and will likely change over time.

Table 17: Cost Estimate for Mile 131 Site Development

Alternative	Short-Term Cost	Long-Term Cost
Mile 131 Site	$24 million	$31 million

The short-term cost estimates include construction of a gravel runway and a gravel apron with lease lots. The short-term cost also includes minor dredging to convert the two nearby lakes into a floatplane pond. The long-term costs include extension of the gravel runway to 6,000 feet with an asphalt surface and the development of a precision instrument approach. Both sets of costs assume a mobilization cost of 10 percent, a design cost of 15 percent, a construction management fee of 15 percent and environmental analysis cost of $500,000. A contingency of 25 percent has been applied to each of the final costs. A detailed cost estimate can be found in Appendix A.

6.6 Public Comments

There was quite a bit of interest and public comments on the Upper Susitna area airport alternatives. Based on the comments, it was apparent that most commenters had the impression the study was making binding decisions about whether to build an airport versus asking whether an airport would be needed in the long term and if a potential site should be reserved. Most were opposed to both the Mile 121 and Mile 131 sites, and many supported continued use of the Talkeetna Airport. A complete set of public comments can be found in Appendix C of the RASP report. The comments are summarized as follows:

- An airport would diminish the visitor and recreation experience, particularly the visual, auditory, and wildlife impacts in the area, and is incompatible with the planned hotels, visitor center, etc.
- An airport would disturb remote property owners who recreate in the area because of the peace, quiet, and wilderness.
- Airport noise, development, and pollution would degrade wildlife and the land.

- An airport would degrade the scenic value along the highway on the south approach to South Denali and create another "glitter gulch."
- Need more public involvement from the non-aviation community, especially landowners and those who recreate in the area. Need for more public notice.
- An airport that primarily benefits tourists or the tourism industry should not be built.
- An airport would affect winter and summer trail access and parking areas along the highway.
- The need for an airport in the Upper Susitna area is unclear and has not been demonstrated.
- A new airport at Mile 121/131 would harm Talkeetna, Trapper Creek, and other area businesses.
- An airport is a waste of money, and it will be difficult to fund construction and operation.
- Is not consistent with prior comprehensive planning or the South Denali Implementation Plan. Prior studies have not supported the need for an airport. An airport should be considered in conjunction with these plans.
- Support for planning for an airport in this area to create jobs, serve a growing area, for emergency landings, and for an adjacent floatplane lake.
- An airport would create airspace use conflicts with the Talkeetna Airport.
- DOWL's maps do not show all of the residential development in the area.
- If Denali National Park does not need a public airport, why does Denali State Park?
- Because of the short tourist season, the airport would be unused much of the year.
- Consider the needs of Light Sport Aircraft in the report.
- If airport is built, do it at Mile 131 because the tourists it benefits would suffer the most negative effects.
- Move the South Denali Visitor Center closer to the Park.
- Discourage flight-seeing and reduce aircraft carbon emissions.

- Expand or use the Talkeetna Airport instead of building a new airport.
- Use existing Trapper Creek airports and helipads. No new airports are needed.
- Tourism industry should build their own airport, if one is needed.
- Another airport is needed, but at some other undefined location.
- Another site in the Trapper Creek area, Talkeetna Y area, between Trapper Creek and Talkeetna, between Trapper Creek and Caswell Lake, an old federal strip at the end of East Susitna River Road.
- Emergency strip at the foot of Ruth Glacier and/or along Petersville Road.
- Build a road from Talkeetna to Mile 130, a distance of 10 miles.
- Build an airport in Denali National Park.

6.7 Upper Susitna Detailed Analysis - Summary and Recommendations

The following table summarizes the results of the detailed analysis of the Upper Susitna alternatives.

Table 18: Upper Susitna Alternatives – Detailed Evaluation

Location	Mile 121 of Parks Highway	Mile 131 of Parks Highway
Airspace	Good	Good
Winds	Good	Good
Topography	Good	Good
Geotechnical Data	None	None
Land Ownership	Good	Good
Land Use	Fair	Poor
Driving Distance/Road Access	11 miles/Good	1 mile/Good
Utilities	Poor	Poor
Environmental Impacts	Many	Many
Public Support	Minimal	Minimal
Conceptual Layout RW Length	6,000'	6,000'
Cost: Short-term/Long-term	$25M/$29M	$25M/$29M

A review of the table reveals that both sites have a similar alignment, similar topography, and similarly good airspace. Both sites are owned by the MSB and have good road access. Neither site has geotechnical data or utilities. Based on public comments, there are significant concerns at both sites about compatibility with surrounding land uses and concerns about environmental

impacts. Public support for both sites is poor, though it appeared there were slightly more concerns expressed about the Mile 131 site.

The main factors differentiating between the two sites are the driving distances to the area near the Chulitna River Bridge and to Trapper Creek and the physical constraints of fitting an airport on the sites. Mile 121 has a creek and a proposed DGPS tower as potential constraints. Mile 131 has a small hill and high mountains to the north. An advantage of the Mile 131 site is the presence of two small, natural lakes that might be suitable for floatplane use with some minor dredging. A disadvantage is that this site may be opposed by cabin owners and may create airplane noise for nearby tourism operations.

Because the Talkeetna Airport meets the current needs for a public airport in the Upper Susitna area, the long term need for another airport is somewhat speculative, and other site alternatives for a future public airport lack public support, preliminary siting of an airport should not be made at this time. The site at Mile 131 should not be reconsidered in any future studies. The site at Mile 121 may be reconsidered by other future planning studies in the region if the need for an airport becomes more clear. Future studies of Mile 121, if determined necessary, should include:

- Wind data
- More detailed engineering evaluation of final sites considering topography, hydrology, geotechnical conditions, and costs
- More detailed environmental studies of final sites
- More focused public involvement with an emphasis on potential airport users and residents near the alternative sites
- Master Plan and ALP for the final site

7.0 OTHER ALTERNATIVES

7.1 Chickaloon Area

Although a much smaller issue than the previous two areas of concern, there is the long-term need for better public airport facilities in the eastern part of the MSB near Chickaloon and the

Matanuska Glacier. The only public airport in this area is the Sheep Mountain airport, but this airport is not actively maintained by DOT&PF and is located 64 miles from Palmer.

Using the FAA NPIAS criterion of a 20-mile driving distance, the section of Glenn Highway between the Kings River and Cascade Creek might be eligible for an additional public airport. The community of Chickaloon is located in this area and is approximately 30 miles from Palmer and 34 miles from the Sheep Mountain Airport.

There are a few privately owned strips in this area that are listed as open for public use, but none of these strips is well developed or very long. There are also no public floatplane facilities in the area, although a few floatplanes do use some of the lakes in the area. The area does serve as the main corridor for small aircraft flying east from the Palmer area and often experiences poor weather in the pass. Pilots often need an emergency place to land when weather conditions are different than expected.

In the Chickaloon area, wind direction is primarily a function of the local topography. The community of Chickaloon and the Glenn Highway are located in the deep Matanuska River valley. Winds generally align with this valley and most of the lakes and runways in the area are also aligned east-west with the valley.

The need for a public airport in this area is less clear than in the South MSB and Upper Susitna areas. However, people who live in the eastern part of the MSB have consistently expressed a desire for a better public facility in the area. Some have asked for an additional public airport, but others have simply asked for better maintenance of the Sheep Mountain Airport by DOT&PF. The MSB staff has also asked that this area be considered for additional airports or facility upgrades. While there has been some interest in a new airport, the low populations of the area, close proximity of the Sheep Mountain Airport, and the limited MSB land in the area make a new public airport in the Chickaloon area a low priority at this time.

7.2 Eklutna Gravel Pit

This site was recommended in the 2003 Anchorage General Aviation System Plan as a possible site for a floatplane base to serve Anchorage and supplement Lake Hood. The land is owned by Eklutna Inc., the local Native corporation, which is seeking to increase economic activity in the

area. A portion of this gravel pit was recently reactivated and is currently producing gravel. This site is in a relatively undeveloped area just north of the Glenn Highway and the Alaska Railroad tracks.

Although this site is not in the MSB, it is relatively near both Palmer and Wasilla and could serve the core area of the MSB. Airport ownership is still very uncertain. While DOT&PF is still completing economic feasibility studies of the Eklutna sites, it is on record as being opposed to owning and operating the airport. It should be noted that the original concept for a floatplane base at this location did not include a gravel runway. If it is not possible to include a gravel runway at this site, the utility of the facility will be greatly reduced. This site will not be studied further as part of this project because it is currently part of a floatplane siting study being conducted for the Anchorage area by DOT&PF.

7.3 Eklutna Flats

Like the Eklutna Gravel Pit site discussed above, this site was first recommended as a possible location for a floatplane base in the 2003 Anchorage General Aviation System Plan. This site is located on the south bank of the Knik River between the river and the Glenn Highway at the interchange with the old Glenn Highway. It is even nearer to Palmer and Wasilla than the Eklutna Gravel Pit site above. A floatplane base at this location would primarily serve Anchorage, but would provide capacity to the MSB as well. The public has expressed concerns about the wildlife impacts of this alternative due to the fact that it is at the south edge of the Palmer Hay Flats State Game Refuge. This site will not be studied further as part of this project because it is currently part of a floatplane siting study being conducted for the Anchorage area by DOT&PF.

8.0 PUBLIC AIRPORT OWNERSHIP AND OPERATION ALTERNATIVES

8.1 Issues Overview

Essential to a decision to build an additional public aviation facility in the MSB is the question of what entity will own and operate the facility. The existing publicly operated airports in the MSB are owned by the City of Palmer (Palmer Airport), the City of Wasilla (Wasilla Airport), and the State of Alaska (all other publicly operated airports). The MSB neither owns nor operates an airport or other aviation facility at the present time.

None of the locations considered in this report for additional publicly operated aviation facilities fall within the boundaries of the City of Palmer, the City of Wasilla, or other existing, or anticipated future city government within the MSB. Therefore, no city government is a candidate to serve as the owner/operator of a new publicly operated aviation facility. The remaining alternatives for airport ownership/operation are, broadly, the State of Alaska, the MSB, and an airport authority or commission. These alternatives, with their respective advantages and disadvantages, are summarized in the following table.

Table 19: Public Airport Ownership and Operations Alternatives

Alternative	Advantages	Disadvantages
State Ownership and Operation.	• No local funding required • No local airport liability exposure	• Little or no local control of airport land use. • No local control over airport development or operations. • Capital Improvement Program (CIP) priorities established on a statewide rather than local basis.
State Ownership and Local Operation (State leases an airport to the MSB or a local airport authority for operation.)	• Some limited state operational funding possible • Shared liability possible • Increased level of local control over airport land use • Increased level of local control over airport development and operations • Increased level of local influence on CIP decisions • Local obligation to operate the airport is not permanent, but limited to the term of the lease and any negotiated "escape" provisions	• Some local funding required. • Some local liability exposure. • CIP final decisions made by State. • CIP priorities established on a statewide rather than local basis. • State would retain some veto authority over local decisions regarding airport development, land use, and operations. • Some municipal staffing would be necessary.
MSB Ownership and Operation	• 100 percent local control over airport development, land use, and operations (subject to FAA requirements) • CIP decisions made locally • CIP priorities established locally	• Local obligation to operate the airport is continuous and essentially permanent. • MSB would be responsible for all airport liabilities (damage, injuries, revenue shortfall, etc.). • Some MSB staffing would be necessary.
Airport Authority or Commission Ownership and Operation (Airport authorities/commissions take many forms, most commonly being established by a single municipality, several municipalities in concert, or one or more port authorities.)	• 100 percent local control over airport development, land use, and operations (subject to FAA requirements) • CIP decisions made locally • CIP priorities established locally • Shields the local municipality from all or most direct airport liabilities • Provides the airport with a useful degree of separation from municipal government politics • Provides an aviation specialty focus, emphasizing successful airport development and operations • Requires no municipal personnel	• If the subject airport or airport system has limited potential for being financially self-supporting, the authority/commission must have the financial backing of the forming entity (municipality, port authority, etc.), in which case the forming entity will retain some exposures to airport financial liabilities. • The forming entity must give up most of its control over airport development and operation to the airport authority/commission. • If the forming entity is obligated to the performance of FAA grant assurances, the FAA may not approve a complete transfer of that obligation to an airport authority.

8.2 Ownership and Operation by the State of Alaska

The DOT&PF is the airport-operating agency of the State of Alaska. Because it operates a system of over 250 public airports, including the eight existing State-owned airports in the MSB and has direct access to State funding, DOT&PF would appear to be well positioned to build, own, and operate any new publicly operated aviation facility constructed within the MSB. However, based on current DOT&PF policies and practices, it is highly unlikely that DOT&PF would take on the responsibility for ownership and operation of any new public airport in the MSB.

In areas with direct access to the State highway system, DOT&PF views the highway system as meeting the essential transportation needs of the area. Except for ANC and Fairbanks International Airport, DOT&PF considers airports located on the highway system to be transportation facilities of secondary significance; locally important, perhaps, but not essential when evaluated on a statewide basis. As a result, the department gives highest priority to the funding of capital improvements and facility operations to State airports that are located off the highway system. All of the locations considered in this report for additional publicly operated aviation facilities in the MSB are on the highway system, so DOT&PF would rate them as having a low priority for funding as State airports. In this regard, it is interesting to consider the fact that since 1996, DOT&PF spent zero federal funds at the Big Lake Airport, $3.0 million at Talkeetna Airport, and $700,000 at Willow Airport. By comparison, the Cities of Palmer and Wasilla, which were not hindered by DOT&PF's off-highway funding priorities, each spent federal CIP funds in excess of $7 million at their respective airports.

Within the MSB, DOT&PF already has seven State airports on the highway system (Talkeetna, Willow, Big Lake, Goose Bay, Sheep Mountain, Summit and Lake Louise). All have been in the State's airport inventory for decades. Within the scope of limited funding available for airport operations and capital improvements, constructing and operating new State airports in the MSB may reduce the funding available for these seven existing airports. DOT&PF is unlikely to build and operate new State airports in the MSB if doing so would reduce the funding available for existing State airports.

Therefore, while DOT&PF is theoretically a candidate for owning and operating a new publicly operated airport in the MSB, under current policies and practices, the department is not likely to accept responsibility for building and operating such a facility.

8.3 State Ownership and Local Operation

This alternative is subject to the same funding priority limitations as the State Ownership and Operation alternative discussed under 8.2, but it has sufficient potential for success to be considered. This alternative contemplates a new aviation facility being constructed and owned by DOT&PF, but leased to the MSB or a local airport authority/commission for operation. The Ketchikan Gateway Borough has operated the Ketchikan International Airport continuously since the early 1970s under exactly this kind of arrangement with the State. The primary benefit to the local entity is being able to have control over the day-to-day operations of the airport without having to assume total responsibility for its construction and ownership. The benefit to the State is that the local entity assumes all or most of the airport's operating costs.

Since, as explained in 8.2, a new airport in the MSB would rank low in DOT&PF's funding priorities, its construction would not likely proceed, even with a local entity ready and willing to lease the completed facility.

As indicated in Table 19, this alternative has some significant disadvantages for the local entity that leases the new airport, but it would allow the MSB or a local airport authority/commission to begin operating airports without having to assume total and permanent responsibility.

8.4 Ownership and Operation by the MSB

Subject to FAA requirements, this alternative provides for total local control of airport construction, operation, and land use. This would be a situation similar to that of the Palmer and Wasilla Airports where the respective city is the sole owner and operator of its local airport. As an airport sponsor independent of DOT&PF's State airport funding priorities, the MSB could obtain FAA project funding without being hindered by the new airport's location in an area served by the highway system. The primary disadvantages of this alternative are:

1. The MSB would have to assume full responsibility for all operating costs and liabilities for the airport. If airport revenue fell short of meeting operating costs, the MSB would have to use general budget funds to make up the difference.

2. The MSB would have to start with little or no institutional experience in operating an airport. Although hiring a competent airport manager could alleviate much of this, the "learning curve" for MSB officials inexperienced in airports would still be steep.

8.5 Airport Authority or Commission Ownership and Operation

In the Lower 48, the operation of airports by an airport authority or airport commission is a common practice. Although they take many different forms, the typical airport authority structure usually differs from that of an airport commission in that the former is almost always financially and politically independent of local government, while the latter tends to be a semi-independent element within local government. Typically, an authority structure is only used for airports that are, or have the potential to be, financially self-sufficient, while the commission structure is often used for airports that require an operating subsidy from local government. Most airport authorities hold title to the airport lands and buildings, while title to commission-operated airports is usually retained by the city or county that formed the commission. Both structures are successfully used for the operation of a single airport or a system of several airports.

(Note: An airport advisory board or commission that makes recommendations to a City Council or other local government entity is *not* what is contemplated in the use of "airport commission" here. A true airport commission has full authority to operate the airport and establish rules and fees for its use. Typically, an airport commission's decisions are not subject to the approval by the city council or other local government entity, except in the case of commissioner appointments, subsidy appropriations, sale of airport real property, or the incursion of debt. In some localities, an airport commission's annual operating budget is subject to the approval of the city or county under which it operates.)

Most airport authorities and commissions are formed by a single local government. However, some have been organized by multiple local entities working in concert. For example, McAllister Field, the airport that serves the Yakima, Washington, area was operated jointly by

the local city and county before the two local governments formed a commission to take over the airport. Although the airport is usually self-sufficient, the city and county share equally in the cost of any operating subsidy that may be required.

The Pullman-Moscow Regional Airport in Pullman (Washington) is an example of an unusually diverse airport commission formed by the Cities of Pullman (Washington) and Moscow (Idaho), the counties of Latah (Idaho) and Whitman (Washington), the University of Idaho, and Washington State University.

The Juneau International Airport is operated by a commission called the Juneau International Airport Board. The Assembly of the City and Borough of Juneau appoints airport board members and must approve the airport's annual operating budget. Otherwise, the airport board functions as the sole operator of the airport.

The Metropolitan Airport Commission (Minneapolis-Saint Paul) is a notable example of a single commission operating a system of several airports. The Metropolitan Airport Commission operates the Minneapolis-Saint Paul International Airport and six reliever/general aviation airports in the region, one of the most financially successful airport systems in the U.S.A.

The airport authority or commission alternative has two significant advantages over direct local government operation of an airport. The first is specialization. Airports are unique facilities that require specialized expertise to achieve operational success. Because an airport authority or commission has a single focus on managing, marketing, and operating the airport, it attracts and develops airport expertise in a way that is seldom possible within the multi-discipline operation of a local government.

The second advantage is that an authority or commission is insulated from the non-aviation related political pressures that can influence the decisions of a local government to the detriment of the long-term success of the airport.

In the case of a new publicly operated airport in the MSB, an authority or commission could be set up by the MSB to build and operate the facility. Since a new airport is not likely to be financially self-sufficient, at least initially, the commission structure would probably be a better choice than an airport authority.

A system of several airports operated by a commission could enjoy economies of scale in the purchase of equipment and materials, allocation of personnel, and the acquiring of contract services. In addition, the revenue generated by all the airports can be pooled to cover the operating costs of the airport system. Thus, a revenue surplus at one airport can be used to help offset shortfalls at other airports in the system. In the MSB, such a system could be developed by construction of new airport facilities and the transfer of some or all of the State airports in the borough. The transfer of State airports to an MSB airport commission would be a negotiated arrangement in which the MSB may be able to obtain start-up assistance from the State as transfer incentives, such as: airport upgrades prior to transfer, a State operating subsidy that is gradually phased out over time, no-cost transfer of State airport maintenance facilities and equipment, and insurance co-marketing.

Of the ownership and operation alternatives considered here, the airport authority/commission may be the best choice for the operation of a new publicly operated aviation facility in the MSB because it could provide maximum local control (as compared to the DOT&PF alternatives) and a high level of airport expertise and aviation focus (as compared to the MSB alternative). This would be especially true if the operation of a system of multiple airports were to be contemplated because the diverse traffic demands and operational needs of several airports would make the requirement for aviation expertise and focus more critical.

8.6 Airport Self-sufficiency under Local Control

The sponsor assurances of FAA airport improvement grants require the airport operator to establish rates, fees, and policies that will make the airport as financially self-sufficient as possible. Aside from that requirement, airport self-sufficiency is an especially desirable goal if the operator is a local government because the airport can function without having to be supported with general tax revenue.

As a mini-system, the State-owned airports within the MSB are not financially self-sufficient. This is not necessarily because of the absence of significant revenue-generating possibilities. As the operator of a huge system of airports, most of which are village airstrips with little or no economic potential, DOT&PF generally takes a passive approach to revenue generation. Except occasionally at the international airports in Anchorage and Fairbanks, DOT&PF does virtually no airport marketing and very little revenue-generating innovation. If a company or individual wants to lease land at an airport and pay rent, DOT&PF is happy to oblige them, but the department rarely goes out looking for new airport revenue opportunities.

Generically speaking, if the existing State airports in the MSB were locally operated and given more focused attention, a much more aggressive revenue-generating approach would be possible. For example, the Willow Airport includes a substantial amount of highway frontage land that could be leased for aviation-support and non-aviation uses. The airport also has a significant amount of undeveloped land with aviation use potential. Actively marketing these lands could generate significant revenue. Even the Sheep Mountain Airport, which is largely overlooked by DOT&PF, has the potential for leasing sites for fly-in cabins and other recreation/tourist oriented uses.

For any new public airport facility that may be developed in the MSB, it should be kept in mind that general aviation airports are seldom made financially self-sufficient solely on the basis of revenue from aviation users. Typically, the shortfall between airport operating costs and revenue from aviation fees and rent is made up by revenue from non-aviation leases or by a local government subsidy. It is a great financial advantage for an airport operator to have land within the airport that is not essential for aviation uses and can be leased for non-aviation development. This is because, relatively speaking, non-aviation uses can produce significant revenue while generating few costs for the airport. For example, the potential for the financial self-sufficiency of a new airport in the Upper Susitna area would be greatly enhanced if the airport site included highway frontage land that could be leased for highway/tourist oriented service businesses. The airport operator would have few operating costs related to such leases, yet significant revenue could be produced to help offset airport operating costs.

These are general observations based on professional experience. DOWL has not conducted a detailed analysis of the unexploited revenue-generating potential of each State airport in the MSB or of the non-aviation revenue potential of a new Upper Susitna Airport.

APPENDIX A

Detailed Cost Estimates

Unit Prices		**Project Name/Date**					
		Glenn 100-109	KGB	Parks 67-72	Parks 325-351	Parks 42-44	**Use**
	Units	2002	2003	2003	2005	2007	
Property Acquisition	AC						
Clearing	AC	$ 2,400	$ 3,000	$ 2,800			**$ 5,000**
Runway construction	CY	$ 5	$ 9	$ 8	$ 30	$ 20	**$ 30**
Floatplane pond	CY	$ 5	$ 5	$ 4		$ 8	**$ 10**
Apron and taxiways	CY	$ 5	$ 9	$ 8	$ 30	$ 20	**$ 30**
Lease lot development	CY	$ 5	$ 9	$ 8	$ 30	$ 20	**$ 30**
Roadways	MILE						**$ 1,000,000**
Utilities	LS						**$ 500,000**
Pond Liner	SF						**$ 1.5**
RW Pavement - Oil	TN	$ 200	$ 200	$ 250	$ 300	$ 450	**$ 500**
RW Pavement - Aggregate	TN	$ 30	$ 50	$ 25	$ 40	$ 70	**$ 75**
RW Lights Navaids	LS						**$ 750,000**
Mobilization	LS						**10%**

Goose Bay Cost Estimate - Alt A

Item	Area (sf)	Thickness (ft)	Quantity	Units	Unit Cost	Item Cost
Short Term						
Property Acquisition	850000	0	20	AC	$50,000	$975,666
Clearing	1400000		32	AC	$5,000	$160,698
Runway - fill	0		-	CY	$30	$0
Runway - lights and navaids			1	LS	$750,000	$750,000
Floatplane pond - excavation	1000000	8	296,296	CY	$10	$2,962,963
Floatplane pond - liner	1000000		1,000,000	SF	$1.5	$1,500,000
Apron and taxiways - fill	1000000	4	148,148	CY	$30	$4,444,444
Lease lot development - fill	650000	4	96,296	CY	$30	$2,888,889
Roadways			0.5	MI	$1,000,000	$500,000
Utilities			1	LS	$500,000	$500,000
					Subtotal	$14,700,000
					Mobilization	$1,500,000
					Design	$2,200,000
					Environmental	$500,000
					Const Mgt	$2,200,000
					Total	$21,100,000
					With 25% Contingency	**$ 26,375,000**
Long Term						
Property Acquisition	570000		13	AC		$0
Clearing	1950000		45	AC	$5,000	
Runway extension - fill*	701000	10	259,630	CY	$30	$7,788,889
Runway extension - asphalt*	600000	0.5	22,222	TN	$96	$2,138,889
Apron and taxiways - fill		4	-	CY	$30	$0
Apron and taxiways - asphalt	1000000	0.5	37,037	TN	$96	$3,564,815
Lease lot development - fill		4	-	CY	$30	$0
* Only a 5,000 foot future runway					Subtotal	$13,500,000
					Mobilization	$1,400,000
					Design	$2,000,000
					Environmental	$500,000
					Const Mgt	$2,000,000
					Total	$19,400,000
					With 25% Contingency	**$ 24,250,000**

Goose Bay Cost Estimate - Alt B

Item	Area (sf)	Thickness (ft)	Quantity	Units	Unit Cost	Item Cost
Short Term						
Property Acquisition		0	-	AC	$0	$0
Clearing	9310000		214	AC	$5,000	$1,068,641
Runway - fill	0		-	CY	$30	$0
Runway - lights and navaids			1	LS	$750,000	$750,000
Floatplane pond - excavation	1920000	8	568,889	CY	$10	$5,688,889
Floatplane pond - liner	1920000		1,920,000	SF	$1.5	$2,880,000
Apron and taxiways - fill	1000000		-	CY	$30	$0
Lease lot development - fill	800000	4	118,519	CY	$30	$3,555,556
Roadways			0.8	MI	$1,000,000	$800,000
Utilities			1	LS	$500,000	$500,000
					Subtotal	$15,200,000
					Mobilization	$1,500,000
					Design	$2,300,000
					Environmental	$500,000
					Const Mgt	$2,300,000
					Total	$21,800,000
					With 25% Contingency	**$ 27,250,000**
Long Term						
Property Acquisition	570000		13	AC	$50,000	$654,270
Clearing	1950000		45	AC	$5,000	$223,829
Runway extension - fill*	701000	10	259,630	CY	$30	$7,788,889
Runway extension - asphalt*	600000	0.5	22,222	TN	$96	$2,138,889
Apron and taxiways - fill		4	-	CY	$30	$0
Apron and taxiways - asphalt	1000000	0.5	37,037	TN	$96	$3,564,815
Lease lot development - fill		4	-	CY	$30	$0
* Only a 5,000 foot future runway					Subtotal	$14,400,000
					Mobilization	$1,400,000
					Design	$2,200,000
					Environmental	$500,000
					Const Mgt	$2,200,000
					Total	$20,700,000
					With 25% Contingency	**$ 25,875,000**

Big Lake Cost Estimate

Item	Area (sf)	Thickness (ft)	Quantity	Units	Unit Cost	Item Cost
Short Term						
Property Acquisition*	5210000	0	120	AC	$0	$0
Clearing	7930000		182	AC	$5,000	$910,239
Runway - fill	0		-	CY	$30	$0
Runway - lights and navaids	0		-	LS	$750,000	$0
Floatplane pond - excavation	1870000	8	554,074	CY	$10	$5,540,741
Floatplane pond - liner	1870000		1,870,000	SF	$1.5	$2,805,000
Apron and taxiways - fill	0		-	CY	$30	$0
Lease lot development - fill	400000	4	59,259	CY	$30	$1,777,778
Roadways			0.7	MI	$1,000,000	$700,000
Utilities			1	LS	$500,000	$500,000
					Subtotal	$12,200,000
					Mobilization	$1,200,000
					Design	$1,800,000
					Environmental	$500,000
					Const Mgt	$1,800,000
					Total	$17,500,000
					With 25% Contingency	**$ 21,875,000**
Long Term						
Property Acquisition**	2590000		59	AC	$10,000,000	$10,000,000
Clearing	0		-	AC	$5,000	$0
Runway extension - fill	1380000	6	306,667	CY	$30	$9,200,000
Runway extension - asphalt	600000	0.5	22,222	TN	$96	$2,138,889
Apron and taxiways - fill	1000000	4	148,148	CY	$30	$4,444,444
Apron and taxiways - asphalt	1000000	0.5	37,037	TN	$96	$3,564,815
Lease lot development - fill	400000	4	59,259	CY	$30	$1,777,778
* Assumes a land swap with the MSB and State for no cost.					Subtotal	$31,100,000
** Half of land is residential, half is commercial					Mobilization	$3,100,000
					Design	$4,700,000
					Environmental	$500,000
					Const Mgt	$4,700,000
					Total	$44,100,000
					With 25% Contingency	**$ 55,125,000**

7 mile Cost Estimate - Alt A

Item	Area (sf)	Thickness (ft)	Quantity	Units	Unit Cost	Item Cost
Short Term						
Property Acquisition	0		-	AC	$0	$0
Clearing	8790000		202	AC	$5,000	$1,008,953
Runway - fill	585000	8	173,333	CY	$30	$5,200,000
Runway - lights and navaids			1	LS	$750,000	$750,000
Floatplane pond - excavation	220000	10	81,481	CY	$10	$814,815
Floatplane pond - liner	0		-	SF	$1.5	$0
Apron and taxiways - fill	1700000	4	251,852	CY	$30	$7,555,556
Lease lot development - fill	400000	4	59,259	CY	$30	$1,777,778
Roadways			2.0	MI	$1,000,000	$2,000,000
Utilities			1	LS	$500,000	$500,000
					Subtotal	$19,600,000
					Mobilization	$2,000,000
					Design	$2,900,000
					Environmental	$500,000
					Const Mgt	$2,900,000
					Total	$27,900,000
					With 25% Contingency	**$ 34,875,000**
Long Term						
Property Acquisition	2150000		49	AC	$50,000	$2,467,860
Clearing	1816000		42	AC	$5,000	$208,448
Runway extension - fill	930000	10	344,444	CY	$30	$10,333,333
Runway extension - asphalt	600000	0.5	22,222	TN	$96	$2,138,889
Apron and taxiways - fill	0	4	-	CY	$30	$0
Apron and taxiways - asphalt	1700000	0.5	62,963	TN	$96	$6,060,185
Lease lot development - fill	0	4	-	CY	$30	$0
					Subtotal	$21,200,000
					Mobilization	$2,100,000
					Design	$3,200,000
					Environmental	$500,000
					Const Mgt	$3,200,000
					Total	$30,200,000
					With 25% Contingency	**$ 37,750,000**

7 mile Cost Estimate - Alt B

Item	Area (sf)	Thickness (ft)	Quantity	Units	Unit Cost	Item Cost
Short Term						
Property Acquisition	0		-	AC	$0	$0
Clearing	8970000		206	AC	$5,000	$1,029,614
Runway - fill	585000	8	173,333	CY	$30	$5,200,000
Runway - lights and navaids			1	LS	$750,000	$750,000
Floatplane pond - excavation	220000	10	81,481	CY	$10	$814,815
Floatplane pond - liner	0		-	SF	$1.5	$0
Apron and taxiways - fill	1700000	4	251,852	CY	$30	$7,555,556
Lease lot development - fill	400000	4	59,259	CY	$30	$1,777,778
Roadways			3.2	MI	$1,000,000	$3,200,000
Utilities			1	LS	$500,000	$500,000
					Subtotal	$20,800,000
					Mobilization	$2,100,000
					Design	$3,100,000
					Environmental	$500,000
					Const Mgt	$3,100,000
					Total	$29,600,000
					With 25% Contingency	**$ 37,000,000**
Long Term						
Property Acquisition	408000		9	AC	$50,000	$468,320
Clearing	1842000		42	AC	$5,000	
Runway extension - fill	930000	10	344,444	CY	$30	$10,333,333
Runway extension - asphalt	600000	0.5	22,222	TN	$96	$2,138,889
Apron and taxiways - fill	0	4	-	CY	$30	$0
Apron and taxiways - asphalt	1700000	0.5	62,963	TN	$96	$6,060,185
Lease lot development - fill	0	4	-	CY	$30	$0
					Subtotal	$19,000,000
					Mobilization	$1,900,000
					Design	$2,900,000
					Environmental	$500,000
					Const Mgt	$2,900,000
					Total	$27,200,000
					With 25% Contingency	**$ 34,000,000**

Mile 121 Cost Estimate - Alt A

Item	Area (sf)	Thickness (ft)	Quantity	Units	Unit Cost	Item Cost
Short Term						
Property Acquisition	0		-	AC	$0	$0
Clearing	7825000		180	AC	$5,000	$898,186
Runway - fill	585000	8	173,333	CY	$30	$5,200,000
Runway - lights and navaids			1	LS	$750,000	$750,000
Apron and taxiways - fill	1000000	4	148,148	CY	$30	$4,444,444
Lease lot development - fill	400000	4	59,259	CY	$30	$1,777,778
Roadways			0.1	MI	$1,000,000	$100,000
Utilities			1	LS	$500,000	$500,000
					Subtotal	$13,700,000
					Mobilization	$1,400,000
					Design	$2,100,000
					Environmental	$500,000
					Const Mgt	$2,100,000
					Total	$19,800,000
					With 25% Contingency	**$ 24,750,000**
Long Term						
Property Acquisition	0		-	AC		$0
Clearing	2350000		54	AC	$5,000	
Runway extension - fill	930000	10	344,444	CY	$30	$10,333,333
Runway extension - asphalt	600000	0.5	22,222	TN	$96	$2,138,889
Apron and taxiways - fill	0	4	-	CY	$30	$0
Apron and taxiways - asphalt	1000000	0.5	37,037	TN	$96	$3,564,815
Floatplane pond - excavation		10	-	CY	$10	$0
Floatplane pond - liner	0		-	SF	$1.5	$0
Lease lot development - fill	0	4	-	CY	$30	$0
					Subtotal	$16,000,000
					Mobilization	$1,600,000
					Design	$2,400,000
					Environmental	$500,000
					Const Mgt	$2,400,000
					Total	$22,900,000
					With 25% Contingency	**$ 28,625,000**

Mile 121 Cost Estimate - Alt B

Item	Area (sf)	Thickness (ft)	Quantity	Units	Unit Cost	Item Cost
Short Term						
Property Acquisition	0		-	AC	$0	$0
Clearing	7825000		180	AC	$5,000	$898,186
Runway - fill	585000	8	173,333	CY	$30	$5,200,000
Runway - lights and navaids			1	LS	$750,000	$750,000
Apron and taxiways - fill	1000000	4	148,148	CY	$30	$4,444,444
Lease lot development - fill	400000	4	59,259	CY	$30	$1,777,778
Roadways			0.1	MI	$1,000,000	$100,000
Utilities			1	LS	$500,000	$500,000
					Subtotal	$13,700,000
					Mobilization	$1,400,000
					Design	$2,100,000
					Environmental	$500,000
					Const Mgt	$2,100,000
					Total	$19,800,000
					With 25% Contingency	**$ 24,750,000**
Long Term						
Property Acquisition	0		-	AC		$0
Clearing	2350000		54	AC	$5,000	
Runway extension - fill	930000	10	344,444	CY	$30	$10,333,333
Runway extension - asphalt	600000	0.5	22,222	TN	$96	$2,138,889
Apron and taxiways - fill	0	4	-	CY	$30	$0
Apron and taxiways - asphalt	1000000	0.5	37,037	TN	$96	$3,564,815
Floatplane pond - excavation		10	-	CY	$10	$0
Floatplane pond - liner	0		-	SF	$1.5	$0
Lease lot development - fill	0	4	-	CY	$30	$0
					Subtotal	$16,000,000
					Mobilization	$1,600,000
					Design	$2,400,000
					Environmental	$500,000
					Const Mgt	$2,400,000
					Total	$22,900,000
					With 25% Contingency	**$ 28,625,000**

Mile 121 Cost Estimate - Alt C

Item	Area (sf)	Thickness (ft)	Quantity	Units	Unit Cost	Item Cost
Short Term						
Property Acquisition	0		-	AC	$0	$0
Clearing	7825000		180	AC	$5,000	$898,186
Runway - fill	585000	8	173,333	CY	$30	$5,200,000
Runway - lights and navaids			1	LS	$750,000	$750,000
Apron and taxiways - fill	1000000	4	148,148	CY	$30	$4,444,444
Lease lot development - fill	400000	4	59,259	CY	$30	$1,777,778
Roadways			0.1	MI	$1,000,000	$100,000
Utilities			1	LS	$500,000	$500,000
					Subtotal	$13,700,000
					Mobilization	$1,400,000
					Design	$2,100,000
					Environmental	$500,000
					Const Mgt	$2,100,000
					Total	$19,800,000
					With 25% Contingency	**$ 24,750,000**
Long Term						
Property Acquisition	0		-	AC		$0
Clearing	2350000		54	AC	$5,000	
Runway extension - fill	930000	10	344,444	CY	$30	$10,333,333
Runway extension - asphalt	600000	0.5	22,222	TN	$96	$2,138,889
Apron and taxiways - fill	0	4	-	CY	$30	$0
Apron and taxiways - asphalt	1000000	0.5	37,037	TN	$96	$3,564,815
Floatplane pond - excavation		10	-	CY	$10	$0
Floatplane pond - liner	0		-	SF	$1.5	$0
Lease lot development - fill	0	4	-	CY	$30	$0
					Subtotal	$16,000,000
					Mobilization	$1,600,000
					Design	$2,400,000
					Environmental	$500,000
					Const Mgt	$2,400,000
					Total	$22,900,000
					With 25% Contingency	**$ 28,625,000**

Mile 131 Cost Estimate

Item	Area (sf)	Thickness (ft)	Quantity	Units	Unit Cost	Item Cost
Short Term						
Property Acquisition	0		-	AC	$0	$0
Clearing	5620000		129	AC	$5,000	$645,087
Runway - fill	585000	8	173,333	CY	$30	$5,200,000
Runway - lights and navaids			1	LS	$750,000	$750,000
Apron and taxiways - fill	1000000	4	148,148	CY	$30	$4,444,444
Lease lot development - fill	400000	4	59,259	CY	$30	$1,777,778
Roadways			0.1	MI	$1,000,000	$100,000
Utilities			1	LS	$500,000	$500,000
					Subtotal	$13,400,000
					Mobilization	$1,300,000
					Design	$2,000,000
					Environmental	$500,000
					Const Mgt	$2,000,000
					Total	$19,200,000
					With 25% Contingency	**$ 24,000,000**
Long Term						
Property Acquisition	0		-	AC		$0
Clearing	2670000		61	AC	$5,000	$306,474
Runway extension - fill	930000	10	344,444	CY	$30	$10,333,333
Runway extension - asphalt	600000	0.5	22,222	TN	$96	$2,138,889
Apron and taxiways - fill	0	4	-	CY	$30	$0
Apron and taxiways - asphalt	1000000	0.5	37,037	TN	$96	$3,564,815
Floatplane pond - excavation	220000	10	81,481	CY	$10	$814,815
Floatplane pond - liner	0		-	SF	$1.5	$0
Lease lot development - fill	0	4	-	CY	$30	$0
* Floatplane pond would be a long-term option not included in Mile 121 Alt.					Subtotal	$17,200,000
					Mobilization	$1,700,000
					Design	$2,600,000
					Environmental	$500,000
					Const Mgt	$2,600,000
					Total	$24,600,000
					With 25% Contingency	**$ 30,750,000**


Peters Creek
Talkeetna
Sunshine
Montana
Caswell
McDougall
Willow
Susitna
Houston
Wasilla
Palmer
Alexander
Eklutna
Eagle River
Birchwood
Jonesville
Esko
DOWL HKM

MATANUSKA-SUSITNA BOROUGH

Regional Aviation System Plan and Location Study

APPENDICES

August 2008

APPENDIX A

Forecast Details

Forecast of Aviation Activity in the Matanuska-Susitna Borough

Socioeconomic Profile of Matanuska Susitna Borough

The Matanuska Susitna Borough (MSB) incorporates 24,683 square miles in Southcentral Alaska, north of the Municipality of Anchorage, south of the Denali Borough, and follows the Glenn Highway east to Lake Louise, nearly reaching the Valdez-Cordova Census Area. The area includes the Alaska, Chugach, and Talkeetna mountain ranges, valleys of the Matanuska and Susitna watersheds, and the major drainages of the Susitna, Matanuska, Knik, and Talkeetna Rivers. Incorporated in 1964 as a Second Class Borough, the borough's 2005 estimated population was 74,041. At this time, only three communities in the MSB are incorporated – Houston, Palmer and Wasilla. In addition, 25 community councils are currently recognized by the MSB.

Transportation infrastructure within the borough includes state highways, the Alaska Railroad, and public and privately owned aviation facilities. Two major highways connect the MSB to Anchorage (about 35 miles away), the Parks Highway to the west and the Glenn Highway to the east. The Alaska Railroad links Anchorage to Fairbanks. Most of the 356-mile route crosses the borough, stopping at the South Palmer, Wasilla, and Talkeetna depots, with flag stops at Chase, Curry, Sherman, Gold Creek, Canyon/Indian River, Chulitna, and Hurricane. Of the publicly-owned and operated airports, eight are state owned, and two are municipal owned. Over 200 private airstrips and floatplane facilities are located in the borough.

The area first attracted outside laborers and workers to engage in coal and gold mining, and the construction of the Alaska railroad in the 1920s. Homesteaders and farmers also came to the area in the 1930s boosting the region's population. Expanded farming and the connection to Anchorage, along with the continental road system fueled further expansion. As the economy of the state and especially of Anchorage has grown, so has the population of the borough, which is only about an hour's drive from Anchorage. Because of diverse housing options and available land, the borough is experiencing continued population growth.

While there is still some mining and agriculture activity in the borough, most of the economy is based on supporting the resident population. Only about 55% of the workers residing in the borough also work in the borough. About 34% of borough residents working are employed in Anchorage. Recreation and tourism is also a strong economic sector in the area.

Population

The estimated 2005 population of the borough was 74,041, nearly 88% of which was white. In 2005, the median age of borough residents was 34.6 years, and 22,221 residents (about 30%) were under 18 years old. About 7% of borough residents (4,982) were aged 65 and older in 2005. The average household size for borough residents in 2000 was 2.84 persons.

The annual per capita personal income for borough residents in 2004 was $29,376. The borough ranked 16th in the state for per capita personal income, and that income was 86% of the statewide average of $34,000 and 89% of the national average of $33,050 in that year.

The borough has one of the fastest growing populations in the state, showing an annual average growth rate of 4.3% between 2000 and 2005 compared to a 1.1% growth rate state wide. Between 2000 and 2005, the borough gained 14,719 residents, more than the population of most communities in the state. Over 80% of that increase was due to net migration (immigration minus out migration), and less than 20% was due to natural increase (births minus deaths). Net migration for the entire state was negative over the same time period. The following table presents population change in the borough from 1960 to 2005. The rate of population growth has slowed over time compared to the rapid pace in the 1970s and 1980s, but the borough is still one of the fastest growing areas of the state.

Table 1
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 U.S. Bureau of Census

The MSB contains 28 officially recognized communities, three of which are incorporated. The following table presents population by Census Designated Place (CDP) in the borough for 2000 to 2005. A CDP can contain one or more communities.

Table 2
Matanuska-Susitna Borough Population by Place
2000 to 2005

							Change	
	2005	**2004**	**2003**	**2002**	**2001**	**2000**	**2004-05**	**2000-05**
Mat-Su Borough	74,041	70,482	67,841	64,329	61,737	59,322	5.0%	4.1%
Big Lake CDP	2,982	2,929	2,925	2,706	2,616	2,635	1.8%	2.2%
Butte CDP	3,101	2,979	2,470	2,785	2,736	2,561	4.1%	3.5%
Farm Loop CDP	1,193	1,145	1,175	1,165	1,083	1,067	4.2%	2.0%
Fishhook CDP	2,784	2,645	2,379	2,243	2,191	2,030	5.3%	6.2%
Gateway CDP	3,682	3,572	3,339	3,215	3,118	2,952	3.1%	4.1%
Houston city	1,447	1,374	1,367	1,262	1,160	1,202	5.3%	3.4%
Knik-Fairview CDP	10,271	9,268	8,665	8,002	7,639	7,049	10.8%	7.6%
Lakes CDP	7,773	7,484	7,129	6,928	6,816	6,706	3.9%	2.7%
Lazy Mountain CDP	1,238	1,232	1,216	1,192	1,178	1,158	0.5%	1.2%
Meadow Lakes CDP	6,332	5,957	5,645	5,281	5,041	4,819	6.3%	5.2%
Palmer city	5,382	5,226	5,321	4,838	4,583	4,533	3.0%	3.1%
Sutton-Alpine CDP	1,265	1,164	1,172	1,142	1,111	1,080	8.7%	2.9%
Tanaina CDP	6,622	6,301	5,933	5,601	5,264	4,993	5.1%	5.4%
Wasilla city	6,413	6,148	6,460	5,949	5,517	5,469	4.3%	2.9%
Willow CDP	1,932	1,863	1,834	1,718	1,666	1,658	3.7%	2.8%
Y CDP	1,063	1,078	1,051	994	998	956	-1.4%	1.9%
Remainder	9,498	9,039	8,709	8,314	8,022	7,498	5.1%	4.4%

Source: Alaska Department of Labor and Workforce Development.
CDP = Census Designated Place. A CDP can contain one or more communities.

Table 2 shows the average annual rates of growth in the cities and CDPs within the borough between 2000 and 2005. Between 2004 and 2005, the fastest growing areas were Knik-Fairview CDP (10.8% annual growth), Sutton-Alpine CDP (8.7% annual growth), and Meadow Lakes (6.3% annual growth).

Economic Activity

The economy of the borough is somewhat defined by the fact that the area is close to Anchorage, yet has more available land for housing, and lower housing prices. In 2003 (the latest full year for which data is available), only 55% of the workers who lived in the borough worked in the borough. About 34% of those borough residents worked in Anchorage, while the other 11% of employed borough residents worked in places such as the North Slope and the Fairbanks North Star Boroughs in that year.

The following table presents number of businesses, average annual employment and earnings by industry for the borough in 2004. The majority of the jobs are within the service producing industries, some of the largest industries being retail sales and health

care. These support industries serve an existing resident population, and create limited revenue and business from outside the local areas.

Table 3
Employment and Earnings in the Matanuska-Susitna Borough
by Industry for 2004

Industry	Number of Businesses	Average Annual Employment	Total Wages	Average Monthly Wages
Total Industries	1,644	16,087	$498,871,825	$2,584
Total Government	82	3,426	$134,537,191	$3,272
Federal Government	19	192	$10,743,301	$4,673
State Government	52	963	$36,291,399	$3,141
Local Government	11	2,272	$87,502,491	$3,209
Total Private Industry	1,562	12,660	$364,334,634	$2,398
Goods Producing	459	2,067	$77,231,969	$3,114
Natural Resources & Mining	19	117	$4,263,830	$3,050
Agriculture	11	69	$1,002,680	$1,220
Mining	8	48	$3,261,150	$5,662
Construction	399	1,736	$65,668,127	$3,153
Manufacturing	41	214	$7,300,013	$2,839
Service Providing	1,103	10,594	$287,102,664	$2,259
Trade, Transportation and Utilities	283	3,728	$101,412,191	$2,267
Wholesale Trade	27	108	NA	NA
Retail Trade	194	2,928	$73,678,800	$2,097
Transportation and Warehousing	58	543	$14,223,797	$2,183
Utilities	4	148	NA	NA
Information	24	520	$27,492,487	$4,404
Financial Activities	95	551	$17,833,922	$2,698
Professional and Business Services	176	894	$28,063,001	$2,616
Education and Health Services	171	2,424	$74,649,771	$2,566
Education Services	14	263	$9,562,524	$3,031
Health Care and Social Assistance	157	2,161	$65,087,247	$2,510
Leisure and Hospitality	216	1,917	$26,721,443	$1,161
Arts, Entertainment and Recreation	46	272	$4,391,909	$1,345
Accommodation and Food Services	170	1,645	$22,329,534	$1,131
Accommodation	46	447	$8,324,529	$1,551
Food Services and Drinking Places	124	1,198	$14,005,005	$975
Other Services	130	550	$10,742,647	$1,628

Source: Alaska Department of Labor and Workforce Development.

industries in the borough are those that support the resident population. Only three of the fastest growing industries receive most of their revenue from outside of the borough (Leisure and Hospitality, Manufacturing, and Natural Resources & Mining) and will be addressed later in this report.

Table 4
Job Growth in the Matanuska-Susitna Borough
between 2000 and 2004

Industry	New Jobs
Health Care and Social Assistance	594
Leisure and Hospitality	594
Construction	573
Retail Trade	534
Government	384
Transportation and Warehousing	284
Professional Services	191
Financial Activities	183
Information	115
Manufacturing	96
Other Services	73
Natural Resources and Mining	48

Source: Mat-Su Comprehensive Economic Development Strategy, June 2006 update.

The fastest growing support industry sector in the borough is Health Care and Social Assistance. This industry is showing strong growth statewide as the industry matures and as the population of Alaska ages. As more medical care for borough residents is being provided locally, additional economic growth has occurred in this sector. Since these job growth figures were reported, a new medical facility (Matanuska-Susitna Regional Medical Center) and other medical facilities were built and opened. These facilities and others in the borough will continue to grow in the future.

Construction is another support sector showing strong growth in the borough. With continued housing development, public facilities construction, major commercial development, and upcoming road work within the borough, that sector will remain strong for years to come. Future 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 Crossing Bridge.

Recreation and Tourism

One of the fastest growing basic industries in the borough is recreation and tourism (called Leisure and Hospitality by Alaska Department of Labor and Workforce Development). The borough has abundant recreational opportunities, and is located between the two most populous areas of the state. Anchorage and Fairbanks area

residents travel to the borough year-round for recreation. In addition, the area is visited by travelers from out of state in group tours or traveling independently. Many visitors travel though the borough to reach Denali National Park, one of the most popular attractions in Alaska. In fact, the southern portion of Denali National Park and all of Denali State Park are within the borough boundaries. Many opportunities for sport fishing and hunting, cultural/historical experiences, and other recreational activities are found within the borough. Access to and through the borough is primarily via major roadways and rail facilitates. Remote areas are accessible only via riverboat or air, and many visitors use those transportation services to reach remote recreation areas and lodges.

Winter tourism is more prevalent in the borough than in most places in Alaska due to the large population centers on either side of the borough, and the major winter draw of the Iditarod sled dog race, which has its restart in Wasilla or Willow (depending on weather). The Hatcher Pass area already draws winter recreation enthusiasts, and a major development ($41 million) is being planned for that area that will encompass about 11,000 acres and will include nordic and alpine ski areas.

Summer visitation continues to grow, as evidenced by the recent addition of about 100 rooms in a major hotel south of Denali National Park. The Denali State Park (south of the National Park) has significant recreational developments planned, including a new visitor center on the west side of Curry Ridge. Although visitor counts in the borough are not available, the following table reflects the growth in visitation through growth in bed tax revenues to the MSB. The Matanuska-Susitna Visitor's Bureau estimates that there are about 1,500 rooms available to accommodate visitors in the borough in 2006. The bed tax of 5% has remained unchanged since it was implemented in 1990.

Table 5
Bed Taxes Collected
Mat-Su Borough, 1990 to 2005

Year	Taxes	% Change
1990	$46,551	
1991	$35,915	-22.8%
1992	$55,345	54.1%
1993	$72,055	30.2%
1994	$93,345	29.5%
1995	$121,778	30.5%
1996	$171,899	41.2%
1997	$242,835	41.3%
1998	$291,021	19.8%
1999	$349,119	20.0%
2000	$481,776	38.0%
2001	$542,345	12.6%
2002	$645,423	19.0%
2003	$684,615	6.1%
2004	$767,579	12.1%
2005	$829,545	8.1%

Source: Matanuska-Susitna Borough, 2006.

The community of Talkeetna has the closest public airport to Mt. McKinley (Denali). As one of the busiest airports in the region, the Talkeetna Airport hosts flightseeing tours, glacier landings, and mountaineering support and rescue operations. In addition, popular air tour destinations and custom air charters include area glaciers, remote fly-in hunting and fishing packages (into areas off the road system), especially at the Willow Airport.

Transportation and Industrial Development

The nearly 9,000-acre industrial and commercial port district at Point MacKenzie (across the Knik Arm north from the Port of Anchorage) continues to be developed. The Port MacKenzie District currently supports a large wood chipping and exporting operation, construction of remote housing modules, and pipeline pump station and electrical modules. Port development includes infrastructure to accommodate Panamax sized vessels to load and unload bulk materials and complement the containerized port facility at Anchorage. Access road and utilities upgrades, and the barge dock expansion at the port are also planned. Although full funding has not been obtained, the Knik Arm Bridge crossing proposal would span the Knik Arm from Point MacKenzie to Anchorage. This concept is currently being developed. In addition, a 120-passenger, 25-vehicle fast ferry is being built to cross the Knik Arm and land potentially near Ship Creek. Year-round operations are expected to begin during the summer of 2008. The Federal Transit Administration is providing about $17 million for the ferry terminal buildings, the Anchorage and Mat-Su landings, and the engineering, design, and furnishings aboard the ferry.

In addition to the facility improvements at Point MacKenzie, transportation projects include upgrade and expansion of both road and rail systems within the borough. With a generous amount of available land that is accessible to major road systems, the area is attractive for commercial and infrastructure development. Currently, sites are being sought within the borough for a major state prison.

Natural Resources

Although agricultural production and mining activities occur at lower levels than in the past, they still contribute to the economy of the borough. In addition, timber harvest and production occurs within the borough. While there are no fishing ports within borough boundaries, many borough residents participate in and benefit from fish harvest and processing.

Agriculture

Agricultural production in the borough has declined over time, yet the Matanuska Susitna region still produces about two-thirds of the agricultural value in the state. The value of agricultural production in the Matanuska Valley in 2004 was $11.7 million, and includes production of crops and livestock (including dairy products). Some value-added processing of agricultural products occurs now, and the MSB is planning an agricultural processing and product development center. The University of Alaska has an experimental farm in the borough.

Mining

Mining activity in the borough has also declined, and current activity in the industry is mostly restricted to sand and gravel extraction. Some gravel deposits are located near the rail lines, and materials are shipped by rail to Anchorage for construction projects there. With the development of bulk shipment infrastructure at Point MacKenzie, even more sand and gravel is being shipped to the Anchorage area.

The borough has both hard rock and placer deposits of gold and associated metals, and large coal fields exist within borough boundaries. In addition, there has been interest in methane gas exploration and extraction in the borough, and natural gas pipelines are being considered. Increased prices of these raw materials could spur renewed exploration and production.

Timber Harvest and Processing

Harvestable timber within the borough is located mostly on MSB lands, State lands (including University of Alaska and Mental Health Trust lands), Native corporation lands and private lands. According to Alaska Department of Natural Resources' forest management plans, 11,250 acres of State forest land will be available for harvest between now and 2009. University of Alaska and Mental Health Trust lands are managed for revenue generation on a parcel by parcel basis, and could also be available for timber harvest at any time. The MSB has land suitable for timber harvest, but road access to the

areas would need to be developed. Clearing timber from these lands will make them available for further development.

While there is a large amount of timberland in the borough, the wood quality is generally low, and most suited for wood chips. One company began providing wood chips for export in 2005. Potential exists for added-value processing of chips locally into ethanol or other biomass fuels, or types of laminate or pressboard products. Demand for rough cut lumber for small local mills has decreased over time, although some is still being produced.

Fish Harvest and Processing

Although borough boundaries do not encompass any fishing ports, some of its residents travel outside the area to fish commercially. In 2004 (the latest year of information available), 254 borough residents held state commercial fishery permits, and 286 residents held fishing crew licenses. During that year, 171 borough residents fished 212 state permits, and caught 15,750,653 pounds of fish for a gross value of $8,211,716. It is likely that borough residents also engage in fisheries that occur in Federal waters, and are licensed by the Federal government, such as Federal halibut, sablefish and crab fisheries.

In addition to commercial fishing activity, 14 salt water fishing charter vessels, and 139 fresh water charter fishing vessels were licensed to operate in the borough in 2005. Three small fish processors are licensed to operate within the borough in 2006 – one each in Talkeetna, Wasilla, and Big Lake.

As long as the borough is a desirable place to live, commercial fishers will likely continue to live there and bring there fishery earnings back to the borough. The market for Alaska fish is strong, and it is likely that a commercial fishing contribution to the borough economy will continue. Changes in federal fisheries management in the Bering Sea and the Gulf of Alaska could have negative impacts on borough residents who commercial fish as consolidation in the industry occurs and fewer boats and fewer crew are required to harvest the allowable catch.

Government

The government sector employed nearly 3,500 people in the borough in 2004. The majority of those jobs are with local Borough or city governments (including school districts). State employment includes employment at the Denali State Park and the University of Alaska Mat-Su College campus, and Alaska Railroad employment in the borough. State government also includes the Department of Natural Resources Division of Forestry's firefighting operations for southern half of Alaska, located at the Palmer Airport. Firefighting flights at the Palmer Airport average about five flights per day for the 120 day fire season. Federal agencies include the US Park Service's Denali National Park, the main Alaska offices of US Department of Agriculture Rural Development and the National Resource Conservation Service, the Alaska Tsunami Warning Center, and FAA Flight Service Stations. State government employment will expand significantly with the development of a State prison in the borough.

Matanuska-Susitna Borough Air Traffic Forecast

Following is a forecast of aviation activity in the borough. It incorporates both a forecast of activity at public airports in the borough, and a forecast of all aviation activity in the borough, including activity at both public and private landing areas.

Existing Air Traffic

The Matanuska-Susitna Borough encompasses about 24,683 square miles, and accommodates 10 public airports and over 200 private airstrips and floatplane landing areas. FAA Flight Service monitoring occurs at Talkeetna and Palmer airports, and is supervised from the regional Flight Service office in Kenai. Scheduled air service is not available to any of the airports in the borough, likely because most airports are on the statewide road system and relatively close to Ted Stevens Anchorage International Airport (ANC). Charter service is available at most public and several private landing areas (wheel, ski, and floatplane charter service). Following is a brief description of air traffic at the public airports in the borough.

- Palmer Airport: Public airport owned and managed by the City of Palmer. This airport has very little commercial aviation activity. A State Division of Forestry Aviation fire center is located on the airport, and has seasonal operations between March (training) and August. Firefighting activity varies with the season, but generally includes three based aircraft and activity by several DC6 air tankers and helicopters. A small cargo operation is based at the airport, and other companies have enquired about moving their operations from Anchorage to Palmer. Other traffic is private General Aviation (GA) including students, helicopters, other government aircraft, medivac aircraft, and the occasional small private jet. Commercial operators from Anchorage sometimes train at this airport (fixed wing and helicopters). Military traffic is frequent and includes planes and helicopters, which sometimes stop for fuel. During the summer fire season, this airport can have peak traffic of more than 20 operations per hour.
- Wasilla Airport: Public airport owned and managed by the City of Wasilla. This airport accommodates some charter traffic, but most of the traffic is from GA aircraft. Some local GA flight instruction occurs, and companies, schools, and military from outside Wasilla sometimes train there. Private twin engine planes such as King Airs and Aztecs frequent the airport in summer (one or more per week). GA traffic is increasing at the airport. Peak traffic at this airport during the summer season is about six operations per hour.
- Talkeetna Airport: Public airport owned and managed by the Alaska Department of Transportation and Public Facilities (DOT&PF). The Talkeetna Airport is the busiest of all public airports in the borough. While there is no scheduled service, there is a good deal of flightseeing activity and charter traffic associated with the mountain climbing season, such as flying climbers and gear to and from base camps. The U.S. Park Service and military engage in search and rescue flights using the Talkeetna Airport. This airport sees more medivac flights than most airports in the borough. Military flights by both planes and helicopters fuel at Talkeetna. Talkeetna is often visited by small private jets in summer. Charter companies frequenting this airport have recently changed their fleet mix to larger aircraft (Navajos, Beavers and single-

engine Otters). Peak traffic at this airport in the summer season can reach 60 operations per hour.

- Willow Airport: Public airport owned and managed by DOT&PF. This airport has no scheduled service, but charter and tour activity is growing. Willow Airport is sometimes used by firefighting aircraft in the summer. A floatplane lake is located south across the highway from the runway, and is one of the few areas where commercial float plane maintenance is available in the borough.
- Big Lake Airport: Public airport owned and managed by DOT&PF. This airport has no scheduled service, but charter and tour activity is growing. Much of the traffic at this airport is from local-based private aircraft.
- Skwentna Airport: Public airport owned and managed by DOT&PF. This is the only public airport in the borough off the road system, and is mainly used for mail, cargo (including fuel) and passenger transport for the community of about 75 people. Some cargo operations are hubbed out of Skwentna to surrounding areas. Summer traffic includes hunting and fishing charters, and the runway is used for training by student pilots. The Alaska Department of Fish and Game bases planes and helicopters at the Skwentna Airport in summer. Skwentna is a checkpoint in the Iditarod sled dog race, and receives considerable winter air traffic for that event.
- Summit, Goose Bay, and Sheep Mountain Airports: Public airports owned and managed by DOT&PF. The Goose Bay Airport is used for pilot training flights for pilots based in Anchorage and the Mat-Su. These airports receive little traffic, and have few or no based aircraft. Because of its location close to Point MacKenzie on the west side of Knik Arm, the Goose Bay Airport could experience growth in traffic if a Knik Arm bridge is built.
- Lake Louise Airport: Public airport owned and managed by DOT&PF. The airport is currently closed due to the poor surface condition of the runway. Runway repairs are scheduled for an uncertain future date.

Air Traffic Forecast

In this section, we present two air traffic forecasts for the Matanuska-Susitna Borough. The first forecast is for aviation activity on public airports, and is a consolidation of existing air traffic forecasts for those airports. The second forecast represents air traffic for the entire borough, regardless of whether the aircraft are using public or private landing areas. The second forecast does not indicate where within the borough this activity takes place, but it does forecast activity by local (based) and visiting (itinerant) traffic, and by aircraft equipped with floats and wheels. Due to data limitations, we have not attempted to forecast commercial traffic separate from GA traffic in this report.

Sources used to develop the following air traffic forecasts include existing forecasts for public airports in the borough, forecasts from adjacent regions, pilot certification statistics from federal databases, aircraft counts from MSB property tax rolls, and existing population forecasts for the borough. In addition, we performed interviews with local pilots, aircraft repair businesses, air carriers, airport management and other knowledgeable parties. Much of the aviation activity within the borough occurs on private land, and historic data is not available for that traffic. Therefore, portions of the following forecasts were developed from best estimates of local and regional knowledgeable parties, and from the judgment of the forecasters.

Local Significant Conditions Affecting Air Traffic

Several local and regional significant conditions affecting air traffic in the borough were used to develop aviation forecasts presented in this section. Some factors tend to increase demand for air travel, and some tend to dampen that demand.

Trends Encouraging MSB Aviation Growth

The following factors could lead to an increase in aviation activity in the borough. While some factors impact the borough directly, other factors impact areas adjacent to the borough or aviation in general, and indirectly affect air traffic in the borough.

- The borough has and should continue to experience rapid population growth. Population in the borough grew about 5.0% between 2004 and 2005.
- The tourism and outdoor recreation sector in Alaska is strong and growing. Air activity associated with tours and fishing, hunting and guiding activities have shown strong growth in recent years, and could impact air traffic in the borough in the future.
- Oil and gas, and other resource development in Alaska will improve the economy of the state as a whole and its communities. A proposed natural gas pipeline could be constructed through the Mat-Su to serve southcentral Alaska. The resulting increased economic activity will likely increase recreational air travel, and possibly air transport of goods within the borough (especially to communities off the road system) in the future.
- Military activity has increased across the nation, especially training activity. There are several military air bases close to the borough, and increased aviation training activity has been apparent at some of the public airports within the borough. This increased activity is likely to continue for at least the next several years.
- Demand is high for aircraft tie downs and hangars in the Anchorage area, and most airports are running out of space. At Lake Hood, there are 250 names on the waiting list for a seaplane float. As this demand increases, it will expand beyond the Anchorage bowl into adjacent areas, such as the Matanuska-Susitna Borough.
- Demand for additional space for commercial operations at the Ted Stevens Anchorage International Airport (ANC) could move a limited portion of those operations (such as portions of international cargo and GA operations) into the borough in the future.
- As transportation options to reach the borough improve (highway upgrades, Knik Arm ferry and/or bridge, etc.), more non-borough resident pilots may consider basing their aircraft in the borough.
- The borough has large amounts of land available for development, and aviation enthusiasts look toward the borough as a place to build or locate on private air parks, landing strips and lakes.

Trends Discouraging MSB Aviation Growth

Factors that could lead to a decrease in aviation activity in the borough include:

- Air traffic in general across the nation has been decreasing. Ratios of pilots and based aircraft to the population have decreased consistently for many years, and will likely continue to decline.
- Results of September 11 events have made commercial air travel in general more difficult, and complications such as increased insurance rates have put pressure on commercial air carriers to consolidate or leave the industry.
- High fuel, insurance, and security costs tend to increase the cost of commercial and recreational air travel.
- Increasing competition for land in the borough will likely mean less land available for landing strips in the more developed areas.
- Disposable incomes are decreasing due to high energy, housing, and other costs, and people will make less costly substitutions for expensive air travel and recreational activities.
- Surface transportation improvements (land and sea) may reduce demand for more expensive commercial air travel, and air transportation of freight and mail.
- Decreases in aviation subsidies (Essential Air Service, Bypass Mail, etc.) may reduce demand for commercial air transportation of freight.
- Commercial air carrier fleet mix changes to larger aircraft at some borough airports means more passengers per flight, resulting in fewer flights.

The question of whether scheduled air carrier and/or air cargo services would occur at borough airports on the road system in the future was examined. The question was presented to regional air carriers, air cargo carriers, and other knowledgeable parties, and several previous studies were examined. In general, it is believed that scheduled air service to airports on the road system within the borough is not economically feasible because ANC is located a short distance away by road. Similarly, cargo shipments destined for areas on the road system within the borough are less expensive to move via highway or rail than via air.

There is currently some air shipment of goods to and from the borough in areas not on the road system, and that activity is expected to continue, although possibly at a declining rate due to possible decreases in subsidies for such services (i.e., Essential Air Service and Bypass Mail subsidies). Increased economic activity such as natural resource exploration and extraction could increase aviation activity in off-road areas of the borough.

The 2002 Anchorage Ted Stevens International Airport Master Plan update included two alternatives which relocated the entire airport or only the international cargo and some limited GA/air taxi operations from ANC to a new airport in the Point MacKenzie area. Due mainly to high cost, inconvenience for passengers and business users, the impracticality of splitting passenger and cargo operations, potential environmental impacts, and the risk of losing international airline customers, these alternatives were not pursued. However, the study did not address the feasibility of an airport solely to serve general aviation and air taxi operations, so the possible relocation of some of these operations from ANC, Lake Hood and other general aviation airports in the future was considered and is included in the trends listed above.

Existing Forecasts for Public Airports

The following forecast is a compilation of existing forecasts developed for publicly-owned airports in the Matanuska-Susitna Borough. Several sources exist for this public airport traffic forecast information. They include:

- Airport Master Plans: Forecasting is routinely done in conjunction with public airport master plan studies.
- Alaska Aviation System Plan: The DOT&PF developed a statewide aviation system plan in 1996 that contained forecast information for selected airports in various Alaska regions.
- Airport Layout Plans: Occasionally, air traffic forecasts are developed in conjunction with the updating of Airport Layout Plan (ALP) documents.
- Terminal Area Forecasts: The FAA Terminal Area Forecasting system (TAF) develops forecasts of aviation activity at many Alaska airports and landing areas. The TAF system uses a model and updates historic traffic frequently. However, for smaller airports, the model seems to forecast only the latest historic data into the future with zero growth.

Unfortunately, there is no one forecasting method in common for all the public airports in the borough. Therefore, the most recent and thorough forecasts available for each airport were chosen for this study. The best source of information was individual forecasts from Master Plans or ALPs. Forecasts included in the Alaska Aviation System Plan is the next best source, and where no other data was available, forecasts from FAA's TAF system were used, and adjusted slightly to consider growth in activity over time. Timeframes were made consistent across all airport forecasts so that they could be compared and combined.

The Palmer, Wasilla and Talkeetna Airports have recently completed air traffic forecasts for their airport master plan updates. The Palmer study was done in 2001, the Wasilla study in 2003, and the Talkeetna study in 2001 with a minor update and adjustment in 2006. The Willow Airport forecast was developed for the most recent ALP update in 2003. The Big Lake Airport forecast was taken from the 1996 Aviation System Plan. Since the only forecasts available for Skwentna, Summit, Goose Bay and Sheep Mountain airports were from the TAF system, and TAF does not forecast growth for small airports in Alaska, it is likely that additional growth in those small airports could occur that was not reflected in the TAF. For that reason, we adjusted the TAF forecasts to show a 1% growth per year.

Table 6 presents the forecasts for the public airports in the borough. The largest growth is anticipated at Willow Airport, with a more than tripling of operations over 25 years. Operations at Talkeetna Airport are expected to nearly triple also. Palmer and Wasilla Airports anticipate a more than doubling of their operations, and Big Lake expects a nearly doubling of their operations over the same period of time. The smaller airports will see an increase of about 1.3 times their current traffic.

Table 6
Existing Forecasts for Matanuska-Susitna Borough Public Airports

	2005	2010	2015	2020	2025	2030
Palmer (2001 Master Plan)						
Based Aircraft	161	192	228	270	326	388
Commercial Operations	0	0	0	0	0	0
Military Operations	187	187	187	187	187	187
GA Operations	28,299	33,521	39,818	47,335	57,039	67,876
Total Operations	28,486	33,708	40,005	47,522	57,226	68,063
Wasilla (2003 Master Plan)						
Based Aircraft	127	154	188	229	279	340
Commercial Operations	3,591	4,953	6,239	7,244	8,412	9,800
Military Operations	145	182	211	245	285	331
GA Operations	22,223	25,762	29,866	34,622	40,137	46,559
Total Operations	25,959	30,897	36,316	42,111	48,834	56,690
Talkeetna (2001 Master Plan, adj. 2006)						
Based Aircraft	96	118	142	174	213	257
Commercial Operations	23,418	29,707	37,530	47,916	61,433	78,020
Military Operations	500	500	500	500	500	500
GA Operations	8,000	8,900	9,900	11,038	12,307	13,661
Total Operations	31,918	39,107	47,930	59,454	74,240	92,181
Willow (2003 Airport Layout Plan)						
Based Aircraft	89	108	135	171	221	286
Commercial Operations	2,259	2,754	3,445	4,360	5,645	7,310
Military Operations	0	0	0	0	0	0
GA Operations	7,961	9,688	12,132	15,370	19,934	25,853
Total Operations	10,220	12,442	15,577	19,730	25,579	33,163
Big Lake (1996 AK Aviation System Plan)						
Based Aircraft	112	123	135	147	161	177
Commercial Operations	0	0	0	0	0	0
Military Operations	0	0	0	0	0	0
GA Operations	28,300	32,000	36,000	40,500	45,563	51,258
Total Operations	28,300	32,000	36,000	40,500	45,563	51,258
Skwentna, Goose Bay, Summit, Sheep Mountain (Terminal Area Forecast + 1%)						
Based Aircraft	8	8	9	9	10	10
Commercial Operations	1,065	1,118	1,174	1,233	1,295	1,359
Military Operations	0	0	0	0	0	0
GA Operations	8,490	8,915	9,360	9,828	10,320	10,836
Total Operations	9,555	10,033	10,534	11,061	11,614	12,195

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).

Table 7 presents the consolidation of the forecasts for all public airports in the borough. This consolidated forecast shows a more than doubling of operations in 25 years, and a 2.5 fold increase in based aircraft. Commercial enplanements and operations are expected to more than triple over the same time period. Growth in GA operations is expected to double, while military operations are expected to increase only slightly.

Table 7
Consolidated Public Airport Forecast
Matanuska-Susitna Borough, 2005 to 2030

	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).

General Forecast

The following forecast estimates all aviation activity in the borough, whether that activity takes place on public or private landing areas. It was developed independent of the public airport forecasts presented previously. This forecast uses the same growth patterns used for the population forecasts in the 2005 Matanuska-Susitna Borough Long Range Transportation Plan (LRTP).

LRTP Population Forecast

The population forecasts used in the LRTP were originally developed by the University of Alaska's Institute of Social and Economic Research (ISER) for the Knik Arm Bridge and Toll Authority (KABATA), and include scenarios for growth of population to 2030 with and without the building of a Knik Arm Bridge. ISER developed Matanuska-Susitna Borough population growth estimates using their Man-in-the-Arctic Program (MAP) econometric modeling system. That model included statewide economic and fiscal assumptions, and the following regional assumptions (taken directly from the ISER publication):

Regional Assumptions

- Employment – No significant shifts in location of basic industries except from Anchorage. Basic employment currently in Anchorage begins to shift to Mat-Su Borough at a rate of 75 employees per year beginning in 2012.

- Commuting – Share of basic sector workers who commute between census areas constant except for Anchorage where the share commuting to Mat-Su Borough increases .008 annually. Share grows from 45% to 67.4%.
- Pt. MacKenzie Ferry – Pt. MacKenzie ferry results in shift of 1,200 population from Anchorage to Mat-Su by 2010, growing to 2,400 by 2030.

Knik Arm Crossing

- Construction – Employment impact begins in 2007 and peaks at 1,459 average annual construction jobs in 2010 and 2011. 75% of workers live in Anchorage and 25% live in Mat-Su.
- Basic Employment – Additional 50 basic sector jobs shift from Mat-Su annually from Anchorage starting in 2012.
- Commuters – Share of basic jobs in Anchorage taken by commuters from Mat-Su grows to 78.4%.

The base growth rate from the ISER analysis was used for the LRTP, and adjusted for individual Transportation Analysis Zones (TAZs) according to local and professional knowledge of development patterns within the borough. While growth rates are higher in core and other areas of expected development, and lower in more remote areas, the average growth for the borough as a whole is equal to the ISER estimates. The scenario that includes the building of a Knik Arm Bridge does not result in additional statewide population over the scenario without that bridge, but assumes that resident populations will shift slightly away from Anchorage and toward the Matanuska-Susitna Borough with a building of the bridge.

Forecast Development

Table 8 presents historic numbers of registered pilots per 1,000 residents in the U.S., Alaska, Anchorage, and the Matanuska-Susitna Borough. The table shows that a higher proportion of borough residents are pilots compared to Alaska and even compared to Anchorage. In 2005, there was one certified pilot in every 526 U.S. residents, one certified pilot in every 78 Alaska residents, and one certified pilot in every 65 Matanuska-Susitna Borough residents.

Table 8
Registered Pilots per 1,000 Residents
1998 to 2005

Year	U.S. Pilots per 1,000 Residents	Alaska Pilots per 1,000 Residents	Anchorage Pilots per 1,000 Residents	Mat-Su Pilots per 1,000 Residents
1998	2.1	14.1	16.0	17.2
1999	2.3	14.1	16.1	17.1
2000	2.1	13.6	15.6	17.0
2001	2.0	13.2	15.2	15.9
2002	2.1	13.4	15.6	15.9
2003	2.0	13.4	15.4	16.2
2004	2.0	13.1	14.8	15.7
2005	1.9	12.9	14.7	15.6

Sources: U.S. Census Data, Alaska Department of Labor and Workforce Development, and Federal Aviation Administration.

According to FAA records, in 2005, 1,133 borough residents held aircraft pilot's licenses, 621 of which were private pilot's licenses. Licensed pilots include pilots with air transport, commercial, private, recreational, sport, and student licenses. Private pilots exclude those pilots with air transport and commercial licenses. According to MSB property tax rolls, 1,024 airworthy aircraft (13.2 per 1,000 residents) were based in the borough in 2006. Some types of recreational and sport aircraft (such as gliders) are not counted in that count.

Table 9 presents a forecast of based aircraft and pilots in the borough to 2030. It was developed by applying the 2005 ratio of based aircraft and pilots to the borough population, to the forecasted population growth for with and without the Knik Arm Bridge scenarios from ISER and the LRTP. While this forecast includes all aircraft based in the borough and pilots residing in the borough regardless of whether they are based at or use public or private landing areas, it was developed independent of the public airports forecast presented previously.

Table 9 shows that the Matanuska-Susitna Borough population will increase about 2.6 times without a Knik Arm Bridge to 187,530 by 2030. For the scenario with a Knik Arm Bridge, the population will increase about 2.8 times to 203,755 over the same time period. Pilots and based aircraft are expected to grow at the same rate as population. Under the scenario without a bridge, by 2030, about 2,925 pilots will reside in the borough and 2,475 aircraft will be based there. Under the scenario which includes building a Knik Arm Bridge, those numbers increase to 3,179 for pilots and 2,690 for based aircraft.

Table 9
Forecast of Based Aircraft and Pilots in the Matanuska-Susitna Borough
With and Without the Knik Arm Bridge
2005 to 2030

	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
All 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
Private Pilots						
Without Bridge	618	783	1,011	1,163	1,376	1,594
With Bridge	618	816	1,067	1,228	1,475	1,732
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.

Base Year (2005) Estimates

To estimate current non-resident (itinerant) aviation activity in the borough, we examined studies of air traffic activities in adjacent areas of the state. The 2004 Anchorage Area General Aviation System Plan (Anchorage GA Plan) forecasted both GA and air taxi activity in the Anchorage bowl. The Anchorage GA Plan also estimated and forecasted the number of wheeled aircraft vs. float aircraft based in the Anchorage area. Interviews with management at major Anchorage area airports where most GA and air taxis are based, and with FAA Flight Service personnel provided estimates for what portion of the Anchorage area-based fleet of GA and air taxi aircraft traveled to the Matanuska-Susitna Borough. For this forecast, we estimate that in 2005, 85% of GA and air taxi flights from Anchorage equipped with floats traveled to the borough, and 60% of GA and air taxi flights equipped with wheels or skis traveled to the borough.

Interviews with local pilots and mechanics who install floats on aircraft in the borough lead to an estimate that about one forth to one half of aircraft based in the borough are equipped with floats during the summer season. For this forecast, we used the estimate that one third of the aircraft based in the borough are on floats during the summer. While this estimate is based on anecdotal information, no other information was available with which to refine the estimate. There were about 973 aircraft based in the borough in 2005. About 324 of those are estimated to be on floats in the summer. The rest (649) are estimated to be on wheels.

Table 10 presents base year (2005) estimates of GA and air taxi traffic in the borough, separated by local and visiting (itinerant) traffic, and by aircraft equipped with wheels, and those equipped with floats. Data was not available to estimate the number of GA vs.

air taxi aircraft or traffic in the borough. This analysis includes all aviation traffic in the borough, regardless of whether they use public or private facilities, and was developed independently from the public airports forecast presented previously.

Itinerant traffic was estimated using the percent of Anchorage-based aircraft traveling to the borough, plus 100 additional float aircraft and 200 additional wheeled aircraft traveling to the borough from places other than the Anchorage area. Operations were estimated for local aircraft by using the average number of annual operations for based aircraft at public airports in the borough as determined by the public airport forecast in Table 7 (about 75.5 annual operations per aircraft). Operations for itinerant aircraft (about 73.4 annual operations per aircraft) were estimated using annual operations per based aircraft in the Anchorage area from the Anchorage GA Plan, and adjusting that figure for the estimated percent of flights to the Matanuska Susitna Borough by Anchorage-based aircraft. That estimate was also adjusted to account for the fact that charter air taxi traffic accounts for more operations per aircraft than GA traffic.

Table 10
2005 General Aviation and Air Taxi Traffic in the MSB

	Anchorage-Based Aircraft	Itinerant Mat-Su Traffic	Local Mat-Su Traffic	Total Mat-Su Traffic
Aircraft				
On Float	775	759	324	1,083
On Wheels	2,395	1,637	649	2,286
All	3,170	2,396	973	3,369
Operations				
On Float	58,508	55,725	24,485	80,210
On Wheels	180,808	120,226	48,971	169,197
All	239,316	175,951	73,456	249,407

Sources: Matanuska-Susitna Borough property tax information, Anchorage Area General Aviation System Plan (2004), and Southeast Strategies.

Note: Itinerant traffic is activity in the borough by aircraft based outside of the borough.

Table 10 shows that about 32% of all operations in the borough in the summer season are estimated to be by aircraft equipped with floats, whether those aircraft are based in the borough or visiting from outside the borough. These base year estimates are used to develop the forecast presented below. Comparison of the 2005 estimates in Table 13 with the public airports 2005 estimates in Table 7 shows that about 56% of the aircraft operations within the borough in that year took place at public airports. This estimate corresponds generally with the estimate that about 61% of aircraft based in the borough are located at public airports.

General Forecast Summary

The following two tables (Tables 11 and 12) present the general air traffic forecast for the Matanuska-Susitna Borough from 2005 to 2030 for two scenarios – without a Knik Arm

Bridge and with a Knik Arm Bridge. These forecasts use the same growth rates as the LRTP population forecasts. While these forecasts include aviation activity at both public and private airports within the borough, they were developed independent of the public airports forecast presented earlier.

The forecast without development of a Knik Arm Bridge (Table 11) shows that by 2030, all air traffic in the borough will increase about 146% to 8,292 aircraft and 614,042 operations. Local traffic will increase by 154% to 2,475 based aircraft and 186,878 operations, and itinerant traffic will increase by about 142% to 5,816 aircraft and 427,164 operations by 2030. Aircraft on floats are estimated to make up about 32% of all aircraft operating in borough airspace.

Table 11
Forecast of Air Traffic in Matanuska-Susitna Borough Without Knik Arm Bridge
2005 to 2030

	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 borough that travel to the borough.

Comparison between the public airports forecast in Table 7 and the air traffic forecast for the no-bridge scenario presented in Table 11 reveals that about 50% of the aircraft operations in the borough occur on existing public airports by 2030. This forecast does not speculate about additional public airports/floatplane facilities being developed by 2030, but that is a distinct possibility.

The forecast with development of a Knik Arm Bridge (Table 12) shows a higher rate of growth in air traffic by 2030. That forecast shows similar relationships between based and itinerant traffic, and between wheel and float aircraft traffic, but with larger increases of aircraft and operations in borough airspace overall. This forecast estimates that by 2030, there will be an additional 631 aircraft using borough airspace (215 of which will be based in the borough) 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 based aircraft and 30,623 operations by itinerant aircraft.

Comparison of the forecast in Table 12 (scenario with a Knik Arm Bridge) with the public airports forecast in Table 7 shows that about 47% of the aircraft operations in the borough occur on existing public airports by 2030. This forecast does not speculate about additional public airports/floatplane facilities being developed by 2030, but that is a distinct possibility.

Table 12
Forecast of Air Traffic in Matanuska-Susitna Borough with Knik Arm Bridge
2005 to 2030

	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 borough that travel to the borough.

Forecast of Aviation Activity by Census Designated Place

The following analysis of aviation growth by Census Designated Place (CDP) is directly connected to population growth, and not very sensitive to variables affecting aviation. In order to examine areas of increased aviation activity within the borough, the following analysis uses growth by CDP within the borough to 2025 developed for the LRTP under two scenarios – with and without construction of a Knik Arm Bridge.

The LRTP provided population growth estimates by CDP for 2025 only, and no information is available for interim or later years by CDP. Table 13 presents the LRTP forecast of population growth by CDP to 2025.

Table 13
2025 Population Forecast
With and Without Knik Arm Bridge

Census-Designated Place	Adjusted 2000 Population (Base Year)	2025 Population without Bridge	2025 Population with Bridge
Big Lake	2,688	7,036	11,982
Knik-Fairview	6,661	18,882	29,801
Houston	1,352	4,504	5,050
Willow	1,039	2,461	2,337
Meadow Lakes	4,760	14,114	14,959
Tanaina	4,435	8,492	7,590
Fishhook	1,856	5,876	4,460
Wasilla	5,206	14,202	14,503
Seldon	2,377	5,467	4,940
Lakes	6,390	12,377	10,980
Gateway	2,604	11,087	10,053
Glenn	2,030	12,663	10,793
Palmer	3,744	9,804	8,566
Farm Loop	1,372	6,156	5,369
Lazy Mountain	1,148	2,303	1,686
Butte	2,475	6,404	4,809
Knik River	605	1,028	756
Colony	924	2,310	3,645
Buffalo-Soapstone	652	1,925	1,696
Sutton-Alpine	398	1,352	1,233
Point MacKenzie	98	1352	8,903
Remainder of Borough	6,508	10,863	9,394
Borough Totals	**59,322**	**161,870**	**173,505**

Source: Matanuska Susitna Borough Long Range Transportation Plan, 2006.

Note: The scenario that includes the building of a Knik Arm bridge does not result in additional statewide population over the scenario without that bridge, but assumes that resident populations will shift slightly away from Anchorage and toward Mat-Su with a building of the bridge.

Table 14 presents a forecast of pilots, based aircraft and operations in the borough by CDP for 2025 for two scenarios – with and without a Knik Arm Bridge. Since many of these CDPs are adjacent to each other and easily accessed by major road systems, it would be difficult to predict exactly where these pilots will reside in the borough, and where these aircraft will actually be based. Therefore, this analysis assumes that growth of based aircraft and pilots will occur where population growth is predicted to occur. For this analysis, we apportioned pilots and based aircraft to CDPs by using the borough-wide ratio of pilots and based aircraft to population, and applying that ratio to the

estimated future population of each CDP. Operations per CDP were estimated by applying the borough-wide ratio of operations per based aircraft to the number of based aircraft estimated to be in each CDP in 2025.

Table 14
2025 Forecast of Based Aircraft, Pilots and Operations by CDP
With and Without the Knik Arm Bridge

	Without Knik Arm Bridge				With Knik Arm Bridge			
CDP	**2025 Population**	**Local Pilots**	**Based Aircraft**	**All Operations**	**2025 Population**	**Local Pilots**	**Based Aircraft**	**All Operations**
Big Lake	7,036	108	93	22,562	11,982	183	158	38,053
Knik-Fairview	18,882	289	249	60,546	29,801	456	393	94,640
Houston	4,504	69	59	14,441	5,050	77	67	16,039
Willow	2,461	38	32	7,890	2,337	36	31	7,422
Meadow Lakes	14,114	216	186	45,256	14,959	229	197	47,505
Tanaina	8,492	130	112	27,229	7,590	116	100	24,104
Fishhook	5,876	90	78	18,842	4,460	68	59	14,165
Wasilla	14,202	217	187	45,537	14,503	222	191	46,058
Seldon (A)	5,467	84	72	17,529	4,940	76	65	15,689
Lakes	12,377	189	163	39,687	10,980	168	145	34,868
Gateway	11,087	170	146	35,551	10,053	154	133	31,925
Glenn (C)	12,663	194	167	40,604	10,793	165	142	34,274
Palmer	9,804	150	129	31,436	8,566	131	113	27,203
Farm Loop	6,156	94	81	19,739	5,369	82	71	17,050
Lazy Mountain	2,303	35	30	7,386	1,686	26	22	5,355
Butte	6,404	98	85	20,534	4,809	74	63	15,272
Knik River	1,028	16	14	3,297	756	12	10	2,401
Colony (B)	2,310	35	30	7,407	3,645	56	48	11,576
Buffalo-Soap	1,925	29	25	6,171	1,696	26	22	5,387
Sutton-Alpine	1,352	21	18	4,335	1,233	19	16	3,914
Point MacKenzie	2,565	39	34	8,224	8,903	136	118	28,272
Remainder	10,863	166	143	34,832	9,394	144	124	29,833
Borough Totals	**161,870**	**2,477**	**2,137**	**519,036**	**173,505**	**2,655**	**2,290**	**551,004**

Source: Southeast Strategies, 2006.

Additional factors affecting growth in aviation activity were considered, although impacts by area were not fully quantified. The greatest growth in aviation activity is expected to occur in the following areas in no particular order:

- At existing public airports where capacity allows;
- At the periphery of populated areas, especially areas of strong population growth;
- Where there is affordable, flat land on the road system available for development of airstrips;

- On lakes with room to land where there is affordable land available around them (especially on the road system);
- In areas with strong recreation and tourist attractions;
- In areas on the road system closest to Anchorage (overflow from the Anchorage area);
- On the west side of Knik Arm, especially if a Knik Arm Bridge is built; and
- With a Knik Arm Bridge, Goose Bay Airport will likely experience strong growth.

The 2002 ANC Master Plan Update considered two alternatives that included partial or complete relocation of ANC airport operations to the Matanuska-Susitna Borough. These alternates were not deemed feasible in 2002, but are being revalidated in the upcoming Master Plan Update. Relocation of some general aviation/air taxi operations appears to be the most feasible if the Knik Arm Bridge is built.

Fleet Mix

Little information is available regarding fleet mix of aircraft based in or operating in the borough. During the summer season, it is estimated that one third of all aircraft based in the borough are equipped with floats. In addition, the MSB differentiates between single-engine and multi-engine aircraft for purposes of charging property taxes on those aircraft. In 2006, the MSB reported 996 single-engine and 28 multi-engine airworthy aircraft based in the borough.

Economic Impact of Aviation Activity in the Borough

Due to the limited economic data and research resources available to estimate the economic impact of aviation activity in the borough, 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 borough 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 (FTEs) in the Matanuska-Susitna Borough 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 borough, 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 borough but working elsewhere are not included in this count.

Table 15 shows direct, indirect, and induced impacts of reported 2005 employment in the Air Transportation industry in the borough. This information came from the IMPLAN (IMpact Analysis for PLANning) model, a community and regional level input/output model initially developed by the U.S. Forest Service in cooperation with the Federal Emergency Management Agency, and the U.S. Department of the Interior, Bureau of Land Management to assist the Forest Service 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 Matanuska-Susitna Borough 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 borough, it can indicate the expansion of the impact beyond direct employment of personnel.

Table 15
Economic Impacts of 2005 Reported Air Transportation Employment
In the Matanuska-Susitna Borough

	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 15 Terms:

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

The impact categories are:

- **Business Income** – Total income to local businesses as a result of activity by air transportation businesses reporting employment in the borough.
- **Employment** – Total number of jobs created as a result of activity by air transportation businesses reporting employment in the borough. 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 borough.

- **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 borough.
- **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 borough.

In addition to the above impact on borough 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 borough. Visitors using aviation services may also rent hotel rooms and cars, purchase tours, meals, gifts, and other goods and services. Pilots residing in the borough but working outside of the borough bring home their paychecks and spend it with borough businesses. Retired aviation industry employees spend retirement and insurance income in the borough. Construction and maintenance activities related to airports or air strips bring economic impacts to the borough, 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 borough. Although a full evaluation of economic impacts to the borough of aviation activity is not within the scope of this study, the above brief analysis hints at the large size of that economic impact.