



# FINAL REPORT

September 2008



**SOUTHEAST REGION AVIATION SYSTEM PLAN  
FINAL REPORT**

**DOT&PF Project No. 68992**

**Prepared for:**

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Department of Transportation and Public Facilities  
Southeast Region

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November 2008

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## LIST OF ACRONYMS

°F	degrees Fahrenheit
AASP	Alaska Aviation System Plan
ADS-B	Automatic Dependent Surveillance-Broadcast
AFFF	aqueous film forming foam
AIP	Airport Improvement Program
ALP	Airport Layout Plan
AMHS	Alaska Marine Highway System
ARC	Airport Reference Code
ARFF	Aircraft Rescue and Firefighting
ATC	Air Traffic Control
Avgas	aviation gasoline
CA	Census Area
CBJ	City and Borough of Juneau
CBS	City and Borough of Sitka
CPI-U	Consumer Price Index for All Urban Consumers
DME	distance measuring equipment
DOT&PF	State of Alaska Department of Transportation and Public Facilities
EAS	Essential Air Service
EIS	Environmental Impact Statement
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FBO	fixed base operator
FY	fiscal year
GA	general aviation
GBT	ground-based transceiver
GPS	Global Positioning System
IFA	Interisland Ferry Authority
IFR	Instrument Flight Rules
ILS	Instrument Landing System
JAWS	Juneau Airport Wind System
JNU	Juneau International Airport
KGB	Ketchikan Gateway Borough
KTN	Ketchikan International Airport
LAAS	Local Area Augmentation System
LOC	localizer
LPV	localizer performance with vertical guidance
M&O	maintenance and operations
MALSF	Medium-Intensity Approach Lighting System with Sequenced Flashers
MALSR	Medium-Intensity Approach Lighting System with Runway Alignment Indicator
NextGen	next generation
ODALS	Omnidirectional Approach Lighting System
PAPI	Precision Approach Path Indicator
PCI	Pavement Condition Index
RCAG	Remote Communications Air/Ground Facility
RCO	Remote Communications Outlet
REIL	Runway End Identifier Lights
RNAV	Area Navigation
RNP	Required Navigation Performance
ROD	record of decision
ROFA	runway object free area
RPZ	runway protection zone
RSA	runway safety area

RTR.....	Remote Transmitter/Receivers
RWY.....	runway
SEARHC.....	Southeast Alaska Regional Health Consortium
SIT.....	Sitka Rocky Gutierrez Airport
Southeast.....	Southeast Alaska
SPB.....	Seaplane Base
sq ft.....	square feet/foot
SRASP.....	Southeast Region Aviation System Plan
SREB.....	snow removal equipment building
U.S.....	United States
ULD.....	Unit Load Device
USCG.....	United States Coast Guard
VASI.....	Visual Approach Slope Indicator
VFR.....	Visual Flight Rules
VOR.....	very high frequency omnidirectional range
WAAS.....	Wide Area Augmentation System

## **1.0 PROJECT GOALS AND TASKS**

The Southeast Alaska (Southeast) aviation system consists of over 70 public and private airports, seaplane bases (SPB), and helicopter facilities registered with the Federal Aviation Administration (FAA). Nearly half of them are owned by the State of Alaska Department of Transportation and Public Facilities (DOT&PF) and have been developed following airport master plans and/or airport layout plans. Aside from these plans and the Alaska Aviation System Plan (AASP), there are no comprehensive airport planning studies that address existing conditions and future needs for aviation in Southeast Alaska. Consequently, the DOT&PF has undertaken the Southeast Region Aviation System Plan (SRASP). The SRASP will become a part of the Southeast Alaska Transportation Plan.

The SRASP includes three primary components:

1. Inventory of existing aviation facilities, carriers, and service providers.
2. Analysis of existing and future system activity trends and factors affecting them.
3. Evaluation of needs for aviation facilities, services, and policies in the Southeast Region.

The initial sections of this report address the inventory component. A number of sources were used to compile the data that forms the basis of the inventory report. These include:

- FAA Form 5010s for Southeast aviation facilities
- Airport Master Plans
- Airport Layout Plans (ALP)
- Interviews with air carriers, air taxi operators, and cargo carriers
- Interviews with DOT&PF personnel
- Interviews with airport personnel
- Interviews with service providers
- DOT&PF Pavement Condition Reports

## **2.0 FACILITIES INVENTORY**

### **2.1 Regional Overview**

For the purposes of the SRASP, the project area consists of all aviation facilities in Alaska east of Longitude 141°, from Yakutat in the far northwest corner of the region to Hyder in the south near the Canadian border. As part of the Alexander Archipelago the region consists largely of

islands separated by a labyrinth of protected inside waterways, bordered on the west by the Gulf of Alaska and on the east by rugged coastal mountains. Mountains often rise to over 3,000 feet near the ocean and to over 6,000 feet farther inland. The mountains fall steeply into the ocean and form long, deep fjords. Geographic challenges make roads impossible in many areas; only three communities in the region are connected to the continental highway system. Therefore, aviation and marine transportation are the primary means of travel in the region. For communities that are not served by the Alaska Marine Highway System (AMHS), aviation is the only regular means of getting from one place to another. Even communities that do have ferry service rely on air service for much of their passenger and freight transportation.

The climate of the region is generally cool and rainy with winter temperatures averaging near 30 degrees Fahrenheit (°F) and summer temperatures averaging near 55°F. The region averages between 60 and 130 inches of precipitation per year. The rainiest months of the year are generally September, October, and November.

The following table shows the population of communities in the region, and the types of transportation available at each community.

**Table 1: Southeast Alaska Communities by Population Size and Transportation Facilities**

<b>Southeast Alaska Community</b>	<b>2006 Population Estimate</b>	<b>Airport</b>	<b>Seaplane Base</b>	<b>Ferry Service</b>	<b>Barge Service</b>	<b>Road Connection</b>
Juneau	30,650	Yes	Yes	Yes	Yes	No
Ketchikan	13,174	Yes	Yes	Yes	Yes	No
Sitka	8,833	Yes	Yes	Yes	Yes	No
Petersburg	3,129	Yes	Yes	Yes	Yes	No
Haines	2,353	Yes	Yes	Yes	Yes	Canada
Wrangell	1,911	Yes	Yes	Yes	Yes	No
Craig <sup>3</sup>	1,420	No	Yes	Yes	Yes	Islandwide
Metlakatla	1,323	Yes	Yes	Yes	Yes	No
Skagway	854	Yes	Yes	Yes	Yes	Canada
Hoonah	829	Yes	Yes	Yes	Summer	No
Klawock <sup>3</sup>	776	Yes	No	Yes	Yes	Islandwide
Yakutat	609	Yes	Yes	Flag Stop	Summer	No
Kake	536	Yes	Yes	Yes	Yes	No
Angoon	482	No	Yes	Yes	Summer	No
Thorne Bay <sup>3</sup>	482	No	Yes	IFA	Yes	Islandwide
Gustavus	441	Yes	No	Charter	Summer	No
Hydaburg <sup>3</sup>	352	No	Yes	IFA	No	Islandwide
Coffman Cove	162	No	Yes	IFA	No	Islandwide
Hollis <sup>3</sup>	156	No	Yes	IFA	No	Islandwide
Naukati <sup>3</sup>	129	No	Yes	IFA	No	Islandwide
Tenakee Springs	109	No	Yes	Yes	Summer	No

**Table 1 (cont'd): Southeast Alaska Communities by Population Size and Transportation Facilities**

<b>Southeast Alaska Community</b>	<b>2006 Population Estimate</b>	<b>Airport</b>	<b>Seaplane Base</b>	<b>Ferry Service</b>	<b>Barge Service</b>	<b>Road Connection</b>
Pelican	106	No	Yes	Summer	Summer	No
Hyder	92	No	Yes	No	No	Canada
Port Alexander	64	No	Yes	No	Charter	No
Whale Pass <sup>3</sup>	61	No	Yes	IFA	No	Islandwide
Kasaan <sup>3</sup>	59	No	Yes	No	No	No
Port Protection	59	No	Yes	No	No	No
Elfin Cove	25	No	Yes	No	Charter	No

Source: Alaska Department of Labor and Workforce Development, 2007; and Southeast Strategies, 2007.

<sup>1</sup> InterIsland Ferry Authority (IFA) is located on Prince of Wales Island and has year-round ferry service from Hollis to Ketchikan and summer ferry service from Coffinan Cove to Petersburg and Wrangell. Most communities on Prince of Wales Island are connected by road to one of those ferry terminals.

<sup>2</sup> Haines population includes the population of Klukwan, since it is only a short distance away on the road system, and uses the same facilities.

<sup>3</sup> Most of the communities on Prince of Wales Island have access to the Klawock airport by virtue of their connection by road.

According to the FAA 5010 database, there are 20 registered airports, 41 registered SPBs, and 10 registered helicopter facilities in the Southeast Region. These include both public and privately-owned facilities. Over half of the registered facilities are SPBs. There are a number of other unregistered seaplane landing areas and helicopter facilities in Southeast that receive charter and scheduled air service, including numerous lodges and logging and mining camps, as well as the community of Naukati on Prince of Wales Island. Some of the registered facilities receive little or no air traffic, while some unregistered facilities receive moderate air traffic. Figure 1 includes the location of each FAA-registered facility and the proposed location for the Angoon Airport. The Angoon Airport is not yet constructed and is not included in any of the tables in the Inventory Report, with the exception of Table 6 (data in this table related to the proposed Angoon Airport is based on the airport layout plan).

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**Figure 1: Registered Airports, Seaplane Bases, and Helicopter Facilities**

Figure 1 also includes the recently completed SPB at Clark Bay that serves the Hollis area. Appendix A includes an individualized inventory of each airport and SPB shown in Figure 1.

**Table 2: Southeast Alaska Aviation Facilities Registered with the Federal Aviation Administration**

Registered Facility Type	Total
Airports	20
SPBs	41
Helicopter Facilities	10
<b>Total Facilities</b>	<b>71</b>

Source: FAA 5010 database

2.1.1 Ownership and Use

DOT&PF owns and operates the majority of Southeast’s airports and seaplane facilities. Federal agencies (mainly the United States [U.S.] Forest Service) own a number of remote landing strips, and the City and Borough of Juneau (CBJ) owns and operates the regional hub airport in Juneau. Local governments (including communities and boroughs) own many of the region’s seaplane floats. The majority of helicopter facilities registered with the FAA are owned by the U.S. Coast Guard (USCG). Table 3 presents a summary of facility ownership.

**Table 3: Ownership of Federal Aviation Administration - Registered Facilities**

Owner	Airports	Seaplane Bases	Helicopter Facilities
DOT&PF	11	23	N/A
Federal Government	6	2	6
Private	2	3	3
Local Sponsor	1	13	1

Source: FAA 5010 database

As shown in the following table, there are several combinations of ownership and use for Southeast aviation facilities registered with the FAA. The majority of airports and SPBs are publicly-owned and available for public use. The two privately-owned airports are for private use only, while the two privately-owned SPBs are available for public use. The City of Tenakee Springs owns the only FAA-registered heliport available for public use. The six helicopter facilities owned by the U.S. Government are for private use only, as are the three helicopter facilities owned by private companies. The Meyer’s Chuck Heliport owned by DOT&PF and the Wolf Point Heliport in Ketchikan owned by the USCG has not been registered with the FAA.

These 2 facilities are not included in the data presented in Tables 2, 3, and 4, where the FAA’s 5010 database serves as the data source.

**Table 4: Comparison of Public/Private Use and Ownership**

	<b>Airports</b>	<b>Seaplane Bases</b>	<b>Helicopter Facilities</b>
Publicly-Owned/Public Use	18	39	1
Publicly-Owned/Private Use	N/A	N/A	6
Privately-Owned/Public Use	N/A	2	N/A
Privately-Owned/Private Use	2	N/A	3

Source: FAA 5010 database

2.1.2 1996 Alaska Aviation System Plan Classification of Southeast Aviation Facilities

The 1996 AASP uses the following three classifications to categorize airports and SPBs:

*Regional Airports:* Airports that (1) are primary or secondary hubs for passenger, cargo, or mail traffic, (2) provide primary access to populations greater than 1,000, or (3) support economic activities or unusual requirements of regional or statewide significance.

*Community Airports:* The main airports, helicopter facilities, or seaplane facilities that service rural communities of at least 25 permanent year-round residents.

*Local Airports:* Airports, helicopter facilities, or seaplane facilities that are not in the regional or community classes.

The AASP classification for Southeast airports and SPBs is presented in the following table.

**Table 5: Alaska Aviation System Plan Classification of Southeast Airports and Seaplane Bases**

<b>Category</b>	<b>Airports</b>	<b>Seaplane Bases</b>
Regional	7	2
Community	6	27
Local	7	12

Source: 1996 AASP

The classification system is somewhat confusing, and the classifications given to some of the facilities are inaccurate. For instance, the SPBs at Juneau International Airport (JNU) and Ketchikan International Airport (KTN) are classified as regional facilities, while Sitka SPB is classified as a community facility even though Sitka Rocky Gutierrez Airport (SIT) is considered

a regional facility. Ketchikan Harbor, which has a significant number of annual operations, is classified as a local facility. The Klawock Airport is classified as a regional facility, while the Gustavus Airport is considered a community facility, even though Gustavus receives jet service from Alaska Airlines part of the year while Klawock does not. Statewide airport classifications will be reexamined in the update to the AASP currently underway.

## 2.2 Hub Airports

The aviation infrastructure at Juneau, Ketchikan, and Sitka (the three largest communities in the region) are briefly described in this section. From Juneau, Ketchikan and Sitka, float and wheel plane service is available to numerous medium-size communities (with populations over 400) in Southeast including Petersburg, Wrangell, Metlakatla, Haines, Hoonah, Angoon, Kake, Craig, Klawock, Yakutat, Thorne Bay, and Gustavus. In addition to the three hub airports, Petersburg, Wrangell, Yakutat, and Gustavus are served by Alaska Airlines<sup>1</sup>. Numerous smaller communities, remote lodges, and camps also receive scheduled and charter service.

**Juneau:** Juneau is the largest community in Southeast Alaska. JNU, owned and operated by the CBJ, is classified as a regional facility in the AASP. JNU serves as a hub airport, with scheduled and chartered flights connecting to communities in the region, as well as cities outside the region including Anchorage and Seattle, Washington.

The airport's single-paved runway is 8,457 by 150 feet. The airport is almost entirely fenced. The runway has several connectors to the single full-length parallel taxiway. The expansive apron includes a parking area for large Part 121 carriers, a parking area for Part 135 operators, parking for large and small transient aircraft, and terminal area parking, where hardstands for Alaska Airlines jets are located.

The three helicopter companies based at JNU have lease lots with helipads located in different areas on the apron. Lease lot space is limited, but planned projects will create more area for lease lot and T-hangar development. The majority of lease lots have electricity, water, and sewer. The largest fixed base operator (FBO) at the airport provides a variety of services for

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<sup>1</sup> Alaska Airlines has the Essential Air Service (EAS) contract for these communities. The EAS program is discussed in Section 4.2, *Carrier Inventory*.

aircraft operators. This company plans to expand its JNU facility in the near future. Another business at the airport provides aircraft maintenance services.

A 4,900-by-450-foot floatplane basin parallels the runway. Facilities at the floatplane basin include two ramps and numerous private docks.

The Airport Reference Code (ARC) is C-III. Non-standard conditions listed in the 2003 ALP include runway safety area (RSA) width and length, separation distance between the runway centerline and the floatplane pond centerline, and runway object free area (ROFA) width.

An environmental impact statement (EIS) was recently completed and a record of decision (ROD) issued for a number of projects at both the airport and the floatplane pond. Airport improvement projects to be constructed in the near-term include: RSA expansion, construction of a new snow removal equipment facility, development of a 25-acre site on the east end of the airport to support construction of infrastructure for fixed based operators, development of a 15-acre site on the west end of the airport for T-hangar development, and several wildlife hazard control projects.

Floatplane pond improvement projects in the EIS include: remove weeds in shallower areas of the floatplane pond and deepen the pond, minimize wildlife hazards and risk, and fill areas slated for airport improvement projects. Not part of the EIS decision, but a consequence of the decision, will be the expansion of the pond to accommodate additional slips. Additional projects planned at JNU not connected to the EIS are a terminal expansion project (currently in the design phase) and a project to build an on-airport road to the fuel facility.

Other aviation facilities in the Juneau area include a SPB at Juneau Harbor and a private heliport owned and operated by Era Aviation. Both are classified as local facilities in the AASP.

**Sitka:** SIT is owned and operated by DOT&PF. The City and Borough of Sitka (CBS) owns and operates the terminal building as an airport tenant. SIT is classified as a regional facility in the AASP. The airport's single-paved runway is 6,500 by 150 feet. Two taxiways connect the runway to the apron area. Several service providers are based at the airport, including a large FBO that also has offices in Juneau and Ketchikan. There is a large demand for lease lots at the airport, though there are no vacant lots at this time.

The ARC is C-III. The 2003 ALP lists a non-standard RSA width and length. An EIS that addresses several airport improvement projects is currently underway, and a ROD is expected in 2008. DOT&PF is the sponsor of projects being considered in the EIS including:

- RSA extension
- Installation of Runway 11 approach lights
- Repairs to the seawall near Runway 29
- Parallel taxiway construction
- Relocation of the floatplane ramp

Additional projects planned for SIT (not included in the EIS decision) are: an apron expansion, construction of additional lease lots, and relocation of the terminal access road. Recent terminal rehabilitation projects include a new roof and installation of an emergency generator. The CBS would like to expand the terminal building. They are currently working with the FAA and a consultant to design the expansion and determine how it would be funded.

The Sitka SPB, owned and operated by the CBS, is located in Sitka Channel near downtown Sitka. It is classified as a community facility in the AASP. The CBS is involved in a relocation project to move the SPB to a new site, though the project is currently on hold.

**Ketchikan:** Ketchikan is the primary air and marine transportation hub in the southern portion of Southeast Alaska. KTN is located on Gravina Island, across the Tongass Narrows from downtown Ketchikan. KTN serves as a hub airport, with scheduled and chartered flights connecting to communities in the region. Though DOT&PF owns the airport, the Ketchikan Gateway Borough (KGB) operates and maintains the airport through a long-term lease.

KTN is classified as a regional facility in the AASP. There is one paved runway that is 7,500 by 150 feet. The runway is connected to the apron by exit taxiways at both ends. Two hardstands near the terminal serve Alaska Airlines jets. The airport lease lots have utilities. While there are no vacant lease lots, there are plans to develop land for lease lots in the short term. According to the Airport Manager, both aircraft and vehicle parking is an issue. The apron can be extremely crowded with based and transient aircraft. Also, there are not enough vehicle parking spaces to accommodate airport users.

Floatplane facilities adjacent to the airport terminal include several floatplane slips, a dock, and a launch ramp for loading and unloading floatplanes. Access to the dock is via a passenger ramp that accommodates pedestrians and vehicles.

The ARC is C-III. The 2003 ALP identifies a non-standard RSA length and width and ROFA width. A project currently underway will remove part of a hill penetrating the ROFA and increase the RSA length and width to meet airfield design standards. Other projects planned at KTN include a runway resurfacing project in the summer of 2008, additional seaplane facilities, and a new general aviation (GA) taxiway.

No helicopter companies are based at KTN, and there are no designated helipads at the airport. Temsco, a private company, has a heliport in the Ketchikan area, and the company's helicopters do land at the airport on occasion. The USCG has a helicopter facility across the Tongass Narrows at Wolf Point that is not registered with the FAA.

There are several other seaplane facilities in the Ketchikan area in addition to the SPB at KTN. The Ketchikan Harbor (5KE), located along Tongass and Water Streets, accommodates several floatplane docks and passenger terminal buildings maintained by commercial air taxi operators. Peninsula Point SPB (9C0), owned by DOT&PF, is located two miles northwest of KTN. Temsco Helicopters' private heliport is located at Peninsula Point. Murphy's Pullout (8K9), located three miles northwest of the airport at Murphy's Point, is owned and operated by KGB. The Ketchikan Harbor, Peninsula Point, and Murphy's Pullout are all classified as local facilities in the AASP.

### **2.3 Airports**

Section 2.3 includes a regional look at the infrastructure of Southeast Alaska airports. Table 6 provides a detailed inventory of all airports registered with the FAA and the proposed Angoon Airport.

**Table 6: Airports Inventory  
(Part 1)**

<insert 11x17>

**Table 6: Airports Inventory  
(Part 2)**

<insert 11x17>

2.3.1 General

Airport Master Plans and ALPs have been completed for 12 Southeast airports (and for the proposed Angoon Airport). Table 7 lists the runway dimensions and designated ARC at the 12 airports. Airports that receive jet service all have ARCs of C-III, while airports serving medium-size communities have an ARC of B-II.

**Table 7: Airport Reference Code**

<b>Airport Name</b>	<b>ARC Designations</b>	<b>Runway Dimensions</b>
Gustavus Runway 2/20	B-I	3,000' x 60'
Haines	B-II	4,600' x 150'
Hoonah	B-II	2,997' x 75'
Kake	B-II	4,000' x 100'
Klawock	B-II	5,000' x 100'
Skagway	B-II	3,550' x 75'
Gustavus Runway 11/29	C-III	6,700' x 150'
Juneau International	C-III	8,456' x 150'
Ketchikan International	C-III	7,500' x 150'
Petersburg James A. Johnson	C-III	6,000' x 150'
Sitka Rocky Gutierrez	C-III	6,900' x 150'
Wrangell	C-III	6,000' x 150'
Yakutat Runway 2/20	C-III	6,475' x 150'
Yakutat Runway 11/29	C-III	7,745' x 150'

Source: ALPs and Master Plans

The topographic layout of Southeast Alaska presents challenges for airport development. Rugged mountain terrain, bodies of water and unstable muskeg swamp-like conditions create difficulties in providing airfield surfaces that comply with the designated design standards at the various airports. Table 8 lists deficient design standards at various airports in the Southeast Region and the corrective action proposed for each.

**Table 8: Deficient Airport Surfaces at Southeast Airports**

<b>Airport</b>	<b>Deficient Surface</b>	<b>Status of Corrective Action</b>
Gustavus	RSA length/width	Project to address deficiencies is in design; anticipated start date is 2009.
Ketchikan	RSA length/width; ROFA length/width	Project underway to widen/lengthen RSA and remove hill penetrating ROFA.
Klawock	ROFA penetrated by terrain in several areas	2006 ALP states these obstructions will be removed; as of 2008 some of the obstructions have been removed.
Juneau	RSA length/width; ROFA penetration; runway centerline to taxiway centerline separation distance	Project underway to address RSA deficiencies; anticipated start date is 2008.
Petersburg	RSA length/width	Project in design phase to address this issue; RSA will be expanded to full standard over the next two years.

**Table 8 (cont'd): Deficient Airport Surfaces at Southeast Airports**

Airport	Deficient Surface	Status of Corrective Action
Sitka	RSA length/width	EIS for improvement projects currently underway for project; ROD anticipated in 2008.
Skagway	RSA length beyond runway end slightly clipped at corners; ROFA obstructions	Airport to remain as is.

Source: ALPs

### 2.3.2 Runways

There are 23 runways in the Southeast Region (Annette Island, Gustavus, and Yakutat each have two runways), 15 with paved surfaces and 8 with gravel or turf surfaces. All runways at airports owned by DOT&PF and CBJ are paved. The runway at the proposed Angoon Airport will be paved. The majority of the gravel and turf runways is owned by the U.S. Forest Service and can be found near Yakutat. One of the two runways at the Annette Island Airport is paved. That airport is in very poor condition; the runways are not maintained and are for emergency use only.

JNU's 8,457-foot runway is the longest in the region. Gustavus, Ketchikan, Petersburg, Sitka, Wrangell, and Yakutat also have runways at least 6,000 feet long. Airports with runway lengths between 3,000 and 6,000 feet include Annette Island, Gustavus, Haines, Kake, Klawock, and the proposed Angoon Airport. Airports with runways less than 3,000 feet are primarily remote gravel and turf strips owned by the U.S. Forest Service near Yakutat. The remaining two runways under 3,000 feet can be found at the Snettisham Airport (a privately-owned and private-use facility) and the Hoonah Airport (owned by DOT&PF). The runway at Hoonah will be extended to 3,300 feet in the next two years.

Several DOT&PF-owned airports have runway protection zones (RPZs) that extend beyond the airport property boundary. The amount located beyond the boundary line varies from airport to airport, as discussed in the following table. Some RPZs extend onto adjoining land not owned by the airport sponsor, while others extend over water.

**Table 9: State of Alaska Department of Transportation and Public Facilities-Owned Airports with Runway Protection Zones Beyond Airport Property**

Airport	Description	Avigation Easement
Hoonah	Runway 5 RPZ extends slightly over water	No
Petersburg	Both ends	Project planned to acquire the section of land where the Runway 23 RPZ extends beyond the property boundary. Small section of Runway 5 RPZ extends beyond property boundary is over a wilderness area; will not be acquired.

**Table9 (cont'd): State of Alaska Department of Transportation and Public Facilities- Owned Airports with Runway Protection Zones Beyond Airport Property**

<b>Airport</b>	<b>Description</b>	<b>Avigation Easement</b>
Sitka	Runway 29	No
Skagway	Both ends	1997 ALP comment states "Property to be acquired"
Yakutat	Runway 11 end	No

Source: ALPs

### 2.3.3 Taxiways

Lack of developable area due to terrain and water challenges prevent several Southeast airports from having a full or partial parallel taxiway. The EIS underway for SIT will consider construction of a partial parallel taxiway, which will require placing fill in waters adjacent to the runway. A comparison of airports having a full or partial parallel taxiway to those that do not is in Table 10.

**Table 10: Comparison of Taxiways at Public-Use Airports**

<b>Airport</b>	<b>Full Parallel Taxiway</b>	<b>Partial Parallel Taxiway</b>	<b>No Full or Partial Parallel Taxiway</b>
Gustavus		X	
Haines		X	
Hoonah			X
Juneau	X		
Kake			X
Ketchikan		X*	
Klawock			X
Petersburg			X
Sitka		X	
Skagway	X		
Wrangell			X
Yakutat			X

Source: Pavement Condition Reports, ALPs

\* Because of an elevation difference between the runway and taxiway at the KTN, the taxiway is not technically a partial parallel taxiway.

### 2.3.4 Lease Lots and Utilities

DOT&PF tracks lease lot status through a database and land occupancy drawings for each facility. Likewise, KTN and CBJ airport personnel track lease lot availability. Region-wide, there are very few open lots that are level, graded, and ready to build. In a vast majority of cases, the tenant needs to perform varying degrees of site preparation, including getting wetlands permits if necessary. Most lots require fill at a minimum, while some also require excavation before grading. Sometimes tree removal is necessary. DOT&PF tries to improve lease lots as

part of larger projects to encourage development, but department regulations call for tenants to do this work.

The following table shows the approximate square footage of available lease lot area at Southeast Alaska airports. Information is based on current airport Land Occupancy Drawings.

**Table 11: Available Lease Lot Area at Southeast Airports**

<b>Airport</b>	<b>Apron-Edge Lease Lots (sq ft)</b>	<b>Taxiway-Access Lease Lots (sq ft)</b>	<b>Off-Airfield Lease Lots (sq ft)</b>	<b>Other/Notes</b>
Gustavus	220,000	87,000	150,000	--
Haines	66,230	--	--	--
Hoonah	--	--	--	No available lots, but one lot has a building and fuel structure for sale.
Juneau	--	--	--	Minimal lease lots space available; short-term plans to create additional lease lots.
Kake	--	--	--	Parcels have not been designated, but there is property available for lease
Ketchikan	--	--	--	No vacant lease lots; short-term plans to develop additional lease lots.
Klawock	60,000	--	110,000	Two of the apron-edge lots have pending lease applications.
Petersburg	32,000	--	--	Undesignated lots north of apron and across the road are also available
Sitka	--	--	--	No vacant lease lots; short-term plans to develop additional lease lots.
Skagway	--	43,000	--	--
Wrangell	10,125	--	--	--
Yakutat	--	50,000	192,000	Off-airfield lots have access to airfield via small roads.

Note: Areas are approximate

The following table summarizes the current tenants and status of lease lots at Southeast facilities, based on conversations with the Southeast DOT&PF, KTN, and JNU personnel.

**Table 12: Current Tenants at Southeast Airports**

<b>Aviation Facility</b>	<b>Current Tenants</b>
Angoon SPB	One lot leased by Part-135 operator
Gustavus	Part-135 operators, Alaska Airlines, U.S. Postal Service, fuel provider, and individuals
Haines	Part 135 operators, fuel provider, and individuals
Hoonah	Part 135 operator and individuals
Juneau International	Part 135 operators, Alaska Airlines, service providers, individuals
Kake	Private helicopter company
Ketchikan International	Part 135 operators, Alaska Airlines, service providers, individuals
Klawock	Part 135 operator, private companies, National Guard, private individuals
Peninsula Point SPB	Part 135 operators, City of Ketchikan, private companies
Petersburg SPB	Part 135 operators and private individuals

**Table12 (cont'd): Current Tenants at Southeast Airports**

<b>Aviation Facility</b>	<b>Current Tenants</b>
Petersburg	Part 135 operators, Alaska Airlines, U.S. Postal Service, private companies, aircraft maintenance provider, National Guard, individuals
Sitka Rocky Gutierrez	Part 135 operators, Alaska Airlines, CBS, rental car companies, medevac operator, service providers, National Guard, private companies, private individuals
Skagway	Private individual
Wrangell	Part 135 operator, Alaska Airlines, U.S. Customs, private companies, private individuals
Yakutat	Part 135 operators, Alaska Airlines, government agencies, rental car business, private individuals

Source: DOT&PF, KTN, and JNU personnel interviews

There are several airports where there are limited or no lease lots available, including Hoonah, Juneau, Ketchikan, Sitka, and Wrangell Airports. Some of these airports have short-term plans to create more developable lease lots.

There are lease lots available at Skagway Airport, though this airport is surrounded by private property and abuts residential backyards. The DOT&PF has several “boundary crossing permits” for aircraft owners to access the airport from off-airport lots.

Utility information based on conversations with Southeast DOT&PF, KTN, and JNU personnel is summarized below. Notable utility issues include the lack of restroom facilities at many of the smaller airports.

**Table 13: Utilities at Southeast Airports and Seaplane Bases**

<b>Aviation Facility</b>	<b>Utilities</b>
Angeon SPB	N/A
Gustavus Airport	Some lots have sewer access
Haines Airport	Some lots have electric and telephone access
Hoonah Airport	Lots have access to water, electric, and telephone
Juneau International Airport	Most lots have utilities or access to utilities
Kake Airport	No sewer, water, or electrical access
Ketchikan International Airport	Most lots have utilities or access to utilities
Klawock Airport	Water main and electrical access to apron lots
Peninsula Point SPB	Most lots have utilities or access to utilities
Petersburg SPB	Most lots have utilities or access to utilities
Petersburg Airport	Most lots have utilities or access to utilities
Sitka Rocky Gutierrez Airport	Most lots have utilities or access to utilities
Skagway Airport	Electric access
Wrangell Airport	Most lots have utilities or access to utilities
Yakutat Airport	Most lots have utilities or access to utilities

Source: DOT&PF, KTN, and JNU personnel interviews

2.3.5 Pavement

Pavement condition surveys were conducted in 2003 and 2004. Conditions were rated according to the Corps of Engineers Pavement Condition Index (PCI) methods described in FAA Advisory Circular, AC 150/53880-6, *Guidelines and Procedures for Maintenance of Airport Pavements*. A PCI of 100 is given to new, perfect pavement, and deductions are made for measured pavement distresses. The following table lists the PCI value system and the recommended action for each.

**Table 14: Pavement Condition Index Values and Recommended Actions**

PCI Value	Recommended Action
85-100	Do nothing or preventative maintenance
70-84	Preventative maintenance
60-69	Corrective maintenance
55-59	Rehabilitate
40-54	Rehabilitate
0-39	Reconstruct

Source: Pavement Condition Reports

The Southeast Region contains over 18 million square feet of runway, taxiway, and apron pavement. The data in the table below is from 2003 and 2004 Pavement Condition Reports (the most recent completed), and some of the data in the table is outdated. Footnotes to the table list recent pavement updates. Near-term pavement improvement projects include a runway and taxiway pavement overlay at the KTN in summer of 2008, and a runway pavement overlay at the Petersburg James A. Johnson Airport in 2009.

In 2004, 39 percent of paved runway areas had a PCI of less than 70, and 79 percent of apron and taxiway areas had a PCI of less than 60. The following table shows the square footage of paved area as well as the weighted average PCI for runways, taxiways, and aprons at paved facilities.

**Table 15: Southeast Alaska 2003-2004 Pavement Condition Reports**

Airport	Runway Paved Area (sq ft)	Weighted Average PCI	Taxiway Paved Area (sq ft)	Weighted Average PCI	Apron Paved Area (sq ft)	Weighted Average PCI
Gustavus	RWY 2/20: 180,600	74	425,831	58	1,173,225	78
	RWY 11/29 1,008,000	90				
Haines	360,000	93	414,844	79	377,460	74
Hoonah	225,000	84	55,833	83	215,320	90
Juneau	1,268,550	70	1,588,671	86	912,266	80
Kake	400,000	80	9,572	71	120,000	90

**Table15 (cont'd): Southeast Alaska 2003-2004 Pavement Condition Reports**

<b>Airport</b>	<b>Runway Paved Area (sq ft)</b>	<b>Weighted Average PCI</b>	<b>Taxiway Paved Area (sq ft)</b>	<b>Weighted Average PCI</b>	<b>Apron Paved Area (sq ft)</b>	<b>Weighted Average PCI</b>
Ketchikan International	1,124,550	50	484,402	71	579,466	47
Klawock	1,000,000	56	71,672	67	720,000	69
Petersburg James A. Johnson	900,000	71	56,136	72	347,750	70*
Sitka Rocky Gutierrez	944,370	63	281,760	93	680,440	91
Skagway	281,250	94	230,184	93	500,432	96
Wrangell	900,000	44**	111,831	61	329,368	66
Yakutat***	RWY 11/29 1,316,193	93	152,587	85	909,275	76
	RWY 2/20 1,159,800	40				
<b>Total Paved Area</b>	<b>9,799,763</b>		<b>2,294,652</b>		<b>5,952,736</b>	

Source: Pavement Condition Reports

\* New pavement area resulting from East Apron extension completed in 2005.

\*\* Runway pavement overlay completed in 2007.

\*\*\* Runway 11/29, taxiway, and apron pavement reconstruction and overlay completed in 2006.

## 2.4 Seaplane Bases

SPBs comprise more than half of the FAA-registered facilities in Southeast Alaska. There are 41 seaplane facilities in the region and, although we refer to them as “bases,” most of them consist of little more than a float with an access ramp. Some are considerably larger and do function as bases with space for several planes, fuel services and other amenities. Many of the floats are integrated into local boat harbors, while others are entirely separate structures with their own access and parking.

Most of the state owned seaplane floats were constructed in the late 1960s and, although some of them have been reconstructed or replaced, little has changed in terms of their capacity or configuration. Several of the floats have been transferred to local governments as part of the harbor transfer program. The Baranof Springs seaplane float, currently owned by DOT&PF, will soon be transferred to the CBS.

Table 16 provides a detailed look at Southeast Alaska SPBs registered with the FAA.

**Table 16: Seaplane Bases Registered with the Federal Aviation Administration  
(Part 1)**

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**Table 16: Seaplane Bases Registered with the Federal Aviation Administration  
(Part 2)**

## **2.5 Helicopter Facilities**

There are ten helicopter facilities in Southeast Alaska registered with the FAA. It is important to note the difference between a helipad and a heliport. Generally a helipad is understood to be a simple landing facility for a helicopter. A heliport is generally understood to be a more complete facility that also includes buildings and other facilities associated with helicopter operations.

The USCG owns six helicopter facilities in Southeast Alaska. Era Aviation owns and operates a private heliport located on Douglas Island, primarily used during the tourism season. Alascom and Temsco Helicopters are the other private entities with private-use helicopter facilities registered in Southeast Alaska. The only locally-owned registered helicopter facility available for public use is located in Tenakee Springs. Table 17 provides a summary of each helicopter facility in Southeast Alaska that is registered with the FAA. Two helicopter facilities in the region that are not registered with the FAA include the USCG helicopter facility at Wolf Point, near the community of Ketchikan, and the helicopter facility in Meyer's Chuck.

**Table 17: Helicopter Facilities Registered with the Federal Aviation Administration**

Associated City	Airport Name	Owner	Ownership/Use	FAA Site Number	Identifier	Latitude and Longitude Coordinates	Landing Area Size	Surface
Cape Decision	Cape Decision CG	USCG	Public/Private	50080.6*H	CDE	56-00-07.6070N 134-08-07.2210W	70' x 70'	Wood
Cape Spencer	Cape Spencer CG	USCG	Public/Private	50088.53*H	CSP	58-11-56.6470N 136-38-19.7180W	50' x 50'	Wood
Craig	Craig CG	USCG	Public/Private	50130.1*H	1AK0	55-28-30.7930N 133-08-45.0830W	70' x 70'	Wood
Eldred Rock	Eldred Rock CG	USCG	Public/Private	50195.7*H	ERO	58-58-15.8110N 135-14-14.5760W	70' x 70'	Wood
Five Finger	Five Finger CG	USCG	Public/Private	50228.4*H	2AK3	57-16-11.7710N 133-37-53.2250W	50' x 50'	Wood
Juneau	North Douglas	Era Aviation, Inc.	Private/Private	50385.2*H	18AK	58-19-55.8250N 134-29-49.3920W	120' x 120'	Asphalt
Juneau	Alascom/Coastal Lena Point	ALASCOM	Private/Private	50385.01*H	AK94	58-23-26.8100N 134-46-36.4800W	100' x 100'	Gravel
Juneau	Yankee Cove	USCG	Public/Private	50385.06*H	73AK	58-35-30.0000N 134-54-00.0000W	150' x 150'	Turf
Ketchikan	Ketchikan Temsco	Temsco Helicopters	Private/Private	50385.2*H	17AK	55-22-58.7439N 131-22-06.0660W	150' x 50'	Concrete
Tenakee Springs	Tenakee Springs	City of Tenakee Springs	Public/Public	50757.8*C	TKE	57-46-46.7700N 135-13-06.3980W	76' x 66'	Wood

Source: FAA 5010 form

In addition to the 10 registered helicopter facilities, there are numerous other helicopter landing areas in Southeast Alaska. Several Southeast airports offer helicopter parking on or near the apron. There are also numerous remote helicopter landing sites for logging companies and navigation equipment access.

## 2.6 Airport Revenues and Expenses

The following table lists airport facilities expenses for fiscal year (FY) 2003 through FY 2007. Although the trend is somewhat uneven, there has been an overall increase in airport expenditures since FY 2003. Expenses allocated as a region-wide expense are activities that cover a number of airports. For instance, when a DOT&PF electrician fixes the lighting at several airports, this activity is charged as a region-wide expense. Note that KTN is owned by DOT&PF but operated and maintained by the KGB. Expense information was provided by DOT&PF, KGB, and the CBJ. As shown in Table 18, SPBs are relatively inexpensive to maintain compared to airports. Noticeable increases in seaplane expenditures are largely due to float repairs or installation of new floats.

**Table 18: Estimated Historical Expense Data for Southeast Alaska Aviation Facilities**

<b>Expenditures</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
<b>Airport</b>					
Gustavus	\$124,592	\$51,840	\$63,515	\$75,385	\$104,748
Haines	\$66,819	\$60,353	\$88,542	\$62,960	\$46,676
Hoonah	\$135,702	\$99,260	\$72,504	\$74,050	\$85,962
Juneau International*	\$3,684,643	\$3,418,055	\$3,710,723	\$4,047,799	\$4,340,470
Kake	\$17,526	\$63,076	\$57,280	\$55,912	\$14,750
Ketchikan International*	\$3,595,084	\$4,543,842	\$4,468,696	\$3,636,486	\$3,762,483
Klawock	\$106,008	\$50,726	\$69,749	\$77,345	\$64,122
Petersburg	\$262,615	\$236,482	\$275,002	\$298,998	\$294,096
Region-wide	\$12,590	\$30,155	\$15,388	\$34,817	\$57,120
Sitka Rocky Gutierrez	\$545,886	\$840,872	\$617,896	\$679,145	\$669,270
Skagway	\$55,385	\$48,985	\$29,775	\$28,158	\$30,725
Wrangell	\$248,142	\$336,872	\$320,460	\$378,870	\$360,808
Yakutat	\$444,804	\$416,269	\$277,518	\$572,270	\$536,475
<b>Total</b>	<b>\$9,299,796</b>	<b>\$10,196,787</b>	<b>\$10,067,048</b>	<b>\$10,022,195</b>	<b>\$10,367,705</b>

\* The floatplane pond at JNU and SPB at KTN costs are included in the airports' overall expenditures: they are not counted as separate SPB expenditures.

**Table 18 (cont'd): Estimated Historical Expense Data for Southeast Alaska Aviation Facilities**

Expenditures	2003	2004	2005	2006	2007
<b>SPB</b>					
Angoon	\$1,000	\$1,169	\$808	\$808	\$6,298
Haines	\$0	\$0	\$85	\$0	\$53
Hoonah	\$283	\$1,608	\$1,621	\$509	\$0
Juneau Harris Harbor	\$0	\$0	\$0	\$0	\$0
Take	\$0	\$0	\$0	\$0	\$0
Ketchikan	\$0	\$0	\$277	\$4,576	\$0
Prince of Wales Island	\$7,918	\$17,978	\$77,302	\$5,030	\$5,489
Petersburg	\$9,373	\$6,643	\$4,709	\$13,378	\$7,291
Sitka	\$1,200	\$1,200	\$1,425	\$1,200	\$1,600
Skagway	\$0	\$0	\$179	\$0	\$0
Tenakee Springs	\$0	\$4,264	\$0	\$20,000	\$2,656
Wrangell	\$627	\$641	\$151	\$0	\$0
Yakutat	\$0	\$0	\$0	\$0	\$0
<b>Total</b>	<b>\$20,401</b>	<b>\$33,503</b>	<b>\$86,557</b>	<b>\$45,501</b>	<b>\$23,387</b>

Airport revenues have steadily increased as new areas are leased and some modest fee increases have been implemented. The majority of revenues come from the larger airports in the region; only a small percentage of overall revenues are from the outlying areas. Revenue listed in the following table also includes Juneau, Ketchikan, DOT&PF airports, and historical fuel flow fees collected by DOT&PF at Southeast aviation facilities that sell fuel.

**Table 19: Estimated Historical Revenue Data for Southeast Alaska Aviation Facilities**

	2003	2004	2005	2006	2007
Revenue	\$7,902,927	\$7,679,289	\$9,447,212	\$8,008,528	\$8,315,483

Note: The largest portion of revenue can be attributed to larger airports in the region.

Operating expenses have historically exceeded revenues at Southeast Alaska aviation facilities, as shown in the following table.

**Table 20: Estimated Net Profit/Loss for Southeast Alaska Aviation Facilities**

	2003	2004	2005	2006	2007
Net Profit/(Loss)	\$(1,417,270)	\$(2,551,001)	\$(706,393)	\$(2,059,168)	\$(2,075,609)

## 2.7 Historical Capital Improvement Projects at Aviation Facilities

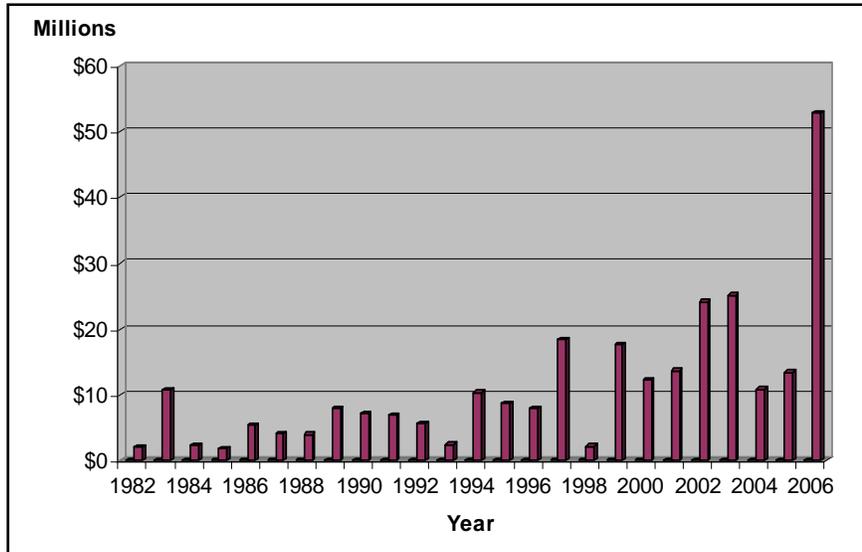
As of FY 1982, the FAA has provided \$253,628,744 in grants to help fund capital improvements at Southeast airports and SPBs as part of the Airport Improvement Program (AIP). As shown in the following table, the amount of funding provided to each facility varies greatly, from less than \$500,000 for some of the seaplane floats to approximately \$55 million for KTN.

**Table 21: Historic Federal Aviation Administration Funded Capital Projects at Southeast Region Airports (FY 1982-2006)**

<b>Airport</b>	<b>Historical Improvement Projects</b>
Angoon	\$1,964,651
Coffman Cove	\$1,607,634
Craig	\$2,323,679
Gustavus	\$8,909,046
Haines	\$6,942,435
Hollis	\$2,475,596
Hoonah Airport	\$7,635,362
Hoonah SPB	\$2,076,714
Hydaburg	\$706,592
Hyder	\$506,312
Juneau Harbor	\$486,250
Juneau International	\$46,268,367
Kake	\$8,274,495
Ketchikan International	\$55,431,263
Murphy's Pullout	\$376,673
Klawock	\$7,549,007
North Whale Pass	\$537,642
Pelican	\$593,746
Petersburg	\$11,786,521
Point Baker	\$578,432
Sitka Rocky Gutierrez	\$30,052,883
Thorne Bay	\$437,349
Wrangell	\$38,253,009
Yakutat	\$27,551,344
<b>Total</b>	<b>\$253,628,744</b>

The aviation infrastructure in Southeast Alaska is mature compared to other regions of the state. Runways, taxiways, and aprons are paved, hangars have been constructed at most airports, FBO services are available throughout the region, and further development is generally necessary to accommodate growth rather than basic needs. There are a few large capital improvement projects needed on occasion, such as bringing RSAs up to standard at some airports. Otherwise, the aviation facilities are in fairly good condition.

Figure 2 shows an overall increase in FAA funds allocated to Southeast Alaska for capital improvement projects since FY 1982. Large projects at specific facilities account for significant spikes in spending. RSA expansion projects at Wrangell Airport and KTN required significant FAA funds in 2006, as shown in Figure 2.



**Figure 2: Historical Federal Aviation Administration Spending at Southeast Region Alaska Aviation Facilities**

## 2.8 Maintenance and Operations

A complete list of maintenance and operations (M&O) facilities at the various public-use airports is included in Table 6: *Airports Inventory*. Interviews with the Southeast Region M&O Director revealed that most facilities have appropriate equipment and facilities located at the airport where the equipment is stored. The exceptions are:

- Skagway and Haines Airports (airport maintenance equipment is stored at highway maintenance shops)
- Kake Airport (DOT&PF M&O contracts with City of Kake to do maintenance at airport during winter; a maintenance building at Kake is listed in spending plan)

Airports in Southeast that receive scheduled Part 121 jet service must provide specific aircraft rescue and firefighting (ARFF) equipment and response capability, as outlined in Code of Federal Regulations CFR 139.317. ARFF requirements are based on an airport’s assigned index. Indexes (that range from A to E) are assigned to an airport based on the length of the jets serving an airport and frequency of service. The following table lists certified airports in Southeast Alaska by their corresponding index and summarizes the ARFF requirements the airports must comply with based on their index.

**Table 22: Aircraft Rescue and Firefighting Index for Airports with Jet Service in Southeast Alaska**

Airports	Corresponding Index	Index Determination	ARFF Requirements for Assigned Index
<ul style="list-style-type: none"> <li>• Gustavus</li> <li>• Petersburg</li> <li>• James A. Johnson</li> <li>• Wrangell</li> <li>• Yakutat</li> </ul>	A	Aircraft less than 90 feet in length	<ul style="list-style-type: none"> <li>• One vehicle carrying at least 500 pounds of sodium-based dry chemical, halon 12211, or clear agent; or</li> <li>• 450 pounds of potassium-based dry chemical and water with commensurate quantity of aqueous film forming foam (AFFF) to total 100 gallons for simultaneous dry chemical and AFFF application</li> </ul>
<ul style="list-style-type: none"> <li>• Juneau International</li> <li>• Ketchikan International</li> <li>• Sitka Rocky Gutierrez</li> </ul>	B	Aircraft at least 90 feet but less than 126 feet in length	<ul style="list-style-type: none"> <li>• One vehicle carrying at least 500 pounds of sodium-based dry chemical, halon 1211, or clean agent and 1,500 gallons of water and commensurate quantity of AFFF for foam production; or</li> <li>• One vehicle carrying the extinguishing agents required for Index A (outlined above), and one vehicle carrying an amount of water and commensurate quantity of AFFF so the total quantity of water for foam production carried by both vehicles is at least 1,500 gallons</li> </ul>

The ARFF Index is based on the longest aircraft regularly serving an airport. If there are fewer than five average daily departures of the longest air carrier aircraft serving an airport, the Index required for the airport will be the next lower Index. Juneau, Ketchikan, and Sitka all receive service from Boeing 737 series aircraft at least 119 feet in length, resulting in an Index B classification. Gustavus, Petersburg, Wrangell, and Yakutat also receive service by Boeing 737. There are fewer than five 737 flights a day into these airports, and they are classified as Index A.

## 2.9 User Comments on Southeast Facilities

All 44 air carriers and air taxis that regularly serve the Southeast Alaska region were interviewed about their operations in late 2007 and their thoughts on aviation facilities in the region. Appendix D contains a complete set of their comments. This section contains a summary of specific concerns identified by Southeast Alaska aviation facility users. These issues, which may represent one or several individual's perspectives, will be taken into account in the *Capacity, Constraints and Strategies Report* published as part of the SRASP.

### *Helicopters*

- Some remote helicopter access pads on mountaintops are in bad shape (though the Capstone access helicopter pads are in good condition).

### *Runways and Taxiways*

- Trim the trees at the Haines and Hoonah Airport runway ends.
- Hoonah Airport runway needs to be longer.
- Pavement in poor condition at some airports (specifically, Kake, Klawock, and Haines Airports), though regionwide airfield pavement is in good condition.
- Haines Airport Runway 8 needs a high-speed exit taxiway.
- Lights at Gustavus Airport are helpful, though regulations prohibit pilots from landing at night. Pilots stated apron lighting at Kake Airport is needed.

### *SPBs*

- Floatplanes conduct the majority of operations in Southeast Alaska; DOT&PF needs to put more funding into SPBs.
- General comments about floats in both the northern and southern parts of the region needing repairs/better maintenance. According to users, specific floats that need to be improved or replaced include: Baranof Springs, Hoonah, Tenakee Springs, Craig, the former float that served the Hollis area (not the newly constructed Clark Bay float), Metlakatla, KTN, Ketchikan Harbor, Port Alexander, and Angoon.
- More transient floatplane parking needed along Ketchikan Harbor.
- Numerous concerns expressed about safety and limited operating capacity for floatplanes in the Ketchikan area.
- Sitka needs a new SPB.
- Tenakee Springs float, old Hollis float, and Harris Harbor float in Juneau are too high, and tails of larger floatplanes (deHavilland Beavers) hit the dock.
- Concerned that plans to dredge the JNU floatplane pond to a depth of 12 feet will be too deep and unsafe. Four feet is a good depth.

- Cleats on floats are easier than eyes for floatplanes to tie up to.
- Boats sometimes tie up to floats designated for seaplane use only. The issue is particularly prevalent at Baranof Warm Springs, Angoon, Hoonah, Elfin Cove, Port Alexander, Hydaburg, and Wrangell.
- Elfin Cove float does not have the capacity to handle floatplane traffic in the summer.

#### *Navigation, Communication, and Weather Reporting Aids*

- Capstone equipment should be available for all types of helicopters, not just A-Stars.
- Overall communication is good, though there are some dead spots on outer coast of Port Alexander.
- More webcams needed. Specific locations include: Clarence Strait, near Ketchikan, Port Alexander, Klawock and Kake, Prince of Wales Island passes, Five Finger Lake, Seymore, Elfin Cove, and Cape Spencer.
- There needs to be better communication in Misty Fjords.
- Petersburg Airport Automated Surface Observing System sometimes gives inaccurate readings.

#### *Facilities*

- Lease lot prices are too high at JNU.
- Shortage of lease lots at Juneau, Sitka, and Wrangell Airports.
- Gustavus, Haines, and Klawock Airports need public restrooms.
- Snow plows pull up tie-down hooks at Haines Airport; sink tie-downs into the pavement.
- Public fueling facilities needed at Hoonah and Skagway Airports and Sitka seaplane float.

#### *M&O, Fencing, and Wildlife*

- Locked gates at Gustavus and Kake Airports create issues for airport users.
- Wildlife and bird hazards at Haines, Hoonah, JNU, Kake, and Klawock.
- Inadequate fencing at Haines, JNU, and Kake Airports.

- Size of gravel used on Haines runway hard on propellers.
- Hoonah Airport needs sander truck. The runway can get very icy.
- Some concerns about timeliness of snow removal at Haines Airport.

#### *General*

- Mail and Essential Air Service (EAS) subsidies are not fairly allocated to all carriers.
- Hazmat training expensive and hard to get.

### **3.0 AIR NAVIGATION ENVIRONMENT**

#### **3.1 Overview**

There are few roads in Southeast, and the reliability of air travel is critical to reaching most of the communities in the region on a timely basis. Reliability is dramatically affected by the generally poor weather and by the rough terrain. Many airports do not have instrument approaches that allow service during inclement weather, and many flights in the region are conducted under Visual Flight Rules (VFR) even in marginal weather. Flights in the region often follow the deep fjords at low altitudes to remain below clouds.

Alaska Airlines provides jet service to the larger airports in the region. Other service in the area is generally by turboprop aircraft such as the Cessna 208 or by single engine piston aircraft such as the Cherokee 6 or Cessna 207. With few flat areas suitable for the construction of airports, many communities are served by floatplanes such as the DeHavilland Beaver.

#### **3.2 Legacy Systems**

For the past several decades, the air navigation environment in Southeast Alaska has primarily relied on legacy navaid systems such as the non-directional beacon and very high frequency omnidirectional range (VOR). Only two airports, Yakutat and Ketchikan, have an Instrument Landing System (ILS) approach. Juneau has a localizer just west of the airport, but does not have a standard ILS approach due to the surrounding terrain. Sitka, Petersburg, and Wrangell also have localizer directional aid approaches.

Most instrument approaches in the region have very high weather minimums due to terrain or obstructions. For example, the ILS at Ketchikan has a minimum descent altitude of 914 feet

above the runway and visibility of three miles. These minimums are essentially equivalent to VFR weather minimums and limit the utility of the ILS approach.

Weather reporting is another issue that has proved difficult in Southeast Alaska. Although there were sixteen federally operated weather reporting systems in the region prior to Capstone, there are many valleys and fjords with frequently changing weather that have no weather reporting available. There is a distance of over 200 miles with no weather reporting along the Gulf coast between the weather stations at Yakutat and Sitka. This lack of reliable weather data is often the most critical factor in reaching remote communities in Southeast because most flights to small communities are VFR and must avoid Instrument Flight Rules (IFR) weather.

A further complication of trying to fly IFR in Southeast Alaska is the fact that the traditional Victor airways are straight lines between the various nav aids in the region and these straight lines often pass over the tops of high mountains. For aircraft desiring to stay under the weather and out of potential icing conditions, use of these airways presents possible safety problems.

The lack of suitable low altitude airways and instrument approaches often conflicts with the desires of air carriers and passengers to reach a destination in a timely manner. This conflict forces air carriers to attempt many flights in marginal VFR weather. When weather is worse than anticipated, flights may have to return to their origin or simply wait out the weather in an alternate airport. This uncertainty results in a lack of reliable air service, wasted fuel, and wasted time.

In an early attempt to improve access to several airports in the region, DOT&PF installed a small number of Visual Approach Slope Indicator (VASI) systems several years ago. The VASIs were placed into service and operated by DOT&PF until the Capstone program began in 2003. At that time, FAA replaced the VASI equipment and began to realign the VASIs to support instrument approaches. However, many of these VASI systems could not meet FAA instrument approach standards because of terrain obstructions in the VASI glideslopes. Some of the VASI systems were therefore taken out of service and are now unavailable to both VFR and IFR pilots. The FAA and DOT&PF are currently investigating the use of a baffle system in order to limit the horizontal width in which these VASIs are visible. If the baffles prove successful, a limited number of these VASIs may eventually be returned to service.

### **3.3 Navigation Improvements Prior to 2003**

#### **3.3.1 Global Positioning System**

In the early 1980s, the satellite based Global Positioning System (GPS) system became available for civilian use. This system provides basic navigation information through a series of satellites, does not require the installation of ground-based navaids, and is generally not affected by line-of-sight issues in areas of high terrain.

In the 1990s, the FAA began to develop non-precision instrument approaches using only GPS as a navigational aid. Although basic GPS (also referred to as RNAV, which stands for Area Navigation) does not provide enough accuracy for a precision approach, GPS approaches are suitable for many airports where no approach previously existed. Many airports throughout Southeast Alaska received their first-ever approach due to the availability of GPS.

#### **3.3.2 Required Navigational Performance**

In 1996, Alaska Airlines began the development of Required Navigational Performance (RNP) approaches for JNU. Although partly based on GPS information, RNP approaches differ in that an RNP certified aircraft may use a variety of navigational aids to achieve a certain performance level of navigation accuracy. The use of RNP technology requires aircraft certified for RNP, special training and procedures for aircraft crews, and the development of RNP approaches.

Because the demonstration of RNP at Juneau proved so successful, Alaska Airlines has developed additional RNP approaches for many airports across Alaska. However, all of these approaches, including Juneau, are “special procedures” approaches available only to Alaska Airlines. Although there are no public RNP approaches in Alaska, this technology is now being adopted by other airlines and implemented at airports worldwide.

### **3.4 Recent Capstone Improvements**

In the late 1990s, the FAA began to develop a computer and satellite-based navigation system in southwestern Alaska. This system was called Capstone Phase I and was intended to be a demonstration program for the various technologies and procedures that made up the system. The program included ten airports and focused on implementing an air to ground data link known as Automatic Dependent Surveillance-Broadcast (ADS-B) in the Bethel and Yukon-

Kuskokwim Delta area. The successful implementation of this program led to a significant decrease in accidents in Southwest Alaska, and a second phase of the Capstone program was proposed for Southeast Alaska.

Capstone Phase II officially began in March 2003. Like Phase I, the program sought to implement ADS-B and satellite navigation by the installation of various ground-based transceivers (GBT) and cockpit instrumentation. FAA charts and policies were also to be updated to reflect the requirements of the new system.

Capstone Phase II focused on passenger and cargo operations under Parts 133 and 135 of the Federal Aviation Regulations (FAR). Part 135 operators are those that fly fixed-wing aircraft and helicopters for the purposes of air taxi and flightseeing operations. Many of the Part 135 operations in the region are conducted by floatplanes. Part 133 operators are similar to Part 135 operators, but also use helicopters for non-passenger activities such as helicopter logging.

#### 3.4.1 Aircraft Instrumentation

Prior to the Capstone program, aircraft were primarily equipped with legacy navigational equipment that has changed little in the past several decades. A 2006 report by the U.S. Department of Transportation presents active aircraft navigational equipment for GA and air taxi aircraft for Alaska. This report was written after the implementation of Capstone, but still provides information on the most common types of avionics in GA aircraft. Although this information was only available on a statewide basis, Southeast Alaska data is likely similar to the statewide data.

The report shows that, of the GA and air taxi aircraft in Alaska with on-board navigational aids, 16.0 percent have distance measuring equipment (DME), 23.4 percent have 100-channel VOR, 13.2 percent have 200-channel portable VOR, 42.2 percent have 200-channel fixed VOR, 27.8 percent have 1+ VOR, and 29.3 percent have automatic direction finder. Some of these aircraft may have more than one of these navigational aids installed. The following table identifies some of the aircraft in the region that either do not have Capstone equipment or have navigational aids in addition to the standard Capstone equipment.

**Table 23: Aircraft with Avionics Other Than Standard Capstone**

<b>Aircraft</b>	<b>Landing Gear</b>	<b>Based</b>	<b>No Capstone</b>	<b>Capstone Plus</b>
Cessna 180	Floats	Petersburg	GPS	
Cessna 185	Wheels	Haines	2 GPS	
Cessna 185	Wheels/Floats/Skis	Ketchikan	GPS	
Cessna 185	Wheels	Yakutat	VFR	
Cessna 185	Amphibious	Petersburg		GPS
2 Cessna 185s	Amphibious	Petersburg SPB	GPS, ILS, etc.	
Cessna 206	Floats	Juneau		VOR
Cessna 206	Amphibious	Wrangell		Handheld GPS
2 Cessna 206s	Wheels	Yakutat	VFR	
Cessna 402	Wheels	Anchorage		ILS, RNAV, LOC/DME, VOR
Piper PA-18	Wheels/Skis	Juneau	Handheld GPS	
Piper Cherokee 6	Wheels	Juneau		IFR
Piper Navajo Chieftan	Wheels	Juneau		IFR
Piper 2 Navajo Chieftans	Wheels	Sitka		IFR
Beech Bonanza	Wheels	Wrangell		Handheld GPS
DeHavilland DHC-2 Beaver	Wheels/Floats/Skis	Ketchikan	GPS	
DeHavilland DHC-2 Beaver	Floats	Petersburg SPB	GPS, ILS, etc.	
DeHavilland DHC-2 Beaver	Floats	Ketchikan Harbor		ILS, GPS
Aeronca Champ	Wheels/Skis	Juneau	Handheld GPS	
Sherpa	Wheels	Anchorage		ILS, RNAV, LOC/DME, VOR
Beech King Air	Wheels	Anchorage		ILS, RNAV, LOC/DME, VOR
4 Beech 1900s	Wheels	Anchorage	ILS, GPS, VOR	
6 ATR-42s	Wheels	Coeur d'Alene, ID	ILS, GPS, VOR	
16 737-400s, 2 737-800s, 1 737-900	Wheels	Seattle, WA	Heads Up and RNP	
Baby Bell Medium	Skids	Ketchikan	GPS	
2 Jet Rangers	Skids	Juneau	GPS	
Hughes 500 D	Skids	Juneau	GPS	
3 Hughes 500 Ds	Skids	Ketchikan	GPS	
10 Aerospatiale 350 B-2s	Skids	Juneau	GPS	
13 Boeing Vertal 107s	Skids	Ketchikan	GPS, some IFR	
5 Chinook 234s	Skids	Ketchikan	GPS, some IFR	

Source: From air carrier interviews and website research, compiled by Southeast Strategies, 2007.

Note: C = Cessna (i.e., C-206 is Cessna 206)

To ensure that an adequate number of aircraft would participate in the Capstone Phase II program, the FAA paid for the installation of equipment in participating aircraft. This equipment

consisted of a multifunction display (or primary flight display and separate navigation display) connected to a GPS/Wide Area Augmentation System (WAAS) receiver and a universal access transceiver data link.

This system is capable of providing primary flight information including heading, attitude, vertical speed, and flight path. The system also displays three-dimensional displays of nearby terrain and warns of potential terrain conflicts. The location of nearby aircraft with Capstone equipment can be displayed, but the locations of non-Capstone aircraft may not be available unless their position is available to the Air Traffic Control (ATC) system through radar coverage or multi-lateration (position estimation using multiple ground transceivers). Navigation functions include position, course, waypoints, fixes, and groundspeed. The data link is capable of receiving data on air-to-air targets and other flight information from the ATC system.

The equipment was installed in approximately 180 aircraft in Southeast Alaska. Of these, only ten aircraft were able to be certified for IFR operations. In order to legally conduct IFR flights, Part 135 pilots and their aircraft must meet certain parameters as specified by the FAA. Most of the Part 135 commercial carriers use small, single engine aircraft that often cannot meet the stiff Part 135 IFR requirements. Additionally, there were problems with one of the suppliers of some of the equipment and software, and many of the participating aircraft do not have the capability to receive the ADS-B data, such as aircraft positions and weather, provided by the Capstone system.

### 3.4.2 Transceivers

In order to provide data to the aircraft, the FAA has installed a variety of new transceivers on the ground throughout Southeast Alaska. The GBTs provide real-time weather data and location data for other properly equipped nearby aircraft using an ADS-B data link. The Capstone program identified 14 sites for GBTs during the demonstration period and completed construction on all of these sites. However, only one GBT (Juneau) has been certified for use at this point, and program delays are likely to postpone the certification of the remaining sites. Much of the current delay is attributable to the nationwide transition to a contract operator for all existing and future GBT sites. It is anticipated that the remaining GBT sites in Southeast Alaska will be operational in the next few years.

GBTs have been sited at the following locations:

- Yakutat
- Haines
- Gustavus
- Lena Point
- Juneau
- Sisters Island
- Cape Spencer
- Biorka Island
- Angoon
- Gunnuk Mountain
- Wrangell
- Port Alexander
- High Mountain
- Sunny Hay

The FAA has recently installed WAAS ground stations throughout the U.S. to provide positional corrections for GPS satellite data. This system allows aircraft to fly GPS approaches with accurate vertical guidance thereby providing a degree of functionality similar to precision ILS approaches. The system includes seven WAAS stations in Alaska with only one of these stations in Southeast Alaska at Juneau. WAAS provides good signal coverage throughout most of Southeast Alaska, but the signal can be blocked in some locations by high terrain. All Capstone-equipped aircraft are capable of receiving the WAAS signal, and WAAS is an integral part of the Capstone program.

Although WAAS became operational nationwide in 2003, much of the benefit of this system will not be fully realized until suitable instrument approaches are developed. New WAAS approaches with vertical guidance are referred to as localizer performance with vertical guidance (LPV) approaches, but none of these approaches is currently available in Southeast Alaska. FAA does plan to develop several LPV approaches in Southeast Alaska where appropriate.

The third category of transceiver required for the Capstone system in Southeast Alaska includes various radio communications transceivers. Communications with pilots in southeast Alaska are either directly to Flight Service Stations and ATC towers or via stand-alone transceivers that provide coverage in more remote areas. These remote transceivers fall into three general categories.

Remote Communications Outlets (RCO) are unmanned communications facilities remotely controlled by air traffic personnel. RCOs primarily serve Flight Service Stations. Remote Transmitter/Receivers (RTR) are similar, but primarily serve terminal ATC facilities. RCOs or RTRs may be ultra high frequency or very high frequency and are divided into several categories based on reliability and the number of transmitters or receivers. Less reliable RCOs and RTRs

may be used for non-critical ground to ground communications and may be subject to occasional outages. The third category of communications transceiver is the Remote Communications Air/Ground Facility (RCAG). These facilities are generally used to expand Air Route Traffic Control Center air/ground communications coverage and to facilitate direct contact between pilots and controllers.

Prior to the Capstone program, Southeast Alaska had 25 RCOs, two RTRs, and six RCAGs. As part of the Capstone program, a survey was conducted to determine whether these facilities provided sufficient coverage throughout the region. Following that survey, an additional two RCOs and two additional RCAGs were installed and put into operation in Southeast Alaska. One of the new RCAGs was installed at the south end of Stephens Passage for direct pilot-controller voice contact, and the other RCAG was installed on Mount Robert Barron to improve communication along Lynn Canal and over Icy Bay. One of the new RCOs was also installed near Mount Robert Baron. RCAG coverage is now adequate to support IFR operations on the Capstone sponsored Special IFR infrastructure in southeast Alaska. In addition, RCO coverage was increased for VFR operations.

### 3.4.3 Airways

In an effort to improve on the legacy airways in Southeast Alaska, the Capstone program developed lower minimum en route altitudes for existing Victor routes. The lower minimum en route altitudes for Victor routes are only available to air carriers with Capstone-certified equipment and training.

Capstone also developed a series of T and Q instrument routes for the region. The T routes are low-level routes, and the Q routes are above 18,000 feet. The T routes are similar to legacy routes, but are generally at a lower altitude than similar legacy routes due to fewer altitude restrictions based on spotty reception from legacy nav aids. Both types of routes are based solely on satellite navigation with the Capstone equipment and were published on various FAA charts. The T and Q routes are currently usable for navigation by the general public when on an IFR flight plan.

An additional set of “special” instrument routes were developed by Capstone. These routes more closely follow the terrain of the area and are at even lower altitudes than the T routes described

above. However, due to a lack of policies and guidance for their use, these “special” routes are not available for use by the general public. Key issues preventing these routes from being fully utilized include a lack of rules for non-radar separation and for minimum safe altitudes.

#### 3.4.4 Approaches

In order to improve the reliability of access to the airports in Southeast Alaska, the Capstone program sought to develop instrument approaches to a majority of airports in the region. However, accurate survey information was not available for many of the airports and special-purpose runway surveys had to be performed. During the early years of Capstone Phase II, the FAA conducted runway surveys at multiple airports in preparation for new GPS approaches.

Once these surveys were complete, the FAA began to develop additional GPS approaches. Initially, approaches were developed for Juneau, Haines, Hoonah, and Gustavus. Approaches to Angoon, Kake, Ketchikan, Klawock, Petersburg, Sitka, and Wrangell were developed later. Because of surrounding terrain, many of the new approaches could not be made suitable for use by the general public. Therefore, most of these approaches were given waivers for current Terminal Instrument Procedures criteria and designated as “special procedures” approaches for use only by air carriers that meet specific training and equipment requirements.

As discussed earlier, WAAS LPV approaches can improve on basic GPS approaches by providing precision approaches similar to an ILS at airports that currently lack precision approach equipment. LPV approaches can achieve minimums as low as 200 feet above the runway for certain airports. Currently, there are no airports with LPV approaches in Southeast Alaska.

### **3.5 Future Issues/NextGen Implementation**

Due to the success of the various satellite navigation programs thus far, the FAA has decided that the nationwide air navigation system should be transitioned to a satellite-based system in the next twenty years. This new system, similar to the systems demonstrated by Capstone, will be called NextGen (short for Next Generation). Although the decision to transition to NextGen has already been made, the exact technologies, policies, timeline, and funding are currently being refined by FAA. The upcoming reauthorization of FAA by Congress will help clarify the funding and timelines for the NextGen transition.

### 3.5.1 Automatic Dependent Surveillance-Broadcast

The backbone of the future ATC system will be the position reporting enabled by ADS-B. This system will provide information on an aircraft's position to ATC and other nearby aircraft through a network of GBTs and through GPS-connected transceivers in individual aircraft. Although ADS-B equipment was installed in over 180 aircraft as part of the Capstone Phase II program, many of these installations were never completely functional. Also the Capstone project has ended, and there are questions about the ownership of the government-provided equipment in these aircraft. The FAA had planned to implement an Avionics Transition Plan by March 2008 that would require aircraft owners to purchase the equipment at a depreciated rate or to remove the equipment from their aircraft. This issue is not yet resolved.

Future changes and policies related to ADS-B in Southeast Alaska are likely to be a part of the national implementation of ADS-B. Currently the FAA is proposing that ADS-B Out (transmit only for aircraft) be operational for ground stations by 2013 and for all aircraft by 2020.

### 3.5.2 Transceivers/Nav aids

Other than completing the certification of the recently constructed GBTs, there are no other plans for additional transceivers in Southeast Alaska in the next few years. However, future systems such as the Local Area Augmentation System (LAAS) might be installed several years in the future.

LAAS was intended to provide Category I, II, and III precision approaches with the option for flexible, curved approach paths and missed approach paths. LAAS is similar to WAAS in that it provides a corrected GPS signal for precision approaches. The difference is that LAAS uses a ground-based system to broadcast the corrections instead of using a satellite like WAAS does. A typical LAAS facility consists of multiple receivers and a single data transceiver at a specific airport. This system is much cheaper than an equivalent ILS system for each runway.

Although LAAS has a demonstrated accuracy of less than one meter in both the horizontal and vertical directions, for many purposes it is not substantially better than the existing WAAS system. For other purposes, such as Category III ILS approaches, LAAS is not as accurate as the existing legacy ILS systems.

For these reasons, the future of the LAAS program is unclear. LAAS is currently a research and development project, and FAA is working on the certification of the first prototype LAAS ground station in Memphis, Tennessee in conjunction with FedEx. This demonstration project is planned to be complete by 2010. Current indications from FAA are that LAAS will not become a federal system, but that individual airports may choose to install LAAS in certain situations. LAAS may prove useful in areas such as western Alaska and the Aleutian Islands where WAAS coverage is inadequate. For certain locations in Southeast Alaska that may have poor WAAS coverage, LAAS might also be a good option.

### 3.5.3 Decommissioning/Backup System

The decommissioning of legacy navaids is addressed by various NextGen planning documents. The year 2030 had been tentatively set as the decommissioning date, but the FAA must continue to work with industry and aircraft owners to ensure that this date is achievable.

However, the choice of backup systems for the NextGen system is unclear. One possibility is the existing Loran system that is not satellite based and can provide RNAV functionality similar to basic GPS. The Loran system cannot currently provide the various approach and departure services envisioned for NextGen due to a lack of precision and due to signal interference from terrain in certain locations. However, Loran receivers are improving and may eventually have an accuracy similar to basic GPS.

### 3.5.4 Winds/Weather

As discussed above, weather data is a key part of the Capstone and NextGen systems. Another effort to obtain better weather data is the Juneau Airport Wind System (JAWS) program in Juneau. The JAWS system is an experimental system for predicting erratic wind flows and wind shear in the vicinity of the JNU. Although the Juneau Airport already has a low-level wind shear system similar to those in other states whose system was originally designed to detect wind shear associated with thunderstorms. The problem with winds at the JNU and other Southeast Alaska airports is similar to thunderstorm wind shear but is caused primarily by topography. Winds blow over and around mountains in the vicinity of an airport resulting in difficult winds for aircraft operations.

The JAWS program seeks to develop a wind warning system based on local topography, wind measurements, and a computer model of wind conditions. This system is still experimental, but a similar system might provide valuable wind warnings at other Southeast Alaska airports in the future.

### 3.5.5 Airways

The currently published low-level IFR routes are not planned to be made available to the general public in the near term. However, as FAA policies and safety issues associated with these routes are resolved, the low-level IFR routes, or something similar, will likely become available in the long term. The expansion of satellite navigation will most certainly enable the development of routes that better avoid terrain and allow for lower en route altitudes.

## **3.6 Impacts on Operations in Southeast Alaska**

### 3.6.1 Participation in the Instrument Flight Rules System

One of the original goals of the Capstone Program was to increase safety by moving aircraft operations from a VFR environment into the IFR system. Historically, IFR operations are much safer than VFR operations, and the additional situational awareness provided by the Capstone avionics should improve safety levels even more.

However, there has been little shift towards IFR operations in Southeast Alaska. Reasons for this include the prevalence of floatplanes in the region, the ages and types of wheeled aircraft, and FAR Part 135 regulations regarding single-pilot IFR operations.

Almost all Part 135 aircraft in Southeast Alaska are single engine, flown by a single pilot, and seat ten or fewer passengers. These aircraft tend to be small and often quite old. The requirements an operator must meet to conduct IFR flights under Part 135 are difficult to meet. The parameters necessary to conduct IFR flights are established by the FAA and are outlined in the *Part 135 Operations Specifications* manual developed for each operator. Generally it is easier to certify a twin-engine aircraft for IFR operations, though it is not impossible for single-engine aircraft to be certified. As a result, of the 180 or so aircraft participating in the Capstone program, only ten were certified for IFR flight.

Furthermore, a large percentage of planes in Southeast Alaska are floatplanes. Although equipped with Capstone equipment, floatplanes generally do not participate in the IFR system because instrument approaches do not normally exist for water landing areas. There is an instrument approach to the water near Angoon, but Angoon is a unique situation because no land runway exists for that community. The approach to Angoon is a special procedures approach and is only available to certain commercial operators as approved by the FAA. This approach is not available to the general public. The approach is only possible because a landing area has been marked on the surface of the water with buoys. No other instrument approaches are currently planned for water landing areas in the region.

A final issue is the fact that most of the IFR enroute airways require aircraft to climb rather high to clear the mountainous terrain. This often forces IFR aircraft into dangerous icing conditions, and the smaller, older aircraft common in Southeast Alaska are not equipped or certified for flight in icing conditions. Pilots therefore choose to fly VFR and remain below the clouds.

### 3.6.2 Impact on Overall Safety

Comments on overall safety were received from a wide variety of aircraft owners, operators, and pilots in the region. There was an almost unanimous feeling that the moving map information provided by the Capstone avionics increased safety for all operations, both VFR and IFR. For aircraft and areas where weather and aircraft avoidance data was available, respondents generally agreed that this data was helpful, especially in busy areas near the larger cities. Because the weather and traffic data is not yet available to all aircraft (due to the software problem with some of the systems), some respondents were unable to comment on the usefulness of that data.

Some respondents felt that the additional situational awareness may cause some pilots to venture into marginal weather or other dangerous situations that they would not have tried prior to Capstone. Several pilots reported seeing VFR aircraft flying dangerously low in an attempt to remain below clouds. Although this type of behavior certainly happened prior to Capstone, some pilots felt that this dangerous behavior may have increased slightly in the past year or two. Other pilots felt that such unsafe behavior was more a result of poor training or lack of company policies than of the presence of Capstone equipment in an aircraft.

## 4.0 AVIATION BUSINESSES

### 4.1 Ground Service Providers

An FBO headquartered in Texas with businesses across the country has offices in Juneau, Ketchikan, and Sitka that provide a full complement of FBO services. The company also owns a self-service fuel facility in Gustavus. Fuel is available for purchase at most airports and SPBs, and several individuals and private companies have their own fuel tanks. Though many individuals and aviation businesses perform their own aircraft maintenance, there are aircraft maintenance businesses at the Juneau, Ketchikan, Petersburg, Sitka, Wrangell, and Yakutat Airports. A Part 135 operator in Ketchikan also provides floatplane maintenance for the region.

The following table provides a summary of services available based on interviews with Southeast service providers and DOT&PF personnel.

**Table 24: Services Available at Southeast Airports and Seaplane Bases**

Aviation Facility	Services Available
Angoon SPB	No services
Gustavus	Fuel
Haines	Fuel
Hoonah	No services
Juneau	Fuel; pilot/crew support area; aircraft maintenance; pilot supplies; aircraft storage
Kake	No services
Ketchikan	Fuel; pilot/crew support waiting area, aircraft maintenance; pilot supplies; aircraft storage
Klawock	Fuel
Peninsula Point SPB	No services
Petersburg Seaplane Facility	No services
Petersburg	Fuel; aircraft maintenance; freight storage
Sitka	Fuel; pilot/crew support area; aircraft maintenance; pilot supplies; aircraft storage
Skagway	No services
Wrangell	Fuel; aircraft maintenance
Yakutat	Fuel; aircraft maintenance

Source: DOT&PF personnel and air carrier interviews

### 4.2 Carrier Inventory

All air carriers identified as regularly serving Southeast Alaska were interviewed for this report. Managers were asked about their operations within the region and their future plans. Several carriers were identified as operating within the region only occasionally, generally on a charter basis or ferrying aircraft through the region. These carriers were not interviewed for this report, and include, but are not limited to Peninsula Airways, Kitty Hawk Air Cargo, Tatonduk Flying

Service, Casino Express, Champion Air, Continental Airlines, Everts Air Cargo Express, Frontier Flying Services, Pace Airlines, and Lynden Air Cargo. Skagway Air Service, which ceased operating in the late summer of 2007, was not interviewed. Near the conclusion of this report, LAB Flying Service, a major Part 135 operator in the northern sub-region of Southeast Alaska, has ceased. The impacts of this change are not yet known and have not been factored into this report.

Three companies provide medical evacuation (medevac) operations with fixed-wing aircraft in Southeast Alaska. Guardian Flight has a King Air based in Sitka and a Learjet based in Ketchikan. The company plans to acquire a helicopter for medevac operations in the near-term. Airlift Northwest has a Learjet based in Ketchikan and another based in Juneau. Both of these companies provide medevac flights to hospitals in Southeast Alaska communities as well as hospitals in Seattle. The medevac providers prefer to operate the Learjets at airports with runways at least 5,000 feet in length for safe operations. The King Air can land with a minimum of 2,000 feet if the runway is dry, but normally requires a runway length of at least 3,000 feet. Airlift Northwest's Ketchikan-based Learjet will soon be relocated. Neither of these companies have Capstone equipment in their aircraft. Harris Aviation, a Part 135 operator based in Sitka, uses Navajos and Beavers to provide charter medevac flights from Southeast Alaska communities to the Native hospital in Sitka. The company's aircraft are Capstone-equipped. The USCG has an air station at Sitka that provides medevac flights via three Sitka-based Jayhawk helicopters when necessary, as well as search and rescue services.

Though *Section 4.2, Carrier Inventory* focuses on Part 135 and 121 cargo and air carriers, it is important to acknowledge the GA presence in Southeast Alaska. A summary of GA aircraft based in the Southeast region is provided in Table 25. This count includes all planes registered to regional residents by community of residence, minus those known to be in the commercial aircraft fleet. Some of these planes may belong to governmental agencies and corporations, but most are owned by private parties and are used mainly for recreational flying.

**Table 25: GA Aircraft Registered by Residence, 2007**

Community	Number
Craig/Klawock	10
Gustavus	25
Haines	65
Juneau	244
Kake	3
Ketchikan	140
Klawock	4
Petersburg	28
Point Baker	1
Port Alexander	4
Sitka	61
Skagway	8
Thorne Bay	2
Wrangell	14
Yakutat	14
<b>Total</b>	<b>623</b>

Source: FAA Aircraft Registration Files, 2007.

Note: Includes all planes registered to residents of the region, minus those known to be in the commercial fleet.

For this report, air carriers are businesses that transport passengers, freight, or mail by aircraft. Air carriers with fewer than 30 passenger seats and a payload of less than 7,500 pounds are certified under Federal Aviation Regulation Part 135 (Part 135). Commuter air carriers are Part 135 carriers that provide regularly scheduled air service between communities for passengers or cargo. Air taxis are Part 135 air carriers that provide on-demand charter service, but generally do not provide scheduled service. Part 121 air carriers are commercial airlines providing service with aircraft with more than 30 passenger seats and a payload of greater than 7,500 pounds.

Table 26 lists air carriers providing regularly scheduled passenger or cargo service in the region, their home office location, and the type of service they provide. Several air taxis in the region provide scheduled services to some communities under EAS contracts, and they are also listed here although the majority of their business is on-demand charter service.

**Table 26: Air Carriers Providing Scheduled Service in Southeast Alaska, 2007**

Air Carrier	Home Office	Type of Service
Alaska Airlines	Seattle, WA	Commuter Air Carrier with EAS Contract (Part 121)
Alaska Central Express	Anchorage	Scheduled Cargo Service (Part 135)
Alaska Seaplane Service	Juneau	Commuter Air Carrier (Part 135)
Alsek Air Service	Yakutat	Air Taxi with EAS Contract (Part 135)
Arctic Circle	Anchorage	Commuter Air Carrier (Part 135)
Empire Air (Cargo) and FedEx	Coeur d'Alene, ID	Scheduled Cargo Service (Part 121)
Harris Aviation	Sitka	Air Taxi with EAS Contract (Part 135)
LAB Flying Service*	Haines	Commuter Air Carrier (Part 135)

**Table 26 (cont'd): Air Carriers Providing Scheduled Service in Southeast Alaska, 2007**

Air Carrier	Home Office	Type of Service
Pacific Airways, Inc.	Ketchikan	Commuter Air Carrier (Part 135)
Promech Air (PM)	Ketchikan	Commuter Air Carrier (Part 135)
Taquan Air (Venture)	Ketchikan	Commuter Air Carrier (Part 135)
Ward Air	Juneau	Air Taxi with EAS Contract (Part 135)
Wings of Alaska	Juneau	Commuter Air Carrier (Part 135)

\* As of September 2008, LAB Flying Service is no longer operating.

Source: From air carrier interviews and website research, compiled by Southeast Strategies, 2007.

Note: EAS Subsidy. Air taxis do not provide scheduled service unless they have an EAS contract.

Table 27 lists air taxis based in Southeast Alaska that provide on-demand service within the region. Air taxis provide mainly on-demand charter service, while commuter air carriers provide charter service if requested.

**Table 27: Part 135 Air Taxis Providing Service in Southeast Alaska, 2007**

Air Carrier	Home Office
Air Excursions	Gustavus
Air Sitka	Sitka
Alaska Seaplane Tours	Ketchikan
Alaskan Outback Adventures	Auke Bay
Carlin Air	Ketchikan
Cascade Air	Yakutat
Coastal Helicopters	Juneau
Columbia Helicopters	Ketchikan
Earth Center Adventures	Haines
Era Aviation (Helicopters)	Anchorage
Family Air	Ketchikan
Fjord Flying Service	Gustavus
Fly in Fishing	Juneau
Gateway Aviation	Ketchikan
Island Wings Air Service	Ketchikan
Kupreanof Air Service	Petersburg
Misty Fjords Air and Outfitting	Ketchikan
Mountain Flying Service	Haines
Nordic Air	Petersburg
Northstar Trekking/Helicopters	Juneau
Pacific Wing Charters	Petersburg
Pirate Airworks	Ketchikan
Salmon Air	Sitka
Scott Air	Craig
Seawind Aviation	Ketchikan
Southeast Aviation	Ketchikan
Sunrise Aviation Inc.	Wrangell
Tal Air	Juneau
Temsco Helicopters	Ketchikan
Yakutat Coastal Airlines	Yakutat

Source: From air carrier interviews and website research, compiled by Southeast Strategies, 2007.

Air taxis in Southeast Alaska frequently provide on-demand charter service to communities, remote recreation areas, lodges, and utility and communication facilities. Clients can include, but are not limited to:

- Hunters and fishers
- Remote recreationists (campers, kayakers, etc.)
- Lodges (to transport clients and groceries/supplies in, and clients and caught fish out)
- Government agencies (fish spotting, environmental inspections, law enforcement, etc.)
- Utility and communication companies servicing remote facilities
- Remote mining and logging camps, hatcheries, etc. (workers, guests and groceries/supplies)
- Business people traveling to various communities
- Fishers and fish processors (fishers and crew to and from remote areas, groceries to processors, etc.)
- Local residents traveling to various communities for recreation, business, shopping, medical care, etc.
- Tourists

Some air taxis in the region derive the majority of their business from flying tours. Appendix B presents operational and fleet details for air carriers by airport.

#### 4.2.1 Carrier Bases, Facilities, and Fleet

An air carrier is based at an airport if they have aircraft permanently located at that airport. Air carriers that allow planes to remain overnight at an airport but have no aircraft permanently residing at that airport are not considered based at that airport for purposes of this report. While one of the region's Part 121 air carrier has offices in Ketchikan, Wrangell, Petersburg, Sitka, Juneau, and Yakutat, all of its aircraft are based outside of the region, so that carrier is not counted as a based air carrier at those Southeast Alaska airports. Air taxis that serve an airport but are not based there are not included in this list, because they only serve those airports on demand with no specific schedule or frequency.

Tables 26 and 27 present air carriers by their home offices. Table 28 presents a list of airports in Southeast Alaska with the number of air carriers that serve each airport by whether or not they are based at the airports they serve. The table shows that only 11 of the 30 airports listed have based air carriers. Of those 11 airports with based carriers, only 4 (Juneau, Ketchikan Harbor, Sitka, and Yakutat) have based carriers that provide scheduled service.

**Table 28: Air Carriers Serving each Airport, 2007**

Airport	Based Scheduled	Based Air Taxi	All Based Carriers	Non-based Scheduled	All Carriers
Angoon SPB	0	0	0	1	1
Coffman Cove SPB	0	0	0	1	1
Craig SPB	0	1	1	3	4
Elfin Cove SPB	0	0	0	1	1
Excursion Inlet SPB	0	0	0	1	1
Funter Bay SPB	0	0	0	1	1
Gustavus	0	3	3	3	6
Haines	1	2	2	1	4
Hollis SPB	0	0	0	2	2
Hoonah	0	0	0	2	2
Hydaburg SPB	0	0	0	1	1
Hyder SPB	0	0	0	1	1
Juneau	4	7	11	3	14
Kake	0	0	0	1	1
Ketchikan	0	1	1	3	4
Ketchikan Harbor	3	9	12	0	12
Metlakatla SPB	0	0	0	1	1
Meyers Chuck SPB	0	0	0	1	1
N. Whale Pass SPB	0	0	0	1	1
Pelican SPB	0	0	0	2	2
Petersburg	0	2	2	2	4
Point Baker SPB	0	0	0	1	1
Port Alexander SPB	0	0	0	1	1
Port Protection SPB	0	0	0	1	1
Sitka (includes SPB)	1	1	2	3	5
Skagway (includes Helo)	0	2	2	2	4
Tenakee Springs SPB	0	0	0	1	1
Thorne Bay SPB	0	0	0	3	3
Wrangell	0	2	2	2	4
Yakutat	1	2	3	2	5

Source: From air carrier interviews and website research, compiled by Southeast Strategies, 2007.

Air carriers will generally have offices and counters in the communities in which they are based. They will often have hangars and maintenance facilities there also. If a carrier does not have its own maintenance facility at its base, the carrier generally contracts maintenance services in that community. Rarely is aircraft maintenance obtained in a community other than where a carrier is based. Sometimes carriers will have their own fueling facility at their based airport, but often they use the local FBO to provide them with fuel. Sometimes carriers providing scheduled

service will have offices in communities they serve where they are not based. If they do not have an office, they generally have an agent in those communities. Appendix B presents facility details for air carriers by airport.

The following table presents the commercial fleet of aircraft based at airports in Southeast Alaska by type of landing gear.

**Table 29: Commercial Carrier Aircraft Fleet Based in Southeast by Landing Gear, 2007**

Aircraft	Floats	Amphibious	Wheels	Skids	Total
Cessna-172			1		1
Cessna-180	1		1		2
Cessna-185	9	4	4		17
Cessna-206	4	3	6		13
Cessna-207			3		3
Cessna-208			2		2
Cessna-210			1		1
Cessna-310			1		1
Beaver	36	1	1		38
Otter	13	1	2		16
Aeronca Champ			1		1
Cherokee 6			12		12
Piper PA-18			1		1
Piper PA-28			2		2
Navajo Chieftan			3		3
Britten-Norman Islander			1		1
Helio Courier 250			1		1
Beech Bonanza A36			1		1
DC-3			1		1
A-Stars				24	24
Hughes 500				5	5
Aerospatiale 350 B-2				10	10
Boeing V-107				13	13
Chinook 234				5	5
Baby Bell Medium				1	1
<b>Total</b>	<b>63</b>	<b>9</b>	<b>45</b>	<b>58</b>	<b>175</b>

Source: From air carrier interviews and website research, compiled by Southeast Strategies, 2007.

Note: This count of based aircraft is for the summer season. Fewer aircraft are based in the region during the winter season.

Another 32 planes (all on wheels) provide regular service to the Southeast Alaska region but are not based within the region. Planes based in Anchorage include one Cessna-402, four Beech 1900s, one Sherpa, and one King Air. Planes based outside of Alaska, in Seattle, Washington and Coeur d'Alene, Idaho include six ATR-42s, 16 737-400s (two are combi and two are freighters), two 737-800s, and one 737-900. While not officially based there, three 737-400s and one ATR-42 remain overnight at the Juneau airport, and one 737-400 remains overnight at the SIT.

Table 29 indicates that about a third of the aircraft based in the region are helicopters. Over 60 percent of the fixed-wing aircraft in the region are on floats or on amphibious landing gear. De Havilland Beavers on floats appear to be the workhorse of the region, especially in southern Southeast Alaska.

Table 30 lists the fleet based at each airport in the region and includes planes that regularly serve Southeast Alaska but that are based outside of the region.

**Table 30: Commercial Carrier Aircraft Fleet Serving Southeast (by Base Airport, 2007)**

Airport	Floats	Amphib	Wheels	Skids	Total
Craig/Klawock	1 C-206				1
Gustavus	2 C-206s	1 C-206	1 C-172, 1 C-210, 2 Cherokee 6s		10
Haines			1 C-180, 1 C-185, 2 C-206s, 2 Cherokee 6s		6
Juneau Airport	2 C-185s, 1 C-206, 8 Beavers, 6 Otters	2 C-206, 1 Otter	3 C-207s, 2 C-208s, 1 C-310, 8 Cherokee 6s, 1, PA-18, 2 PA-28s, 1 Chieftan, 1 Aeronca Champ, 1 Islander, 1 Helio Courier	16 A-stars, 1 Hughes 500	54
Juneau Helo (Era)				10 Aerospeciale 350 B-2s	10
Ketchikan International				13 Boeing V-107s, 5 Chinook 234s	18
Ketchikan Harbor	1 C-180, 4 C-185s, 26 Beavers, 7 Otters				38
Ketchikan Helo				1 A-Star, 3 Hughes 500s, 1 Baby Bell Medium	5
Petersburg Airport		3 C-185s		1 Hughes 500	4
Petersburg SPB	1 C-185, 1 Beaver				2
Sitka Rocky Gutierrez		1 C-185, 1 Beaver	2 Navajo Chieftans		4
Sitka SPB	2 C-185s, 1 Beaver				3
Skagway			2 Otters		2
Skagway Helo				7 A-stars	7
Wrangell		1 C-206	1 Beech Bonanza	1 Hughes 500	2
Yakutat			3 C-185s, 4 C-206s, 1 Beaver, 1 DC-3		9
<b>Total</b>					<b>175</b>
Anchorage Based			1 C-402, 4 Beech 1900s, 1 Sherpa, 1 King Air		7
Seattle Based			12 737-400s, 2 737-400 combis, 2 737-400 freighters, 2 737-800s, 1 737-900		19
Idaho Based			6 ATR-42s		6
<b>Total</b>					<b>207</b>

Source: From air carrier interviews and website research, compiled by Southeast Strategies, 2007.

Notes: C = Cessna (i.e., C-206 is Cessna 206).

This count of based aircraft is for the summer season. Fewer aircraft are based in the region during the winter season.

In addition to these commercial carriers, two companies that exclusively perform medical evacuations base planes in the region, as mentioned earlier. Between these two companies, they have two Learjets based in Ketchikan, one Learjet in Juneau, and one King Air in Sitka. Appendix B presents based and service aircraft fleet details by airport and by carrier.

#### 4.2.2 Routing and Frequency of Scheduled Air Carrier Service

Figure 3 shows the communities served by scheduled Part 135 operators based in Juneau, Sitka, and Yakutat. Figure 4 shows the communities served by scheduled Part 135 operators in Ketchikan. Figure 5 shows cargo carrier and Part 121 air carrier routes. The Part 121 carriers and Part 135 cargo carriers based outside of the region follow a linear route through the region and passing out of the region to the north and south. The locally based air carriers follow hub and spoke routings based primarily from Ketchikan Harbor and Juneau, with a few small communities receiving scheduled service from Sitka and Yakutat.

Table 31 presents approximate frequency of scheduled passenger service between airports for the summer of 2007. While many of these carriers also provide freight and mail service, carriers providing cargo-only service are not included in this table. Cargo-only service is presented in Table 33.

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**Figure 3: Scheduled Part 135 Service from Juneau, Sitka and Yakutat**

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**Figure 4: Scheduled Part 135 Service from Ketchikan**

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**Figure 5: Southeast Alaska Cargo Carrier and Part 121 Air Carrier Routes**

**Table 31: Frequency of Scheduled Passenger Service Between Communities, Summer 2007**

<b>Airport</b>	<b>Juneau</b>	<b>Ketchikan</b>	<b>Ketchikan Harbor</b>	<b>Petersburg</b>	<b>Sitka</b>	<b>Wrangell</b>	<b>Yakutat</b>
Angoon SPB	4/day						
Coffman Cove SPB			4/week				
Craig SPB			8/day				
Elfin Cove SPB	3/day						
Excursion Inlet SPB	3/week						
Funter Bay SPB	1/week						
Gustavus	9/day						
Haines	9/day						
Hollis SPB			7/day				
Hoonah	10/day						
Hydaburg SPB			3/week				
Hyder SPB			2/week				
Juneau		3/day		1/day	3/day	1/day	1/day
Kake	5/day						
Ketchikan	3/day			1/day	1/day	1/day	
Ketchikan Harbor							
Metlakatla SPB			5/day				
Meyers Chuck SPB			2/week				
N. Whale Pass SPB			3/week				
Pelican SPB	3/day						
Petersburg	1/day	1/day			1/day	1/day	
Point Baker SPB			4/week				
Port Alexander SPB					2/week		
Port Protection SPB			4/week				
Sitka (includes SPB)	3/day	1/day		1/day		1/day	
Skagway	9/day						
Tenakee Springs SPB	4/day						
Thorne Bay SPB			9/day				
Wrangell	1/day	1/day		1/day	1/day		
Yakutat	1/day						
Out of Region-North	5/day	4/day		1/day	2/day	1/day	1/day
Out of Region-South	10/day	3/day		1/day	2/day	1/day	1/day

Source: From air carrier interviews and website research, compiled by Southeast Strategies, 2007.

Notes:

1. Because a breakout of freight versus passenger service was not available, Alaska Airlines summer-only freighter service is included in the above table. Two 737-400 freighters provided service to Juneau, Ketchikan, and Sitka in the summer only beginning in 2007. As this is a new service, and dependent upon demand (mostly moving fresh fish to market), a standard schedule may take several years to develop.
2. Traffic at the Ketchikan and Juneau Airports includes floatplane traffic that occurs at facilities on airport property.

Table 32 presents the approximate frequency of scheduled passenger service between airports for the winter of 2007/2008. While many of these carriers also provide freight and mail service, carriers providing cargo-only service are not included in this table. Cargo-only service is presented in Table 33.

**Table 32: Frequency of Scheduled Passenger Service Between Communities, Winter 2007/2008**

<b>Airport</b>	<b>Juneau</b>	<b>Ketchikan</b>	<b>Ketchikan Harbor</b>	<b>Petersburg</b>	<b>Sitka</b>	<b>Wrangell</b>	<b>Yakutat</b>
Angoon SPB	2/day						
Coffman Cove SPB			4/week				
Craig SPB			6/day				
Elfin Cove SPB	1/week						
Excursion Inlet SPB	1/week						
Funter Bay SPB	1/week						
Gustavus	4/day						
Haines	6/ay						
Hollis SPB			5/day				
Hoonah	6/day						
Hydaburg SPB			3/week				
Hyder SPB			2/week				
Juneau		3/day		1/day	2/day	1/day	1/day
Kake	3/day						
Ketchikan	3/day			1/day	1/day	1/day	
Ketchikan Harbor							
Metlakatla SPB			4/day				
Meyers Chuck SPB			1/week				
North Whale Pass SPB			2/week				
Pelican SPB	6/week						
Petersburg	1/day	1/day			1/day	1/day	
Point Baker SPB			4/week				
Port Alexander SPB					2/week		
Port Protection SPB			4/week				
Sitka (includes SPB)	2/day	1/day		1/day		1/day	
Skagway	6/day						
Tenakee Springs SPB	2/day						
Thorne Bay SPB			6/day				
Wrangell	1/day	1/day		1/day	1/day		
Yakutat	1/day						
Out of Region-North	4/day	3/day		1/day	2/day	1/day	1/day
Out of Region-South	7/day	3/day		1/day	2/day	1/day	1/day

Source: From air carrier interviews and website research, compiled by Southeast Strategies, 2007.

Note: Traffic at the KTN and JNU includes floatplane traffic that occurs at facilities on airport property.

As seen in Tables 31 and 32, scheduled air carrier service is much greater in summer. That additional service is fueled by tourism, recreation, and commercial fishing that occur mainly in the summer season. For example, Elfin Cove receives three scheduled flights per day in summer but only one per week in winter. That is because there are ten fishing lodges in the Elfin Cove area that operate only during summer, and it is also a popular harbor for commercial fishers in summer. The winter population in that community is only a fraction of the summer population.

Table 33 presents the frequency of cargo-only scheduled service in the region by airport. These flights are generated by one Part 121 carrier based in Idaho and one Part 135 carrier based in

Anchorage that do not carry passengers. Another Part 121 carrier operates two 737-400 freighters in summer between Seattle, Ketchikan, Sitka, and Juneau, as well as two 737-400 combis (configured to carry both freight and passengers) year-round to those communities, in addition to Petersburg, Wrangell, and Yakutat. The summer-only freighter service began in 2007. As it is a new service and dependent upon demand (mostly moving fresh fish to market), a standard schedule may take several years to develop. Most carriers in the region carry some mail and freight in addition to passengers. One Part 135 carrier based at the Ketchikan waterfront provides mainly mail and freight service to surrounding communities, but will also carry passengers.

**Table 33: Frequency of Scheduled Cargo-only Service Between Communities, 2007/2008**

Airport	Juneau	Ketchikan	Petersburg	Sitka	Wrangell
<b>Summer Service, 2007</b>					
Juneau		3/day	1/day	3/day	1/day
Ketchikan	3/day		1/day	3/day	1/day
Petersburg	1/day	1/day		1/day	1/day
Sitka	3/day	3/day	1/day		1/day
Wrangell	1/day	1/day	1/day	1/day	
Out of Region-North	1/day	1/day	1/day	1/day	1/day
Out of Region-South	2/day	2/day		2/day	
<b>Winter Service, 2007/08</b>					
Juneau		2/day	1/day	2/day	1/day
Ketchikan	2/day		1/day	2/day	1/day
Petersburg	1/day	1/day		1/day	1/day
Sitka	2/day	2/day	1/day		1/day
Wrangell	1/day	1/day	1/day	1/day	
Out of Region-North	1/day	1/day	1/day	1/day	1/day
Out of Region-South	2/day	2/day		2/day	

Source: From air carrier interviews and website research, compiled by Southeast Strategies, 2007.

Note: Because a breakout of freight versus passenger service was not available, Alaska Airlines summer-only freighter service is included in the passenger service table. Two 737-400 freighters provided service to Juneau, Ketchikan, and Sitka in the summer only beginning in 2007. As this is a new service, and dependent upon demand (mostly moving fresh fish to market), a standard schedule may take several years to develop.

#### 4.2.3 Future Changes in Fleet and Service

Air carriers were asked about their plans for changes to their regional fleet, their routes, and the frequency of service in the region. Most answers were vague unless there were immediate plans. In general, there are plans for only minor changes in aircraft fleet and service in the region. Since much of the Part 135 traffic in the region is hubbed out of either Ketchikan or Juneau, the changes to air carriers' fleets and services are presented by sub-regions of Southeast Alaska. The southern sub-region encompasses Petersburg and airports to the south. The northern sub-region

encompasses Sitka and airports to the north. Planned changes by air carriers traversing the region are addressed separately.

In general, plans are for slight expansion in both fleet and service in the region. Plans for change in the southern sub-region seem to indicate a slight contraction in scheduled service and an expansion by the air taxis through an increase in the fleet and expansion into limited scheduled service. In the northern sub-region, both air taxis and commuter air carriers are planning slight fleet expansion to include larger and more powerful planes. Also in this sub-region, one air taxi is considering expansion into scheduled commuter service.

Regional service by air carriers based outside the Southeast Alaska region may also see slight expansion as freight demand is higher than available capacity in summer (mainly transporting fresh fish to market), and one Part 135 cargo-only carrier is starting to carry passengers on a charter basis.

#### *Southern Sub-region*

This sub-region includes Petersburg Airport and all aviation facilities to the south of Petersburg. Planned aircraft fleet changes in the southern sub-region involve adding several planes to the charter fleet and upgrading existing charter fleet equipment. Again, the De Havilland Beaver on floats seems to be the work plane of choice, with several carriers planning to add Beavers to their fleets. Carriers offering scheduled service in the sub-region plan to either upgrade planes or drop a few from the fleet.

Possible fleet changes planned by air taxis performing charters and tours include adding three or four Beavers on floats, one or two Cessna Caravans on wheels or amphibious gear, one Cessna 185 on floats, one Beech Bonanza A-36 on wheels, and possibly an R-44 helicopter. One Otter on floats will be retired. Possible fleet changes planned by air carriers performing scheduled service include adding a turbine Otter on floats, and dropping one or two Beavers on floats.

Route and service changes in the southern sub-region were limited to air taxis. One carrier is planning to cease operations, while two others are planning to expand their type of service to perform some scheduled service, and some medical evacuation service in the sub-region.

### *Northern Sub-region*

This sub-region includes aviation facilities to the north of Petersburg Airport, including Kake but not including Petersburg. In the northern sub-region, aircraft fleet changes involve mainly upgrading or adding larger planes with more power. While one air taxi operator is considering retiring from the business, several others are considering expanding their fleets, diversifying their service, and even starting limited scheduled service. Some of this expansion may be in response to the recent closing of a scheduled carrier based in Skagway.

Possible fleet changes planned by air taxis performing charters and tours include adding one Piper Super Cub on wheels, one Navajo Chieftan on wheels, one Cessna 310 on wheels, and one Bush Hawk on wheels. One Cessna 185 on wheels will be dropped from the fleet, and a number of Aerospatiale 350 B-4 helicopters may be upgraded to larger, quieter craft. Possible fleet changes planned by commuter air carriers performing scheduled service include the addition of two or three turbine Otters on floats or amphibious gear, adding a Beaver on floats, and dropping a Cessna 180 on floats.

Route and service changes planned by air taxis performing charters and tours include plans to expand and diversify service, including expansion of service to Juneau, Gustavus, Haines, Sitka, Petersburg, Ketchikan, and outside of the region. One carrier was planning to sell the business.

### *Regional Air Carriers*

The Part 121 regional passenger air carrier will be updating its fleet over the next two years. In addition, cargo-only service by this carrier may change to meet demand for transport of fresh fish to market. 2007 was the carrier's first year addressing that demand with cargo-only planes. One carrier plans to phase out MD-80 aircraft from the fleet and add more 737-800s. A Part 135 cargo-only carrier based outside of the region has recently purchased a plane configured for freight and passengers and is starting to provide charter passenger service into the region.

## **4.3 Cost per Passenger Mile for Air Carriers Operating in the Region**

Table 34 presents estimated costs per passenger mile for Part 135 air carriers in the Southeast Alaska region, both for commuter and air taxi carriers. These costs were updated and refined from 2004 data presented in the DOT&PF' *Northern Panhandle Transportation Study*. The

previous study looked at average costs of operation for various types of aircraft commonly used in the Southeast Alaska region. While this study follows the same general methodology, the costs have been updated, indirect operational costs have been included, and actual load factors for the various aircraft operations in the Southeast Alaska region in 2006 were considered.

**Table 34: Average Operating Costs for Southeast Alaska Part 135 Air Carriers, 2007**

	<b>C-180 Floats</b>	<b>C-185 Amphib</b>	<b>C-206 Amphib</b>	<b>C-207 Wheel</b>	<b>C-208B Wheel</b>	<b>Cherokee 6 Wheel</b>	<b>Navajo Wheel</b>	<b>Beaver Amphib</b>	<b>Otter Amphib</b>
<b>Aircraft Characteristics</b>									
Average Payload	700	1,040	1,000	1,200	3,000	1,500	2,400	1,725	3,075
Seats	3	3	5	6	9	5	9	6	9
Max Passengers	2	3	3	4	9	5	9	6	9
Passenger Weight	585	780	780	975	1,950	1,170	1,950	1,365	1,950
Gallons per Hour	11	13	12	16	56	15	36	20	22
Fuel (gallons)	16	18	17	22	74	21	46	30	31
Fuel Weight (pounds)	94	109	103	134	442	126	274	177	185
Cargo Capacity	22	151	117	91	608	204	176	183	745
Cruise Speed	120	125	118	125	150	125	170	107	123
Minimum Service Speed	40	39	41	39	34	39	31	44	39
Average Service Speed	93	96	92	96	111	96	124	86	95
<b>Annual Costs</b>									
Insurance	\$34,200	\$51,300	\$51,300	\$68,400	\$153,900	\$85,500	\$153,900	\$102,600	\$171,000
Per Nautical Mile	\$0.25	\$0.36	\$0.37	\$0.48	\$0.92	\$0.59	\$0.83	\$0.80	\$1.20
Fuel	\$92,400	\$109,200	\$100,800	\$134,400	\$470,400	\$126,000	\$302,400	\$168,000	\$184,800
Per Nautical Mile	\$0.66	\$0.76	\$0.73	\$0.93	\$2.83	\$0.88	\$1.63	\$1.30	\$1.30
Maintenance	\$37,122	\$40,350	\$48,485	\$48,485	\$158,914	\$59,621	\$120,889	\$142,032	\$238,872
Per Nautical Mile	\$0.27	\$0.28	\$0.35	\$0.34	\$0.95	\$0.41	\$0.65	\$1.10	\$1.68
Pilot Salary	\$53,800	\$53,800	\$53,800	\$53,800	\$53,800	\$53,800	\$53,800	\$53,800	\$53,800
Per Nautical Mile	\$0.39	\$0.37	\$0.39	\$0.37	\$0.32	\$0.37	\$0.29	\$0.42	\$0.38
Total Direct Costs	\$217,522	\$254,650	\$254,385	\$305,085	\$837,014	\$324,921	\$630,989	\$466,432	\$648,472
Indirect costs (34%)	\$112,057	\$131,183	\$131,047	\$157,165	\$431,189	\$167,384	\$325,055	\$240,283	\$334,061
Total of All Costs	\$329,579	\$385,833	\$385,431	\$462,249	\$1,268,204	\$492,305	\$956,043	\$706,715	\$982,533
Per Nautical Mile	\$2.36	\$2.68	\$2.79	\$3.21	\$7.62	\$3.42	\$5.14	\$5.48	\$6.89
Per Average Seat Mile	\$1.18	\$0.89	\$0.93	\$0.80	\$0.85	\$0.68	\$0.57	\$0.91	\$0.77
Load Factor	45%	43%	43%	43%	46%	32%	40%	43%	46%
Per Revenue Pass. Mile	\$2.63	\$2.08	\$2.17	\$1.87	\$1.84	\$2.14	\$1.43	\$2.12	\$1.67

Sources: Northern Panhandle Transportation Study, 2004 by CH2M Hill for DOT&PF. Updated by Southeast Strategies, 2007.

Following are assumptions used in this study. Many of these assumptions were used in the prior study, although some were added in this study, and some were updated from the prior study.

*General Assumptions:*

- Average operational costs were determined for individual makes and models of aircraft.
- The mean route distance was calculated at 60 nautical miles.
- Ten minutes was added to each flight to account for the fuel used for taxi, takeoff, and climb.
- Average service speed was calculated as 2/3 of the flight at cruise speed, and 1/3 of the flight at minimum speed.
- The average aircraft was estimated to fly 1,500 commercial hours per year.
- Passenger weights were assumed at 205 pounds for males and 184 pounds for females, for an average of 195 pounds.
- Number of seats refers to passenger capacity of the aircraft. “Maximum allowable passengers” refers to number of passengers permitted on the flight due to maximum takeoff weight restrictions.
- Load factors were obtained from U.S. Department of Transportation origin and destination air carrier activity reports for Southeast Alaska in 2006. Where actual passenger load factors for a specific type of plane were available, that factor was used. Otherwise, the average regional Part 135 carrier passenger load factor of 34 percent was used.

*Cost Assumptions:*

- Insurance costs were based on \$12 per passenger seat hour, based on previous interviews with air carriers and insurance companies. These costs were updated from interviews with air carriers and insurance brokers. Aviation insurance premiums have decreased in the past several years due to the installation and use of Capstone navigational equipment in many of the commercial aircraft used in the region. For this study, insurance costs were conservatively reduced by 5.0 percent.

- Average retail aviation gasoline (Avgas) fuel prices were obtained in late October 2007 from an aviation fuel seller at the SIT. The price for Avgas at that time was \$5.60 per gallon.
- Maintenance costs were increased from the original study by the rate of inflation (Anchorage Consumer Price Index for All Urban Consumers [CPI-U]) between 2004 and 2007 of 7.6 percent.
- Pilot salaries have a wide monetary range. \$50,000 per year salary was used for estimation purposes for this study and was increased from the original study by the rate of inflation (Anchorage CPI-U) between 2004 and 2007 of 7.6 percent.
- Indirect costs of regional air carriers (those not accounted for by Insurance, Fuel, Maintenance, and Pilot Salary costs) were determined to be about 34 percent of total air carrier costs from reports obtained from the U.S. Department of Transportation. These indirect costs were added into the calculation to reflect the full cost of air carrier operations in the region.
- The total cost of passenger miles includes the operation and maintenance of airport facilities.

While these planes are often less than half full of passengers (as determined by actual passenger load factors obtained from reports to U.S. Department of Transportation), they also carry freight and mail, thus are often full of revenue-paying loads (passengers, freight, and mail). If a plane does not have a full load of paying passengers, that does not necessarily make the costs per passenger mile increase, because some of those operational costs are being paid by freight and mail customers. Pound for pound, cargo rates tend to be slightly higher than passenger rates. In addition, some carriers receive subsidies for taking mail to certain communities. For these reasons, the cost per revenue passenger mile is higher than the actual cost of operating the aircraft. The cost per average seat mile is likely a more accurate accounting of cost of air transportation on Part 135 air carriers within the Southeast Alaska region.

As a check of the information presented in Table 34, actual fares per passenger mile within the region were examined. Fares, on average, were nearly twice the passenger seat mile costs presented in this table. Current fares charged would allow a margin for costly delays, low load

factors, and other circumstances not considered in this analysis, and still allow for some profit to the air carriers.

System-wide costs per available seat mile for the single Part 121 air carrier transporting passengers in the region were taken from the carrier's 2006 annual report. Those costs were then adjusted for the cost of living difference (Consumer Price Index) between Seattle, Washington, and Sitka, Alaska, a cost difference of 8.27 percent. The resulting adjusted cost per available seat mile for Part 121 carriers in Southeast Alaska was \$0.125 per available seat mile. The cost per revenue passenger mile for these carriers was about \$0.164.

## **5.0 AIR TRAFFIC ACTIVITY IN SOUTHEAST ALASKA**

This report describes the economy of Southeast Alaska and the present, past and current aviation activity in the region, and illuminates the drivers for that activity.

### **5.1 Southeast Alaska Economic Profile**

Southeast Alaska is made up of 23 incorporated communities and about 16 unincorporated communities. All but a handful of these communities are located on islands. The largest community in the region (Juneau), though located on the mainland, does not have road access to any other community. Most communities are accessed by commercial or private plane, state ferry, commercial tour and charter boat, or private boat. Much of the region's freight is transported by water via commercial barge or state ferry, and a small amount travels by air or by highway for the three communities with road connections. Table 1 in this report lists communities by population and indicates which transportation services are available at each community.

#### **5.1.1 Population**

Table 35 shows the population changes since 1990 in Southeast Alaska's boroughs and census areas. The region, as a whole, experienced slow population growth until about 1997, although some communities had been losing population before that time. Between 1997 and 2006, the region lost 4,969 residents. Even Juneau, the most growth-oriented community in the region, lost population between 2005 and 2006. A look at the elements of population change shows that there has been natural growth (births minus deaths) in the region while the population has

dropped. The cause of the population decrease is out-migration. Anecdotal evidence suggests that the people who are leaving are in the 25 to 35 year age range. In-migration minus out-migration between 2005 and 2006 resulted in a net out-migration of 1,252 people from the region. That exodus, combined with a 501 person natural increase, resulted in 751 less people in Southeast Alaska in 2006 than in 2005.

**Table 35: Southeast Alaska Population Trends by Borough and Census Area**

<b>Borough or Census Area (CA)</b>	<b>1990 Estimate</b>	<b>2000 Census</b>	<b>2006 Estimate</b>	<b>Change 2000-2006</b>	<b>*Natural Increase (Births/Deaths) 2000-2006</b>	<b>*Net Migration (In-Out) 2000-2006</b>
Haines Borough	2,117	2,392	2,241	-6.30%	17	-168
Juneau City and Borough	26,751	30,711	30,650	-0.20%	1,622	-1,683
KGB	13,828	14,059	13,174	-6.30%	558	-1,443
Prince of Wales-Outer Ketchikan CA	6,278	6,157	5,477	-11.00%	242	-922
Sitka City and Borough	8,588	8,835	8,833	0.00%	421	-423
Skagway-Hoonah-Angoon CA	3,680	3,436	3,020	-12.10%	98	-514
Wrangell-Petersburg CA	7,042	6,684	6,024	-9.90%	127	-787
Yakutat City and Borough	705	808	634	-21.50%	20	-194
<b>Southeast Alaska Total</b>	<b>68,989</b>	<b>73,082</b>	<b>70,053</b>	<b>-4.10%</b>	<b>3,105</b>	<b>-6,134</b>

Source: Alaska Department of Labor and Workforce Development.

\* Natural Increase and Net Migration were calculated between 04/01/2000 (U.S. Census count) and 06/30/2006 (Alaska Department of Labor and Workforce Development estimate).

Much of the population loss in the Prince of Wales-Outer Ketchikan and Wrangell-Petersburg census areas is due to decline in the timber harvest and manufacturing industries. A secondary cause of population decline in the region is a slowing in local participation in the commercial fishing industry (see Table 39). Decline in these industries and stagnation in others has resulted in slower job growth in the region. In addition, reductions in state and federal funds available to communities and high fuel prices have curtailed municipal services offered and increased cost of living in small communities, resulting in out-migration.

The Alaska Department of Labor and Workforce Development recently released population projections for Alaska from 2006 to 2030. Table 36 presents those projections for Southeast Alaska by borough and census area.

**Table 36: Population Projections for Southeast Alaska, 2006 to 2030**

	2006	2010	2015	2020	2025	2030	Average Annual Change
Haines Borough	2,241	2,095	1,978	1,854	1,712	1,571	
Average Annual Change		-1.68%	-1.15%	-1.29%	-1.59%	-1.72%	-1.49%
Juneau City and Borough	30,650	31,691	32,078	32,252	32,227	32,260	
Average Annual Change		0.83%	0.24%	0.11%	-0.02%	0.02%	0.02%
KGB	13,174	12,836	12,507	12,088	11,587	11,095	
Average Annual Change		-0.65%	-0.52%	-0.68%	-0.85%	-0.87%	-0.71%
Prince of Wales-Outer Ketchikan	5,477	5,261	4,996	4,658	4,274	3,894	
Average Annual Change		-1.01%	-1.03%	-1.40%	-1.72%	-1.86%	-1.40%
Sitka City and Borough	8,833	8,964	8,948	8,864	8,740	8,658	
Average Annual Change		0.37%	-0.04%	-0.19%	-0.28%	-0.19%	-0.07%
Skagway-Hoonah-Angoon	3,020	2,862	2,657	2,415	2,180	1,945	
Average Annual Change		-1.34%	-1.49%	-1.91%	-2.05%	-2.28%	-1.81%
Wrangell-Petersburg	6,024	5,960	5,785	5,580	5,340	5,076	
Average Annual Change		-0.27%	-0.60%	-0.72%	-0.88%	-1.01%	-0.70%
Yakutat City and Borough	634	646	644	624	601	574	
Average Annual Change		0.47%	-0.06%	-0.63%	-0.75%	-0.92%	-0.38%
<b>Southeast Region Total</b>	<b>70,053</b>	<b>70,315</b>	<b>69,593</b>	<b>68,335</b>	<b>66,661</b>	<b>65,073</b>	
<b>Average Annual Change</b>		<b>-0.09%</b>	<b>-0.21%</b>	<b>-0.36%</b>	<b>-0.50%</b>	<b>-0.48%</b>	<b>-0.33%</b>

Source: Alaska Department of Labor and Workforce Development, 2007.

Table 36 shows that population in every borough or census area in the region is expected to decline, except for Juneau, which is predicted to have a slight population increase between now and 2030. Areas with the largest anticipated drop in population are the Skagway-Hoonah-Angoon census area, the Haines Borough, and the Prince of Wales-Outer Ketchikan census area.

### 5.1.2 Economic Activity

Major economic sectors that bring money into Southeast Alaska from outside the region (basic industries) include commercial fishing, timber, mining, tourism, and some government jobs (mostly state and federal government). Manufacturing is also considered a basic industry and is made up mostly of businesses processing fish and timber products. Businesses that support the local populations by providing them with goods and services also provide jobs and income in local communities. Sometimes these support businesses also provide goods and services to visitors from outside the area, bringing new money into communities rather than circulating money that is already in the community.

#### 5.1.2.1 *Employment*

Table 37 presents employment in Southeast Alaska between 2001 and 2006. Over those six years, the region gained only 900 jobs (2.5 percent). Industries with the greatest job increases

were education and health services and seafood processing. Retail trade, information services, and federal government employment also had strong job growth. Job losses occurred in the natural resources and mining industries (mainly timber harvest), and in the leisure and hospitality (tourism) industry.

**Table 37: Employment in Southeast Alaska by Industry, 2001 to 2006**

Industry	2001	2002	2003	2004	2005	2006 Prelim	Change 2001 to 2006
Total All Industries	35,950	35,800	36,350	35,950	36,550	36,850	2.50%
Goods Producing	4,300	4,050	4,300	3,950	4,100	4,150	-3.5%
Services Providing	31,650	31,750	32,050	32,000	32,450	32,700	3.3%
Natural Resources and Mining	800	650	650	600	650	700	-12.5%
Construction	1,600	1,600	1,700	1,500	1,600	1,600	0.0%
Manufacturing	1,850	1,800	1,950	1,850	1,850	1,850	0.0%
Seafood Processing	1,300	1,350	1,550	1,450	1,450	1,500	15.4%
Trade/Transportation/Utilities	7,100	7,000	6,950	7,200	7,400	7,450	4.9%
Retail Trade	4,250	4,350	4,400	4,550	4,650	4,600	8.2%
Information	550	500	550	550	600	600	9.1%
Financial Activities	1,300	1,250	1,300	1,250	1,300	1,300	0.0%
Professional and Business Svcs	1,350	1,300	1,350	1,350	1,300	1,350	0.0%
Educational and Health Svcs	3,200	3,400	3,450	3,450	3,550	3,700	15.6%
Leisure and Hospitality	3,750	3,750	3,550	3,450	3,650	3,600	-4.0%
Other Services	1,150	1,150	1,150	1,200	1,200	1,200	4.3%
Government	13,200	13,450	13,750	13,550	13,450	13,500	2.3%
Federal Government	1,750	1,850	1,950	2,050	2,000	1,900	8.6%
State Government	5,450	5,600	5,650	5,450	5,500	5,550	1.8%
Local Government	5,950	6,000	6,150	6,050	5,950	6,050	1.7%

Source: Alaska Department of Labor and Workforce Development.

Note: Does not include self-employed persons such as sole proprietors or commercial fishers.

Table 38 presents average annual earnings by industry in Southeast Alaska between 2001 and 2006. In the early part of the decade, while wages were rising, they were not keeping up with inflation. That appears to have changed in the past few years, and wage growth in many industries is strong. The exception is in the seafood processing industry, where wages have dropped slightly.

**Table 38: Average Annual Wages in Southeast Alaska, 2004 to 2006**

Industry	2004	2005	2006 Preliminary	Average Annual Change
Services Providing	\$27,087	\$27,435	\$28,358	2.3%
Goods Producing	\$38,578	\$41,612	\$44,553	7.7%
Natural Resources and Mining	\$53,287	\$55,252	\$64,018	10.1%
Construction	\$42,536	\$48,520	\$51,697	10.8%
Manufacturing	\$29,078	\$29,644	\$28,926	-0.3%
Seafood Processing	\$27,791	\$28,453	\$27,376	-0.7%

**Table 38 (cont'd): Average Annual Wages in Southeast Alaska, 2004 to 2006**

Industry	2004	2005	2006 Preliminary	Average Annual Change
Trade/Transportation/Utilities	\$27,762	\$28,031	\$28,653	1.6%
Retail Trade	\$23,010	\$23,091	\$23,292	0.6%
Information	\$36,612	\$36,925	\$38,780	3.0%
Financial Activities	\$35,733	\$36,936	\$39,503	5.3%
Professional and Business Services	\$31,394	\$31,295	\$33,545	3.4%
Educational and Health Services	\$32,957	\$33,645	\$34,020	1.6%
Health Care and Social Assistance	\$33,284	\$33,981	\$34,297	1.5%
Leisure and Hospitality	\$16,224	\$16,583	\$17,136	2.8%
Other Services	\$19,481	\$19,117	\$20,288	2.1%
Federal Government	\$58,990	\$62,559	\$63,570	3.9%
State Government	\$40,661	\$42,992	\$45,072	5.4%
Local Government	\$34,630	\$35,834	\$36,617	2.9%
<b>Total All Industries</b>	<b>\$29,212</b>	<b>\$30,086</b>	<b>\$31,356</b>	<b>3.7%</b>

Source: Alaska Department of Labor and Workforce Development, 2007.

Note: Does not include self-employed persons such as sole proprietors and commercial fishers.

Table 39 displays the top employers in the Southeast Alaska region for 2006. This table shows the strength of government in the region's economy.

**Table 39: Top Employers in the Southeast Alaska Region, 2006**

Name of Employer	Location	Average Annual Employment	Employer Status
DOT&PF	Regionwide	1,122	State Gvt.
Southeast Alaska Regional Health Corp	Regionwide	818	Private
U.S. Department of Agriculture	Regionwide	812	Federal Gvt.
Alaska Dept of Health and Social Services	Regionwide	782	State Gvt.
CBJ School District	Juneau	724	Local Gvt.
CBJ	Juneau	663	Local Gvt.
University of Alaska	Regionwide	472	State Gvt.
Alaska Department of Administration	Regionwide	469	State Gvt.
Bartlett Regional Hospital	Juneau	423	Local Gvt.
Alaska Department of Fish and Game	Regionwide	422	State Gvt.
Ketchikan General Hospital	Ketchikan	369	Private
City of Ketchikan	Ketchikan	357	Local Gvt.
KGB School District	Ketchikan	326	Local Gvt.
Alaska Dept of Labor and Workforce Development	Regionwide	317	State Gvt.
Fred Meyer Stores Inc.	Juneau	292	Private
Alaska Airlines Inc.	Regionwide	289	Private
Alaska Department of Education	Juneau and Sitka	284	State Gvt.
Greens Creek Mining Co.	Juneau	278	Private
U.S. Department of Commerce	Regionwide	256	Federal Gvt.
U.S. Department of Transportation	Regionwide	250	Federal Gvt.
Safeway Inc.	Juneau and Ketchikan	245	Private
REACH Inc.	Juneau	205	Private
Williams Inc.	Juneau and Ketchikan	199	Private
Catholic Community Services Inc.	Regionwide	195	Private

**Table 39 (cont'd): Top Employers in the Southeast Alaska Region, 2006**

Name of Employer	Location	Average Annual Employment	Employer Status
Ocean Beauty Seafoods Inc.	Haines and Petersburg	194	Private
Icicle Seafoods Inc.	Petersburg	182	Private
Juneau Youth Services	Juneau	169	Private
Westmark Hotels Inc.	Juneau, Sitka and Skagway	167	Private
Wal-Mart Associates Inc.	Juneau and Ketchikan	156	Private
Norquest Seafoods Inc.	Ketchikan and Petersburg	156	Private

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section, 2007.

*5.1.2.2 Major Economic Sectors*

*Commercial Fish Harvest and Processing*

While fish processing jobs and earnings are included in regional totals in Tables 37 and 38, commercial fish harvesting is considered a form of self-employment and is not reported to the Alaska Department of Labor and Workforce Development, so is not included in those counts. Table 40 presents the number of commercial fishing permits and crew licenses issued to Southeast Alaska residents in 2000 and 2006. In the early 2000s, prices for commercially caught fish dropped, but they have rebounded in the past few years. However, Southeast Alaska continues to lose commercial fishing permits and crew licenses to non-residents.

Between 2000 and 2006, the region lost 8.7 percent of its commercial fishing permits and 13.6 percent of its commercial fishing crew licenses. The largest losses in permits over that time were in Prince of Wales-Outer Ketchikan CA with a 17.6 percent loss, Skagway-Hoonah-Angoon CA with a 16.2 percent loss, and Haines Borough with a 15.0 percent loss in permit holders. The Haines Borough lost 39.0 percent of its crew members between 2000 and 2006, followed by the KGB with a 38.7 percent loss, and the Skagway-Hoonah-Angoon CA with a 16.3 percent loss.

**Table 40: Southeast Alaska Residents with Commercial Fishing Permits and Crew Licenses, 2006 and 2000**

	2006 Permit Holders	2006 Crew License Holders	2000 Permit Holders	2000 Crew License Holders
Haines Borough	109	83	128	136
CBJ	443	389	521	412
KGB	375	260	391	424
Prince of Wales-Outer Ketchikan	338	308	410	322

**Table 40 (cont'd): Southeast Alaska Residents with Commercial Fishing Permits and Crew Licenses, 2006 and 2000**

	<b>2006 Permit Holders</b>	<b>2006 Crew License Holders</b>	<b>2000 Permit Holders</b>	<b>2000 Crew License Holders</b>
CBS	561	516	583	565
Skagway-Hoonah-Angoon	244	164	291	196
Wrangell-Petersburg	782	670	818	717
City and Borough of Yakutat	163	45	161	46
<b>TOTAL</b>	<b>3,015</b>	<b>2,435</b>	<b>3,303</b>	<b>2,818</b>

Source: Alaska Commercial Fisheries Entry Commission, 2007.

Table 41 presents pounds of fish landed and value of fish landed by commercial fishers residing in Southeast Alaska. These fish were not necessarily caught or landed in Southeast Alaska, but they were caught by Southeast Alaska residents, and the earnings accrue to those resident permit holders. 2006 data is preliminary and does not capture the total catch and earnings for that year. Also, some earnings data is not available so that confidential earnings in small fisheries are not revealed. It is difficult to fully quantify the changes in those years of missing data; however, it appears from the table that the average dollars per pound of fish harvested generally dropped between 1990 and 2005, and rebounded somewhat in 2006. As market demand for wild Alaska seafood is strong and prices are higher in recent years, this rebound will likely continue.

**Table 41: Commercial Fishing Activity by Southeast Alaska Residents**

	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>	<b>2006 Prelim</b>
Haines Borough (\$/lb)	\$1.48	\$0.72	\$0.60	\$0.75	\$0.56
Pounds Landed (1,000)	4,394.9	7,809.8	6,842.7	4,497.2	7,941.2
Dollar Value (\$1,000)	\$6,497.3	\$5,628.6	\$4,092.3	\$3,356.2	\$4,456.0
Juneau City and Borough (\$/lb)	\$1.38	\$0.99	\$0.94	\$0.79	
Pounds Landed (1,000)	17,973.8	20,760.4	17,496.6	23,721.3	19,752.9
Dollar Value (\$1,000)	\$24,874.1	\$20,453.2	\$16,372.9	\$18,708.1	N/A
KGB (\$/lb)	\$0.80	\$0.55	\$0.51	\$0.35	\$0.48
Pounds Landed (1,000)	29,868.4	38,253.9	27,350.0	40,781.6	26,555.7
Dollar Value (\$1,000)	\$23,786.6	\$21,014.7	\$13,921.0	\$14,324.4	\$12,666.4
Prince of Wales-Outer Ketchikan (\$/lb)	\$1.16	\$0.86	\$0.83	\$0.69	\$0.92
Pounds Landed (1,000)	10,523.7	11,809.0	8,739.9	13,105.9	8,963.8
Dollar Value (\$1,000)	\$12,188.8	\$10,172.4	\$7,277.2	\$9,005.8	\$8,224.5
Sitka City and Borough (\$/lb)	\$1.35	\$1.20	\$1.10	\$0.88	
Pounds Landed (1,000)	22,682.3	26,302.0	29,144.6	37,958.3	28,108.4
Dollar Value (\$1,000)	\$30,564.1	\$31,639.6	\$32,041.1	\$33,425.9	N/A
Skagway-Hoonah-Angoon (\$/lb)	\$1.36	\$1.23	\$1.32	\$1.30	
Pounds Landed (1,000)	9,179.6	8,758.6	4,758.2	4,933.0	5,867.3
Dollar Value (\$1,000)	\$12,526.3	\$10,735.4	\$6,272.6	\$6,422.4	N/A
Wrangell-Petersburg (\$/lb)	\$1.03	\$1.01	\$0.89	\$0.62	\$0.64

**Table 41 (cont'd): Commercial Fishing Activity by Southeast Alaska Residents**

	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>	<b>2006 Prelim</b>
Pounds Landed (1,000)	61,214.9	63,160.4	52,577.6	86,833.3	59,009.7
Dollar Value (\$1,000)	\$62,748.3	\$63,933.4	\$46,697.9	\$53,624.1	\$38,033.4
Yakutat City and Borough (\$/lb)	\$1.67	\$0.83	\$0.84		\$1.01
Pounds Landed (1,000)	3,329.8	3,531.2	1,800.9	1,873.9	1,980.8
Dollar Value (\$1,000)	\$5,564.9	\$2,916.6	\$1,507.3	N/A	\$2,001.5
<b>Southeast Region Total (\$/lb)</b>	<b>\$1.12</b>	<b>\$0.92</b>	<b>\$0.86</b>		
<b>Pounds Landed (1,000)</b>	<b>159,167.4</b>	<b>180,385.3</b>	<b>148,710.5</b>	<b>213,704.5</b>	<b>158,179.8</b>
<b>Dollar Value (\$1,000)</b>	<b>\$178,750.3</b>	<b>\$166,493.9</b>	<b>\$128,182.2</b>	<b>N/A</b>	<b>N/A</b>

Source: Alaska Commercial Fisheries Entry Commission.

Note: Preliminary figures are generally low, so 2006 totals will likely increase. Some earnings data is not available to preserve confidentiality of earnings in small fisheries.

A look at active commercial fishing permits owned by all Alaska residents and nonresidents shows that in 1990, 81.2 percent of active permits were owned by Alaska residents, and in 2006, only 74.9 percent of active permits were owned by Alaska residents. In addition, only 21.0 percent of fish commercially caught in Alaska (in pounds) was caught by Alaska residents, and they only earned 36.2 percent of the nearly \$965 million from the 2006 harvest. Specific data for Southeast Alaska resident commercial fishers is not available but likely follows similar trends.

Seafood processing activity in Southeast Alaska has slowed since the early 2000s. In 2003, Wards Cove Packing Company ceased operation of nine salmon processing plants in Alaska (three in Southeast Alaska). However, the plants were purchased and are operating again, and seafood processing employment, despite some fluctuation, appears to be strong in the region. Average annual wages in this industry have dropped slightly in recent years. Employment and earnings in the seafood processing industry are reported under the manufacturing category in Tables 37 and 38.

### *Timber Harvest and Processing*

The Tongass National Forest makes up about 80 percent of the land in Southeast Alaska. The U.S. Forest Service (USFS) let 50-year timber harvest contracts in the Tongass, which fed large pulp mills in Ketchikan and Sitka and other mills around the region for many years. Many small communities in the region started as logging camps. USFS timber supply contracts have been sharply curtailed in recent years, and pulp mills in Sitka and Ketchikan closed down in 1993 and 1997, respectively. Sawmills around the region also closed, and while some have reopened for a

time, few are currently operating. Southern Southeast Alaska communities were the hardest hit by the loss of timber harvest and processing jobs in the region due to a lack of timber available from the Tongass. Timber harvest continues on state and private lands in the region, but on a smaller scale than the former Tongass harvest. A ban on export of unprocessed timber from federal lands does not apply to state and private lands. Since the Asian market for round logs is strong, much of the timber harvested from non-federal lands is exported in unprocessed form, and no local processing jobs are created in the region.

The USFS still has substantial holdings of timber suitable for harvest. While the current political climate has hindered sales of many USFS timber stands, a few small mills have been able to operate with what is available. Mills would prefer to have three years worth of timber on contract, and that has been difficult to obtain because nearly every timber sale has been subject to litigation. The future harvest on USFS lands is largely dependent upon national politics, yet recent stronger markets for Alaskan wood products and pushes for more contract sales by regional and industry forces may also impact the availability of timber for harvest. Businesses in Ketchikan and Wrangell are looking into reopening mills there, and a recent study by the USFS and the University of Alaska Southeast has outlined the conditions and need for a Medium Density Fiberboard (MDF) plant to utilize mill waste and low quality wood in the region. Consequently, the future of timber harvest on USFS lands and associated processing is uncertain.

Table 42 shows timber harvest in the Tongass National Forest between 1990 and 2006. Sealaska, a regional Native corporation, has large timber holdings in Southern Southeast Alaska and generally harvests between 50 and 70 Millions of Board Feet (MMBF) annually. Sealaska still has significant timber holdings in the region, and expects to continue similar level of harvest into the future.

**Table 42: Harvest and Employment in the Tongass National Forest, 1982 to 2003**

<b>Year</b>	<b>Tongass Harvest (MMBF)*</b>
2006	43.0
2005	50.0
2004	46.0
2003	51.3
2002	33.8
2001	47.8
2000	146.9

**Table 42 (cont'd): Harvest and Employment in the Tongass National Forest, 1982 to 2003**

<b>Year</b>	<b>Tongass Harvest (MMBF)*</b>
1995	221.2
1990	470.7

Sources: U.S. Forest Service and Southeast Conference.

Note: This is harvest in the Tongass National Forest only and does not include harvest on state or private lands.

*Mining*

As with timber and fisheries, Southeast Alaska has tremendous minerals resources. The region’s mineral deposits are large and diverse. Deposits include gold, silver, lead, zinc, copper, molybdenum, platinum, limestone, marble, and even uranium and rare earth minerals. Deposits also include rock, sand, and gravel that are used in construction around the region.

Mining has played a large role in the history of the region. Prince of Wales Island had the first gold mine in Alaska and supplied the world with first class marble for buildings for years. Gold was discovered in Juneau in 1880, and the area hosted one of the largest gold mine operations in the world. Currently, the Kennecott Green’s Creek mine on Admiralty Island is the largest silver mine in North America and is one of the highest paying employers in the Juneau area. The Calder Mine on Prince of Wales Island is poised to begin again producing pharmaceutical grade limestone and high-grade marble. Kensington Gold Mine in Lynn Canal is working on a tailings disposal plan to complete its permitting process and could begin operations soon.

Exploration and examination of other mineral bodies in the region is ongoing. Mine development is mostly dependant on mineral market prices that have been rising due to strong demand for mineral commodities in developing countries. Undeveloped deposits of base metals in the region (iron, copper, zinc, and nickel) are small compared to some areas of Alaska (Red Dog Mine near Kotzebue, for instance), and will likely not see production for a long while. Precious metal deposits (gold, silver, and platinum) could see production if market prices continue to rise. Uranium stockpiles worldwide are low, and more small reactors are being built, so the demand for uranium is high. As metal prices increase, more exploration and drilling could occur in the region.

Two promising prospects in the region are the Woewodski Island Project southwest of Petersburg, and the Union Bay Project, north of Ketchikan. Woewodski Island is being explored

by Bravo Venture Group, Inc, and is showing promising deposits of silver, zinc, lead, and a little gold. The Union Bay Project is also in the exploration phase. Freegold Ventures, Pacific North West Capital, and Lonmin Plc set a 2004 exploration budget of \$1.2 million for this project, which shows promising deposits of platinum, with some copper and palladium.

Natural resources and mining jobs in Southeast Alaska (most of which are mining jobs) paid an average annual wage of about \$64,018 in 2006, the highest wage industry in the region.

*Tourism*

In 2007, just under one million cruise ship passengers traveled to Southeast Alaska. The majority made ports of call at the larger communities, but a few traveled to more rural areas. Hoonah began receiving cruise ships in recent years, and visitation to their facility will likely continue to grow. A 2006 survey of visitor activity for the Alaska Office of Tourism Development estimated that visitors arriving by cruise ship spent an average of \$636 per person per trip in Alaska, most of that being spent in Southeast Alaska. Thus, cruise ship visitors spent an estimated \$600 million in the region in that year.

**Table 43: Cruise Ship Visits to Southeast Alaska, 2000 to 2007**

<b>Year</b>	<b>Lines</b>	<b>Ships</b>	<b>Calls</b>	<b>Passengers</b>	<b>Change from Previous Year</b>
2007	11	40	646	999,052	4.8%
2006	13	37	613	953,009	0.4%
2005	14	42	586	949,601	7%
2004	15	40	580	883,572	14%
2003	18	44	581	776,991	5%
2002	14	39	555	741,512	7%
2001	16	41	539	690,648	8%
2000	17	40	543	640,477	

Source: Juneau Convention and Visitors' Bureau, 2007.

Some of the businesses in the region that earn money from cruise ship passengers are owned and operated by non-Alaska residents and employ summer-only residents, so an undetermined portion of those earnings leaves the region. A 1999 study of visitor impact to the economy of Skagway (Alaska's third most popular visitor destination in 2006), indicated that 90 percent of the income in the visitor industry in that community was earned by non-Alaska businesses.

While visitors traveling by air, ferry, or highway tend to spend more per person than cruise ship passengers in the region, there are far fewer of them. Travelers also come to Southeast Alaska communities via the AMHS (ferries) and airplane, but with these modes of travel, it is difficult to determine which travelers are visitors and which are residents. In 2006, 211,120 passengers traveled on state ferries in the region.

The larger communities in the region reap economic benefits from residents of surrounding communities traveling to the regional hubs to recreate, shop, obtain services, or to connect to transportation to take them out of the region. These residents are also visitors in the regional hubs, and while they often rent hotel rooms and cars and eat at restaurants, they also spend money on goods and services not available in their communities. These neighboring community visitors bring greater economic benefits to the region's larger communities than do out-of-region visitors because of repeat visits and large purchases of goods and services.

#### *Government*

As is evident in Tables 37 and 38, the government sector has a major impact on the economy of the region. While both state and local government employment had declined in recent years, it appears to have rebounded slightly in the past couple of years. Federal government employment has exhibited the opposite trend, showing growth until recently. Federal government budget reductions may be a contributing factor to that trend. Continued federal budget cuts will likely continue to impact federal government employment, and could also impact both state and local government programs in the future. Recent changes to the state oil taxing scheme and continuing high oil prices may allow the state government to overcome lower federal fund contributions to the state budget. Also, if plans for a gas pipeline through the state are realized, the state will see increases in revenues that impact the entire economy of the region, especially the Capital City.

#### *Other Important Economic Sectors*

While retirement is not generally considered an industry, retired persons should be counted in this economy as jobs. Retired persons who settle in Southeast Alaska spend their retirement "paychecks" to live as any other worker would spend paychecks. Most retirement income originates outside of the community, classifying this group as a basic industry. Retirement is a

clean and quiet industry, creating less pollution than most business sectors in the community. It is an industry that heavily supports our health care and social services sectors. Also, the region benefits because senior citizens tend to give to their communities through volunteerism, and families whose elders stay in the region to retire are happier. In 2006, 6,548 people age 65 and over lived in Southeast Alaska, making this industry larger than both the state government and the local government sectors, which employed 5,550 and 6,050 people respectively in the region in that year. Senior citizens receive income from retirement benefits, social security, Medicare, investments and savings, private annuities and insurances, and other sources that they spend in Southeast Alaska.

The health and social services sector is one of the fastest growing in the state and the region. In 2006, 2,200 people were employed in this industry and collectively earned over \$75 million in wages in that year. Major employers in the region include Southeast Alaska Regional Health Consortium (SEARHC), Bartlett Regional Hospital, and Ketchikan General Hospital. Trained health care professionals are in high demand in the region, and continued growth in the industry is expected.

## **5.2 Travel Patterns in Southeast Alaska**

Juneau is the largest community in Southeast Alaska, followed by Ketchikan and Sitka. These three communities are regional centers for retail, as well as medical, business, education, transportation, and other services. Five other communities in the region have populations over 1,000 - Petersburg, Haines, Wrangell, Metlakatla, and Craig. All other Southeast Alaska communities had populations of less than 1,000 in 2006. Table 1 shows Southeast Alaska communities by 2006 population and their transportation facilities. That table shows that most communities are either dependant on air or water transportation to move people and goods.

Residents of Southeast Alaska travel for various reasons. People leave the region for work, school, or vacation, and sometimes to shop and obtain medical services not available in the region. Residents of small communities travel to regional hubs to obtain goods and services (mostly medical and business services), and to connect to transportation systems that will take them outside the region. Southeast Alaska residents travel around the region to visit friends and relatives and to participate in recreation and events. Rural residents may travel to regional hubs

for events such as basketball tournaments, and residents of larger communities may travel to remote areas for hunting, fishing, or recreating. Other reasons for travel within the region include business and educational activities.

Medical care is a major reason for travel from smaller communities to regional hubs. While most communities have a medical clinic of some kind, they are generally staffed by a nurse practitioner or a physician's assistant but do not have a resident doctor. Health care facilities in the region are as follows.

*Hospitals:*

- Ketchikan General Hospital - 46 beds
- Sitka Community Hospital - 13 beds
- Sitka SEARHC Hospital - 64 beds
- Juneau Bartlett Memorial Hospital - 56 beds.

*Medical Centers (resident doctors):*

- Petersburg Medical Center - 14 beds
- Wrangell Medical Center - 8 beds
- Juneau SEARHC Medical Center - outpatient medical and dental
- Craig Clinic - outpatient
- Haines Clinic - outpatient

The University of Alaska Southeast has campuses in Ketchikan, Sitka, and Juneau. Juneau and Ketchikan host several big box stores, such as Wal-Mart and Costco (Juneau only).

People from outside of the Southeast Alaska region travel into the region for site-seeing and recreation, to visit friends and relatives, and for business. Summer is the peak time for travel to Southeast Alaska from outside the region. While most visitors to the region travel via cruise ship, many also travel by commercial and private air craft, public ferry, and private boat. Visitors also travel by roadway to the three communities with road connections out of the region (Hyder, Haines, and Skagway). Once these visitors enter the Southeast Alaska region, they may travel within the region in any number of ways, mostly via air and water.

Goods are carried into and out of the region mostly via commercial barge lines, ferry, and commercial air carrier, with a small amount being moved by highway where connections exist. Most goods move into the region, with mainly fish and manufactured goods such as beer and bottled water moving from the region. Some transshipment of goods occurs within the region. Goods travel to Skagway via barge and are then trucked into Yukon Territory, Canada. In the past, mineral ores have been shipped from nearby Canadian mines to ports in Alaska for shipment out by water carriers. Within the region, goods are barged to hub communities and distributed to smaller communities by either water or air carriers. Mail is delivered within and without the region by both water and air carriers.

Following is an overview of the transportation systems within Southeast Alaska.

#### *Transportation - Road Links*

Southeast Alaska is connected to the continental road system at three locations as follows:

- Hyder links to the Cassiar Highway via a 40 mile paved access road.
- Haines links to the Alaska Highway (in Canada) via the 146 mile Haines Highway.
- Skagway links to the Alaska Highway (in Canada) via the 99 mile South Klondike Highway.

With the exception of the communities on Prince of Wales Island, most Southeast Alaska communities do not have road connections to any other communities. Prince of Wales Island has about 1,500 miles of road that connects most communities on the Island.

#### *Transportation - Ferry Links*

The AMHS provides year-round, public ferry service to the region. The system has seven conventional-speed and two high-speed vessels that are used in Southeast Alaska. The mainline system connects major Southeast Alaska communities together and to road systems in British Columbia via Prince Rupert, to Washington via Bellingham, and to Southcentral Alaska via Whittier. These ferries take passengers, vehicles, and freight, and often have staterooms, restaurants, and lounges on board. The following table shows running times and distances for mainline routes.

**Table 44: Alaska Marine Highway System Mainline Routes and Running Times**

<b>From</b>	<b>To</b>	<b>Running Time</b>	<b>Miles Nautical/Statute</b>
Bellingham	Ketchikan	37 hours	595/676
Prince Rupert	Ketchikan	6 hours	91/103
Ketchikan	Wrangell	6 hours	89/101
Wrangell	Petersburg	3 hours	41/47
Petersburg	Juneau	8 hours	123/140
Petersburg	Sitka	10 hours	156/177
Sitka	Juneau/Auke Bay	8 hours, 45 minutes	132/150
Juneau/Auke Bay	Haines	4 hours, 30 minutes	68/77
Haines	Skagway	1 hour	13/15

Source: AMHS, 2007.

Feeder routes connect smaller communities to regional hubs (Juneau, Ketchikan, and Sitka) and to each other. Ferries used for feeder service travel at conventional speed and take passengers, vehicles, and freight. These ships generally do not have staterooms. Table 45 shows running times and distances for feeder routes.

**Table 45: Feeder Routes and Running Times**

<b>From</b>	<b>To</b>	<b>Running Time</b>	<b>Miles Nautical/Statute</b>
Petersburg	Kake	4 hours	65/74
Kake	Sitka	8 hours	115/131
Kake	Angoon	4 hours	60/68
Sitka	Angoon	5 hours, 30 minutes	67/76
Angoon	Hoonah	4 hours	63/72
Angoon	Tenakee	2 hours, 30 minutes	35/40
Tenakee	Hoonah	3 hours, 15 minutes	49/56
Hoonah	Juneau	3 hours, 15 minutes	48/55
Hoonah	Pelican	4 hours, 15 minutes	64/73
Juneau	Pelican	6 hours, 30 minutes	91/103

Source: AMHS, 2007.

Note: Changes have occurred to the routing recently that are not reflected in this table. Direct service between Sitka and Angoon, Tenakee and Hoonah is no longer available. Direct service is now available from Juneau to those communities, but the running times have not been updated by AMHS.

Recent changes to the routing of feeder vessels were mandated by the USCG because it was determined that the ferry crews on the longer routes were not getting sufficient rest. As a consequence, direct connections between Sitka and Hoonah, Angoon and Tenakee are no longer available via ferry. Instead, those outlying communities are connected directly to Juneau by ferry. This recent change is not reflected in the following route table, and no updated distance and travel time information is available from AMHS.

The AMHS will sometimes dedicate a vessel to a particular route, especially during the summer months. These shuttle ferries can be either conventional-speed or high-speed vessels. Currently, a dedicated vessel provides year round service between Ketchikan and Metlakatla.

In addition, the Interisland Ferry Authority (IFA), a quasi-governmental ferry service provider, provides year-round passenger, vehicle, and cargo service on a conventional-speed ferry between Hollis, on Prince of Wales Island, and Ketchikan. In the summer of 2006, another IFA vessel began providing at least summer passenger, vehicle, and cargo service between Coffman Cove, on Prince of Wales Island, Wrangell, and Petersburg. Private companies in the region provide charter ferry service but generally only for passengers and cargo. The following table presents ferry passenger traffic from both AMHS and IFA from 2000 to 2006.

**Table 46: Embarking Passengers on Public Ferry Systems in Southeast, 2000 to 2006**

Port	2000	2004	2005	2006	Annual Change 2000-06	Change 2005-06
Angoon	3,754	3,296	3,077	3,410	-1.3%	10.8%
Gustavus		-	640	461	NA	-28.0%
Haines	40,160	34,043	32,598	31,249	-3.2%	-4.1%
Hoonah	5,702	4,593	4,298	4,891	-2.0%	13.8%
Juneau	73,747	67,095	65,581	65,269	-1.6%	-0.5%
Kake	2,055	2,039	1,644	1,708	-2.4%	3.9%
Ketchikan	49,410	57,717	59,196	62,412	3.8%	5.4%
Metlakatla	5,774	6,905	7,195	13,278	18.6%	84.5%
Pelican	590	361	1,411	607	0.4%	-57.0%
Petersburg	11,020	10,768	10,475	10,317	-0.9%	-1.5%
Hollis	20,089	28,711	28,707	27,141	5.0%	-5.5%
Coffman Cove				2,720	NA	NA
Sitka	12,808	14,350	13,685	12,853	0.1%	-6.1%
Skagway	33,656	27,800	25,125	21,826	-5.0%	-13.1%
Tenakee Springs	1,112	1,076	909	1,209	1.2%	33.0%
Wrangell	7,514	7,736	7,394	8,496	1.9%	14.9%
Yakutat	68	100	102	129	12.8%	26.5%
<b>Regional Totals</b>	<b>267,459</b>	<b>266,590</b>	<b>262,037</b>	<b>267,976</b>	<b>0.0%</b>	<b>2.3%</b>

Sources: DOT&PF, AMHS, and IFA; 2007.

*Transportation - Barge Links*

Three major barge lines serve Southeast Alaska from Seattle with regularly scheduled service, delivering freight, vehicles, and equipment. One line serves the communities of Ketchikan, Wrangell, Petersburg, Sitka, and Juneau weekly, and some smaller communities less frequently (in some cases, seasonally). A second line serves Ketchikan, Petersburg, Sitka, and Juneau twice weekly; Wrangell, Craig, Klawock, Thorne Bay, Kake, Hawk Inlet, Haines, and Skagway

weekly; and Angoon, Pelican, Hoonah, Excursion Inlet, Tenakee Springs, Gustavus, and Yakutat seasonally. A third line serves Craig and Sitka every two weeks, and then continues on to Alaska destinations north and west. Following are the approximate transit times between Seattle and the several Southeast Alaska ports.

**Table 47: Barge Transit Times to Southeast Alaska Ports**

<b>Port</b>	<b>Transit Time From Seattle</b>
Ketchikan	4 Days
Metlakatla	6 Days
Prince of Wales Island	5 Days
Wrangell	5 Days
Petersburg	5 Days
Sitka	5 Days
Juneau	5 Days

Source: Barge service providers' websites, 2007.

In addition, commercial ocean freight service is available by charter from regional hubs by marine cargo transport companies. The vessels generally used for that service are landing craft for beach landings of cargo and equipment. Some vessels also have cranes for delivery of goods to the dock.

*Transportation - Air Links*

Air service in Southeast Alaska includes jet service from Seattle and Anchorage to and between the major communities (Juneau, Ketchikan, Sitka, Petersburg, Wrangell, and seasonally - Gustavus). Air cargo and air courier services are also available. Smaller air carriers, in 4- to 12-seat wheel or float planes, provide service within the region and to Prince Rupert, British Columbia to the south. Scheduled air service is available to most communities, and charter service is also available. Currently, three companies provide medical evacuation service in the region; two of those via jet aircraft. The USCG has an air station at Sitka that provides medical evacuations via helicopter when necessary, as well as search and rescue services.

Southeast Alaska has several types and sizes of airports, and virtually every community has an air facility of some kind. These facilities are detailed in the Section 1.0 of this report.

### 5.3 Air Traffic Activity in Southeast Alaska

The carrier analysis in the System Inventory gives a good overview of the routing structure of the regional commercial aviation system in Southeast Alaska. This section will expand on that overview, estimate traffic movement direction, volumes, and drivers, and will illuminate trends that will influence future changes to the system.

#### 5.3.1 Historic and Current System Activity

Part 135 commuter air carriers are based in Haines, Juneau, Ketchikan, Sitka, and Yakutat, with Ketchikan and Juneau being the major intra-region service hubs. Air taxis (both fixed-wing and helicopter) are based in Craig/Klawock, Gustavus, Ketchikan, Juneau, Petersburg, Sitka, Skagway, Wrangell, and Yakutat. In addition, Part 121 air carriers and cargo-only carriers from outside the region provide scheduled service to the certified airports in the region (Gustavus, Juneau, Ketchikan, Petersburg, Sitka, Wrangell, and Yakutat).

The following table presents scheduled air traffic volumes in the Southeast Alaska region reported to U.S. Department of Transportation from 2002 to 2006 in passengers, freight, and mail. While air taxis occasionally report traffic on some routes under this system, most air taxi charter traffic is not reported here. This table gives a good overview of comparative volumes of passengers, freight, and mail into, out of, and within the Southeast Alaska Region.

**Table 48: Air Traffic Into, Out of, and Within Southeast Alaska, 2002 to 2006**

Routes	2002	2003	2004	2005	2006	Average Annual Change
<b>Into Southeast</b>						
Passengers	322,278	323,745	340,174	352,986	365,028	3.3%
Freight (pounds)	9,482,000	15,812,000	20,052,000	16,734,000	18,568,000	24.0%
Mail (pounds)	8,416,000	8,774,000	6,188,000	8,394,000	7,478,000	-2.8%
<b>Out of Southeast</b>						
Passengers	324,379	324,164	339,576	352,894	365,863	3.2%
Freight (pounds)	11,442,000	18,208,000	21,930,000	20,004,000	18,076,000	14.5%
Mail (pounds)	4,152,000	5,212,000	2,178,000	2,856,000	2,648,000	-9.1%
<b>Within Southeast</b>						
Passengers	525,336	555,598	575,220	557,166	518,274	-0.3%
Freight (pounds)	19,666,000	23,710,000	31,154,000	24,126,000	27,888,000	10.5%
Mail (pounds)	17,910,000	20,520,000	14,512,000	15,238,000	14,768,000	-4.4%
<b>Totals</b>						
Passengers	<b>1,171,993</b>	<b>1,203,507</b>	<b>1,254,970</b>	<b>1,263,046</b>	<b>1,249,165</b>	<b>1.6%</b>
Freight (pounds)	<b>40,590,000</b>	<b>57,730,000</b>	<b>73,136,000</b>	<b>60,864,000</b>	<b>64,532,000</b>	<b>14.7%</b>
Mail (pounds)	<b>30,478,000</b>	<b>34,506,000</b>	<b>22,878,000</b>	<b>26,488,000</b>	<b>24,894,000</b>	<b>-4.6%</b>

Source: U.S. Department of Transportation, Bureau of Transportation Statistics. Compiled by DOT&PF, 2007.

Table 48 shows a 24 percent annual average increase in freight being flown into the region, while incoming passengers only increased an average of 3.3 percent per year between 2002 and 2006. Outgoing freight increased about 14 percent per year over that time. Transportation of mail by air has slowly decreased on all routes, likely due to development of alternative communication methods such as e-mail and to courier companies offering similar services on the same routes. Passengers traveling within Southeast Alaska by air have shown a marked decline since 2004.

The data in Table 48 are not strictly comparable to data in the following enplanement and city pair tables because the following tables only count passengers, freight, and mail outbound from the facility of origin, whereas Table 48 counts passengers, freight and mail both outbound from and inbound to regional facilities.

### 5.3.1.1 Enplanements

Table 49 shows enplanements at major aviation facilities in the region between 2000 and 2006. This data was developed by the DOT&PF from FAA enplanement data, with some estimates augmented to account for large volumes of air taxi traffic at particular airports, such as Gustavus.

**Table 49: Enplaned Passengers at Major Southeast Alaska Aviation Facilities, 2000 to 2006**

Originating Facility	2000	2001	2002	2003	2004	2005	2006
Angoon	3,009	3,274	2,059	2,379	2,408	2,307	2,080
Gustavus	14,776	14,652	7,203	7,105	11,673	11,579	10,959
Haines	10,655	9,652	5,847	7,712	7,940	8,054	7,071
Hoonah	10,483	9,510	6,354	8,715	10,832	9,499	8,615
Juneau	393,905	402,117	353,001	366,200	377,505	393,453	394,929
Kake	3,754	3,348	2,106	2,902	2,548	2,270	2,743
Ketchikan	112,210	102,634	99,628	103,313	107,141	110,211	108,102
Ketchikan Harbor	46,192	38,077	43,446	42,193	49,887	37,252	29,878
Metlakatla	10,027	10,026	8,693	7,520	5,018	3,821	2,329
Pelican	1,010	890	918	949	821	949	998
Petersburg	18,998	18,292	16,844	17,501	18,022	19,657	19,898
Prince of Wales Island (Total)	15,521	14,065	9,810	8,490	9,120	7,285	6,340
Hollis Seaplane Float	3,412	3,164	2,445	1,873	1,691	1,346	948
Coffman Cove Seaplane Float	257	169	136	113	163	148	110
Craig Seaplane Float	6,402	3,967	3,905	3,441	3,931	3,088	2,517
Hydaburg Seaplane Float	36	132	48	23	35	21	8
Kasaan Seaplane Float	291	85	45	55	63	65	92
Klawock Airport	2,468	3,410	856	867	476	789	1,247
Thorne Bay Seaplane Float	2,655	3,138	2,375	2,118	2,761	1,828	1,418

Originating Facility	2000	2001	2002	2003	2004	2005	2006
Sitka	68,002	72,912	70,095	69,109	76,150	73,882	78,918
Skagway	23,002	10,168	6,289	9,396	9,520	9,385	9,038
Tenakee Springs	1,359	1,274	946	1,170	1,104	1,197	890

**Table 49 (cont'd): Enplaned Passengers at Major Southeast Alaska Aviation Facilities, 2000 to 2006**

Originating Facility	2000	2001	2002	2003	2004	2005	2006
Wrangell	13,059	10,231	9,217	9,252	10,106	10,740	10,580
Yakutat	15,358	14,765	11,703	11,330	12,400	11,989	11,586
<b>Totals</b>	<b>761,320</b>	<b>735,887</b>	<b>654,159</b>	<b>675,236</b>	<b>712,195</b>	<b>713,530</b>	<b>704,954</b>

Source: DOT&PF.

The only airports showing positive growth in passenger enplanements between 2000 and 2006 were Sitka (16.1 percent increase), Petersburg (4.7 percent increase), and Juneau (0.3 percent increase).

### 5.3.1.2 Scheduled Air Traffic by Origin

Tables 50 and 51 present data on scheduled commercial flights departing Southeast Alaska Airports in 2006. This information was obtained from the U.S. Department of Transportation, Bureau of Transportation Statistics, and is slightly different from the data presented in Table 49 because it was taken from a different reporting system. The following data was not limited to that from scheduled air carriers, but includes data from air taxis that sometimes provide scheduled service on certain routes. Consequently, the enplaned passenger figures in the following tables are higher than in the previous table. Since the majority of air taxi activity is not scheduled and is not reported here, these figures do not capture the full amount of commercial traffic from these facilities.

**Table 50: Air Traffic Departing from Major Southeast Alaska Aviation Facilities, 2006**

Originating Facility	Departing Flights	Enplaned Passengers	Enplaned Freight (pounds)	Enplaned Mail (pounds)
Angoon	1,162	2,346	34,362	41,926
Gustavus	1,572	5,013	50,472	47,437
Haines	5,570	9,222	179,479	265,037
Hoonah	3,225	8,783	117,232	65,921
Juneau	19,548	374,858	17,196,535	5,595,704
Kake	779	2,403	93,214	31,841
Ketchikan	7,349	203,109	10,229,945	4,661,625
Ketchikan Harbor	8,531	29,872	350,400	1,108,806
Metlakatla	1,242	2,337	12,756	39,049
Pelican	587	1,182	28,532	19,926

Originating Facility	Departing Flights	Enplaned Passengers	Enplaned Freight (pounds)	Enplaned Mail (pounds)
Petersburg	1,039	44,176	2,392,210	433,866
Prince of Wales Island (Total)	4,638	7,216	171,408	414,407
Hollis Seaplane Float	805	1,672	28,198	57,454
Coffman Cove Seaplane Float	281	173	4,822	91,492
Craig Seaplane Float	1,605	2,662	91,378	128,961

**Table 50 (cont'd): Air Traffic Departing from Major Southeast Alaska Aviation Facilities, 2006**

Originating Facility	Departing Flights	Enplaned Passengers	Enplaned Freight (pounds)	Enplaned Mail (pounds)
Hydaburg Seaplane Float	128	37	2,192	14,563
Kasaan Seaplane Float	166	288	10,427	9,421
Klawock Airport	451	426	14,538	15,048
Thorne Bay Seaplane Float	1,202	1,958	19,853	97,468
Sitka	3,173	114,049	9,879,815	3,263,484
Skagway	4,773	9,479	91,650	213,909
Tenakee Springs	787	1,310	22,029	36,229
Wrangell	1,007	39,588	2,134,025	721,873
Yakutat	1,019	25,314	2,875,684	101,963
<b>Totals</b>	<b>66,001</b>	<b>880,257</b>	<b>45,859,748</b>	<b>17,063,003</b>

Source: U.S. Department of Transportation, Bureau of Transportation Statistics; 2007.

2006 traffic for smaller Southeast Alaska aviation facilities is reported in Table 51.

**Table 51: Air Traffic Departing from Small Southeast Alaska Aviation Facilities, 2006**

Originating Facility	Departing Flights	Enplaned Passengers	Enplaned Freight (pounds)	Enplaned Mail (pounds)
Bartlett Cove	6	16	238	346
Bell Island	51	12	1,284	992
Calder Bay	3	4	0	0
Chatham	17	7	0	133
Chomley	1	2	0	0
Chomondely Sound	53	46	1,302	6,525
Deep Bay	48	15	5,059	2,485
Edna Bay	219	118	1,931	30,261
Elfin Cove	316	517	21,012	15,807
Excursion Inlet	155	32	1,045	2,664
Funter Bay	74	20	150	926
Happy Harbour	2	11	0	0
Hawk Inlet	15	20	100	491
Hobart Bay	48	51	1	0
Hyder	114	150	458	7,090
Long Island	58	44	1,142	9,002
Meyers Chuck	142	227	3,388	7,415
Naukati	246	95	2,094	116,845
Neets Bay	55	30	1,237	2,280
Point Baker	170	39	1,385	32,859
Polk Inlet	3	3	42	1,280

Originating Facility	Departing Flights	Enplaned Passengers	Enplaned Freight (pounds)	Enplaned Mail (pounds)
Port Alexander	99	179	4,681	487
Port Protection	209	98	963	78,475
Saltery Cove	98	197	7,164	4,178
Smith Cove	5	11	0	0
Waterfall	485	1,498	45,426	5,463
Whale Pass	119	62	2,291	27,500
Whalers Cove Lodge	48	207	0	0
Yes Bay	66	74	1,743	461
<b>Totals</b>	<b>2,925</b>	<b>3,785</b>	<b>104,136</b>	<b>353,965</b>

Source: U.S. Department of Transportation, Bureau of Transportation Statistics; 2007.

When originating commercial traffic data for all aviation facilities in the region in 2006 is considered, the region experienced 68,930 flights, 884,052 enplaned passengers, 45,963,884 pounds of freight, and 17,416,968 pounds of mail traveling in the Southeast Alaska region on scheduled air carriers. Detailed 2006 City Pair traffic data for all origins within are shown in Appendix E.

The following table presents the average annual change in the number of departing flights, enplaned passengers, pounds of enplaned freight, and mail between 2004 and 2006 by originating Southeast Alaska aviation facility.

**Table 52: Average Annual Changes in Air Traffic for Select Facilities, 2004 to 2006**

Originating Facility	Change in Flights	Change in Passengers	Change in Freight	Change in Mail
Angeon	3.4%	-6.6%	-7.3%	-8.8%
Gustavus	-4.2%	-4.7%	-14.4%	-1.2%
Haines	-11.8%	-1.4%	25.5%	-2.1%
Hoonah	-10.3%	-9.8%	6.3%	21.2%
Juneau	-10.3%	1.3%	-0.4%	2.0%
Kake	-19.8%	-4.5%	116.2%	21.7%
Ketchikan	-6.8%	-0.8%	-10.9%	8.0%
Ketchikan Harbor	-15.4%	-19.9%	9.3%	-4.2%
Metlakatla	-13.6%	-26.8%	-12.2%	4.9%
Pelican	5.7%	11.1%	-9.8%	-6.6%
Petersburg	-8.0%	7.3%	-8.4%	6.2%
Prince of Wales Island (Total)	-10.2%	-18.4%	-7.3%	-2.3%
Hollis	-12.5%	-22.1%	-9.0%	8.5%
Coffman Cove	-0.4%	-13.5%	28.7%	4.1%
Craig	-12.4%	-18.0%	-6.1%	-0.8%
Hydaburg	-9.0%	-18.1%	179.3%	14.9%
Kasaan	6.1%	-3.8%	33.3%	3.7%
Klawock	-15.2%	-2.8%	-26.0%	-19.6%
Thorne Bay	-6.8%	-19.5%	-5.5%	-10.9%
Sitka	1.6%	-1.7%	-10.4%	12.1%
Skagway	-13.7%	-1.6%	19.4%	3.8%

<b>Originating Facility</b>	<b>Change in Flights</b>	<b>Change in Passengers</b>	<b>Change in Freight</b>	<b>Change in Mail</b>
Tenakee Springs	5.1%	-9.3%	-18.8%	-5.2%
Wrangell	-0.6%	6.0%	-11.5%	4.8%
Yakutat	-2.3%	1.2%	-7.9%	-43.9%
<b>Totals</b>	<b>-10.1%</b>	<b>-1.0%</b>	<b>-6.7%</b>	<b>2.4%</b>

Source: U.S. Department of Transportation, Bureau of Transportation Statistics; 2007.

In general, flights, enplanements, and freight volume decreased between 2004 and 2006. Slight increases in enplanements occurred at Juneau and Yakutat. Changes in mail volume varied by community but were higher regionwide. Higher increases in enplanements occurred at Pelican (11.1 percent), Petersburg (7.3 percent), and Wrangell (6.0 percent). The number of flights to Angoon, Pelican, and Tenakee Springs increased over this time period and probably reflects the change in carriers on these routes that occurred over this period. Mail and freight enplanements tend to fluctuate according to particular projects or activities occurring in a community in any particular year.

### 5.3.1.3 Scheduled Air Traffic by City Pair

The city pairs listed below have the highest traffic volume in the region. The top ten city pairs for each category are included. Detailed tables are available by aviation facility of origin in Appendix E. These numbers are for scheduled flights only. Air taxi operators perform charter flights between some of these communities, and the volume of that traffic is not captured here. Figures 6, 7, 8, and 9 present the routes and magnitude of volumes of flights, passengers, freight, and mail between city pairs in the region.

Passengers, freight, and mail often travel to hub airports to be redistributed and sent to smaller communities by different air carrier or different modes of travel. Thus, some of the passengers, freight, and mail may be counted in more than one route, with routes into hub airports showing the bulk of traffic. Flights that originate and end at the same facility are often flight seeing tours.

#### **City pairs ranked by the highest flight volume in 2006:**

- Ketchikan Harbor to Ketchikan Harbor (tours) - 3,692 flights
- Juneau to Haines - 3,516 flights
- Haines to Juneau - 3,389 flights
- Juneau to Hoonah - 2,949 flights

- Hoonah to Juneau - 2,947 flights
- Juneau to Skagway - 2,513 flights
- Skagway to Juneau - 2,455 flights
- Seattle to Ketchikan - 2,333 flights
- Haines to Skagway - 2,063 flights
- Skagway to Haines - 1,888 flights

**City pairs ranked by the highest passenger volume in 2006:**

- Juneau to Seattle - 123,105 passengers
- Seattle to Juneau - 122,253 passengers
- Seattle to Ketchikan - 118,819 passengers
- Ketchikan to Seattle - 109,513 passengers
- Juneau to Anchorage - 97,119 passengers
- Anchorage to Juneau - 95,945 passengers
- Juneau to Sitka - 57,922 passengers
- Sitka to Juneau - 57,070 passengers
- Ketchikan to Sitka - 39,459 passengers
- Sitka to Ketchikan - 32,710 passengers

**City pairs ranked by the highest freight volume in 2006:**

- Juneau to Seattle - 8,295,105 pounds.
- Anchorage to Juneau - 7,402,628 pounds.
- Seattle to Ketchikan - 6,801,226 pounds.
- Sitka to Juneau - 6,116,079 pounds.
- Ketchikan to Seattle - 4,471,428 pounds.
- Ketchikan to Sitka - 4,390,374 pounds.
- Juneau to Sitka - 2,835,306 pounds.
- Seattle to Juneau - 2,590,384 pounds.
- Sitka to Seattle - 1,902,478 pounds.
- Juneau to Anchorage - 1,800,978 pounds.
- Sitka to Ketchikan - 1,769,843 pounds.

**City pairs ranked by the highest mail volume in 2006:**

- Seattle to Ketchikan - 4,405,241 pounds.
- Sitka to Juneau - 2,482,239 pounds.

- Ketchikan to Sitka - 2,481,454 pounds.
- Juneau to Seattle - 1,562,551 pounds.
- Anchorage to Juneau - 1,521,125 pounds.
- Juneau to Sitka - 1,429,650 pounds.
- Seattle to Juneau - 1,049,033 pounds.
- Ketchikan to Wrangell - 981,027 pounds.
- Juneau to Anchorage - 769,569 pounds.
- Ketchikan to Juneau - 752,074 pounds.
- Sitka to Ketchikan - 706,764 pounds.

<insert 11x17>

**Figure 6: City Pairs Ranked by the Highest Flight Volume (2006)**

<insert 11x17>

**Figure 7: City Pairs Ranked by the Highest Passenger Volume (2006)**

<insert 11x17>

**Figure 8: City Pairs Ranked by the Highest Freight Volume (2006)**

<insert 11x17>

**Figure 9: City Pairs Ranked by the Highest Mail Volume (2006)**

As might be expected, the highest volume of passengers, freight, and mail moved between large communities outside of the region and the regional hubs. The next highest volume movement was between hub communities within the region. Flight volumes have a different pattern because of aircraft capacity. A jet aircraft can carry 100 or more passengers but cannot access every facility in the region. Facilities that cannot accommodate large jet traffic tend to have many more flights because the planes that access those facilities have much smaller capacities - generally only 4 to 9 passengers per flight.

The volume of flight data shows that Haines and Skagway are the busiest of the airports that do not accommodate jet traffic. Ketchikan Harbor flight seeing tours (departing and returning to the same location) account for the highest volume of flights in the region. Additional city pair data by highest volume of departing flights, passengers, freight, and mail is presented in Appendix E.

*5.3.1.4 Operations*

The following table presents the volume of operations at jet-certified airports in Southeast Alaska. This data was compiled by the FAA and is reported in the Master Record reports (Form 5010) for each facility. Each flight into a facility consists of two operations - a landing, and a takeoff. Traffic at JNU and KTN includes seaplane activity at facilities on airport property.

**Table 53: Aircraft Operations at Certified Airports, 2007**

<b>Airport Name</b>	<b>Air Carrier</b>	<b>Air Taxi</b>	<b>GA Local</b>	<b>GA Itinerant</b>	<b>Military</b>	<b>Total</b>
Gustavus	200	3,300	200	2,000	20	5,720
Juneau	8,370	106,763	18,601	17,979	1,297	153,010
Ketchikan	5,290	9,789	410	575	144	16,208
Petersburg	1,392	10,000	1,600	400	100	13,492
Sitka	1,800	10,000	3,000	7,000	1,300	23,100
Wrangell	725	6,200	1,000	3,000	0	10,925
Yakutat	726	5,000	3,000	10,000	300	19,026
<b>Total</b>	<b>18,503</b>	<b>151,052</b>	<b>27,811</b>	<b>40,954</b>	<b>3,161</b>	<b>241,481</b>

Source: FAA forms 5010, Airport Master Records; 2007.

The following table presents aircraft operations at non-certified airports in Southeast Alaska. These smaller facilities that do not accommodate large jet traffic have a higher ratio of operations per passenger moved, as the planes that access these facilities have a much smaller passenger capacity than large jets.

**Table 54: Aircraft Operations at Non-Certified Airports**

Airport Name	Air Carrier	Air Taxi	GA Local	GA Itinerant	Military	Total
Haines	0	1,000	2,000	4,000	0	7,000
Hoonah	0	0	500	2,600	0	3,100
Kake	0	4,600	0	0	0	4,600
Klawock	0	3,300	200	500	0	4,000
Skagway	0	10,800	500	1,200	0	12,500
<b>Total</b>	<b>0</b>	<b>19,700</b>	<b>3,200</b>	<b>8,300</b>	<b>0</b>	<b>31,200</b>

Source: FAA forms 5010, Airport Master Records; 2007.

Table 55 shows operations at major seaplane facilities in the region. The highest volume occurs at the facilities that perform a large number of flight seeing tours (Ketchikan and Juneau harbor facilities).

**Table 55: Aircraft Operations at Southeast Alaska Seaplane Bases**

SPB	Air Carrier	Air Taxi	GA Local	GA Itinerant	Military	Total
Angoon	0	1,500	0	1,500	0	3,000
Bartlett Cove	0	150	100	150	0	400
Coffman Cove	0	650	200	500	0	1,350
Craig	0	2,100	0	360	0	2,460
Elfin Cove	0	300	0	200	0	500
Excursion Inlet	0	200	0	500	0	700
Funter Bay	0	75	0	75	0	150
Hollis	0	200	0	100	0	300
Hoonah	0	0	0	400	0	400
Hydaburg	0	0	6,000	0	600	6,600
Hyder	0	0	500	50	25	575
Juneau Harbor	0	20,000	35,000	10,000	100	65,100
Kake	0	500	0	500	0	1,000
Kasaan	0	200	0	300	0	500
Ketchikan Harbor	0	75,000	10,000	3,000	0	88,000
Metlakatla	0	3,650	0	2,500	0	6,150
Meyers Chuck	0	500	0	350	0	850
North Whale	0	100	150	100	0	350
Pelican	0	1,500	20	1,500	0	3,020
Petersburg	0	5,900	0	2,000	0	7,900
Point Baker	0	600	0	200	0	800
Port Alexander	0	360	0	200	0	560
Port Protection	0	200	0	150	0	350
Sitka	0	2,500	0	500	0	3,000
Tenakee Springs	0	420	0	400	0	820
Thorne Bay	644	241	170	200	0	1,255
Wrangell	0	1,000	500	500	0	2,000
<b>Total</b>	<b>644</b>	<b>117,846</b>	<b>52,640</b>	<b>26,235</b>	<b>725</b>	<b>198,090</b>

Source: FAA forms 5010, Airport Master Records; 2007.

Note: Reporting for the "Juneau Harbor" facility seems to be combining operations from the Juneau Floatplane Pond (located at the JNU) and a private float at the downtown Juneau harbor that performs flight seeing tours.

The following tables compare the Airport Master Record (Form 5010) operations data, the city pair data discussed previously, and operations estimates obtained from airport management and maintenance staff. Operations estimates from city pair data (Form T-100) are twice the number of departing flights per facility because each flight is made up of two operations; a landing and a takeoff.

**Table 56: Comparison of Operations Estimates at Selected Southeast Alaska Airports, 2006/2007**

<b>Airport Name</b>	<b>Total Form 5010 Operations</b>	<b>Scheduled Carrier Operations Reported on Form T-100</b>	<b>Total Operations Estimated by Airport Management/Maintenance</b>
<b>Certified Airports</b>			
Gustavus	5,720	3,144	9,120
Juneau	153,010	39,096	129,750
Ketchikan	16,208	14,698	16,220
Petersburg	13,492	2,078	12,870
Sitka	23,100	6,346	29,180
Wrangell	10,925	2,014	15,450
Yakutat	19,026	2,038	11,150
<b>Total Certified</b>	<b>241,481</b>	<b>69,414</b>	<b>223,740</b>
<b>Other Airports</b>			
Haines	7,000	11,140	8,840
Hoonah	3,100	6,450	7,040
Kake	4,600	1,558	3,090
Klawock	4,000	902	2,490
Skagway	12,500	9,546	28,750
<b>Total Other</b>	<b>31,200</b>	<b>29,596</b>	<b>50,210</b>
<b>Grand Total</b>	<b>272,681</b>	<b>99,010</b>	<b>273,950</b>

Sources: Column 1 - FAA forms 5010, Airport Master Records; 2007.  
Column 2 - U.S. Department of Transportation, Bureau of Transportation Statistics, City Pair Data; 2007.  
Column 3 - Estimates by airport management or maintenance staff; 2007.

Note: Traffic at JNU and KTN includes seaplane traffic at facilities on airport property.

The middle column of scheduled carrier data presents flights actually reported and does not include many air taxi flights and GA traffic, so is expected to show less operations per facility than the other columns. The fact that the scheduled carrier data for Haines shows more operations than the other two columns indicates that traffic is higher at Haines than reported or estimated by airport management.

Operations estimates by airport management and maintenance staff seem to indicate that smaller airports have more traffic, and certified airports have less traffic than other estimates show. The total operations estimates for all airports in the region from the Airport Master Records and airport management is nearly the same.

Table 57 shows three operations estimates for selected seaplane facilities in the region. Estimates by airport management and maintenance staff or FAA Flight Services staff are generally much higher than other reports for those facilities. The exception is the Petersburg seaplane facility, where airport staff estimates far less traffic than estimates listed in the FAA Form 5010 Airport Master Record (5010 Form).

**Table 57: Comparisons of Operations Estimates at Selected Southeast Alaska Seaplane Bases, 2006/2007**

SPBs	Total Form 5010 Operations	Scheduled Carrier Operations Reported on Form T-100	Total Operations Estimated by Airport Management/Maintenance
Angoon	3,000	2,324	NA
Bartlett Cove	400	12	NA
Coffman Cove	1,350	562	NA
Craig	2,460	3,210	12,440
Elfin Cove	500	632	NA
Excursion Inlet	700	310	NA
Funter Bay	150	148	NA
Hollis	300	1,610	NA
Hoonah	400	NA	NA
Hydaburg	6,600	256	NA
Hyder	575	228	NA
Juneau Harbor	65,100	13,000	NA
Kake	1,000	NA	NA
Kasaan	500	332	NA
Ketchikan Harbor	88,000	17,062	173,400
Metlakatla	6,150	2,484	NA
Meyers Chuck	850	274	NA
North Whale	350	238	NA
Pelican	3,020	1,174	NA
Petersburg	7,900	NA	3,880
Point Baker	800	340	NA
Port Alexander	560	198	NA
Port Protection	350	418	NA
Sitka	3,000	NA	7,250
Tenakee Springs	820	1,574	NA
Thorne Bay	1,255	2,404	NA
Wrangell	2,000	NA	NA

Sources: Column 1 - FAA forms 5010, Airport Master Records; 2007.

Column 2 - U.S. Department of Transportation, Bureau of Transportation Statistics, City Pair Data; 2007.

Column 3 - Estimates by facility management or maintenance staff, or FAA flight service offices; 2007.

NA = data not available

### 5.3.1.5 Instrument Operations

The following table presents an estimate of instrument operations performed by air carriers within the region. Part 121 carriers, cargo-only carriers, and the two Part 135 carriers based in the region are certified by FAA to fly on instruments, and one carrier based outside the region is

certified to fly on instruments. This estimate assumes that the Part 121 carriers, cargo-only carriers, and the Part 135 instrument-certified carrier based outside the region perform instrument approaches at every landing in the region. The two region-based Part 135 carriers certified for instrument operations were interviewed and provided estimates of instrument landings at various regional airports in 2006.

Discussions with management at the Juneau Air Traffic Tower revealed that actual instrument operations documented at Juneau were 2.12 times greater than the estimated total in Table 58. This indicates that many air carriers may use instrument approaches whether or not they are certified by FAA to do so. It also indicates that some GA traffic performs instrument approaches. Therefore, the final column in Table 58 was adjusted to reflect the reality of instrument approaches at the Juneau Airport. Initial estimates of instrument operations at Ketchikan, Petersburg, Sitka, Wrangell, and Yakutat were doubled. Estimates for Gustavus Airport were increased by 175 percent, as that airport only supports jet traffic in the summer season. Estimates for Kake and Klawock were only increased by 150 percent because of the relatively smaller amount of traffic at those airports.

**Table 58: Estimate of 2006 Instrument Approaches at Various Airports**

<b>Destination</b>	<b>Part 121/Cargo</b>	<b>Part 135</b>	<b>All Commercial</b>	<b>Adjusted Total*</b>
Gustavus	81	6	87	152
Juneau	5,642	12	5,654	11,986
Kake	9	203	212	318
Ketchikan	3,784	2	3,786	7,572
Klawock	0	265	265	398
Petersburg	892	2	894	1,788
Sitka	2,851	418	3,269	6,538
Wrangell	890	2	892	1,784
Yakutat	923	0	923	1,846
<b>Total</b>	<b>15,072</b>	<b>910</b>	<b>15,982</b>	<b>33,882</b>

Source: U.S. Department of Transportation, Bureau of Transportation Statistics and interviews with air carriers, airport management, and FAA; 2007. Compiled by Southeast Strategies.

\* The Adjusted Total is All Commercial adjusted upwards for air carrier, air taxi and GA instrument operations performed, but not accounted for in the All Commercial column.

### 5.3.1.6 Based Aircraft

The following tables present two estimates of based aircraft at certified airports in the Southeast Alaska region. Table 59 presents based aircraft by type as reported in the 5010 Form.

**Table 59: Based Aircraft at Certified Airports**

Airport Name	Single Engine	Multi Engine	Jet	Helicopters	Military	Ultra-Light	Total
Gustavus	29	0	0	1	0	0	30
Juneau	279	21	2	34	3	2	341
Ketchikan	10	1	0	2	0	0	13
Petersburg	19	0	0	3	0	0	22
Sitka	21	2	0	0	3	4	30
Wrangell	16	0	0	0	0	0	16
Yakutat	27	0	0	0	0	0	27

Source: FAA forms 5010, Airport Master Records, 2007.

Table 60 presents estimates of based aircraft at certified airports in Southeast Alaska by summer and winter season. These estimates were developed from reports by air carriers operating in the region (commercial fixed-wing and helicopters), and by airport management and maintenance staff and other knowledgeable parties (military and GA). In the case of JNU, estimates of GA aircraft were made by starting with the total based aircraft reported in the 5010 Form, and subtracting the other known categories of based aircraft at this airport.

**Table 60: Estimates of Based Planes at Certified Airports in Southeast Alaska**

Airport Name	Commercial Fixed Wing	Commercial Helicopter	Military	General Aviation	Total
Gustavus - Summer	6	0	0	19	25
Winter	6	0	0	17	23
Juneau - Summer	46	12	3	280	341
Winter	32	17	3	268	320
Ketchikan - Summer	0	2	0	6	8
Winter	0	0	0	5	5
Petersburg - Summer	3	1	0	7	11
Winter	2	1	0	7	10
Sitka - Summer	4	0	3	15	22
Winter	4	0	3	8	15
Wrangell - Summer	2	1	0	14	17
Winter	2	0	0	9	11
Yakutat - Summer	9	0	0	12	21
Winter	6	0	0	0	6
<b>Totals</b>					
<b>Summer</b>	<b>70</b>	<b>16</b>	<b>6</b>	<b>353</b>	<b>445</b>
<b>Winter</b>	<b>52</b>	<b>18</b>	<b>6</b>	<b>314</b>	<b>390</b>

Sources: Commercial planes derived from interviews of all commercial carriers. Military and GA estimates from interviews with airport management. Compiled by Southeast Strategies, 2007.

### 5.3.1.7 General Aviation Transient Traffic

Most transient traffic at Southeast Alaska airports occurs during the summer months. Across the board, all Southeast aviation facilities saw less GA transient traffic in 2007 compared to 2006.

At all airports, transient non-jet GA traffic decreased, while a few airports had a slight increase in transient GA jet traffic. Juneau, Gustavus, and Wrangell airports experienced an increase in small jet traffic, although airport managers, tower management, and other knowledgeable parties interviewed were not certain why that traffic was up at those airports. Small jets most frequently seen at regional airports during the summer of 2007 included Learjets, Boeing, Hawkers, Gulfstreams, Citations, Pilatus, Challengers, King Airs, and lots of Falcons. Airport-specific information on small jet transient traffic will be included in a later section that discusses airport-specific traffic.

5.3.1.8 *Planes and Pilots*

The following table provides current counts of planes registered to Southeast Alaska residents. This count includes all private, commercial, and government aircraft where the owner of record has a mailing address in Southeast Alaska. The total of 783 for the region amounts to about 11 planes per 1,000 residents, compared to about 16 planes per 1,000 residents in the state as a whole.

**Table 61: Planes Registered to Southeast Alaska Residents, 2007  
 (commercial, private, and government ownership)**

<b>Community</b>	<b>Number</b>
Craig	10
Gustavus	31
Haines	71
Juneau	312
Kake	3
Ketchikan	185
Klawock	5
Petersburg	34
Point Baker	1
Port Alexander	4
Sitka	68
Skagway	17
Thorne Bay	2
Wrangell	17
Yakutat	23
<b>Total</b>	<b>783</b>

Source: FAA, 2007

The following table presents the number of certified pilots residing in the Southeast Alaska region by type of license. The total of 463 licensed pilots equates to about 6.6 certified pilots for every 1,000 residents, compared to about 9 pilots per 1,000 residents in the state as a whole.

**Table 62: Certified Pilots Residing in Southeast Alaska, 2007**

	Private	Student	Commercial	Total	Flight
Haines	13	1	6	20	2
Juneau	102	18	84	204	65
Ketchikan	39	7	41	87	21
Prince of Wales/Outer Ketchikan	6	2	5	13	1
Sitka	33	6	13	52	2
Skagway-Hoonah-Angoon	14	2	15	31	2
Wrangell-Petersburg	16	7	22	45	8
Yakutat	7	1	3	11	1
<b>Southeast Alaska Total</b>	<b>230</b>	<b>44</b>	<b>189</b>	<b>463</b>	<b>102</b>

Source: FAA, 2007

## 5.4 Aviation Trends in the Southeast Alaska Region

This section characterizes the aviation activity, and discusses the factors that drive demand for that activity at specific facilities in the region. Although not every regional facility is discussed here, those with high traffic volumes are addressed. In addition, this section addresses future trends in demand for air travel and how those trends will impact aviation in the region.

### 5.4.1 Communities with Certified and High Traffic Facilities

Following are descriptions of the air traffic at the certified and high volume aviation facilities within the Southeast Alaska Region. Each community is different in economy, culture, geography, and proximity to other communities. As such, traffic patterns and characteristics vary from community to community. This section discusses these differences and the drivers behind demand for air travel in each community. The communities are presented in approximate order of highest aviation activity.

#### *Juneau*

Juneau, the State Capital, is the largest community in the region. It is the capital city of Alaska, and government is a major contributor to its economy. JNU receives daily jet traffic from north and south outside of the region, connecting it to the major population center of the state (Anchorage) and the rest of the U.S. and the world (via Seattle and Anchorage). Traffic to and from Anchorage and Seattle is frequent year-round and includes residents traveling for business and pleasure and nonresidents traveling to Juneau for business. In summer, traffic from outside the region increases greatly as visitors come to see the sights, fish, recreate, and work for the

industries that serve visitors. During the winter season, people fly to the State Capital via jet to do business with the Legislature.

Visitors to Juneau, regardless of how they arrive in and leave from Juneau, often use aviation services for flight seeing or visiting surrounding areas. Several helicopter and fixed wing carriers fly tours all summer long. All but one helicopter company in the area are based out of JNU. A fixed-wing carrier flies tours from a private float in the Juneau Harbor.

Traffic supported by Part 135 air carriers is mostly to and from nearby communities. As Juneau is a regional hub as well as the State Capital, residents of regional communities come to Juneau to shop, obtain medical, business, education and transportation service, to do business, and to visit friends and relatives and attend regional sporting and cultural events.

Non-commercial air traffic consists mainly of recreational private planes on wheels and floats. Several agencies and businesses also base planes at JNU, including an air ambulance, U.S. Fish and Wildlife Service, U.S. Forest Service, National Guard, and the local Civil Air Patrol.

Transient GA traffic at JNU occurs mostly in summer. That airport received about 9,500 transient GA operations in 2007. About 1,000 of those were from small jets such as Gulfstreams, Citations, Leers, and Falcons. Most small jets come from the Lower 48 states and are often carrying passengers headed to fishing or hunting lodges. Jets also pick up or drop off cruise ship or yacht passengers. Corporate jets also land at Juneau, bringing people in for business purposes. There were more small jets and fewer non-jet transient planes stopping at Juneau in 2007 than in the past. The ramp area where small jets park was frequently full during the summer of 2007.

### *Ketchikan*

Ketchikan is a popular visitor destination, and much of its air traffic is related to tourism. Industries in areas close to Ketchikan include timber harvesting, commercial fishing and fish processing, and mineral exploration and extraction. Remote fishing lodges also fuel demand for air traffic. Most of the air traffic to these outlying communities originates in the Ketchikan Harbor and consists mostly of float planes. Ketchikan is also a regional shopping and services center and derives traffic from that status.

Much of the traffic at Ketchikan originates at the harbor near downtown, as shown in Table 5 in Appendix E. Floatplanes are used for flight seeing tours originating from the harbor, as well as to transport freight, mail and passengers to remote communities, lodges and logging and mining camps. As most of the surrounding aviation facilities are on the water, most of the intra sub-regional traffic is via float plane and originates from the Ketchikan harbor.

Non-commercial air traffic in the Ketchikan area comes from a few private planes on floats and wheels and two air ambulance companies who base planes there. Most traffic originating at KTN is Part 121 air carrier activity as well as transient jet traffic. Transient GA traffic at KTN was down in 2007, for both small jets and smaller aircraft. In the summer of 2007, an average of about four small jets per day stopped at KTN, for a total of nearly 1,000 operations.

### *Sitka*

SIT receives jet service connecting to Alaska destinations to the north and Lower 48 state destinations to the south, connecting with major regional communities along the way. Sitka is the location of several regional facilities that create traffic into and out of the community, including a retirement home, Alaska State Trooper academy, a regional Native hospital, and a major USCG air station. Commercial fishing and tourism industries also fuel demand for air travel to and from Sitka, and as with Juneau, residents of neighboring communities travel to Sitka to obtain goods and services.

Non-commercial air traffic consists mainly of GA private aircraft, two air ambulances, and three USCG helicopters. Transient traffic at SIT in 2006 accounted for about 7,000 operations. This traffic is especially high in the spring during the herring fishery. Transient traffic dropped between 2006 and 2007, for both small GA planes and small jets. Small jet traffic accessed Sitka mostly for the area's world class fishing, or for fuel stops on the way up or down the Alaska coast. Some of that traffic is from corporate or private jets such as Gulfstreams and Falcons. The ramp where small jets park at SIT was reportedly full for most of the summer of 2007.

### *Petersburg*

While Petersburg is a small community, it has a relatively stable economy. It hosts a large fishing fleet and a strong fish processing industry and serves as a regional hub for some nearby

communities. The airport receives large jet service daily, and air taxis operate year-round out of the SPB near downtown. Tourism is a small but growing element to the Petersburg economy

Petersburg Airport saw about three or four small jets per week during the summer of 2007, for estimated operations of over 100. Half of those jets were Gulfstreams and smaller jets, including Falcons, Challengers, and Citations.

### *Wrangell*

Wrangell's economy has slowed in recent years, as has its demand for air transportation. While the timber industry had been a strong economic element in Wrangell in the past, that industry has very little impact on the community today. Commercial fishing is the strongest economic element in the community. Tourism is not a major contributor to the economy but has the potential to grow.

Wrangell Airport (WRG) receives large jet service daily and supports several air taxi operations. 2006 transient GA traffic created about 3,000 operations at WRG. In 2007, about 240 operations were small jet traffic from Gulfstreams, Challengers, King Airs, and Learjets. This amounted to about one small jet flight per day for the summer season.

### *Yakutat*

Yakutat's economy has slowed in recent years. Commercial fishing and tourism are factors in fueling demand for aviation activity in the area. Yakutat receives daily large jet service and has several air taxis available for tours and for connections to nearby remote areas where logging camps and fishing lodges are located. Activity is high in spring during the herring fishery.

Because of its location and its low minimums, Yakutat Airport is popular with transient GA traffic. It is a frequent fuel stop on the way up or down the Alaska coast and often hosts caravans of planes. The airport received about 25 transient aircraft stops a week during the summer of 2007, some of which were small jets.

### *Skagway*

Skagway is one of the most popular tourist stops in Alaska. It is home to the Klondike Gold Rush National Historic Park and the terminus of the Klondike Highway, with road connections

to the continental U.S. The town receives hundreds of thousands of cruise ship visitors annually, and its population triples in summer with the seasonal influx of workers for the tourism industry. Skagway Airport (SGY) does not receive large jet traffic, and floatplane traffic is minimal, yet they receive a high volume of flights to and from the community, especially in summer. Small wheeled planes and helicopters perform tours from SGY.

In summer, SGY receives five or six stops per week from transient GA planes, one of which might be a small jet.

### *Gustavus*

Gustavus has a strong visitor industry and an excellent airport. The community receives summer-only, once-daily large jet traffic to Juneau and points beyond. The community also receives year-round scheduled traffic from Part 135 air carriers. Gustavus Airport (GST) is the closest airport to Glacier Bay National Park, and much of the traffic is tourism related. Gustavus does not receive ferry traffic and so hosts a large amount of charter traffic from two air taxis based there.

GST receives quite a bit of transient air traffic, especially in summer. Reported transient GA traffic for 2006 was 2,000 operations. Often, Juneau residents travel to Gustavus to play golf or visit cabins located there. GST receives approximately one or two small jets per week (nearly 500 operations per year for 2007), stopping to visit Glacier Bay or go fishing, or traveling between the Lower 48 states and Yakutat (fuel stop). GST has six hardstands available for small jets. The airport saw more small jets this year than usual (mostly Gulfstreams, Falcons, and turbo props including DeHavilland Dash 7 and Dash 8). In addition, GST is getting increasingly more transient helicopter traffic, and construction of a helicopter pad at the airport is planned.

### *Haines*

Haines is the terminus of the Haines Highway and has road connections to the continental U.S. The community has a strong commercial fishing sector and receives some visitor activity, although not as much as some other communities in the region. They do, however, have a stronger winter recreation element than most Southeast Alaska communities, including heli-skiing in the spring season. The Haines economy has been slowing in the past several years.

Transient GA traffic at Haines Airport (HNS) in summer consists of about one visit per week and one small jet per month. Very little float plane traffic takes place at HNS.

### *Hoonah*

Hoonah has seen recent economic growth with the development of a cruise ship dock near the community. Since Hoonah is close to Glacier Bay National Park, one of Alaska's top visitor attractions, air tours of the Park take place when cruise ships are in port. In addition, Hoonah residents travel to Juneau frequently to obtain goods and services, and to recreate and visit friends and relatives. If cruise ship traffic to Hoonah continues to increase, air tours will likely follow suit.

Although the Hoonah Airport runway is small, it does occasionally receive small jet traffic in the summer. The reported transient GA traffic for 2007 is only one or two planes per week, for a total of about 150 transient operations.

### *Kake*

Kake is a small, quiet community with an active Village Corporation. Commercial fishing and fish processing, as well as logging activities fuel the economy. Tourism is not much of a factor in transportation to and from this community. The airport receives an average of one transient GA plane per week during the summer season, and none are small jets.

### *Klawock*

The Klawock Airport (AKW) serves all of Prince of Wales Island. The Island also has year-round ferry service and air transportation services from the Craig seaplane facility. The economy of the Island has slowed in recent years, and although several air carriers have provided scheduled air service to AKW in the recent past, no scheduled service is currently available to and from there. AKW receives small jets about twice per week in summer, mostly to access fishing lodges in the area.

## **5.5 Regional Trends and Aviation Demand**

Aviation trends in Southeast Alaska are affected by a variety of factors. Some factors impact only portions of the region and some impact all of Southeast Alaska. This section discusses

factors that may change the future demand for aviation in the region and in particular areas within the region.

In general, a stagnant or declining economy in most communities in the Southeast Alaska region will result in continued population loss into the future. High fuel costs will result in higher cost of energy and goods, and the most rural areas (those generally serviced via float plane) will be the hardest hit. As rural communities will likely require less transportation service, rural recreational facilities and lodges and rural camps for timber harvest and mining may see some growth in demand. As communities are more frequently served by commuter air carriers and other rural destinations tend to be served more by air taxis, we would expect to see a stagnation or slight decline in scheduled service and an increase in air taxi activity. More specific trends and how they will impact the aviation industry in the region are addressed below.

#### 5.5.1 Factors Increasing Demand for Air Travel

The following factors will tend to increase demand for air travel within Southeast Alaska.

- The region will likely see increases in tourism activity in the future. Table 43 shows cruise ship traffic at Juneau from 2000 to 2007. Passengers visiting Juneau have increased about 56 percent over this time. Although cruise lines may change routes within the region, and some ports have greater or lesser increases than Juneau, this represents the change in volume of visits within the region in general. Many of these visitors take airplane tours at one or more of the communities that they visit. Air tours are a large part of the aviation traffic in the Juneau, Skagway, and Ketchikan Harbor facilities and are likely to increase as cruise ship traffic increases. In addition, newly developed ports of call such as Icy Strait Point at Hoonah will increase air tours at nearby aviation facilities. Tours are provided by wheel and float planes and helicopters in the Northern part of the region and mostly by floatplanes in the Southern part of the region. Visitors also fly to remote recreation sites and fishing lodges. GA traffic is mostly made up of visitors sightseeing or recreating in the region. In addition, workers in tourism industries and goods for those industries often travel by air.
- Regional fish processors have been working towards developing more air freight service in summer to fly fresh fish out of the region to market. This has been difficult because

peak fish harvest season coincides with peak visitor season, so the regularly scheduled planes are filled to capacity with passengers and have no room for freight. Adding extra planes for freight capacity can be expensive because those planes generally come into the region empty, and the fee to transport fish out of the region must cover the cost of the full flight including the empty leg into the region. In the summer of 2007, a regional Part 121 carrier added freighter capacity and transported a large amount of fish out of the region. This first attempt at increasing air freight capacity for fresh fish was valuable and is a work in progress. Capacity for fish was below demand, and coordination between carriers and shippers needs some work, but this trial year was a large step forward. If work in this area continues, there is the potential for a large increase in freight being shipped from the region during the commercial fishing season. There is also potential for more freight to be flown into the region as backhaul to the shipments of fish out of the region.

- Increased economic returns from the petroleum industry in Alaska will likely increase the fortunes of regional residents and increase their demand for air travel for passengers and goods. Since Juneau is the State Capital, increased oil revenues and the potential for gas line development in the future will increase air traffic into and out of that community.
- Development of an airport at Angoon will result in less need for seaplanes in the region. As wheel planes are more economical to operate, this change will help with the overall efficiency of air carriers, keeping costs of travel to the users low and increasing demand for that travel.
- Gustavus is planning to build a dock that will accommodate passenger vessels, freight loading, and possibly ferry traffic. Icy Strait and Cross Sound near Gustavus is a productive commercial fishing ground. Processors in the area may consider shipping fish via boat to the Gustavus dock and then flying it out from the Gustavus airport. This would create more traffic into Gustavus. Also, the dock could better accommodate whale watching, charter fishing, and other water-oriented visitor activities, potentially increasing air traffic to bring in visitors to partake of these activities.
- The only commercial alternatives to air transportation in the region currently are the AMHS, the state-run ferry system, and the IFA, a regional ferry authority providing

service to and from Prince of Wales Island. Many of the vessels in the existing ferry fleet are nearing the end of their expected useful life, and fewer and fewer capital funds are available for replacement of those vessels. In addition, due to increased fuel, maintenance, and staffing costs, and increasingly expensive security mandates, operating costs have risen dramatically in the recent past. It is becoming increasingly difficult for the AMHS to obtain adequate operating funds from the state budget. Consequently, regionwide ferry traffic may be reduced, possibly dramatically, in future years. This occurrence will increase demand for air transportation in the region, especially in communities that rely heavily on ferry service for transportation.

- The USCG recently ruled (USCG Order CG-835, 3/17/2006) to disallow 24-hour service by the state ferry that traveled between Juneau, Sitka, and the rural villages between them. Because of the difficulty of reaching Sitka (where many used to go to receive health care), village residents travel to Juneau or Petersburg for much of their health care and shopping needs, most likely traveling by air.

#### 5.5.2 Factors Decreasing Demand for Air Travel

The following factors will tend to decrease demand for air travel within the Southeast Alaska Region.

- The general economic downturn and continued population loss in the region will decrease demand for air transportation.
- The continued high cost of fuel makes the costs of living (especially in rural areas) and air travel increasingly expensive.
- Developing a Lynn Canal highway will decrease the need for aviation services in Lynn Canal between the communities of Haines, Skagway, and Juneau.
- There are plans to begin new transportation service from Juneau to Hoonah, Haines, and Skagway with wing-in ground effects vessels beginning in fall of 2008. These vessels are currently in Australia. While these vessels are technically water craft, they hover about 9 feet above the water on a cushion of air and have a cruising speed of about 80 knots.

- It is unlikely that the U.S. Postal Service will discontinue contracts for mail service via air, but EAS subsidies (federally subsidized contracts for air service to isolated communities with limited transportation opportunities) are being scrutinized by Congress, and their future is far from secure. The communities in Southeast Alaska that receive EAS subsidies are Petersburg, Wrangell, Gustavus, Yakutat, Excursion Inlet, Port Alexander, Funter Bay, Chatham, Hydaburg, and Pelican. Petersburg, Wrangell, Yakutat, and Gustavus (seasonally) get EAS service via Part 121 air carriers. This program can subsidize air fares to and from these communities up to \$200.00 per seat. Generally, EAS service to a community is the only service that community receives. Loss of the EAS might prompt commercial carriers to begin full price service to the affected communities. Larger communities will likely be able to support some service but maybe not the same kind as they now receive. Part 121 air carriers in the region may consider pulling out of the EAS communities they serve in Southeast Alaska, or they may consider using smaller aircraft that hub from Juneau or Ketchikan to serve these communities.

### 5.5.3 Trends Affecting Areas within the Region

In general, there will likely be a slight decrease in scheduled service to rural communities, and an increase in air taxi traffic to remote logging and mining camps and to fishing lodges and other remote recreation areas, especially in summer. There will be a static amount of aviation service to the certified airports in the region over the next 20 years, with a possible slight increase in traffic at Juneau, especially if a natural gas pipeline is developed and state revenues increase. There may also be an increase in freight traffic in summer season flying fish to market. Increases in tourism will increase flight seeing, especially from the Juneau and Ketchikan harbor areas, and possibly at Skagway and Hoonah airports. Aviation activity at rural communities is expected to generally decrease slightly, provided ferry service is still available to those communities now served.

On the southern end of the region, private logging activities will continue for some time, as will mineral exploration and development. Many locations where these activities take place are remote and reached mainly by float plane. Remote fishing lodges and other recreational activities are similarly reached mostly via floatplane. While some of the remote locations may

change over time, floatplane traffic from the Ketchikan waterfront area is expected to increase. Flightseeing originating from the Ketchikan waterfront is also expected to increase. While traffic at the KTN is expected to be stagnant or show a slight increase, traffic at the Ketchikan waterfront is expected to show a slight to moderate increase. Klawock Airport could experience growth if improvements to the utilities and services are made. Aviation activity at Wrangell Airport is expected to be stagnant or slightly declining.

The Central and Northern Regions of Southeast Alaska will experience a reduction in aviation service to most rural areas, stagnant activity at airports, and a slight increase in air taxi activity to remote areas. Changes anticipated at particular facilities include:

- Petersburg Airport will see slight growth in activity from fish processing activity.
- SIT activity will be stagnant or show a slight decline. Activity at the Sitka SPB will likely increase to serve remote locations.
- Angoon aviation activity will decrease slightly at the SPB, but should increase once the Angoon Airport is built around 2012. Increases result from more efficient operations by carriers and possibly increased visitor activity. There is also potential that Angoon Airport could become a hub for small regional carriers.
- Hoonah Airport will see growth in aviation activity associated with cruise ship traffic (flight seeing and support services).
- Gustavus Airport will see growth from tourism and possibly fish processing or transshipment activities.
- JNU will see slight increases due to increased economic returns to state government, and that airport and the Juneau harbor will show increases due to tourism activity.
- Skagway Airport will show slight increases in aviation demand due to tourism activity, although development of the Lynn Canal Highway will curtail that growth.
- Haines Airport activity will remain stagnant or show slight decreases, especially with development of the Lynn Canal highway.
- Yakutat Airport will remain stagnant. While slight increases may occur due to tourism, shipment of fish, and remote camp activity, the general economic condition of the community will contribute to decreased air traffic.

## **6.0 NEEDS AND RECOMMENDATIONS**

Section 6 looks at how well Southeast Alaska aviation facilities, including airports, seaplane bases, and helicopter facilities, meet user needs or FAA design standards. To the extent facilities are not adequate, recommendations for improvement are discussed. The effectiveness and future of DOT&PF policies and procedures, changes to the air navigation environment, and possible fleet mix changes are also discussed.

### **6.1 Airports**

The following table provides both an individual and regionwide snapshot of short-term airport needs throughout Southeast Alaska. A solid circle indicates a particular airport element currently meets user needs or complies with design standards. A circle that is not filled in means an element does not meet user needs, and there is no short-term plan to bring that item up to standard. A triangle means that while a particular element does not currently meet user needs or design standards, there is a project planned in the short-term to resolve the issue. The text following Table 63 discusses each individual element in the table.

**Table 63: Short-Term Facility Needs**

Airport	Runway	RSA	Vegetation Penetrations to Approach Surfaces	Runway (R), Taxiway (T), Apron (A) Condition	Runway Lighting/ Markings	Parallel Taxiways	Apron (A), Unit Load Device Pad (ULD)*, Hardstand (H)	Lease Lots (LL) and Utilities (U)**	Terminal (T), Parking (P), Access (A), Restrooms (R)	Roads/ Fencing	Fuel	M&O
Gustavus	●	△ RWY 11/29	●	△ RWY 11/29	●	●	△ H ○ ULD	○ U	○ R	●	●	●
Haines	●	●	△	△ R, T, A	●	●	●	●	○ R	○	●	△
Hoonah	△	●	△	●	●	●	△ A	△ LL	○ R	○	○	●
Juneau	●	△	●	●	△	△	△ A	△ LL	△ T, P, A	△	●	△
Kake	●	●	●	●	●	●	●	●	△ R	●	○	△
Ketchikan	●	●	●	●	●	●	△ A, H ○ ULD	△ LL	△ P	●	●	●
Klawock	●	●	△	●	●	●	○ A	△ U	○ P	●	○	●
Petersburg	●	●	●	●	△	●	△ H, ULD	●	●	●	●	●
Sitka	●	△	●	△ R	△	△	△ H ○ A, ULD	△ LL	○ T, P	●	●	●
Skagway	●	●	●	●	●	●	●	●	○ R	●	○	○
Wrangell	●	●	●	●	●	●	○ H, ULD	○ U	●	●	●	●
Yakutat	○ RWY 2/20	●	△	○ RWY 2/20	● RWY 2/20	●	○ ULD	●	●	●	●	●

\* Only those airports served by Alaska Airlines require concrete pads to support unit load devices.

\*\* Utilities include water, electrical, telephone. Specific utility needs at individual airports are discussed in Table 13.

● = Meets short-term users needs and standards

△ = Does not meet short-term user needs or standards, but a project is planned in the short-term to resolve the issue

○ = Does not meet short-term user needs or standards, and no project is planned in short-term to resolve the issue

### 6.1.1 Runways

Based on existing airport master plan and ALP data, most runways in Southeast Alaska have adequate length and are able to support the aircraft using them. The exceptions are Hoonah and Yakutat. The 2004 Hoonah Airport Master Plan recommends a 300-foot runway extension on one end. The resulting runway length of 3,300 feet would meet the minimum standard recommended in the 1996 AASP Update. The 2006 Yakutat Airport Master Plan recommends Runway 2/20's landing distance available be increased from 5,085 feet to at least 5,173 feet. Also, the Runway 20 threshold should be relocated 600 feet to the southwest to increase separation distance from Runway 11/29. This would allow for simultaneous takeoffs on Runway 20 and operations on Runway 11/29.

Medevac operators use several aircraft to serve Southeast Alaska; not all of these planes are able to land at every airport in the region because of runway length constraints. The Learjet only lands at airports with runways at least 5,000 feet long. However, other medevac aircraft, such as the Navajo, are able to serve all airports.

Certain changes in the Southeast aviation environment may result in a need for longer runways in the future. As the number of 737-800 and 900 series operations at Southeast airports increase, the runway length at airports served by these aircraft should be reevaluated in individual airport master plans to determine if the runway length adequately accommodates these aircraft.

In recent years, Alaska Airlines has developed RNP approaches at several airports in Southeast Alaska. These special approaches allow the air carrier aircraft to land in lower visibility. An unanticipated consequence of the airline's improved ability to land is the extra effort required by DOT&PF, Ketchikan, and Juneau maintenance personnel to maintain runway surfaces. Part 121 aircraft are required to come to a full stop within a certain percentage of the total runway length, and the 737-800 and 900 aircraft have a longer landing distance than the 737-400 aircraft. Slick runway conditions can result in a longer landing roll, and more personnel time and sand are required than before in an effort to meet the runway braking action requirements.

If runway braking action requirements are not met, Alaska Airlines must sometimes reduce its load factor (fewer passengers, less cargo, or a combination of both). The airline has had to

cancel flights in the past because runway conditions did not meet braking action requirements, or the airline determined it would not be able to stop within a certain percentage of the runway.

The FAA is currently considering changing the methodology used to compute braking action. It is possible the revised guidance could be even more restrictive on the 737 fleet serving Southeast. If the FAA changes its braking action requirements, runway lengths at Southeast airports may need to be reevaluated in future master plans to determine if longer runways are necessary to ensure reliable service.

#### 6.1.2 Runway Safety Areas

There has been a big effort over the last few years to improve RSAs at Southeast Alaska airports. In 2007, the RSA at Wrangell Airport was expanded to meet FAA design standards. An RSA project at Ketchikan Airport is expected to be completed in summer 2008 and an RSA expansion is scheduled to get underway at Petersburg Airport in 2008.

The following RSA projects are either in the design phase or undergoing environmental review, and should be completed within the next 5 years:

- Gustavus Airport: Deficient RSA length and width
- Juneau: Deficient RSA length and width
- Sitka: Deficient RSA length and width

The RSA beyond the runway ends at the Skagway Airport is slightly clipped and rounded. This deviation from the standard is very minor, and the RSA will likely remain as is.

When the runway at Hoonah is extended 300 feet at some point in the future, the RSA will also be extended to meet design standards.

#### 6.1.3 Approach Obstruction Removal

The Haines, Hoonah, Klawock, and Yakutat Airport Master Plans all cite vegetation penetrations to one or more of the runway approach surfaces. Removal of any trees or brush penetrating approach surfaces is being addressed by maintenance staff and in future capital improvement projects.

#### 6.1.4 Airfield Surface Condition

Pavement surveys were conducted at Southeast Alaska airports in 2003 and 2004. Survey results included the existing pavement condition of the runways, taxiways, aprons, and other surfaces, and a projected deterioration timeline. While pavement improvement projects have been completed at many Southeast airports in recent years as part of RSA improvement projects, there are still a number of airports in need of short-term pavement improvements including:

- Gustavus: Resurface Runway 11/29
- Haines: Repave airfield and improve subsurface drainage
- Sitka: Resurface runway
- Yakutat: Resurface Runway 2/20

Pavement improvement projects are planned for Gustavus and Sitka Airports within the next few years. Improvement projects should be completed in the short term at the other two airports as well.

The parallel taxiway and apron extension projects scheduled to get underway at Juneau International Airport in the next few years will be paved.

#### 6.1.5 Runway Lighting/Markings

A number of airfield lighting and surface marking improvements were identified through a review of airport master plans and by talking to airport users. These include:

- Juneau International Airport: Install Runway 26 Medium-Intensity Approach Lighting System with Runway Alignment Indicator (MALSR) system.
- Petersburg Airport: Replace Precision Approach Path Indicators (PAPI) with VASIs; install Runway 23 MALSR system; replace Runway 5 Omnidirectional Approach Lighting System (ODALS) with Medium-Intensity Approach Lighting System with Sequenced Flashers (MALSF) system.
- Yakutat Airport: Relocate Runway 2 Runway End Identifier Lights (REIL) when the runway threshold is relocated; install Runway 20 illuminated hold lines; install VASIs on Runway 11.

#### 6.1.6 Parallel Taxiways

Terrain and water challenges prevent several Southeast airports from having full or partial parallel taxiways. Juneau and Skagway are the only Southeast airports with full-length parallel taxiways. Gustavus, Haines, Ketchikan, and Sitka have partial parallel taxiways. The taxiway at Ketchikan Airport is not technically considered a partial parallel taxiway by FAA standards because of an elevation difference between the runway and taxiway. The other seven airports in the region do not have a full or partial parallel taxiway, either because there is no need for one at this time, or there are tremendous cost, construction, and environmental issues associated with terrain removal or placing large amounts of fill in water.

There are two considerable taxiway projects tentatively scheduled for the Southeast region in the next few years. The taxiway at Juneau International Airport will be extended when the RSA is extended. Also, a parallel taxiway extension is being considered in the Sitka Airport EIS. Individual airport master plans recommend development of full-length parallel taxiways at Gustavus, Klawock, and Petersburg if the level of air traffic warrants this in the future.

#### 6.1.7 Aprons, Hardstands, and Unit Load Device Pathways and Pads

There is a shortage of aircraft parking spaces at several airports. This is more prevalent during the summer when there is an increase in transient jet traffic, but is also a year-round problem at some of the bigger airports. Apron expansions with access to additional lease lots have been identified as a short-term need at Hoonah, Juneau, Ketchikan, and Sitka. The Klawock Airport Master Plan recommends painting designated parking spaces for jet traffic, to maximize apron space.

Alaska Airlines reported that older hardstands at Southeast Alaska airports need replacing. The air carrier would like to switch from angle hardstand parking to stands that allow parallel parking at Petersburg, Gustavus, and Wrangell Airports to address safety concerns from jet blast when departing from the terminal areas. DOT&PF has approved most of Alaska Airline's proposed parking plan at these airports. Also, the footprint of the 737-800 and 900 aircraft is larger than that of the 737-400 aircraft, and larger hardstands to support the footprint of these aircraft would be ideal. Alaska Airlines should coordinate with DOT&PF on construction of larger hardstands.

Alaska Airlines is moving towards use of a larger Unit Load Device (ULD) to load cargo onto aircraft. The airline hopes to have the new ULDs in place at airports they serve by 2011. These large ULDs require a concrete pathway to the aircraft and a concrete pad to park the loaders. Alaska Airlines should coordinate with DOT&PF on their need for new concrete pathways and pads at the Southeast airports they serve.

#### 6.1.8 Lease Lots and Utilities

Airports that have a large demand for lease lots but very limited or no available developable lease lot areas include Hoonah, Ketchikan, and Sitka. Juneau International Airport has minimal developable lease lot area.

Short-term projects at Ketchikan and Sitka Airports will create additional lease lot space. A project scheduled to get underway in the next two years at Juneau International Airport will create additional lease lots. Several airport master plans include development of lease lot reserves in the long-term if the need arises.

The type of utilities available (water, sewer, electric, telephone) and the number of lease lots with access to utilities varies from airport to airport in Southeast. Table 13 in Section 2.3.4, Lease Lots and Utilities, summarizes the availability of utilities at various airports and seaplane bases throughout Southeast Alaska. There is no need at this time for utilities to be extended to the lease lot area at Kake, the only airport that does not have any type of utilities available to lease lots.

DOT&PF should continue to look for opportunities to improve lease lots and extend utilities. One option is to use general funds, while another solution is to implement a low interest loan program that would enable lessees to make these improvements themselves.

#### 6.1.9 Terminals, Parking/Access, and Restroom Facilities

Terminal improvements, vehicle access, and parking needs are greatest at the hub airports Juneau, Sitka, and Ketchikan, though parking needs have also been identified at Hoonah and Klawock Airports in their respective master plans. Expanded terminals and improved vehicle circulation have been identified as needed projects at the Juneau, Sitka, and Yakutat Airports, and all three airports have terminal improvement and vehicle access and parking projects

scheduled in the short-term. The Ketchikan Airport has a project planned to increase the vehicle parking in the short-term.

The lack of restroom facilities is a concern at several of the smaller airports in the region. Gustavus and Haines are two airports where users have cited this as a particular problem. Issues associated with lack of restroom facilities are also more prevalent at airports located several miles from the nearest town. One solution would be construction of a restroom facility similar in design to those used by the U.S. Forest Service. DOT&PF could construct the facility if communities would agree to maintain them year-round.

#### 6.1.10 Roads and Fencing

The need for additional fencing and roads on airports is minimal. Two airports where additional fencing was recommended in airport master plans are Haines and Hoonah. Additional fencing along the Haines Airport apron and along the lease lots at the Hoonah Airport are needed, but no short-term projects are planned to address these needs.

A safer, more secure access route to the existing fuel farm at Juneau International Airport will be constructed in the short-term.

#### 6.1.11 Fuel

Hoonah, Klawock, and Skagway do not have fuel available for public sale, although there are aircraft based at these airports. Aircraft and air taxi operators who operate at Hoonah, Klawock, and Skagway either have fuel available for private use or fly to the nearest airport with fuel available.

The Environmental Protection Agency issued a requirement that, effective June 2010, all on- and off-road diesel burning equipment will be required to burn ultra-low sulfur diesel fuel. This affects the equipment Alaska Airlines uses at Southeast airports, including fuel and deicing trucks.

### 6.1.12 Fleet Mix

#### *Existing*

The fleet mix serving the region varies greatly (refer to Table 30 for a complete list). Smaller passenger Cessna and Piper aircraft, Otters, and Beech Bonanzas make up the majority of the air taxi fleet mix. Larger aircraft including Boeing 737-series aircraft and ATR-42s also provide passenger and cargo services in Southeast. Runways in Southeast are able to meet existing fleet mix needs. The exception is that poor braking action sometimes prevents Boeing 737 aircraft from landing with a full load or landing at all, as discussed earlier in Section 6.1.2, Runways.

#### *Future Changes to Fleet Mix*

The future of Southeast Alaska's fleet mix is discussed in Section, 4.2.3 Future Changes in Fleet and Service. While air taxi operators based in the region may upgrade to aircraft slightly larger than their current fleet, they have no immediate and specific plans to do so. The Part 121 carrier serving the region, Alaska Airlines, may increase the use of 737-800 and 900 series aircraft in the region. The 737-800 and 900 aircraft are already conducting limited operations at Southeast airports.

#### *Fleet Mix Changes if EAS Were Discontinued*

Several Southeast Alaska communities receive air service as a part of the EAS program, a federally-funded program where air taxi operator and air carriers provide scheduled air service and receive a fixed subsidy from the Federal government in return. Part 135 air taxi operators in Yakutat, Sitka, and Juneau provide scheduled air service under an EAS contract. Alaska Airlines serves Yakutat, Gustavus, Juneau, Sitka, Petersburg, Wrangell, and Ketchikan as part of an EAS contract.

Reduction in or discontinuation of the EAS program has frequently been considered by Congress. If the EAS subsidy to Alaska Airlines were discontinued, what would be the affect on air service to Southeast Alaska? Options available to Alaska Airlines could be to raise prices to offset the loss of the subsidy, increase cargo on combi aircraft with lower passenger volumes, reduce frequency of service, eliminate service altogether, provide service with smaller more economical aircraft, or some combination thereof. It is likely some Alaska Airlines jet service would continue to the higher volume airports such as Juneau, Sitka, and Ketchikan.

One scenario evaluated in the SRASP is increased air service by a regional carrier to some of the Southeast airports. The following table examines the runway length requirements for several regional aircraft currently serving parts of Alaska and the Northwest United States and a comparison to the runway lengths at Southeast Alaska airports.

**Table 64: Runway Capabilities and Potential Fleet Mix**

Airport/Runway	Currently Receives Service by Alaska Airlines	Runway Length (feet)	Saab 340	Beech 1900C	Bombardier DHC Q200	Bombardier DHC Q400
			<i>4,400 feet required for takeoff</i>	<i>3,740 feet required for takeoff</i>	<i>3,280 feet required for takeoff</i>	<i>4,600 feet required for takeoff</i>
			<i>Seats 30 passengers</i>	<i>Seats 19 passengers</i>	<i>Seats 37 passengers</i>	<i>Seats 70 passengers</i>
Gustavus RWY 2/20		3,000	No	No	No	No
Gustavus RWY 11/29	X	6,700	Yes	Yes	Yes	Yes
Haines		4,600	Yes	Yes	Yes	Yes
Hoonah		2,997	No	No	No	No
Juneau	X	8,457	Yes	Yes	Yes	Yes
Kake		4,000	No	Yes	Yes	No
Ketchikan	X	7,500	Yes	Yes	Yes	Yes
Klawock		5,000	Yes	Yes	Yes	Yes
Petersburg	X	6,000	Yes	Yes	Yes	Yes
Sitka	X	6,900	Yes	Yes	Yes	Yes
Skagway		3,550	No	No	Yes	No
Wrangell	X	6,000	Yes	Yes	Yes	Yes
Yakutat RWY 2/20	X	6,475	Yes	Yes	Yes	Yes
Yakutat RWY 11/29	X	7,745	Yes	Yes	Yes	Yes

No = The aircraft is unable to depart from the airport at max gross takeoff weight (runway length not adequate).

Yes = The aircraft is able to depart from the airport at max gross takeoff weight.

The DOT&PF should continue to monitor the status of the EAS program. If the program is changed or eliminated, the affect on the region’s fleet mix should be considered in future airport master plans.

The six airports in the region currently receiving scheduled service from Alaska Airlines would be able to accommodate any of the fleet mix proposed in the table, as would the Haines and Klawock Airports. The runway at the Kake Airport is not long enough to accommodate the Saab 340, while the Skagway Airport would not be able to support the Saab 340 or the Beech 1900C. None of the proposed larger aircraft would be able to depart at the Hoonah Airport with maximum gross takeoff weight.

## **6.2 Maintenance and Operations**

With improved approaches at several Southeast airports, Alaska Airlines' 737-series aircraft are able to take off and land in weather conditions that may have previously prevented them from operating those airports. DOT&PF M&O personnel indicate the increased reliability of air service requires more personnel, time, and runway clearing commodities to ensure the runway surface condition meets the requirements for Part 121 carriers.

The majority of airports have some type of facility that houses maintenance equipment. The exceptions are Skagway and Haines Airports (equipment is stored at the highway maintenance shops) and the Kake Airport (DOT&PF contracts with the City of Kake to maintain the airport during winter). Juneau International, Kake, Klawock, and Skagway Airports either do not have a snow removal equipment building (SREB) or the existing SREB needs to be replaced.

The Haines and Juneau Airport Master Plans list equipment that needs to be replaced or purchased in the short term.

## **6.3 Security Improvements**

The Transportation and Security Administration has issued a Notice of Proposed Rulemaking requiring that 100 percent of cargo at airports be screened by 2010. Everyone, from airport staff to airlines, will be affected. Air carriers will need to hire and train additional staff and purchase additional equipment to handle the increased screening requirements. The designated secure area on aprons and in buildings will need to be increased. Overall, the increased security requirements will trigger higher levels and costs of badging, staffing, fencing, and security technology. Future airport master plans should consider the effect, if any, of changing security requirements on airport facilities.

## **6.4 Seaplane Bases**

### **6.4.1 Ownership**

The majority of seaplane floats in the region were constructed by the state in the late 1960s and little has changed since for many of them. The busiest have been reconstructed or replaced and others have been transferred to local governments. These facilities are generally less maintenance intensive than airports so they can be operated by small communities without too

much difficulty. In cases where they are integral parts of harbor facilities, their maintenance is a small part of the overall harbor operation. The challenge is how to provide for float plane operations in the future. The level of activity at most seaplane floats is relatively low, and operational data is hard to come by - much of the data is purely anecdotal. Because of lack of data, decisions must be based on informed judgment about the needs of operators and the communities they serve.

Float planes can be operated without purpose-built docks - they are frequently used to provide service to remote locations without facilities. However, for small communities that need regular, scheduled, or on-demand service, it is not only reasonable but necessary to provide an adequate float. Operating off the beach has its hazards; floats are subject to damage, passengers have a difficult time boarding aircraft, and cargo is difficult to handle and is subject to water damage. Additionally, because loading and unloading a plane on the shore can take much longer, having a float reduces the time and, commensurately, the cost of operations. Floats also increase the reliability of service because they can be used during weather conditions that make beach landings dangerous or difficult.

Continued air service to small communities is necessary to meet their transportation needs, so DOT&PF should continue to provide and maintain seaplane floats for those communities large enough to warrant regular service but too small to construct or maintain their own facility.

#### 6.4.2 Trend of Switching from Floats to Wheels

Southeast Region can be divided into two distinct sub-regions: north and south. The predominant difference between them is that the northern half of the region has fewer small communities that do not have an airport and are therefore wholly reliant on float planes for their air service. The southern half has a large number of small communities that do rely on float plane service. The result of this difference is that there is a trend toward more conventional aircraft and away from float planes in the northern part of southeast and a higher proportion of floatplanes in the southern.

#### 6.4.3 Boats Docking at Seaplane Bases

DOT&PF prohibits the use of seaplane floats for mooring boats unless authorized. In spite of some education efforts, the statute has not always resulted in compliance. Boats are regularly

found moored at seaplane floats, pulled up on seaplane haul-out ramps, and pulled out of the water and stored on top of the floats along with sundry equipment. While this is an enforcement challenge rather than a planning issue, it is a problem that needs a multi-faceted solution. DOT&PF should coordinate with the regional M&O staff, law enforcement agencies, and local government and community associations to discourage the abuse of seaplane floats and encourage local enforcement.

#### 6.4.4 Determination of Sea Lane Dimensions

Many of the airport sketches in the Alaska Supplement depict water landing areas or lanes associated with seaplane facilities. These drawings provide pilots with some information, but the origin of the drawings is uncertain. There does not appear to be any existing guidance from FAA concerning the establishment of water lanes for float plane use, so it is difficult to validate the location of the landing and takeoff areas based on any objective standard.

In order to ensure that the information provided in the supplement is consistent and appropriate, DOT&PF should develop a proposed method for determining the size and location of water lanes. DOT&PF should submit the proposal to FAA for review and, having received their approval, use the new method to validate or define new water lanes for its seaplane floats.

### **6.5 Helicopter Facilities**

During the inventory portion of this report, very few issues related to helicopter facilities were raised. Noise and parking were the only significant issues commented on by airport users. The issue of helicopter noise has been raised at Juneau and Haines Airports. Mixing of planes and helicopters on aprons at airports is a concern at Juneau International Airport.

For the most part, helicopter facilities in Southeast have been registered with the FAA. Two frequently used helicopter facilities that have not been registered in the FAA 5010 database, but should be, are the Meyer's Chuck facility, owned by DOT&PF, and the Wolf Point facility near Ketchikan, owned by the USCG.

### **6.6 Air Navigation Environment**

Although the Capstone project and related technologies have provided a substantial increase in safety in Southeast Alaska, there are several challenges remaining to improve safety further. The

most prominent of these challenges is to improve safety for aircraft not participating in the IFR system. The Capstone program and NextGen system are primarily aimed at improving the safety and efficiency of the IFR system and encouraging aircraft to participate in the IFR system.

However, many aircraft in Southeast Alaska will never participate in the IFR system due to the unique requirements of flying in the region. Examples of these unique requirements include the large number of floatplanes and the lack of instrument approaches to water landing areas, the Part 135 rules that prohibit single pilot IFR, and frequently poor weather in the region and the inability of small commercial aircraft to be certified for flight in known icing conditions.

Commercial pilots in the region have indicated that the Capstone displays installed in their aircraft have proved helpful with situational awareness even when they are unable to fly IFR. Work should continue to determine what other methods might be available to enhance the safety of VFR operations for both commercial and private planes. Areas of investigation should include:

- the establishment of VFR airways especially for the busiest areas of Southeast Alaska
- providing ADS-B in data such as weather and traffic avoidance to VFR aircraft and possibly to handheld GPS units (for aircraft that lack electrical systems)
- a review of the single-pilot IFR rules to determine whether the additional information provided by NextGen might allow for single-pilot rules to be modified

Other issues that should be addressed by DOT&PF and the FAA include the continued deployment of additional GBTs and weathercams. Although the GBT sites have been selected and some equipment deployed, the changeover of national GBT contractors has delayed full activation of the ADS-B system in Southeast Alaska. The DOT&PF should encourage FAA to speed deployment of the new GBT stations whenever possible. The FAA should also continue to work on installing weathercams along critical routes in Southeast Alaska. Weathercams are a frequently mentioned safety improvement by pilots in Southeast Alaska.

A critical issue for DOT&PF related to the air navigation environment is upgrading airports to allow the development of better instrument approaches. Many of the airports in Southeast

Alaska do not meet the requirements for a precision approach. These requirements often include a minimum runway length (generally 3,200 feet for non-precision approaches and 4,200 feet for precision approaches), runway lighting (required for all instrument approaches) and/or approach lighting systems (required for approaches with less than one mile visibility), a full-length parallel taxiway (required for precision approaches), and detailed obstruction surveys (required to obtain the best possible minimums). Addressing these issues will require that DOT&PF consider instrument approach issues sufficiently in its funding process and that DOT&PF adequately coordinates its capital projects with FAA airspace and navigation offices.

### 6.7 Planning

Airport Master Plans in the Southeast Region are up-to-date for the most part. The exceptions, Gustavus, Ketchikan and Juneau, need airport master plan updates in the next 5 years. Factors such as termination of the Essential Air Service program or changed runway length requirements could hasten the master plan update needs for the other airports in the region.

**Table 65: Master Plans and Airport Layout Plans Recently Completed at Southeast Alaska Airports**

Airport	Master Plan	Updated Needed	ALP	Update Needed
Angoon*	2006	No	2007	No
Gustavus	1996**	Yes	2003	Yes
Haines	2004	No	2004	No
Hoonah	2004	No	2004	No
Juneau	2007***	Yes	2003	Yes
Kake	2005	No	2006	No
Ketchikan	2003	Yes	2003	Yes
Klawock	2006	No	2006	No
Petersburg	2005	No	2005	No
Sitka Rocky Gutteriez	2008***	No	2006	No
Skagway	1999	No	2005	No
Wrangell	2004	No	2005	No
Yakutat	2006	No	2006	No

\* Not yet constructed.

\*\* Environmental Assessment completed for Gustavus Airport.

\*\*\* Environmental Impact Statements were completed for Juneau International and Sitka Rocky Gutteriez Airports.

## **6.8 DOT&PF Policies and Procedures**

### **6.8.1 Airport Classification**

The 1996 AASP Update categorized aviation facilities as regional, community, or local, based on certain criteria. The classification system is somewhat confusing, and the classifications given to some of the facilities are inaccurate. For instance, the seaplane bases at Juneau and Ketchikan International Airports are classified as regional facilities, while Sitka Seaplane Base is classified as a community facility even though Sitka Airport is considered a regional facility. Ketchikan Harbor, which has a significant number of annual operations, is classified as a local facility. The Klawock Airport is classified as a regional facility, while the Gustavus Airport is considered a community facility, even though Gustavus receives jet service from Alaska Airlines part of the year while Klawock does not. Statewide airport classifications should be reexamined in the update to the AASP that is currently underway.

### **6.8.2 Financial Reporting**

Overall, the DOT&PF financial reporting system is quite adequate, though the list of DOT&PF-owned airports and seaplane bases included in the financial system needs to be updated as facilities are sold or acquired. For instance, the Klawock Seaplane Base and Haines Seaplane Base are included in revenue and expense database, though they are no longer owned by DOT&PF.

### **6.8.3 Tenant Development**

The health of the regional aviation system is reflected in the pace of aviation activity and development. Carriers and private pilots have to get over quite a few hurdles to make operating an aircraft safe and financially viable. Having access to adequate lease space on airports is a fundamental part of the equation for many of them, and leasing space to them contributes to the economic viability of the region's airports. DOT&PF should offer leases on their airports that can be developed for use at a reasonable cost. DOT&PF should continue to work with the Statewide Aviation Leasing staff to obtain funding for lease lot development in order to provide for growth throughout the region.

#### 6.8.4 State's Role and Funding for Air versus Ferry versus Road

As fuel, material, and construction costs rise steeply, making choices between transportation modes becomes a necessity. Redundancy in the transportation system becomes a very costly and insupportable convenience. When that happens, making choices about investments in infrastructure requires a particularly good understanding of not only transportation needs, but the relative cost of meeting needs through the different modes. The cost analysis provided in the Aviation Activity section of this plan is one step toward achieving that understanding. As this System Plan is folded into the comprehensive regional transportation plan, DOT&PF should work towards an integrated cost analysis model that allows the agency to make apples-to-apples comparisons among the land, sea, and air transportation alternatives available to us.

#### 6.8.5 Need for Carriers to Report Data to get Primary Entitlements

Funding airport development is a never-ending challenge and even though the Alaska rural airport system receives a substantial amount of AIP funding annually, needs always exceed means. Because the allocation model for AIP entitlements is fixed at the federal level, DOT&PF's ability to generate additional funding is limited to a very few actions. One of these is to work with carriers to ensure that enplanement reports are accurate and complete. Toward that end, DOT&PF will engage in a regional effort, and coordinate with Statewide Aviation, to communicate with the carriers about the importance of providing complete enplanement data to the FAA.

### **7.0 RECOMMENDATIONS SUMMARY**

Tables 66 and 67 table summarize the needs and recommendations of Southeast aviation facilities. Airport Master Plans and ALPs for individual airports serve as the primary data source, though airport user comments and conversations with DOT&PF and local airport sponsors were also considered. Projects that DOT&PF or local governments (including the City of Juneau and Ketchikan Gateway Borough) plan to complete in the next few years are summarized in the "Planned Projects" column in Table 66. It should be noted that while some of the needs are shown in the short term, funding limitations may cause them to be built in the medium/long term planning period.

As shown in Table 66, RSA expansions are one of the more significant short-term improvement projects being constructed at Southeast airports. Because the safety area projects are expensive and are a high priority of the FAA, they require a considerable amount of short-term funding. As a result, other projects are shifted to the medium- and long-term planning period.

Table 66 provides a summary of regionwide aviation needs and recommendations for Southeast Alaska.

Table 67 identifies more specific short- and medium/long-term needs at specific airports in Southeast Alaska. Common medium/long-term projects listed in Table 67 include runway, taxiway, and apron expansions. These projects would be completed if the level of air traffic reaches a level that necessitates expansion. Pavement rehabilitation to maintain safe aircraft operating surfaces is another type of medium/long-term project. Several master plans make note of when a surface rehabilitation will be due, but more precise information is defined in pavement condition reports.

**Table 66: Regionwide Needs and Recommendations Identified in the Southeast Region Aviation System Plan**

Area	Identified Needs and Recommendations
Seaplane Bases	<ul style="list-style-type: none"> <li>• Continue to provide/maintain seaplane floats for communities large enough to warrant regular service, but too small to construct/maintain their own facility.</li> <li>• Discourage boat parking and other abuse of seaplane floats and encourage law enforcement, local governments, or community organizations to monitor proper use of floats.</li> <li>• Develop a consistent and accepted method to determine sea lane dimensions.</li> <li>• Register Meyer’s Chuck and Wolf Point Seaplane Bases with the FAA.</li> </ul>
Helicopters	<ul style="list-style-type: none"> <li>• Designate helicopter parking on aprons that do not conflict with GA aircraft.</li> </ul>
Planning	<ul style="list-style-type: none"> <li>• Incorporate the SRASP recommendations into the Southeast Region Transportation Plan.</li> <li>• Update Gustavus, Ketchikan, and Juneau Airport Master Plans.</li> <li>• In airport master plans updates:                             <ul style="list-style-type: none"> <li>- Reevaluate runway length requirements as 737-800 and 900 operations increase.</li> <li>- Reevaluate runway length requirements if the FAA reconfigures aircraft stopping distance requirements.</li> <li>- Consider the effect of EAS program changes on fleet mix serving airports.</li> <li>- Consider the effect of increased security requirements at aviation facilities.</li> </ul> </li> <li>• Instrument approach requirements should be considered when prioritizing funding for capital improvement projects.</li> <li>• Methods should be sought to improve the safety of VFR aircraft that do not participate in the Capstone or NextGen systems.</li> </ul>
Policies, Programs, and Budgets	<ul style="list-style-type: none"> <li>• Revise airport classification system in the AASP.</li> <li>• Investigate the feasibility of constructing restroom facilities; turn over to communities to maintain.</li> <li>• Encourage tenant development of lease lots; investigate alternative financing loan programs or use General Fund appropriations to encourage development and utility improvements.</li> <li>• Update accounting system to include recent list of DOT&amp;PF-owned facilities; delete facilities no longer maintained by DOT&amp;PF.</li> <li>• Encourage carriers to report enplanement data to FAA.</li> <li>• Consider operating budget changes to account for increased snow/ice removal to meet braking action requirements.</li> </ul>

**Table 67: Short- and Medium/Long-Term Needs and Recommendations at Southeast Alaska Airports**

Airport	Short-Term Needs and Recommendations	Projects Listed in State and Local Funding Plans, or Planned to be Completed by Airport User	Medium- and Long-Term Needs and Recommendations
<b>Angoon</b>	Construct airport, apron, and access road.		
<b>Gustavus</b>	<p><b>RSA:</b> Expand Runway 11/29 RSA.  <b>Surface Condition:</b> Repave Runway 11/29.  <b>Aprons/Hardstands/ULD Pads:</b> Replace angled hardstands with parallel parking hardstands; construct ULD pad.  <b>Lease Lots and Utilities:</b> Extend water to lease lots.  <b>Terminal/Parking and Access/Restrooms:</b> Construct restroom facilities.</p>	<p><b>RSA:</b> RSA improvement project planned for FFY09.  <b>Surface Condition:</b> Runway 11/29 pavement improvements.  <b>Aprons/Hardstands/ULD Pads:</b> Replace angled hardstands with parallel parking hardstands; construct ULD pad.</p>	<p><b>Taxiways:</b> Develop full-length taxiway reserve if necessary.  <b>Apron:</b> Develop lease lot, GA parking, and T-Hangars reserves if necessary.  <b>M&amp;O:</b> Develop ARFF facility on reserved lease lot if necessary.</p>
<b>Haines</b>	<p><b>Vegetation Penetrations to Approach Surface:</b> Remove vegetation obstructions to Runway 26 approach.  <b>Surface Condition:</b> Repave airfield; improve subsurface drainage.  <b>Terminal/Parking and Access/Restrooms:</b> Construct restroom facilities.  <b>M&amp;O:</b> Replace snowblower and purchase industrial mower.  <b>Road/Fencing:</b> Install fencing along north and west edges of apron.</p>	<p><b>Vegetation Penetrations to Approach Surface:</b> Project underway by M&amp;O to remove vegetation penetrations.  <b>Surface Condition:</b> Taxiway and apron rehabilitation for After FFY09.  <b>Apron:</b> Apron Expansion for After FFY09.  <b>M&amp;O:</b> Sand and chemical storage building for After FFY09. Sweeper and plow for FFY08 and FFY09.  <b>Road/Fencing:</b> Fencing for After FFY09.  <b>Other:</b> Drainage for After FFY09.</p>	<p><b>Surface Condition:</b> Resurface entire airfield.  <b>Apron:</b> Expand apron eastward to existing helipad; relocate helipad north to clear TOFA.  <b>Lease Lots and Utilities:</b> Create lease lots from existing parking lot.  <b>Terminals, Parking, and Restroom Facilities:</b> Relocate shared automobile parking lot to north side of airport entrance road.  <b>M&amp;O:</b> Construct 2-bay equipment/sand storage building north of airport entrance road.  <b>Road/Fencing:</b> Relocate helipad parking area and access; install fencing around helipad and along perimeter road.</p>
<b>Hoonah</b>	<p><b>Runway:</b> Extend runway 300 feet.  <b>RSA:</b> Relocate RSA when runway is extended.  <b>Vegetation Penetrations to Approach Surface:</b> Remove vegetation obstructions.  <b>Runway Lighting/Markings:</b> Extend lighting when runway is extended.  <b>Aprons/Hardstands/ULD Pads:</b> Expand apron and designate helicopter parking.  <b>Lease Lots and Utilities:</b> Develop additional lease lots.  <b>Terminal/Parking and Access/Restrooms:</b> Construct public parking area.  <b>Fuel:</b> Not available for sale.  <b>Road/Fencing:</b> Install additional security fence in front of new lease lots.  <b>Other:</b> Acquire property for future airport expansion.</p>	<p><b>Non-specific Airport Improvements:</b> FFY08 to beyond FFY09.  <b>Vegetation Penetrations to Approach Surface:</b> Project underway by M&amp;O to remove vegetation penetrations.  <b>Road/Fencing:</b> Perimeter Fencing for After FFY09.</p>	<p><b>Taxiways:</b> Construct partial parallel taxiway.  <b>Apron:</b> Expand apron.  <b>Lease Lots and Utilities:</b> Create four additional lease lots; improve lease lot access.  <b>Road/Fencing:</b> Extend road to wrap around new lease lots; extend fencing to end of runway.</p>
<b>Juneau</b>	<p><b>RSA:</b> Expand RSA.  <b>Taxiways:</b> Extend taxiway.  <b>Runway Lighting/Markings:</b> Install MALSR on Runway 26 approach.  <b>Surface Condition:</b> Repave runway and taxiway.  <b>Lease Lots and Utilities:</b> Develop additional lease lots.  <b>Aprons/Hardstands/ULD Pads:</b> Expand apron.  <b>Terminal/Parking and Access/Restrooms:</b> Expand and improve terminal; provide additional parking; improve vehicle access.  <b>Road/Fencing:</b> Construct fuel farm access road.  <b>M&amp;O:</b> Construct SREB and maintenance buildings; acquire new equipment; replace aging vehicles and equipment.  <b>Other:</b> Complete EIS; Improve floatplane pond; acquire land for airport expansion; update master plan.</p>	<p><b>RSA:</b> RSA expansion and other improvements for FFY09.  <b>Taxiway:</b> Extension for FFY09.  <b>Runway Lighting/Markings:</b> Install Runway 26 MALSR for FFY09.  <b>Surface Condition:</b> Runway, taxiway, and apron pavement improvements for FFY09.  <b>Lease Lots and Utilities:</b> Lease lot development for FFY09.  <b>Apron and Hardstands:</b> Apron expansion for FFY09-FFY11.  <b>Terminal/Parking and Access/Restrooms:</b> Terminal expansion and improvements; create additional parking; improve vehicle circulation, improve access roads for FFY09-FFY11.  <b>Road/Fencing:</b> Fuel farm access road for FFY09.  <b>M&amp;O:</b> Construct SREB and maintenance buildings; acquire equipment; replace aging vehicles for FFY09-FFY11.  <b>Other:</b> Land acquisition; Master Plan update for FFY09-FFY11.</p>	<p><b>Surface Condition:</b> Improve airfield pavement.  <b>Lease Lots and Utilities:</b> Upgrade utilities at floatplane pond.  <b>Apron and Hardstands:</b> Expand apron.  <b>Terminal/Parking and Access/Restrooms:</b> Expand terminal and construction parking garage.  <b>M&amp;O:</b> Acquire new equipment; replace aging vehicles and equipment.  <b>Other:</b> Relocate ATC tower; construct various floatplane pond improvements.</p>
<b>Take</b>	<p><b>M&amp;O:</b> Construct SREB.  <b>Fuel:</b> Not available for sale.</p>	<p><b>Runway:</b> Extension for After FFY09.  <b>Surface Condition:</b> Runway rehab for After FFY09.  <b>Obstruction Removal:</b> Obstruction removal for After FFY09.  <b>Apron:</b> Apron expansion and service road for After FFY09.  <b>Terminals, Parking, and Restroom Facilities:</b> Terminal and parking lot construction for After FFY09.  <b>M&amp;O:</b> SREB for FFY08.</p>	<p><b>Runway:</b> Extend runway 1000 feet.  <b>RSA:</b> Extend RSA.  <b>Apron:</b> Develop apron reserve if necessary.  <b>Lease Lots and Utilities:</b> Develop lease lot reserve if necessary.  <b>Terminals, Parking, and Restroom Facilities:</b> Construct terminal and parking lot.  <b>M&amp;O:</b> Replace plow and truck with sweeper.</p>

Airport	Short-Term Needs and Recommendations	Projects Listed in State and Local Funding Plans, or Planned to be Completed by Airport User	Medium- and Long-Term Needs and Recommendations
<b>Ketchikan</b>	<p><b>Aprons/Hardstands/ULD Pads:</b> Expand general aviation and air cargo apron; construct ULD pad.</p> <p><b>Lease Lots and Utilities:</b> Develop additional lease lots.</p> <p><b>Terminal/Parking and Access/Restrooms:</b> Create additional on-airport vehicle parking.</p> <p><b>Other:</b> Provide additional boat docking spaces at the airport.</p>	<p><b>Taxiway/Apron:</b> Lower apron, taxiway overlay; new GA taxiway and apron for after FFY09</p> <p><b>Aprons/Hardstands/ULD Pads:</b> Replace angled hardstands with parallel parking hardstands; construct ULD pad.</p> <p><b>Terminals, Parking, and Restroom Facilities:</b> Terminal improvements for after FFY09.</p> <p><b>Other:</b> Ketchikan ferry second berth; seaplane pullout ramp; Airport Master Plan; Construction of public seaplane facility, for after FFY09.</p>	<p><b>Terminals, Parking, and Restrooms Facilities:</b> Construct seaplane facility terminal.</p> <p><b>Other:</b> Replace and realign seaplane pullout ramp; construct new floatplane terminal facility.</p>
<b>Klawock</b>	<p><b>Vegetation Penetrations to Approach Surface:</b> Remove vegetation obstructions.</p> <p><b>Runway Lighting/Markings:</b> Add non-precision threshold and aiming point markings.</p> <p><b>Aprons/Hardstands/ULD Pads:</b> Designate business jet parking spaces; provide additional small aircraft tie-downs; construct ULD pad.</p> <p><b>Lease Lots and Utilities:</b> Improve utility connections to lease lots.</p> <p><b>Terminals, Parking, and Restroom Facilities:</b> Designate public parking lot.</p> <p><b>Other:</b> Transfer PAPIs ownership from DOT&amp;PF to the FAA. Relocate the wind sensor to a more accurate location.</p>	<p><b>Vegetation Penetrations to Approach Surface:</b> Project underway by M&amp;O to remove vegetation penetrations.</p> <p><b>Terminals, Parking, and Restroom Facilities:</b> Terminal building and parking lot for After FFY09.</p> <p><b>Taxiways:</b> Airport access taxiway for After FFY09.</p> <p><b>M&amp;O:</b> Construct SRE Building for After FFY09.</p> <p><b>Road/Fencing:</b> Access Road Improvements for After FFY09.</p>	<p><b>Runway:</b> Extend runway 500 feet on both ends to create 6,000-foot long runway.</p> <p><b>RSA:</b> Expand RSA.</p> <p><b>Airfield Lighting (Condition and Needs):</b> Replace runway lighting system with runway extension.</p> <p><b>Taxiways:</b> Construct a 5,000-foot long parallel taxiway.</p> <p><b>Apron:</b> Expand apron. If more space is needed, consider development of apron lot reserves.</p> <p><b>Lease Lots and Utilities:</b> Create two additional lease lots. If more are needed, consider development of lease lot reserves.</p> <p><b>M&amp;O:</b> Construct SRE Building.</p>
<b>Petersburg</b>	<p><b>Runway Lighting/Markings:</b> Replace PAPIs with VASIs; install MALSR system at Runway 23; replace ODALS with MALSF at Runway 5.</p> <p><b>Aprons/Hardstands/ULD Pads:</b> Replace angled hardstands with parallel parking hardstands; construct ULD pad.</p> <p><b>Other:</b> Relocate segmented circle; acquire 19 acres for RPZs.</p>	<p><b>Taxiways:</b> Taxiway for After FFY09.</p> <p><b>Aprons/Hardstands/ULD Pads:</b> Construct ULD pad; expand west apron for After FFY09.</p> <p><b>Terminals, Parking, and Restroom Facilities:</b> Parking for After FFY09.</p> <p><b>Road/Fencing:</b> Access Road Realignment for After FFY09.</p>	<p><b>Surface Condition:</b> Rehabilitate runway, taxiway, and apron pavement.</p> <p><b>Taxiways:</b> Expand access drive for ARFF use; widen existing ARFF access road; construct full-length parallel taxiway.</p> <p><b>Apron:</b> Expand apron to west and northwest; create additional tie-downs for GA aircraft.</p> <p><b>Terminals, Parking, and Restroom Facilities:</b> Provide additional vehicle parking.</p> <p><b>Road/Fencing:</b> Construct a one-way loop road to the north that provides access to all lease lots in terminal area. Resurface portions of the access road retained in construction.</p>
<b>Sitka Rocky Guiteriez</b>	<p><b>RSA:</b> Extend RSA.</p> <p><b>Taxiway:</b> Construct parallel taxiway.</p> <p><b>Surface Condition:</b> Resurface runway.</p> <p><b>Runway Lighting/Markings:</b> Install Runway 11 approach lights.</p> <p><b>Aprons/Hardstands/ULD Pads:</b> Expand apron; construct ULD pad.</p> <p><b>Lease Lots and Utilities:</b> Construct additional lease lots.</p> <p><b>Terminals, Parking, and Restroom Facilities:</b> Expand terminal and relocate terminal access road.</p> <p><b>Other:</b> Repair seawall; relocate airport floatplane ramp; relocate Sitka SPB.</p>	<p><b>RSA/ROFA:</b> RSA expansion - Stage 1 for After FFY09.</p> <p><b>Taxiway:</b> Construct partial parallel taxiway for After FFY09.</p> <p><b>Runway Lighting/Markings:</b> RWY 11 approach lighting system for After FFY09.</p> <p><b>Aprons/Hardstands/ULD Pads:</b> Replace angled hardstands with parallel parking hardstands; construct ULD pad; develop GA apron for After FFY09.</p> <p><b>Terminals, Parking, and Restroom Facilities:</b> Airport access road relocation for FFY09.</p> <p><b>Other:</b> Property acquisition for After FFY09.</p>	<p><b>Apron:</b> Develop GA apron.</p>
<b>Skagway</b>	<p><b>M&amp;O:</b> Construct SREB.</p> <p><b>Fuel:</b> Not available for sale.</p>	<p><b>M&amp;O:</b> Construct SRE Building for After FFY09.</p>	<p><b>None.</b></p>
<b>Wrangell</b>	<p><b>Aprons/Hardstands/ULD Pads:</b> Replace angled hardstands with parallel parking hardstands; construct ULD pad.</p> <p><b>Lease Lots and Utilities:</b> Improve lease lot access; realign sewer line; complete water line to DOT&amp;PF maintenance building.</p> <p><b>Other:</b> Relocate water tank.</p>	<p><b>Aprons/Hardstands/ULD Pads:</b> Replace angled hardstands with parallel parking hardstands; construct ULD pad; develop cargo apron for After FFY09.</p> <p><b>Lease Lots and Utilities:</b> Lease lot development for After FFY09.</p>	<p><b>Taxiways:</b> Increase Taxiway D to C-III standards; develop parallel taxiway; develop full-length parallel taxiway; construct Taxiway E.</p> <p><b>Apron:</b> Expand terminal apron; provide additional parking for GA aircraft.</p> <p><b>Lease Lots and Utilities:</b> Develop three additional lease lots.</p> <p><b>Terminals, Parking, and Restroom Facilities:</b> Create additional parking; extend terminal access road for new lease lot access.</p> <p><b>M&amp;O:</b> Replace fire truck.</p> <p><b>Road/Fencing:</b> Construct 12-by-4,400-foot road on airport side of perimeter fence for maintenance access to approach end of Runway 28.</p> <p><b>Other:</b> Upgrade GPS approach; install Runway 10 approach lighting; install PAPIs; install backup generator; install compass calibration pad.</p>

Airport	Short-Term Needs and Recommendations	Projects Listed in State and Local Funding Plans, or Planned to be Completed by Airport User	Medium- and Long-Term Needs and Recommendations
Yakutat	<p><b>Runway:</b> Relocate Runway 2/20 thresholds to the southwest.  <b>RSA:</b> Remove ROFA tree penetrations.  <b>Surface Condition:</b> Resurface apron.  <b>Vegetation Penetrations to Approach Surface:</b> Remove vegetation.  <b>Runway Lighting/Markings:</b> Move REILs to new Runway 2 threshold; paint runway hold lines and install illuminated hold lines on Runway 20.  <b>Aprons/Hardstands/ULD Pads:</b> Construct ULD pad.  <b>Lease Lots and Utilities:</b> Improve lease lot access.  <b>Other:</b> Remove vegetation around AWOS; fill in standing water near approach end of Runway 11.</p>	<p><b>Vegetation Penetrations to Approach Surface:</b> Project underway by M&amp;O to remove vegetation penetrations.  <b>Aprons/Hardstands/ULD Pads:</b> Replace angled hardstands with parallel parking hardstands; construct ULD pad.  <b>Road/Fencing:</b> Perimeter Fencing for After FFY09.</p>	<p><b>Surface Condition:</b> Resurface Runway 2/20.  <b>Airfield Lighting:</b> Replace VASIs with PAPIs.  <b>Lease Lots and Utilities:</b> Provide off-apron area for non-aviation lease lot development.  <b>Terminals, Parking, and Restroom Facilities:</b> Develop traffic loop and parking lot.  <b>Road/Fencing:</b> Construct road from existing Airport Road to new GA apron and the non-revenue support area. Install full perimeter fence around runways and terminal.  <b>Other:</b> Relocate AWOS to area between the runways near existing airport beacon.</p>

## **APPENDIX A**

### **Individual Airport and Seaplane Base Summaries**

## **APPENDIX B**

### **Inventory of Air Carrier Operations by Airport**

## **APPENDIX C**

### **Historical Federal Aviation Agency Grants for Southeast Alaska Aviation Facilities (FY 1982 - FY 2006)**

## **APPENDIX D**

**Air Traffic for Selected Southeast Alaska Airports, 2004 to 2006  
and 2006 City Pair Data for Southeast Alaska Aviation Facilities**

## **APPENDIX E**

### **User Comments on Southeast Alaska Aviation Facilities**