



# ALASKA

Aviation System Plan

## FINAL REPORT

2008-2013



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ALASKA AVIATION SYSTEM PLAN

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May 2013



Prepared for:

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## LIST OF ACRONYMS

AASP	Alaska Aviation System Plan
AC	Advisory Circular
AEP	Airport Emergency Plan
ALP	Airport Layout Plan
BPM	Bypass Mail
CIMP	Capital Improvement and Maintenance Program
DOT&PF	State of Alaska Department of Transportation and Public Facilities
EAS	Essential Air Service
eDocs	electronic documents
FAA	Federal Aviation Administration
Form 5010-1	Airport Master Record
LP	Localizer Performance
LPV	Localizer Performance with Vertical Guidance
NFDC	National Flight Data Center
NPIAS	National Plan of Integrated Airport Systems
RSIA	Rural Service Improvement Act
SOAR	System of Airport Reporting
TAM	Transportation Asset Management
USPS	United States Postal Service



# 1.0 INTRODUCTION



## 1.0 INTRODUCTION

The Alaska aviation system is unlike any other system in the United States. The issues that the 49th state's aviation system faces are different in nature, scope, and scale than those typically found in other states. Because of this, the State of Alaska Department of Transportation and Public Facilities' (DOT&PF) continuous system planning process from 2008 through mid-2013 has developed multiple studies and products that may not resemble a typical system plan. These plan products are thorough examinations of many issues facing the Alaska aviation system that lay a strong foundation for the forthcoming strategic planning and implementation phase of the Alaska Aviation System Plan (AASP).

The AASP is a statewide aviation tool to assist the DOT&PF and other airport sponsors in efficiently guiding the development, maintenance, operation, and management of Alaska's vast airport system. The AASP is primarily funded by the Federal Aviation Administration (FAA) and guided by the FAA Advisory Circular (AC) 150/5070-7, *The Airport System Planning Process*. The AASP is a component of DOT&PF's Statewide Long-Range Transportation Plan, *Let's Get Moving 2030*, which incorporates and addresses all modes of transportation.

This AASP Final Report is organized in the following manner:

- Overview of the Alaska aviation system (Section 1.2)
- Description of the AASP planning process (Section 1.3)
- Who was involved in the AASP (Section 1.4)
- How AASP issues were identified (Section 1.5)
- AASP goals, objectives, performance measures and classifications (Section 2)
- The AASP website used to communicate the AASP within DOT&PF and with external stakeholders (Section 3)

- Each of the primary projects completed during the AASP (Section 4)
- Plans for the next phase of the AASP (Section 5)



Alaska's air carriers support a healthy aviation system

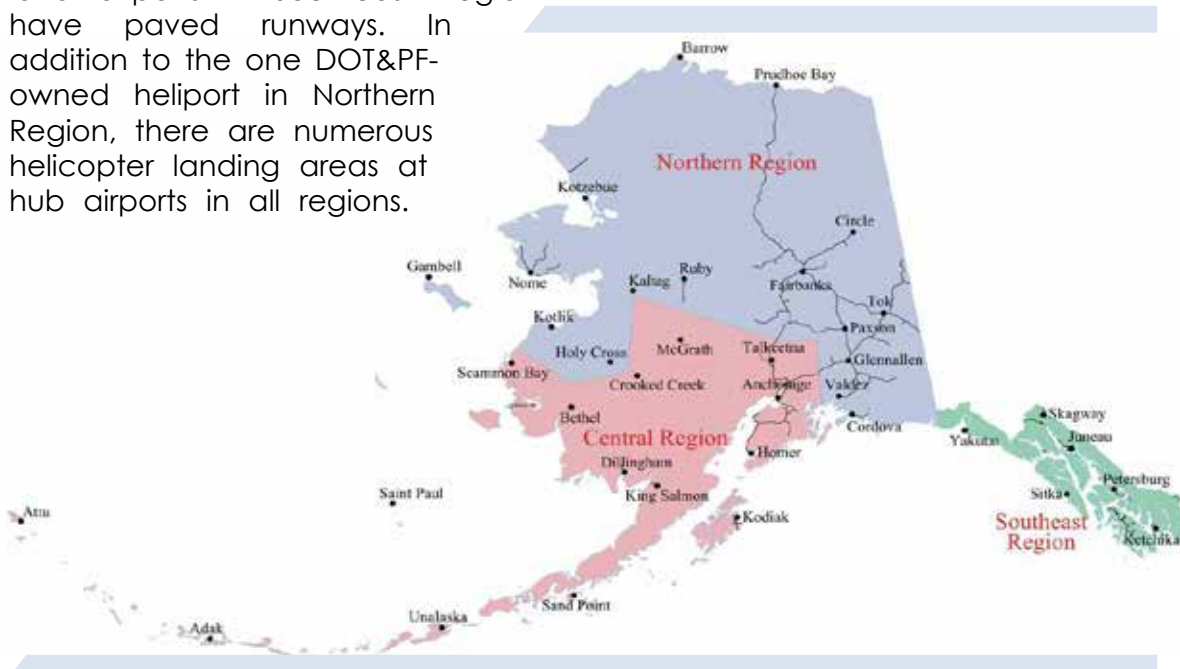
## 1.2 Overview of Alaska's Aviation System

Due to Alaska's size, distances between communities, and lack of road access, aviation is a vital transportation link statewide and a lifeline to Alaska's many rural residents. Alaska has the highest per capita number of pilots, Alaskans fly eight times more often than people in other states, and Alaskans ship 39 times more airfreight than other states. Alaskans truly depend on aviation.

The DOT&PF owns and operates 255 airports and seaplane bases. The Ted Stevens Anchorage International Airport and Fairbanks International Airport make up Alaska's International Airport System; the other 253 airports operated by DOT&PF mostly serve small remote rural communities. No other state owns and operates as many; airports are more typically owned and operated by city, region or county governments, airport authorities, or other local sponsors.

Approximately 150 additional public airports in Alaska are owned by boroughs or cities and by other state and federal agencies (such as the Department of Natural Resources, the United States Forest Service, or the Bureau of Land Management). In addition, hundreds of private airstrips and seaplane bases are scattered across Alaska, providing aviation access for individuals, private businesses, or for recreation purposes.

As shown in Figure 1 airports are located within three DOT&PF-delineated geographic regions of Alaska: Northern, Central, and Southeast. The airports in the Northern and Central Regions are predominantly land-based airports. Most hub airports, in all regions, have paved runways with some gravel landing areas to support tundra-tire or ski-equipped aircraft flying to outlying villages. The Southeast Region has more seaplane bases than other regions and all the DOT&PF-owned land airports in Southeast Region have paved runways. In addition to the one DOT&PF-owned heliport in Northern Region, there are numerous helicopter landing areas at hub airports in all regions.



**Figure 1.** DOT&PF Regions Map

Table 1 shows the total number (public and private use) of airports, seaplane bases, and heliports in Alaska registered with the FAA in 2013. There are 550 registered airports, 129 registered seaplane bases and 42 registered heliports owned by public entities, private parties, and the military. Private airports and water landing areas not registered with the FAA are not shown in this table.

	Airport	Seaplane Base	Heliport
Public	289	86	12
Private	241	43	29
Military	20	0	1
<b>Total</b>	<b>550</b>	<b>129</b>	<b>42</b>

Eighty-two percent of Alaska communities are not connected to the road system. They may have seasonal barge or ferry service, but aviation alone provides the reliable, year-round transportation and access that other modes do not. The logistical challenges of construction and maintenance across the broad, rugged expanse of Alaska make owning and operating the system of airports a daunting challenge. The importance of Alaska's airports to the state's residents, however, makes this a challenge worth overcoming.

Airports that were examined in the AASP varied for each task or special project. For example, the Essential Air Service (EAS) report only examined EAS eligible airports. Section 3.3 further details which airports were included in the AASP inventory. Additional information about airports and mapping of Alaska's system of airports can be found in Section 2.2 Classifications.



### 1.3 The Alaska Aviation System Planning Process

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Previous AASPs were completed by the DOT&PF in 1986 (AASP 1), and 1996 (AASP 2). The most recent plan (AASP 3) began in 2008 at the request of FAA and was completed in early 2013. AASP 3 is based on the concept that aviation needs are dynamic, particularly in a place like Alaska, and that system planning should be a continuous planning process addressing ever-changing issues, requirements, and needs as they arise. Accordingly, while this report captures a summary of the past five years of aviation system planning, The AASP will continue planning for an evolving aviation system.

The system planning process, as defined in FAA AC 150/5070 – 7 is a flexible process that can be molded to fit the particular needs of a state or region. AASP 3 tackled airport system Inventory,



Palmer Airport and other municipal airports were included in the AASP

Classifications, Forecasts, and Development/Performance Standards, elements that are typically addressed in state system plans. Because of Alaska's unparalleled operating environment and the operation of most of the airport system by the State of Alaska, AASP 3 includes numerous special studies and work efforts to aid in defining and characterizing Alaska's aviation system.

Topics of distinct importance to Alaska's aviation system include: Maintenance and

Operations Issues/Standards, Bypass Mail (BPM) and Essential Air Service (EAS), the organization and responsibilities of DOT&PF, and the Airport Needs Inspection Pilot Project. These special studies were initiated at various points over the five year period as a need was defined by DOT&PF and stakeholders. For example, when Congress was considering changes to the BPM Program, a special study was initiated to help policy makers and stakeholders understand the mechanics and intricacies of BPM and potential changes to the program. That understanding is precisely what the AASP study, "Alaska Bypass Mail: Preparing for Change," delivered. The work of the AASP during the past five years has delivered multiple other products of the same nature – thorough examinations and documentation of major issues facing the Alaska aviation system that will aid the State and the FAA in planning strategically for the future.

### 1.4 Alaska Aviation System Plan Technical and Policy Guidance

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Many organizations and individuals contributed to the AASP planning process. The Governor-appointed Aviation Advisory Board provided guidance to the DOT&PF and the planning team on the issues addressed in the AASP and gave input on the findings. Aviation planners from the FAA, each region of the DOT&PF and Statewide Aviation met regularly to review and evaluate AASP tasks, propose new tasks, and to give technical input to the plan. Work groups were formed around special topics requiring more information and guidance from technical specialists. The FAA, the aviation industry, municipal airport sponsors, and aviation organizations have all provided essential support to the AASP through participation in work groups, providing data, and offering advice.

The AASP team invited municipal airport sponsors to be involved and to comment on findings. Their input was included in most of the projects completed. Although the DOT&PF has a large stake in the AASP due to the number of facilities

it owns and operates, the AASP is intended to be useful for all airport sponsors in Alaska. The AASP provides guidance, information, and resources for the whole state aviation system.

## 1.5 Issues

A comprehensive issues identification effort was initiated at the beginning of this AASP project to help identify the most important topics to address in the AASP. Issues were compiled through stakeholder surveys and meetings (with DOT&PF, local airport sponsors, FAA, air carriers, aviation organizations, communities, airport consultants, etc.), review of previous AASPs and regional transportation plans, and FAA's 2004-2005 Internal Alaska Challenges Survey results.

Potential issues, included in Appendix A, were identified and broadly categorized under: FAA/NAVAIDS; Policy; Planning, Design, and Construction; Maintenance and Operations; Airport Owner/FAA; Funding; Environment; and Other Issues. Once the issues were consolidated, they were presented to the Aviation Advisory Board, which recommended which issues should be addressed first. Over the course of the five years this AASP continued to tackle other issues

from the original surveys, as well as new issues proposed by the Aviation Advisory Board, the FAA, and DOT&PF.

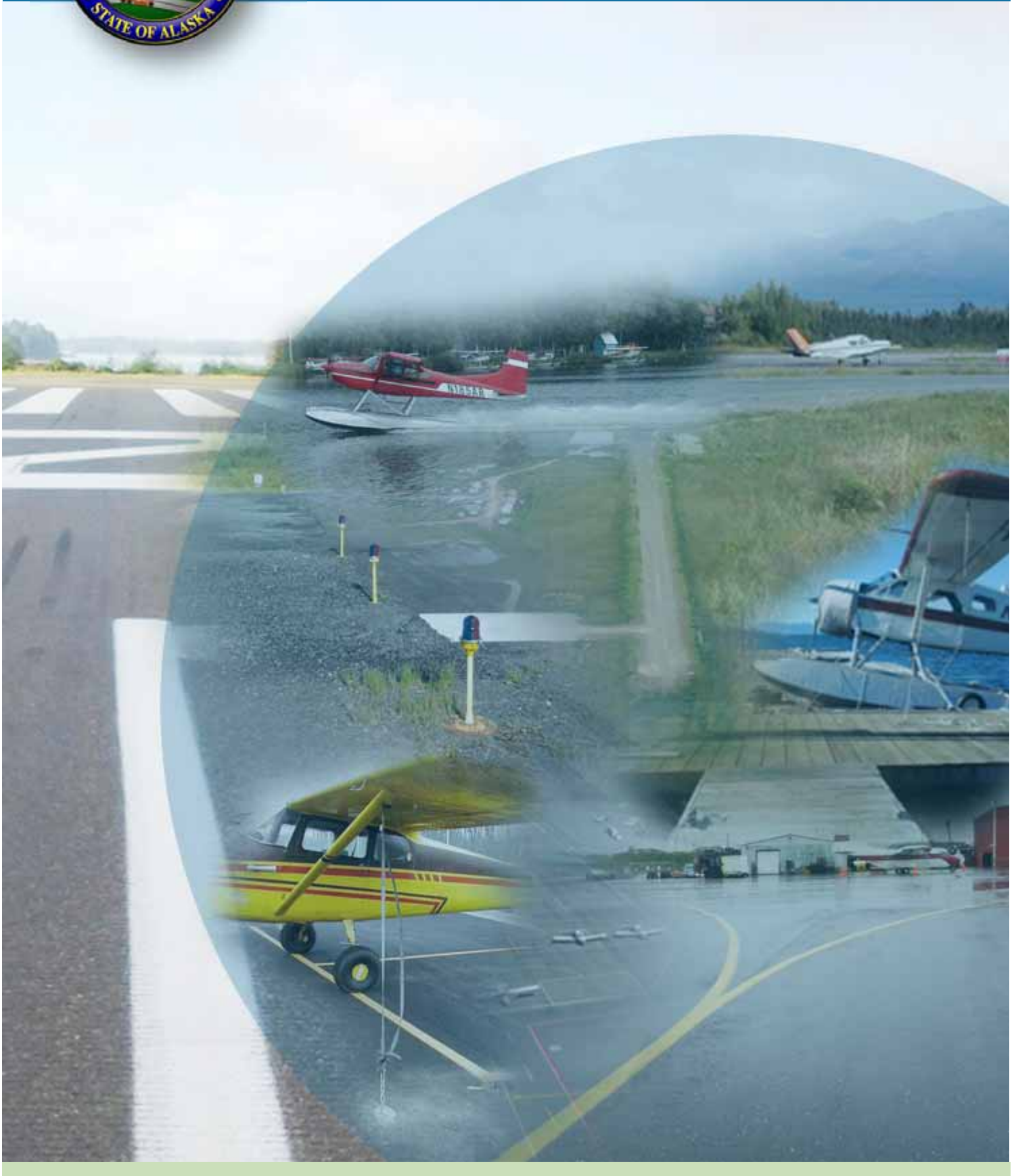
The issues helped guide special study topics and contributed to the development of goals and performance measures. For example, the issue of lack of understanding about the social and economic importance of aviation in Alaska was raised at the beginning of the AASP. This led to several economic impact studies and videos created under the AASP.



Airport surface conditions continue to be an important AASP issue



## 2.0 MISSION, GOALS, PERFORMANCE MEASURES AND CLASSIFICATIONS





## 2.0 MISSION, GOALS, PERFORMANCE MEASURES AND CLASSIFICATIONS

The Mission, Goals, Performance Measures and Classifications report established a framework to set priorities for and guide the AASP, and provide mechanisms to help implement the aviation-related goals and priorities identified in other plans. The report was developed with participation by the FAA, DOT&PF planners, airport engineers, and airport maintenance and operations staff.

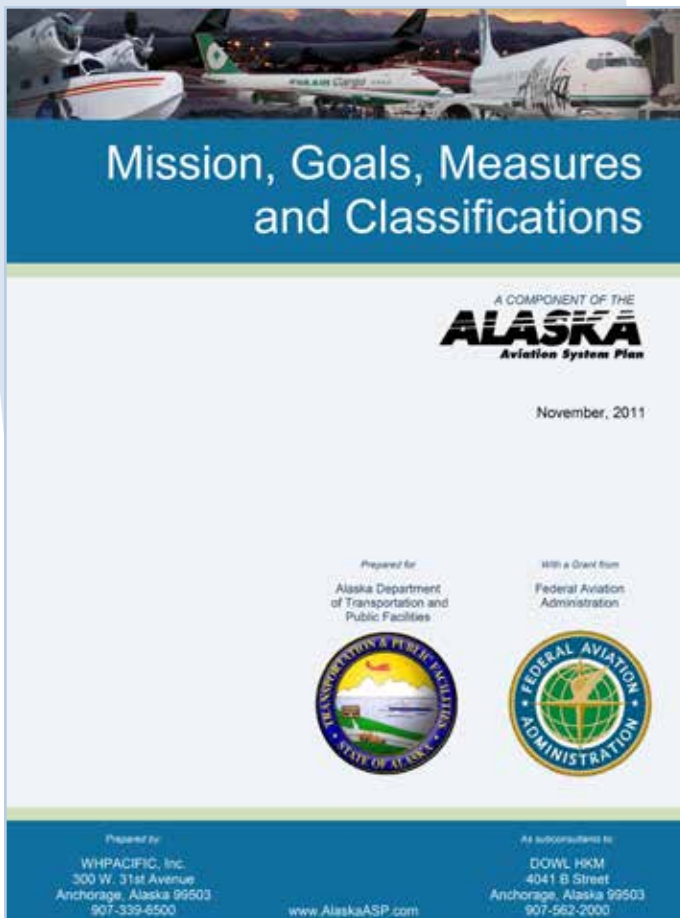
- Document the airport classification definitions and assign Alaska's airports to classes.
- Measure the current performance of the aviation system to establish a baseline for measuring future improvement and to help assess the current health of the aviation system.
- Describe the future implementation of AASP goals and objectives in the continuous system planning process.

### 2.1 Mission and Goals

The mission of the AASP is to plan and provide for the safe and efficient movement of people and goods, and the delivery of state services, through the development, maintenance, operation, and management of Alaska's airport system. This mission and five core goals to support it were established in 2009, vetted by DOT&PF and FAA staff, and published in the "Mission, Goals, Measures, and Classifications" report.

#### Five basic goals support the AASP mission:

- **Safety:** Develop, operate, and maintain an airport system that contributes to aviation safety.
- **Service:** Develop, operate, and maintain a reliable aviation system with facilities scaled to meet system user needs.
- **Fiscal Responsibility:** Develop, operate, and maintain airport facilities and services in a cost effective and sustainable way.
- **Communication:** Provide opportunities for public involvement to ensure effective communication regarding aviation system needs, user needs, and airport development, maintenance, and operations.
- **Management:** Effectively implement system plan policies and guidance for management, planning, design, maintenance, and operation of aviation facilities.



**Figure 2:** Mission, Goals, Measures, and Classifications Report

#### The purposes of the report were to:

- Document the mission statement, goals, objectives, and performance measures of the AASP.



The goals are general guidelines that describe what is to be achieved by Alaska's aviation system. Objectives were identified to further define the specific strategies or implementation steps to reach each goal. The objectives along with the AASP projects that supported them are further described in Section 4.

## 2.2 Classifications

Alaska's airports vary in size, use, and amount of infrastructure and facility development. In spite of their diversity, airports can be grouped into airport classifications based on the airport's role, function, connection to the contiguous road system, activity levels and inclusion in the National Plan of Integrated Airport Systems (NPIAS). Classifications from previous AASP's were also considered in developing

the classifications described below. Airport classifications help DOT&PF understand and convey each airport's role in the system and prioritize airport funding investments.

### Airports were classified under one of the following classifications:

- |                                       |              |
|---------------------------------------|--------------|
| 1. International Class Airports       | 3 Airports   |
| 2. Regional Class Airports            | 28 Airports  |
| 3. Community Off-Road Airports        | 146 Airports |
| 4. Community On-Road Airports         | 18 Airports  |
| 5. Local NPIAS High Activity Airports | 11 Airports  |
| 6. Local NPIAS Low Activity Airports  | 56 Airports  |
| 7. Local Non-NPIAS Airports           | 469 Airports |

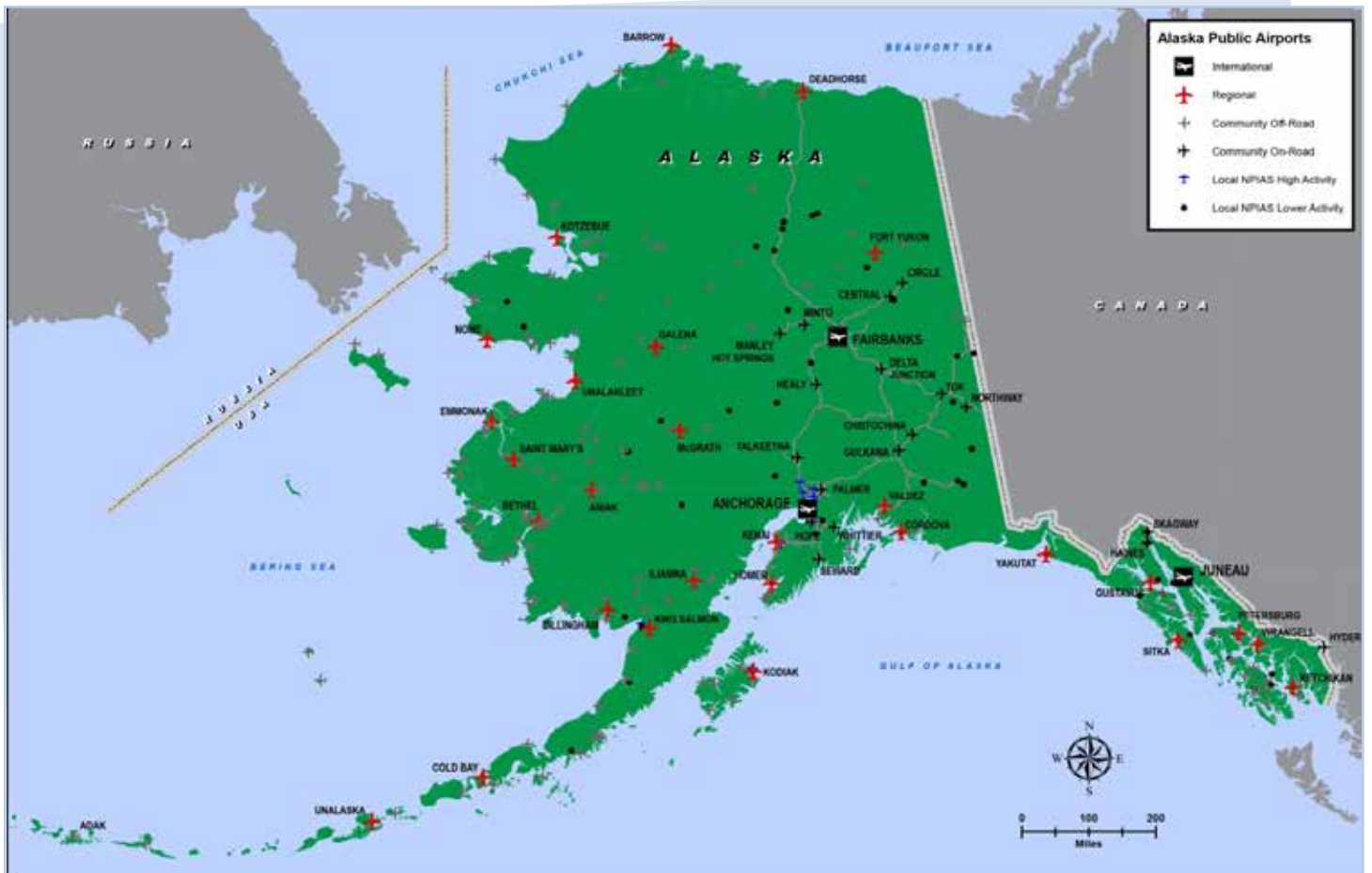


Figure 3: Alaska's Public Airports and their AASP Classifications

*International Airports* are classified as those that serve at least 0.05% of the annual passenger boardings in the U.S. and are classified by the FAA as a small or medium hub.

*Regional Airports* are defined as public use airports, heliports, or seaplane bases that serve as an economic or transportation hub for more than one community, indicated by having at least three of the following characteristics:

- At least 10,000 annual passenger boardings
- An air carrier hub
- A postal hub or more than 2 million pounds of cargo handled annually
- Scheduled passenger service in aircraft with at least 30 seats
- Community has a health facility serving two or more communities
- Primary or secondary fire tanker base
- Community has a Coast Guard air station, air support facility, or forward operating station

*Community Class Airports* include public use airports, heliports, or seaplane bases that serve as the main air transportation facility for an individual community, providing, at a minimum, basic health, safety, and emergency needs. The community must have a minimum year-round population of at least 25 and a public school. The community airport must be at least one-hour driving time (over year-round accessible road) from an international, regional or other community airport.

- Off-Road Community Class – serves a community that lacks access to the interstate road system.
- On-Road Community Class – serves a community with access to the interstate road system.

*Local class* includes airports, heliports, or seaplane bases that accommodate mostly general aviation activity.

- Local NPIAS High Activity Class – included in the NPIAS and has at least 20 based aircraft.

- Local NPIAS Lower Activity Class – included in the NPIAS and has fewer than 20 based aircraft.
- Local Non-NPIAS Class – is not assigned to another class.

## 2.3 Performance Measures

Performance measures provide an indication of the health of the Alaska aviation system. Baseline performance measures were established to define the floor for measuring future progress, through statistical indicators, which determine whether progress is being made toward meeting each goal and its corresponding objectives. Baseline performance measures were measured in 2010 and again in 2012 to assess progress. Although the data was measured in 2012, data sources for inventoried facilities have not improved greatly since the initial measurement, which created discrepancies and produced misleading measurements. For example, many airports have experienced construction projects since the 2010 measurements, but the updated information did not reflect in the Airport Layout Plans (ALP) or Airport Master Records (Form 5010-1) at the time of the 2012 inventory. Therefore, the following performance measures use 2010 data.



Baseline performance measures are an initial step

### 2.3.1 Safety Performance Measures

All of the performance measures for the plan implementation goal of Safety were measured, with limitations. Design Standard Indices, Airfield Surface Condition, Weather Information (on- and off-airport), Visual Glide Slope Indicators, and Clear Approaches are safety measures that were assessed.

The Design Standard Index measures airport performance in meeting seven standards: Runway Safety Area, Obstacle Free Zone, Threshold Siting Surface, Runway Protection Zone, Crosswind Coverage, Runway Visibility Zone, and Parallel Taxiway. Compliance with the standard was measured on a scale of 1 to 100 with 100 equaling 100% compliance. Design Standards Index 2010 results showed:

- 66-69 Index for Regional Airports
- 72-80 Index for Community Airports
- 60-77 Index for Local NPIAS Airports

While it may be surprising that the Community Airport's index is higher than the Regional Airports, the standards are generally much higher and more costly to meet for Regional Airports. The wider range of indices for Local NPIAS Airports reflects the larger percentage of unknown conditions at Local NPIAS Airports, mostly because many Local NPIAS Airports do not have ALPs to confirm facility conditions.



Gravel surfaces are common at most community and local NPIAS airports

The Airfield Surface Conditions performance measure indicates paved and non-paved surface conditions based on the 2010 FAA Form 5010-1 data. It showed:

**Table 2: Paved Airfield Surfaces – Adequate Conditions**

Airport Class	Runways	Taxiways	Aprons
International	33%	100%	67%
Regional	57%	56%	48%
Community <sup>1</sup>	52%	64%	59%

<sup>1</sup> 22 airports with 25 paved runways

- Only 33% of runways at international airports had adequate pavement condition, but 100% of taxiways had adequate pavement
- 48% - 64% of Regional and Community Airports had adequate pavement condition on runways, taxiways, and aprons



Airfield pavement conditions continue to be a challenge at Alaska's airports

**Table 3: Unpaved Airfield Surfaces – Adequate Conditions**

Class	Runway
International	Condition of gravel strip at FAI not measured
Regional	80%
Community	71%

The source of unpaved runway condition is the Form 5010-1, with modifications by DOT&PF

- Of the 10 unpaved runways at Regional Airports, 8 were measured in good or excellent condition.
- Of the three International Airports, one has a gravel runway. This gravel runway condition was not measured in this study.
- Of the 138 unpaved runways at Community Airports, 98 were measured in good or excellent condition.

Weather information on airports provides real-time information to pilots, including altimeter readings necessary for instrument approaches. International and Regional Airports all have automated weather stations. Only 44% of the 164 Community Class Airports had automated weather stations in 2010. Off-airport weather is available at five automated weather reporting stations and via 33 weather camera stations. This off-airport weather information is important to safety for pilots en route, particularly at mountain passes and other locations where weather conditions are prone to change suddenly.

Visual Glide Slope Indicators are available at 63% of runway ends at Regional Airports and 32% of primary runway ends at Community Airports.

All international class airports have adequate obstacle clearance. The percentage of runway ends at Regional, Community, and Local NPIAS Airports with obstacle clearance no steeper than 20:1 are as follows:

- 89% of runway ends at Regional Airports
- 67% of runway ends at Community Airports
- 48% of runway ends at Local NPIAS Airports

### 2.3.2 Service Performance Measures

The following performance measures were identified for the Service Goal: Service Index, Current ALP, and Seasonal Closure.

The Service Index was measured using the National Flight Data Center (NFDC) database and information gathered for the AASP inventory database. Similar to the Design Standards Index, the Service index provides



Wind and weather information is critical to pilot safety

useful information about the health of the aviation system and a baseline for measuring progress toward the Service goal. Compliance with the index standards was measured on a scale of 1-100 with 100 being equivalent to 100% of the airports meeting the index standards.

- Regional Airports' service indices ranged from 69-71 based on a weighted average of characteristics associated with an airfield capable of handling a jet or turboprop aircraft over 12,500 pounds in nearly all weather conditions.
- Community Airports' service indices ranged from 55-56 based on a weighted average of characteristics appropriate for airports in this class, such as adequate runway length.
- The percentage of Regional, Community, and Local NPIAS Airports with ALPs less than 10 years old is a Service performance measure. Only 67% of airports in these classes meet this measure.
- The percentage of Regional and Community Airports without seasonal closure is another measure of Service. Seasonal closure (due to spring flooding, for instance) degrades the reliability of air transportation for some Alaskan residents.
  - No Regional Airports have seasonal use restrictions.
  - Of the 164 Community Airports, 13 have seasonal use restrictions.

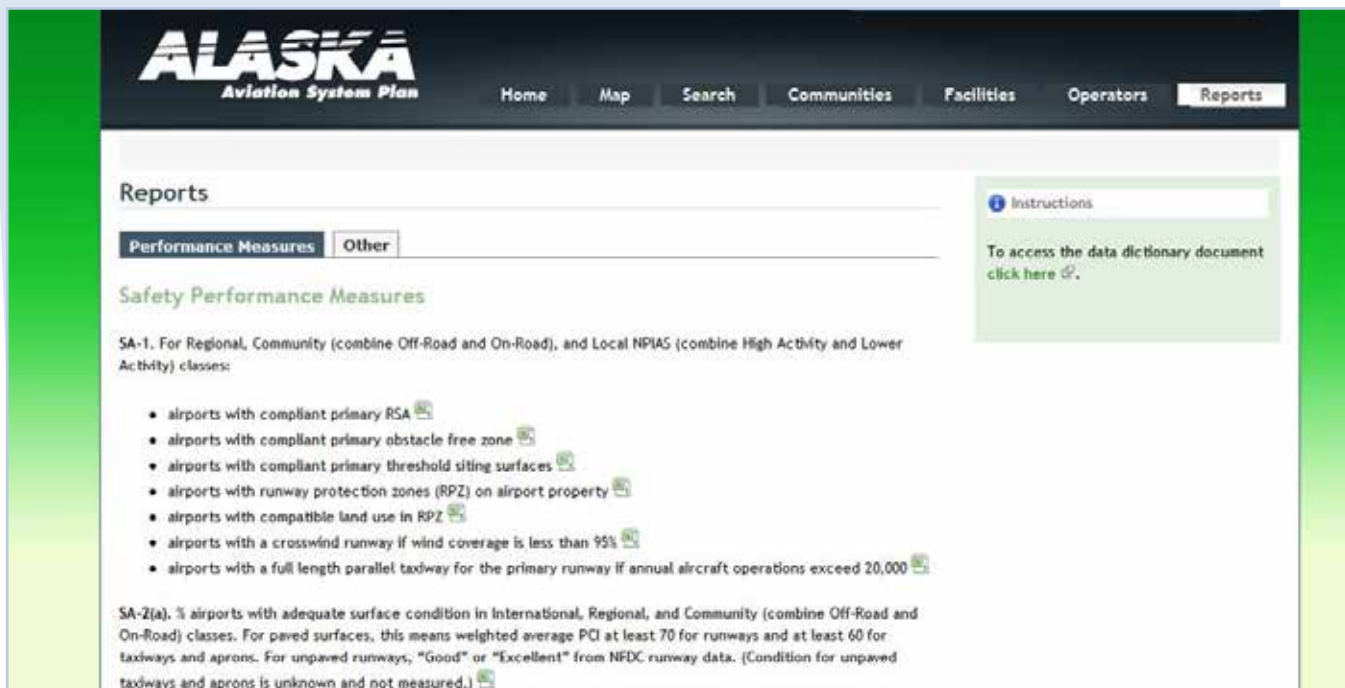


### 2.3.3 Fiscal Responsibility Performance Measures

Of the fiscal responsibility performance measures, only inclusion in the NPIAS was measurable with the information available. Being a part of the NPIAS makes an airport eligible for federal funding from the FAA's Airport Improvement Program (AIP). All Regional Class Airports and 98% of Community Class Airports are included in the NPIAS; only three Community Airports are excluded from the NPIAS. Although no other fiscal responsibility performance measures were assessed, these other performance measures were identified so that the DOT&PF can begin collecting data to track and report on progress in the future.

### 2.4 Performance Measure Implementation

The initial performance measurement effort and report established performance baselines for Alaska's aviation system – while much is still needed to advance the goals and objectives and reevaluate and track progress on performance measures, the initial implementation process has already begun. In 2012, the AASP inventory database was updated. Through consultation with DOT&PF planning staff, several inventory data points were eliminated and others were added to enhance the usefulness of the database. The ability of staff to query the database has also been improved. Implementation of performance measures will continue in the next phase of the AASP (See Section 5.8).



The screenshot shows the 'ALASKA Aviation System Plan' website with a navigation menu including Home, Map, Search, Communities, Facilities, Operators, and Reports. The 'Reports' section is active, showing a sub-menu with 'Performance Measures' and 'Other'. Under 'Performance Measures', there is a section for 'Safety Performance Measures'. A specific report, SA-1, is displayed, detailing compliance requirements for Regional, Community, and Local NPIAS classes. The report lists several criteria with corresponding icons, such as compliant primary RSA, obstacle free zone, threshold siting surfaces, RPZ on airport property, compatible land use in RPZ, crosswind runway wind coverage, and full length parallel taxiway. A secondary report, SA-2(a), is partially visible below, discussing surface condition requirements for paved surfaces and unpaved runways.

**Figure 4:** AASP Internal Website Screenshot of Performance Measures Reports



## 3.0 AASP WEBSITE



### 3.0 AASP WEBSITE

The AASP website was initially developed to provide stakeholders and the broader public with basic information about the AASP. Over the course of the AASP project, the website has evolved and been enhanced to include an internal site for those managing the aviation system, including DOT&PF, other airport sponsors, and FAA staff. It is AASP's vision that these web tools will become the primary source for the public, aviation stakeholders, the FAA, airport sponsors, and DOT&PF to find information about Alaska's airport system and to help manage the airports.

### 3.1 Public Portal

The public website ([www.AlaskaASP.com](http://www.AlaskaASP.com)) contains: documents produced for the AASP for review and use by the general public and aviation stakeholders; basic airport facility information; and is connected to eDocs (DOT&PF's electronic document system) for documents such as ALPs or master plans. The public can search for facility

information via a basic or advanced search tool. The advanced search tool has multiple parameters to search for airport characteristics. For example, a user can search all DOT&PF-owned facilities with a runway length of less than 4,000 feet that is served by a particular air carrier.

### 3.2 Internal Portal

The internal website (<http://internal.AlaskaASP.com>) is the portal for aviation data, analysis applications and reporting for airport sponsor staff and the FAA. The internal website includes the airport facilities information database, inspection data, Capital Improvement and Maintenance Program (CIMP), performance measure reports, and other aviation data. The internal website builds the foundation of an airport information repository and it provides tools to help plan and manage airport data. As the internal site develops and tests tools, features, and information, they may be transferred to the public portal once they are stable and fully vetted.



Figure 5: Public Website Screenshot

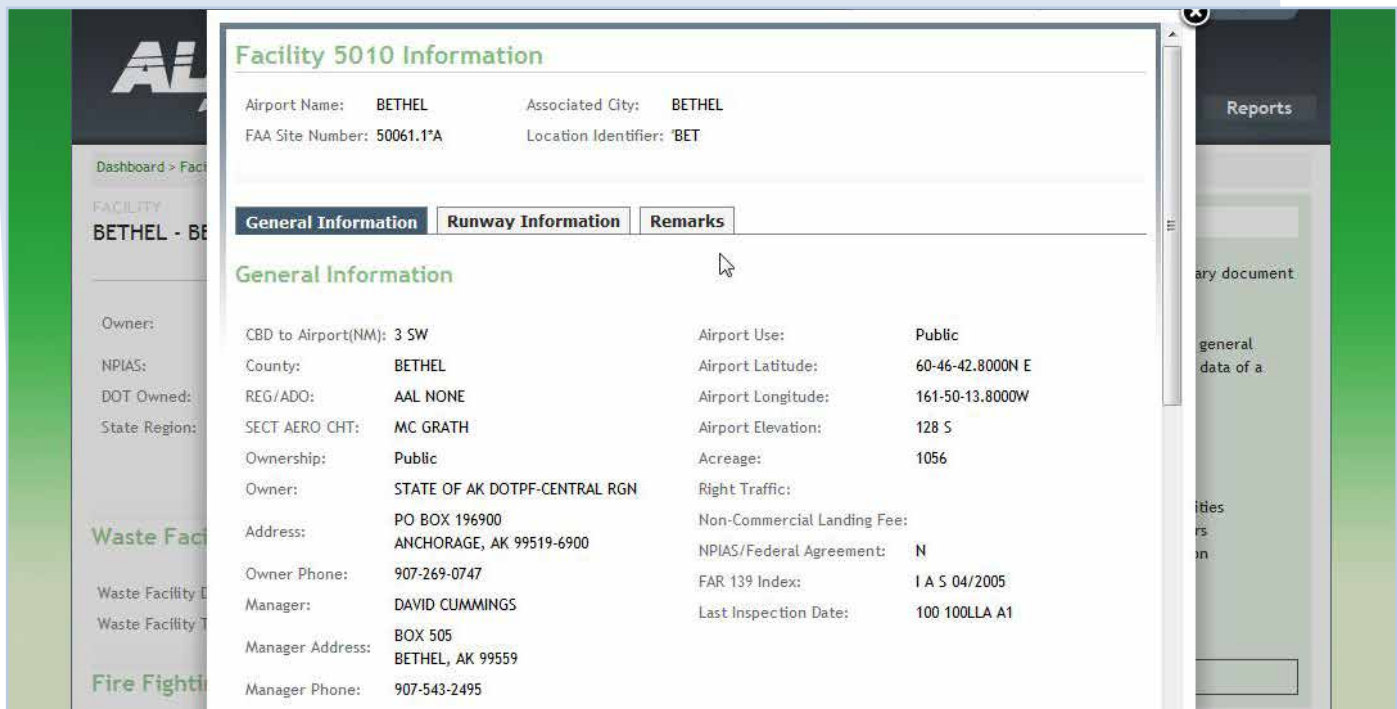


### 3.3 Facility Information Directory

The Facility Information Directory provides airport data from the AASP's inventory through direct links to the Form 5010-1 database, and from the U.S. Department of Transportation's T-100 database. Airport community data is pulled from the State of Alaska Department of Commerce, Community and Economic Development. Information regarding air carriers and the communities they serve is also provided for each airport.

More than 700 airports in the State of Alaska are registered with the FAA – data from their Form 5010-1 has been incorporated into the Facility Information Directory. More detailed aviation

inventory was also loaded into the Facility Information Directory for approximately 300 of these NPIAS airports and certain non-NPIAS airports with higher levels of based aircraft or airport operations. These airports were considered most important to the aviation system and were most likely to have other published data sources. Examples of more detailed data include: various types of data from ALPs, the number of tie downs, and passenger shelter availability. Most of the airports owned by DOT&PF are in the NPIAS and have additional inventory data entered into the Facility Information Directory. Inventory data was entered into the Facility Information Directory in 2010 and updated in 2012.



Facility 5010 Information	
Airport Name:	BETHEL
Associated City:	BETHEL
FAA Site Number:	50061.1*A
Location Identifier:	BET

General Information	
CBD to Airport(NM):	3 SW
County:	BETHEL
REG/ADO:	AAL NONE
SECT AERO CHT:	MC GRATH
Ownership:	Public
Owner:	STATE OF AK DOTPF-CENTRAL RGN
Address:	PO BOX 196900 ANCHORAGE, AK 99519-6900
Owner Phone:	907-269-0747
Manager:	DAVID CUMMINGS
Manager Address:	BOX 505 BETHEL, AK 99559
Manager Phone:	907-543-2495
Airport Use:	Public
Airport Latitude:	60-46-42.8000N E
Airport Longitude:	161-50-13.8000W
Airport Elevation:	128 S
Acreage:	1056
Right Traffic:	
Non-Commercial Landing Fee:	
NPIAS/Federal Agreement:	N
FAR 139 Index:	I A S 04/2005
Last Inspection Date:	100 100LLA A1

Figure 6: Bethel 5010 Screenshot





## 4.0 WORK PRODUCTS



## 4.0 WORK PRODUCTS 2008-2013

Throughout the five-year AASP process, work products such as reports, fact sheets, databases, figures, and videos were produced to support the overall plan and specific, contemporary system needs. Most of the deliverables of the 2008-2013 AASP effort tackle one or more strength, weakness, opportunity or threat to the system and create the understanding necessary to plan strategically and intelligently based on this foundational knowledge.

For example, changes to the EAS Program could be identified as an opportunity and/or a threat to Alaska's aviation system – before making strategic decisions related to this program, it is essential to understand the mechanics and intricacies of the EAS Program. That understanding is precisely what the AASP study, "Essential Air Service in Alaska," delivered.

The work of the AASP during the past five years has delivered multiple other products of the same nature – thorough examinations and documentation of major issues facing the Alaska aviation system that will aid the State, other Airport Sponsors, and the FAA in planning strategically for the future.

The following sections identify each of the goals, their objectives, and the AASP projects that support them. Some of the work products identified in the following section meet more than one of the AASP goals; however, in this report they are only identified under the primary goal each supported. For each project we highlight its purpose, the products, their content, and conclusions/next steps. All work products are provided in digital form on a disc included with the printed version of this report. This report and most work products are also available for download on the AASP website (<http://www.AlaskaASP.com/>).

## 4.1 Alaska Aviation System Plan Goal: Safety

The Safety Goal seeks to develop, operate, and maintain an airport system that contributes to aviation safety.

### **Safety Objectives:**

- Bring airports into compliance with FAA airport design standards, to the extent practical.
- Provide adequate airfield surface condition.
- Reduce obstructions to aviation that are in approach/departure surfaces.
- Advocate adequate aviation infrastructure (communication, approaches, instrument flight rule routes, weather reporting, etc.) for pilots.
- Improve access control around aircraft operating areas.
- Facilitate the preservation of backcountry airports needed for system safety.

The AASP has supported the Safety Goal with numerous studies, working groups, and work products. The Aeronautical Surveys and Instrument Flight Procedures Work Group, Airport Needs versus Funding Pilot Project, and Airport Emergency Plan (AEP) updates were conducted primarily to address airport safety needs.

### 4.1.1 Project: AASP Aeronautical Surveys and Instrument Flight Procedures Work Group

**Purpose:** This work group identified and prioritized airports for improved approaches and lower minimums. The work group also provided guidance on where aeronautical surveys should be conducted to help qualify airports for lowered minimums. Improved approaches and lower minimums enhance aviation safety and reliability by helping aircraft land with more accurate guidance about their vertical and horizontal

position in poor visibility conditions. The work also supports the goal of Service by seeking to increase the number of airports which meet the Service Index for Regional Airports (instrument approach with  $\frac{3}{4}$  mile visibility) and Community Airports (instrument approach with 1 mile visibility).

### Products:

- Aeronautical Surveys and Instrument Flight Procedures, Fact Sheet, 2012
- Prioritized list of airports for aeronautical surveys, 2012
- Prioritized list of airports for Localizer Performance (LP) and Localizer Performance with Vertical Guidance (LPV) approaches, 2012

**Content:** The work group's prioritization of airports for both LP/LPV approaches and aeronautical surveys uses an equation to rank airports. The equation includes the following variables: (1) current minimums, (2) AASP Service performance measure, (3) activity levels, and (4) carrier comments. The work group received comments about priority airports for improved approaches from three cargo carriers, six passenger carriers, two medevac carriers and numerous pilots. Airports without a current aeronautical survey or an LP or LPV approach were placed into the equation and ranked. The ranked list is stored in an excel spreadsheet so that it can be continually updated by the work group, contractor or the DOT&PF. A fact sheet explains the basics of aeronautical surveys, LP/LPV approaches, and the role of the various agencies involved in aeronautical surveys and instrument procedure development.



**AERONAUTICAL SURVEYS & INSTRUMENT FLIGHT PROCEDURES**

Current as of November 2012

ALASKA AVIATION SYSTEM PLAN UPDATE

Prepared for: State of Alaska Department of Transportation & Public Facilities Division of Statewide Aviation 4111 Aviation Drive Anchorage, Alaska 99502

Prepared by: DOWL HKM 4041 B Street Anchorage, Alaska 99503 (907) 562-2000

**INTRODUCTION**

In the interest of creating a safer and more reliable aviation system, the Alaska Department of Transportation & Public Facilities, through the Alaska Aviation System Plan, is developing a prioritized list of airports recommended to receive aeronautical surveys and new or improved instrument flight procedures (IFPs). Aeronautical surveys and instrument flight procedures are two distinct matters that, as discussed in the context of this fact sheet, integrate to create greater safety, reliability, and efficiency at airports. Information gathered from aeronautical surveys contributes to a wide number of aviation applications, one of which is the development of IFPs. Similarly, IFPs make use of aeronautical survey data, but there are many additional elements involved in the creation of an IFP.

This fact sheet will briefly outline:

- The primary parties involved in aeronautical surveys and IFP development in Alaska.
- The definition and applications of aeronautical surveys, and
- The definition and applications of IFPs.

**WHO IS INVOLVED?**

**Alaska Department of Transportation & Public Facilities (DOT&PF):** Alaska DOT&PF's role is to evaluate the system of airports for IFP needs; conduct aeronautical surveys; operate, maintain and improve airports; and coordinate with the FAA, other agencies, and stakeholders.  
Contact: Jessica DeLa Croce, 907-269-0728, jessica.delacroce@alaska.gov

**Federal Aviation Administration (FAA) Airports District Office (ADO):** The ADO is responsible for administering the Airport Improvement Program (AIP) grants to fund aeronautical surveys when surveys are required for completion of capital improvement projects.  
Contact: Gabriel Mahns, 907-271-3665, gabriel.mahns@faa.gov

**FAA Navigation Services:** Navigation Services has been the primary provider of funding for Wide Area Augmentation System (WAAS) surveys and WAAS-capable flight procedure development and publishing. The WAAS Program Office has historically procured airport obstruction surveys for runways which are promising candidates for subsequent WAAS-capable instrument flight procedure development.  
Contact: JoAnn Y. Ford, 202-493-4704, JoAnn.Y.Ford@faa.gov

**National Geodetic Survey (NGS):** NGS is contracted by the FAA to validate and verify survey data provided by contracted surveyors in compliance with FAA specifications. NGS validates and verifies data collected for surveys funded through both the AIP and the WAAS Program Office.  
Contact: Mark Howard 301-713-2685, mark.toward@noaa.gov

**Regional Airspace Procedures Team (RAPT):** Composed of FAA Divisions of Airports, Flight Procedures, Flight Standards, and Air Traffic Control, this group reviews requests for IFPs and approves or denies them for development. If approved, the group then recommends the IFP to the FAA's Oklahoma City office for design, flight inspection, and publication.  
Contact: Kyle Christiansen, 907-271-5187, kyle.christiansen@faa.gov

**Contents:**

- Introduction 1
- Who is Involved? 1
- Aeronautical Surveys 2
- Instrument Flight Procedures 3
- WAAS 4

**ALASKA Aviation System Plan**

**Conclusions/Next Steps:** In January 2013, 10 airports were recommended to the FAA Regional Airspace Procedure Team for LP/LPV approaches, and others were recommended for FAA Wide Area Augmentation System surveys under FAA navigation services. The work group recommended further work to address two other obstacles to increasing the number of airports receiving a LP/LPV approach or achieving lowest possible minimums. The first obstacle is the lack of certified weather sources (specifically, altimeter data). Another obstacle is approach obstructions. The AASP recommends that DOT&PF and the FAA should address these two topics to increase the number of airports that qualify for approach development and/or lower minimums for existing approaches. The AASP recommends that the DOT&PF develop a policy to track and address obstructions. The work group also reviewed and supported a draft policy guidance memo encouraging aeronautical surveys at state owned airports – this multi-agency organization's approval of such a policy emphasizes the importance of the safety data collected by surveys.

**Figure 7:** Aeronautical Surveys and Instrument Flight Procedures Fact Sheet



### 4.1.2 Project: Airport Needs Inspection Pilot Project

**Purpose:** This project involved development of a proof-of-concept pilot program that systematically and comprehensively assesses, documents, and tracks 20-year airport needs. Assessing and documenting airport maintenance and capital needs supports safety by helping airport sponsors identify, prioritize, and implement safety-related improvements. Statewide implementation of this pilot program would enable DOT&PF and local sponsors to better document airport needs, identify projects and costs to address the needs, and schedule projects. The program would be used to document the annual amount of capital and maintenance funding needed to maintain and develop the aviation system, and aid in identifying any shortfalls in funding.

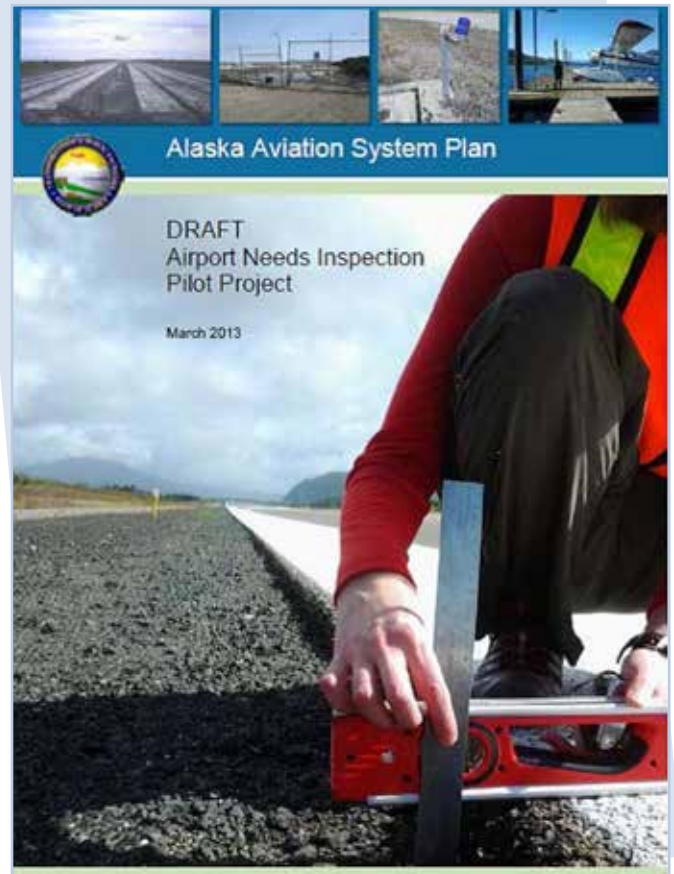
**Products:**

- Airport Needs Inspection Pilot Project, 2013
- Capital Improvement and Maintenance Program (CIMP) website tool, 2013
- Android tablet inspection application, 2013

**Content:** Through a work group, consisting of DOT&PF and municipal airport representatives, the pilot project developed an inspection program using an android tablet application to document needs using detailed checklists for each airport area. Inspection areas include: Buildings/Fencing, Gravel Surfacing, Environmental, Resources and Equipment, Pavement, Pavement Markings, Safety Non-Movement Area, and Visual Aids. Summer and winter airport maintenance and surface conditions vary greatly, as snow and ice conditions present different challenges to maintaining and operating airports. While the majority of inspections will be conducted in the summer, occasional winter inspections are important to document winter maintenance conditions and capital needs. Therefore, separate winter checklists were developed for each airport area. The tablet was used to conduct pilot inspections at 18 airports across the state. Inspection results were reviewed and projects/needs were identified. The

project created a CIMP, a centralized program for storing capital and maintenance needs, that is located on the AASP internal website.

**Conclusions/Next Steps:** The pilot project identified over one-billion dollars in needs for 18 airports over the next 20 years. Table 4 details each airport's needs by priority. The pilot project showed that the DOT&PF could effectively implement the project statewide for all DOT&PF airports and outlined estimated costs to do so. The project also identified the benefits of the inspections to local sponsor airports. The AASP recommends continued improvement and enhancement of the AASP internal website, and improvement of the tablet application. More detailed suggestions are found in the "Airport Needs Inspection Pilot Project" report.



**Figure 8:** Airport Needs Inspection Pilot Project Report

**Manage Projects**

**AKIACHAK**

Display:

ASAP Needs Total : 50	Short Term Needs Total : \$1,529,139
Mid Term Needs Total : \$16,200,000	Long Term Needs Total : \$11,300,000

[Add Project](#)

Project	Priority	Project Origination	Funding Source	Estimated Cost
<a href="#">View</a> Surface Repair & Dust Control	Short Term	State Needs List	State capital	\$167,000
<a href="#">View</a> Airport Master Plan	Short Term	Inspection	AIP	\$80,000
<a href="#">View</a> Apply dust palliative	Short Term	Inspection	State capital	\$300,000
<a href="#">View</a> Replace snow removal equipment - grader	Short Term	ALP	AIP	\$348,000
<a href="#">View</a> Acquire Snow Removal Equipment	Short Term	NPIAS	AIP	\$294,139
<a href="#">View</a> Stockpile for repairing gravel runway	Short Term	Inspection	AIP	\$40,000
<a href="#">View</a> Install Papi and Rest	Long Term	ALP	AIP	\$1,200,000
<a href="#">View</a> Construct crosswind runway	Mid Term	ALP	AIP	\$16,200,000
<a href="#">View</a> Extend 3,300' runway to 6,000'	Long Term	ALP	AIP	\$10,100,000
<a href="#">View</a> Install AWOS	Short Term	ALP	AIP	\$300,000
<b>Total</b>				<b>\$29,029,139</b>

**Figure 9:**  
Akiachak's CIMP

**Table 4: Pilot Project Airports Total Identified Needs by Priority**

Airport	ASAP \$	Short Term \$	Mid Term \$	Long Term \$	Total \$
Akiachak	-	1,529,139	16,200,000	11,300,000	29,029,139
Aniak	-	55,886,438	2,261,000	91,480,971	149,628,409
Beaver	468,000	285,409	6,199,60	1,600,000	8,553,010
Bethel	1,528,000	80,765,659	27,482,237	88,100,000	197,875,896
Birch Creek	38,500	1,501,000	5,600,000	1,400,000	8,539,500
Chitina	7,800	269,000	792,000	3,600,000	4,668,800
Craig Seaplane Base	1,073,000	905,000	12,980,000	3,500	14,961,500
Fort Yukon	290,000	342,000	623,000	5,000,000	6,255,000
Girdwood	1,200	2,910,000	12,535,000	4,100,000	19,546,200
Gulkana	11,500	21,804,632	2,960,000	563,000	25,339,132
Juneau	18,499,999	109,356,947	64,847,421	11,236,842	203,941,209
Kasigluk	7,162,300	8,489,105	8,000,000	7,500,000	31,151,405
Ketchikan	-	32,192,681	46,490,453	10,700,000	89,383,134
Klawock	230,000	11,142,842	11,566,579	11,160,526	34,099,947
Kwethluk	17,000	4,211,000	3,100,000	12,000,000	19,328,000
Nome	48,636,158	13,005,000	5,327,632	77,176,712	144,145,502
Salmon Lake	14,500	215,000	60,000	2,725,000	3,014,500
Sand Point	94,000	4,770,000	37,600,000	17,769,000	60,233,000
<b>Total</b>	<b>\$78,071,957</b>	<b>\$349,580,852</b>	<b>\$264,624,923</b>	<b>\$357,415,551</b>	<b>\$1,049,693,283</b>

### 4.1.3 Project: Airport Emergency Plan Updates

**Purpose:** AEPs were developed to comply with newly published requirements for Part 139 airports in AC 150/5200-31C. The AEP updates followed a consistent approach and format for each Part 139 airport. This consistent approach means that emergency response practices are described in a similar manner for all airports, making coordination with other State and Federal emergency response agencies easier and helps facilitate faster approvals by the FAA.

**Products:**

- AEPs for 25 Part 139 Certificated Airports (Adak, Barrow, Bethel, Cold Bay, Cordova, Deadhorse, Dillingham, Fairbanks International, Galbraith (privately operated), Gustavus, Homer, Juneau International (municipal owned), Kenai-Municipal (municipal owned), Ketchikan (municipal operated), King Salmon, Kodiak, Kotzebue, Nome, Petersburg, Prospect (private operated), Sitka, Unalaska, Valdez, Wrangell, Yakutat), 2011
- Flip Books (Abbreviated Emergency Plans suitable for field use) for 25 Certificated airports, 2012

**Content:** Each AEP addresses essential emergency actions for the safety of the airport and the community. The content of the AEP was coordinated locally so resources were maximized to meet the needs of an airport disaster. The plans identify personnel, equipment, facilities, supplies, and other resources available—within the airport or by agreement with communities—for use during response and recovery operations. The plans assign responsibility to organizations and individuals for carrying out specific actions at projected times and places in responding to an emergency. Flip books, abbreviated quick reference manuals, were also developed for immediate access to time critical emergency information and procedures.



**Figure 10:** Nome Airport Emergency Plan Flipbook

**Conclusions/Next Steps:** It is the responsibility of airport management to maintain current AEPs, ensure critical information and procedures are up to date, and ensure that AEPs meet current FAA requirements.



ARFF trucks provide emergency response at all Part 139 airports

## 4.2 Alaska Aviation System Plan Goal: Service

The AASP goal of Service seeks to develop, operate, and maintain a reliable aviation system with facilities scaled to meet system user needs.

### Service Objectives

- Develop an air transportation system that supports and promotes economic development.
- Provide facilities that serve current and future needs.
- Provide Alaskan residents with appropriate and reasonable levels of access to the air transportation system, including access to targeted airports capable of handling medical evacuation at night and during bad weather.
- Eliminate correctable seasonal closures of airports needed year-round, to the extent practical.
- Consider options to connect communities by alternate means instead of building new/improved airports.

The AASP has supported the Service goal with numerous studies and work products including Forecasts, the “Essential Air Service in Alaska” report, economic contributions studies, and the “Yukon-Kuskokwim Region Air Versus Roads Access Construction and Maintenance Baseline Cost Comparison” report.

### 4.2.1 Project: Forecasts

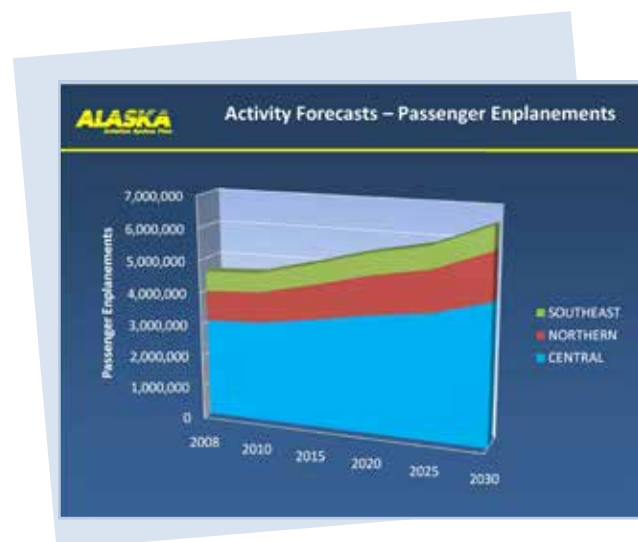
**Purpose:** The forecasts present 20 years of enplanements, cargo/mail, operations, and aircraft fleet mix data to help plan airport facilities that are scaled to system user needs, now and in the future. AASP forecasts are also considered when more detailed forecasts are prepared for regional transportation plans, master plans, and ALPs.

### Products:

- AASP Forecasts, 2011

**Content:** Forecasts of airport enplanements, cargo/mail, operations, and critical aircraft for system airports.

**Conclusions/Next Steps:** AASP Forecasts, completed in 2008, showed an annual average increase in operations of just under 0.6%, with a 2.3% per year growth rate at the Anchorage and Fairbanks Airports, a 0.7% growth rate in Central and Northern Region airports, and a decline of 0.6% per year at Southeast airports. Cargo tonnage was forecasted to grow by 5.5% per year statewide, or 1.8% per year excluding Anchorage and Fairbanks Airports. Cargo forecasts include a 1.9% increase in Northern Region, a 1.7% growth in Central Region, and a 1.4% increase in Southeast. Since the primary needs at most of Alaska's airports are not capacity-related but are, instead, driven by the need to make airports compliant with basic FAA-defined airport design standards, the statewide airport forecasts are not as useful in Alaska compared to other states where capacity is a bigger issue.



**Figure 11:** Forecasted Passenger Enplanements







that the study identified as being potential catalysts for change in EAS in Alaska:

1. The cessation of mail delivery to No Office Point (NOP) communities.
2. Communities with declining vital statistics.
3. Alaska BPM communities with disproportionate mail volumes.

The governing agencies should continue to monitor and evaluate the EAS program for potential changes that would affect this vital air service to rural Alaska communities.

#### 4.2.3 Project: Economic Contribution

**Purpose:** This project quantified the economic and social impact of aviation on Alaska's economy. A statewide study, "The Economic Contribution of the Aviation Industry to Alaska's Economy," was conducted in 2009 to document the socio-economic impact of aviation to the state. While policy makers and aviation users intuitively understand that aviation is important, this study provided the hard statistics of economic value to document aviation's importance in Alaska. Follow-on studies in 2011 documented the economic and social importance of aviation at 12 individual airports, to show how aviation sustains the economies and quality of life in various types and sizes of rural Alaska communities. Documenting the economic contribution of Alaska's aviation industry fosters better understanding of and support for aviation in Alaska by aviation policy makers as well as users of the aviation system.

#### Products:

- The Economic Contribution of the Aviation Industry to Alaska's Economy, 2009
- Economic and Community Contributions of Selected Alaska Airports, 2011

**Content:** The statewide economic report documents the amount of direct and indirect income and employment generated by aviation. It compares aviation's role in the



**Figure 13:** Iliamna Airport Economic Brochure

economy relative to other economic sectors and compares aviation activity in Alaska with several other states. Through interviews with rural residents, the report explains how important aviation is to rural quality of life and documents residents' concerns about the future of air transportation in rural Alaska. The second report documents the economic importance of 12 individual airports of different sizes, including Bethel, Deadhorse, Eek, Fairbanks International, Haines, Hooper Bay, Iliamna, Juneau International, Kodiak, Kotzebue-Ralph Wien Memorial, Talkeetna, and Wasilla Airports. The report describes each community and airport, the role of the airport in the community and region; predominant flight city-pairs; passenger enplanements; cargo and mail volumes; and direct, indirect, and induced employment and income for each of the 12 Alaska airports.

**Conclusions/Next Steps:** Aviation plays an important role in the economy and lifestyle of Alaska and its communities. Quantitative and qualitative documentation of aviation's importance fosters better understanding of and support for aviation by aviation policy-makers as well as users of the aviation system.

#### 4.2.4 Project: Compare Cost of Constructing and Maintaining Roads Versus Airports

**Purpose:** This study compared the costs of constructing and maintaining a new airport system in a region of Alaska with the costs of constructing and maintaining a new conceptual road system. The purpose of the study was to demonstrate that, because of the vast distances, terrain, land ownership and

environmental constraints, it is usually more cost-effective to provide remote areas of Alaska with a system of rural airports than a connected network of roads. This project addresses both service and fiscal responsibility goals.

**Products:**

- Yukon-Kuskokwim Region Air Versus Roads Access Construction and Maintenance Baseline Cost Comparison, 2013

**Content:** The Yukon-Kuskokwim Region was used to build the comparative case study because it contains a large hub community and dozens of villages within relatively close proximity. Air and road access baseline cost estimates for construction and maintenance were developed for 52 communities in the area. A conceptual primary arterial road corridor was developed that would access Bethel from the Parks Highway. A conceptual network of secondary connection corridors was developed from this primary arterial

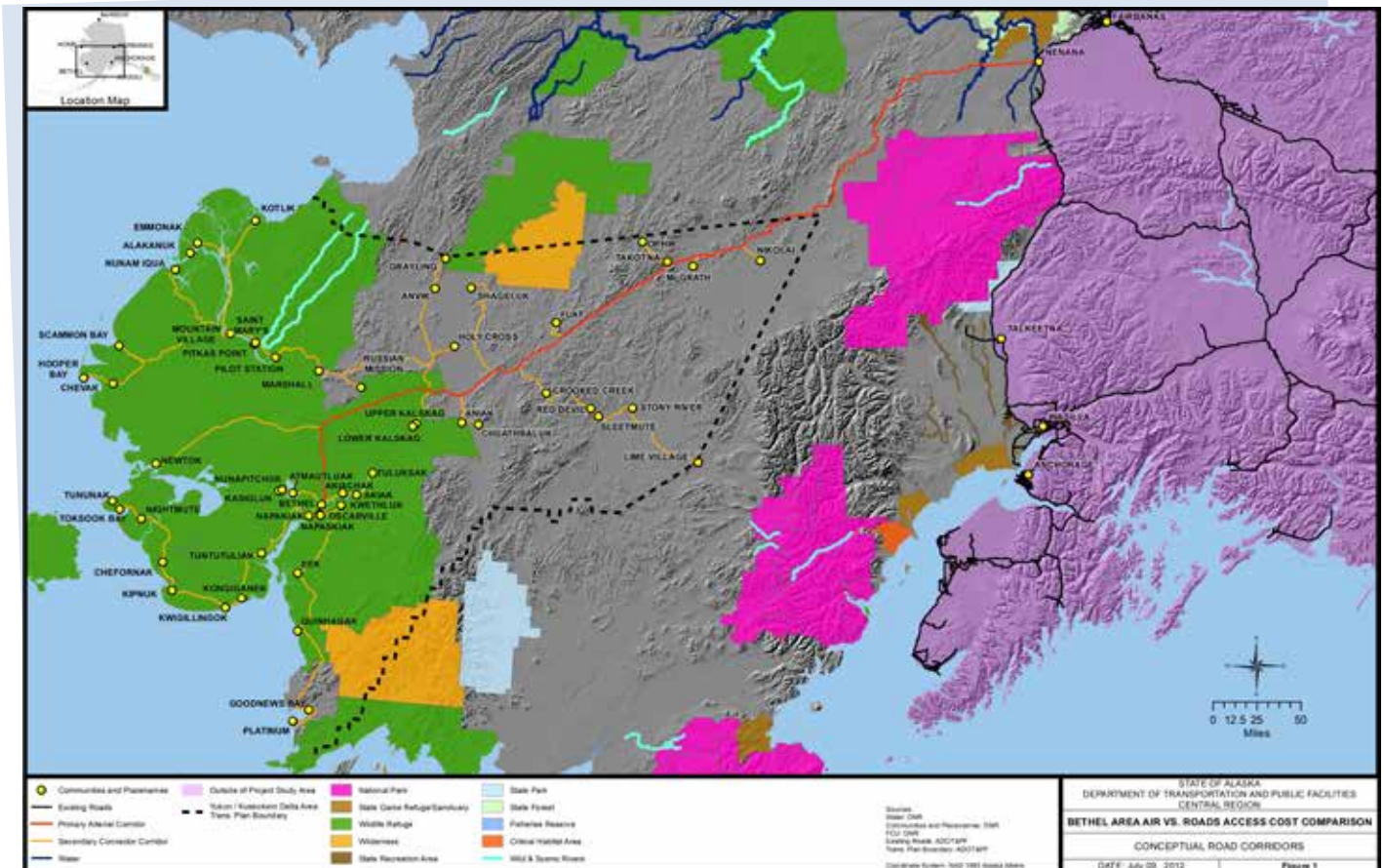


Figure 14: Conceptual Road Corridors Map



corridor to access 51 additional communities in the project study area. Whereas the road system considered by this study was conceptual, the airports were the existing transportation system in the Y-K Region. For purposes of providing a conservative cost comparison, this study estimated the aviation system replacement cost using ultimate ALP runway lengths.

**Conclusions/Next Steps:** The study concluded that an airport system is more economical than a road system in terms of construction and maintenance. Constructing a new airport system is three times less expensive than a road system, and airports are five times less expensive to maintain than a road system. Because this study was a simple baseline for construction and maintenance costs, follow-on studies were recommended, such as a study comparing actual costs of transporting goods and people on each mode of transportation. There are places in Alaska where roads are an appropriate, economical, and viable transportation option. However, the statewide system of airports provides reliable access at a fraction of the cost to build and maintain a system of roads. Even where roads do make sense, airports may still be needed for medevac and other purposes. The great distances separating communities in Alaska will probably always demand air service, regardless of what other modes are available.

### 4.3 Alaska Aviation System Plan Goal: Fiscal Responsibility

The AASP goal of Fiscal Responsibility seeks to develop, operate, and maintain airport facilities and services in a cost effective and sustainable way.

#### **Fiscal Responsibility Objectives:**

- Adequately fund airport management, operation, and maintenance functions.
- Make infrastructure investments that meet needs and support the state and local economy.

- Prioritize investment in airports to advance system goals and objectives, lower life cycle costs, and consider maximizing the economic benefit relative to the cost.
- Consider cost effectiveness for air carriers, airport owners, and other airport users.
- Recommend to the FAA airports that should be added to the NPIAS to be eligible for federal AIP grants.
- Improve the management of AIP grants.
- Increase airport revenue and funding.

The AASP has supported the goal of Fiscal Responsibility by conducting studies, including “Alaska Bypass Mail: Preparing for Change” and “Economic Analysis of Runway Extensions,” and by facilitating a Postal Hub work group.

#### 4.3.1 Project: Bypass Mail Study and Postal Hub Work Group

**Purpose:** The purpose of the study and work group was to better understand the BPM program so that, in the event of changes to the program, the State of Alaska would be prepared to adapt and make sound policy decisions for the State’s residents and transportation assets. Understanding and evaluating potential BPM program changes helps the state prepare for these changes and impacts on airports/aviation system.

#### **Products:**

- Intra-Alaska Mail Service by Air, 2009
- Alaska Bypass Mail: Preparing for Change - draft, 2013

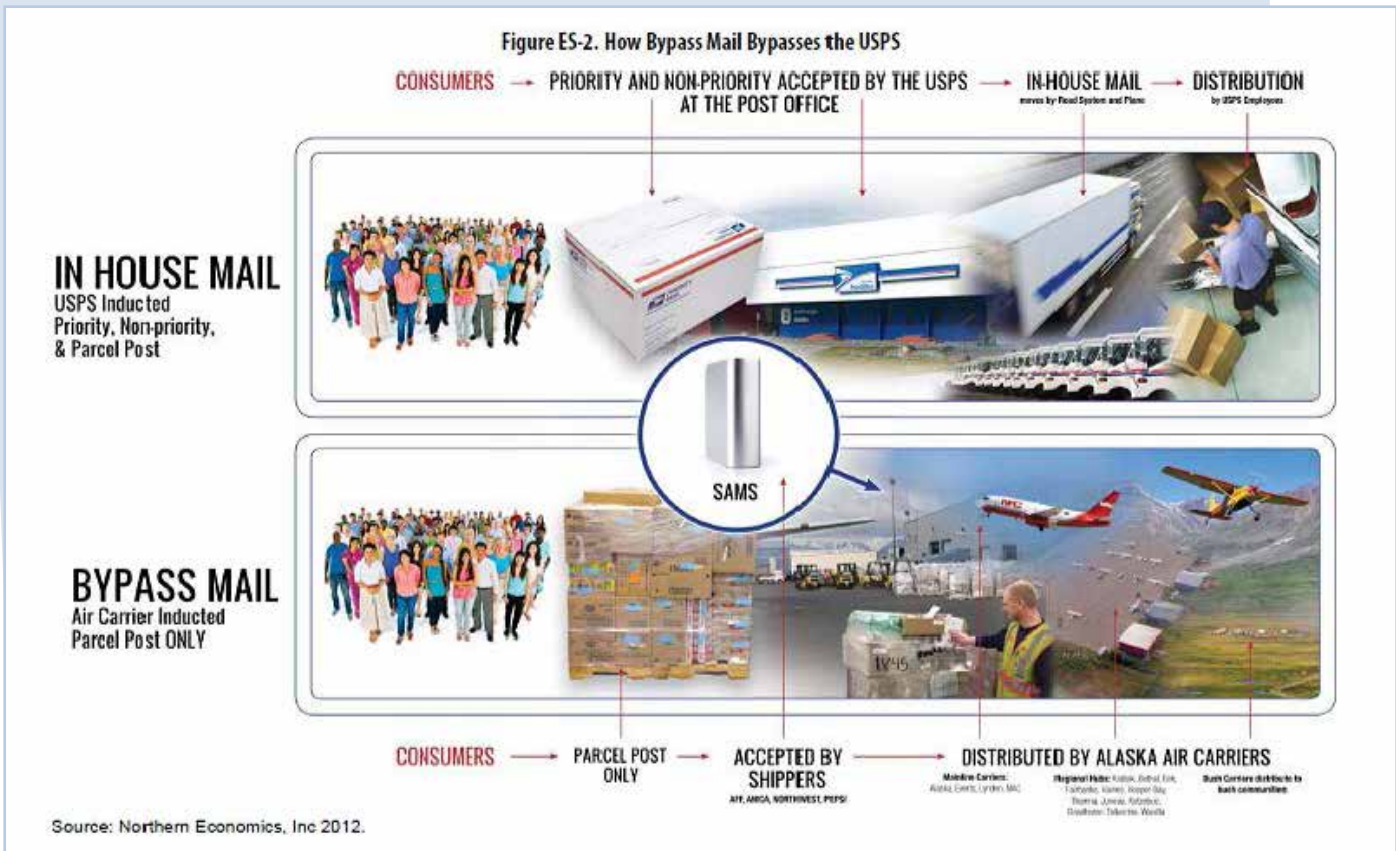
**Content:** A Postal Hub Work Group comprised of DOT&PF staff and representatives from the USPS, airlines, and the Congressional delegation staff discussed costs and impacts of establishment of new USPS hubs. The USPS primarily considers cost savings realized by the USPS when establishing new hubs, usually not considering the cost impacts to the air carriers, communities, or airports affected by hub changes. An initial white paper developed with the work group helped define

airport and airline infrastructure that is triggered by establishing new USPS hubs. Information gathered about airline and airport costs increases the USPS' sensitivity to the cost implications to others of establishing new hubs. The white paper also helps the DOT&PF provide input to the USPS when new hubs are proposed and to plan for airport capital projects if new hubs are approved.

“Alaska Bypass Mail: Preparing for Change” describes BPM as a program which is administered by the USPS, and provides air mail delivery of mail, supplies, and goods to more than 100 isolated rural Alaska communities. The BPM program allows for the shipment of groceries, household goods, and basic supplies to rural Alaska at the same mail rates as the rest of the United States (universal service at a universal price), even though the costs of providing that mail service is much higher than the mail revenues. The program supports transport of large amounts of intra-state mail from urban hubs (Anchorage and Fairbanks) to rural Alaska destinations.

The BPM report describes the current Alaska BPM program and the estimated effect of potential program changes on stakeholders, including the State of Alaska, air carriers, shippers, and Alaskan communities. The Rural Service Improvement Act of 2002 (RSIA) was being reviewed by Congress for potential changes. There were six potential legislative changes identified in this report. Rural Alaskans would be greatly affected by any major decrease in BPM volumes in three distinct ways: increased passenger fares, lower flight frequencies, and a smaller selection of goods in village stores.

**Conclusions/Next Steps:** The study did not find any potential changes to the BPM program that would result in a win-win scenario between shippers, carriers, communities, and the USPS. Each potential program change has “winners” and “losers”. Impacts to aviation from any of the program changes would be market specific and



**Figure 15:** How Bypass Mail Bypasses the USPS - “Alaska Bypass Mail: Preparing for Change”

business model dependent. RSIA dramatically altered the Alaska aviation industry over the past decade, so potential new changes to the structure deserve consideration as part of aviation system planning and forecasting.

### 4.3.2 Project: Economic Analysis of Runway Extensions

**Purpose:** This report analyzed the socio-economic impacts of extending runways at rural Alaska communities. Examination of the economics of runway extensions helps the State, communities, and other planning agencies determine in what situations runway extensions provide the most economic benefits, what those benefits are, and whether those benefits justify the cost of construction. Information from this study was intended to help the DOT&PF determine whether a new minimum runway length standard should be recommended by the AASP.

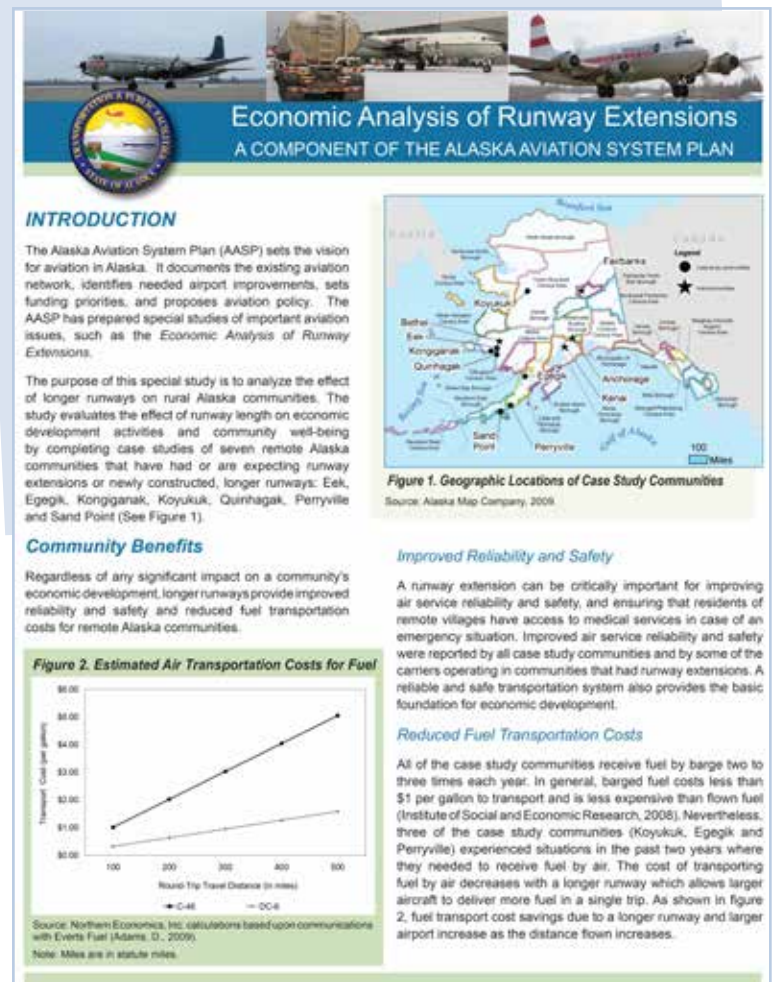
#### Products:

- An Economic Analysis of Runway Extensions, full report and brochure, 2010

**Content:** The study evaluated the effect of runway length on economic development activities and community well-being by completing case studies of seven remote Alaska communities that have had or were expecting runway extensions: Eek, Egegik, Kongiganak, Koyukuk, Quinhagak, Perryville, and Sand Point.

**Conclusions/Next Steps:** The case studies show that, in order for a runway extension to enhance economic development in a community, economic activities need to exist prior to the runway extension. These activities will generate higher volumes of cargo or increase the number of passengers due to the lower per-unit transportation costs associated with larger aircraft supported by longer runways. Without such aviation-responsive economic activity, a runway extension has little effect on a community's economic development. Regardless of the impacts to a community's economic development, longer runways provide

advantages such as improved reliability and safety, reduced fuel transportation costs, and reduced operating costs; the study was careful to point out that these lower costs may or may not be passed on to the end user. However, due to each community's distinct circumstances, no conclusion was drawn on a new runway minimum standard length. The AASP recommends that runway length needs be examined on an airport and community specific basis.



**Figure 16:** Economic Analysis of Runway Extensions Report



## 4.4 Alaska Aviation System Plan Goal: Communication

The AASP goal of Communication seeks to provide opportunities for public involvement to ensure effective communication about aviation system needs, user needs, and airport development, maintenance, and operations.

### Communication Objectives:

- Incorporate public participation in capital improvement programming, project development, and ongoing airport operation.
- Provide timely and effective interdepartmental and agency coordination.

The AASP supported the Communication Goal through a communication work group, which created two videos and corresponding fact sheets to tell Alaska's aviation story, and the development of the website to share aviation information and data. The website was discussed in Section 3.0 of this report.

### 4.4.1 Project: Communication Work Group

**Purpose:** Aviation videos were created to communicate the importance of aviation in Alaska and to explain the high costs associated with constructing airports in the State of Alaska. Effectively communicating the value of aviation and why infrastructure costs are justifiably high fosters better understanding and continued public support for investments in maintenance, operations, and development of aviation infrastructure.

### Products:

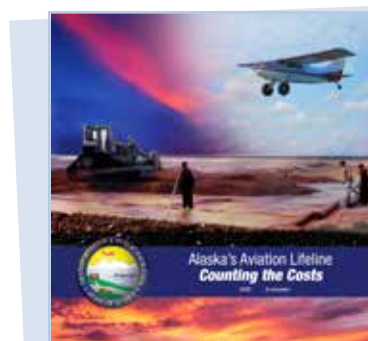
- Video: Aviation - Alaska's Lifeline and Fact Sheet, 2012
- Video: Aviation Lifeline - Counting the Costs and Fact Sheet, 2013



**Figure 17:** Aviation - Alaska's Lifeline Fact Sheet

**Content:** These short videos feature residents of rural villages, aviation professionals, contractors, and DOT&PF staff explaining how aviation is the lifeline to rural Alaska and the challenges and costs associated with construction of airports in rural Alaska.

**Conclusions/Next Steps:** Share the videos broadly and continue communicating and educating the importance of aviation in Alaska, and how aviation supports the lifestyle and sustainability of rural and urban Alaska.



Counting the Costs DVD

## 4.5 Alaska Aviation System Plan Goal: Management

The AASP goal of Management seeks to effectively implement system plan policies and guidance for management, planning, design, maintenance, and operation of aviation facilities.

### Management Objectives:

- Comply with applicable federal, state, and local laws and regulations.
- Meet regularly with the FAA, other agencies, and users to identify and resolve emerging problems and needs.
- Promote aviation safety education for pilots, airport staff, and the public.
- Explore the selective transfer of airport ownership.
- Explore the selective joint use of military/ civilian airfields and other aviation facilities.
- Coordinate with the FAA and the military on military airspace and training activities.
- Ensure those that manage, plan, design, maintain, and operate Alaska's airports are trained to do their jobs well. Support continuing education.
- Ensure that policies and procedures for planning, design, managing, and funding are consistent with system goals and objectives, are documented, and are accessible to the public.

The AASP, in its entirety, has supported the goal of Management throughout the five year planning process. The AASP is conducted to serve as a tool to help guide the development, maintenance, operation and management of Alaska's aviation system. Each individual task, project and special topic of the AASP is selected to further guide DOT&PF and other airport sponsors in efficient and effective management of the airport system. The Mission, Goals, Measures, and Classifications report and the inventory efforts provide data and objectives to manage the Alaska aviation system and were detailed previously in this report. The Rural Airport Maintenance and Operations work group and the study of Aviation Functions within DOT&PF are detailed in the following sections.

## 4.6 Project: Rural Airport Maintenance and Operations Work Group

**Purpose:** The work group documented and evaluated the costs of meeting funded and unfunded federal requirements, the backlog of airport maintenance needs, recurring commodity and equipment funding shortfalls, and extending the hours of daily operation and maintenance of the Bethel Airport, one of Alaska's busiest airports. The products of the work group build arguments for adequately funding airport maintenance, operations, and management functions.

### Products:

- Rural Airport Deferred Maintenance, 2009
- Costs of Federal Regulatory Requirements, 2009
- Impacts of Rising Airport Commodity Prices, 2009
- Extending Operational Hours at Bethel Airport, 2009
- AIP Equipment Sustainability Analysis, 2013



Approach Lights lower minimums and improve safety



Airport Snow Removal Equipment plays an important role in airport operation

**Content:** The fact sheets document the extent and costs of airport deferred maintenance including repairs to infrastructure (surfaces, buildings, lighting, fencing, drainage etc.), the escalating costs of commodities, and the increase in the number of and work effort required by unfunded mandates. The Bethel Airport fact sheet documented problems resulting from operating the busy Bethel Airport only 16 hours a day, the benefits and costs of extending operations to 24 hours a day, and comparisons to other Alaska airports that are open 24 hours a day. The “AIP Equipment Sustainability Analysis” documents the unsustainability of the airport maintenance equipment replacement program and its current and projected funding shortfall. The analysis suggested three alternatives for DOT&PF to fund equipment.

**Conclusions/Next Steps:** Funding levels are not keeping up with Alaska's Airports' increased maintenance and operations requirements, mandates and costs. Without additional funding, the State of Alaska Airports fall short of meeting maintenance standards and will increase deferred maintenance backlogs. The Bethel Airport extended its operational window to 24 hours a day in December 2011. This change supports the high aviation use demand from the community of Bethel and the air carriers serving the community.

#### 4.6.1 Project: Aviation Functions within DOT&PF

**Purpose:** The AASP documented the structure and role of DOT&PF's Aviation branch, the evolution of the current management structure, comparisons to aviation functions in other states, and offered options to reorganize aviation functions at DOT&PF. This information helped explain the rationale behind the current organization structure and provided background information for future possible organization and staffing changes.



Airport Inspections are an important management task

**Products:**

- Aviation Functions within State of Alaska DOT&PF, 2010
- DOT&PF Aviation Organization Charts, 2010
- DOT&PF Organizational Responsibility Matrix, 2010
- List of Rural Airport/Aviation Management Elements, 2010



**Content:** These products document historical, current, and potential aviation functions and organization structures within the State of Alaska, and compare this to how aviation is managed in the Lower 48 states.

**Conclusions/Next Steps:** The DOT&PF should continue to evaluate and improve upon the rural aviation management structure.



Fort Yukon's Airport and Village

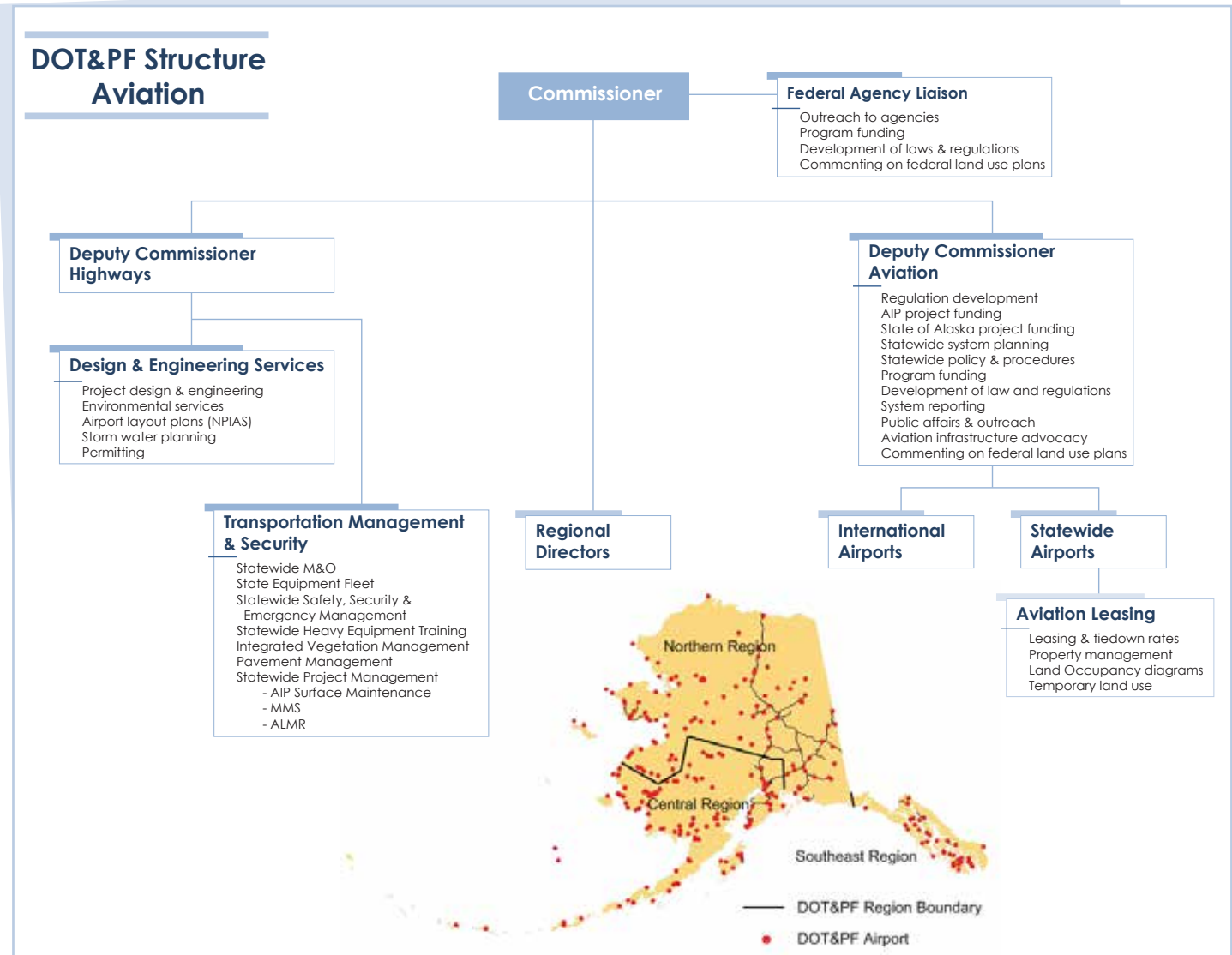


Figure 18: Aviation Functions Within the DOT&PF



## 5.0 NEXT STEPS IN THE CONTINUOUS AVIATION SYSTEM PLANNING PROCESS



## 5.0 NEXT STEPS IN THE CONTINUOUS AVIATION SYSTEM PLANNING PROCESS

An effective aviation system plan is characterized by a continuous planning process. Continuous planning considers reappraisal, monitoring, ongoing coordination with stakeholders, and special studies to maintain, enhance, and update certain key elements of the airport system plan. The future of the AASP involves all of these continuous planning efforts. Beginning in mid-2013, the AASP will launch into a phase heavy on strategic planning and implementation of plan goals, objectives, and recommendations. The plan will continue to include inter-agency and public coordination, special studies to address pertinent issues, development of the web-based information systems and tools, and periodic assessment of plan goals and performance measures.

The plan products delivered by the 2008-2013 AASP work lay a strong foundation for the forthcoming strategic planning that will launch the implementation phase of the AASP. A strategic plan will help prepare the DOT&PF, other airport sponsors, the FAA, and other plan stakeholders for the challenges and opportunities that Alaska's aviation system may face in the coming years. A strategic plan will typically set vision, mission, goals, and objectives and examine the strengths, problems, opportunities, and threats to the organization. A major goal of the next evolution of the AASP is to build on the substantial body of information and understanding developed over the last five years and advance goals, objectives, recommendations, and concepts to implementation and action plans.

The value of any airport system planning effort is realized with the implementation of the plan recommendations. The tasks that follow are proposed for future aviation system planning work to achieve plan implementation.



Typical Community Class airport in rural Alaska

### 5.1 Strategic Planning

Strategic planning will elevate the work of the AASP accomplished to date to the implementation platform. A strategic plan is desired for the rural airport system to engage those with aviation responsibilities in determining a clear direction for the system and adopting actions, assigning resources, and setting timelines to pursue that direction and achieve measurable success. The strategic initiatives developed will be used to design a clear implementation plan with defined projects, initial and future-year targets, and measures to monitor progress and provide accountability. The strategic plan will build on the mission, goals, objectives, and performance measures and other supporting materials developed in earlier phases of the AASP. The plan will outline the operating context of the rural aviation system (assessing economic/political factors, technology factors, system user needs, regulatory factors, and others); identify internal strengths and weaknesses, and external opportunities and threats; and recommend the strategic initiatives to optimize the operations, maintenance, and development of the rural airport system.

The strategic plan will outline the organizational structure, authority, and responsibility for implementation of plan objectives and recommendations, along with a realistic assessment of needs and available resources. The plan will have a list of action items and



descriptions of each action item, responsible parties, schedule, financial requirements, special conditions, approvals that must be obtained, and a means of determining the effectiveness of the recommendations.

## 5.2 Website Development & Updates

Both the public and internal websites will be continuously developed and improved to meet the wide range of user needs. As prototype work on the internal site evolves into functional features or tools, key information will be pushed out to the public site. Work on the website will continue to ensure user-friendliness and availability of important and appropriate information. The AASP website (in both its internal and public forms) is anticipated to evolve to be the most current and comprehensive source of information for system users and planners. The AASP website should become the preeminent source of aviation system information in Alaska that shares outwardly with other databases and publications.

Specific website work is anticipated to expand and improve the CIMP, and planning tools and applications; ensure effective interface with FAA's System of Airport Reporting (SOAR); improve the ability to query and analyze data; and integrate the AASP data and reporting with DOT&PF's Transportation Asset Management (TAM) initiative.

## 5.3 Airspace Coordination Working Group

Work under the 2008-2013 AASP supports an ongoing airspace coordination work group. The work group is anticipated to meet regularly and be composed of representation from the DOT&PF airports staff, FAA Airports and Air Traffic, weather agencies, aviation interest and industry groups, the military and other stakeholders in the airspace.

Key topics that this work group may address include unmanned aircraft systems, certified

weather reporting, weather cameras, obstruction identification and removal, aircraft avionics equipment, and development of flight procedures.

## 5.4 Airport Needs versus Funding

The AASP recommends that the pilot project conducted in 2012 to build CIMPs for 18 airports be expanded and deployed widely to all system airports. This will continue to build the capital and maintenance needs lists for individual system airports to improve the efficiency and effectiveness of planning and programming for the entire system. The AASP website and web-based planning tools will house and share the needs lists developed by this work. Planning efforts may evaluate the potential for merging the Form 5010-1 Inspection work with this comprehensive inspection process to create greater efficiencies in data collection and sharing.

## 5.5 Public Involvement

It is important that the story of aviation in Alaska be told to as many people, organizations, and agencies as possible, and to be told often. The work of the system plan relevant to the broader audience should be more intentionally communicated. The next phase will develop an outreach plan to meet this goal.



Public involvement will play a key role



## 5.6 Evaluation of Earlier AASP Efforts & Deliverables

Periodic reevaluation of the effectiveness and success of earlier system planning work in relation to existing conditions in the airport system is important to the relevance and effective implementation of the plan. System planning tasks will be evaluated to determine which produced measurable achievements and which failed to meet expectations. The DOT&PF, the FAA, and key stakeholders will work collaboratively to define and evaluate success of planning activities.

AASP elements that will be evaluated include the AASP issues, goals, objectives, performance measures, airport classifications, inventory elements, forecasts, economic studies, and work group activities.



Public outreach helps gather aviation issues

## 5.7 Land Use Compliance

Land Use Compliance – and planning for compliance – is an increasingly important component of airport planning. There is a great need for various research and reporting activities in support of an effort by DOT&PF and other airport sponsors to meet land use compliance obligations and plan proactively for compliance.

## 5.8 Inventory & Performance Measures

Maintaining a current inventory is important to the meaningful periodic measurement of performance. Annual data collection is required to populate the online facilities inventory database and update aviation system and system planning performance measures. Initial performance measures will be periodically recalculated to assess progress of the aviation system in meeting its goals and objectives, and the performance measures themselves will be reevaluated for their relevance and success in measuring the health of the aviation system.



Airfield surface conditions will be remeasured

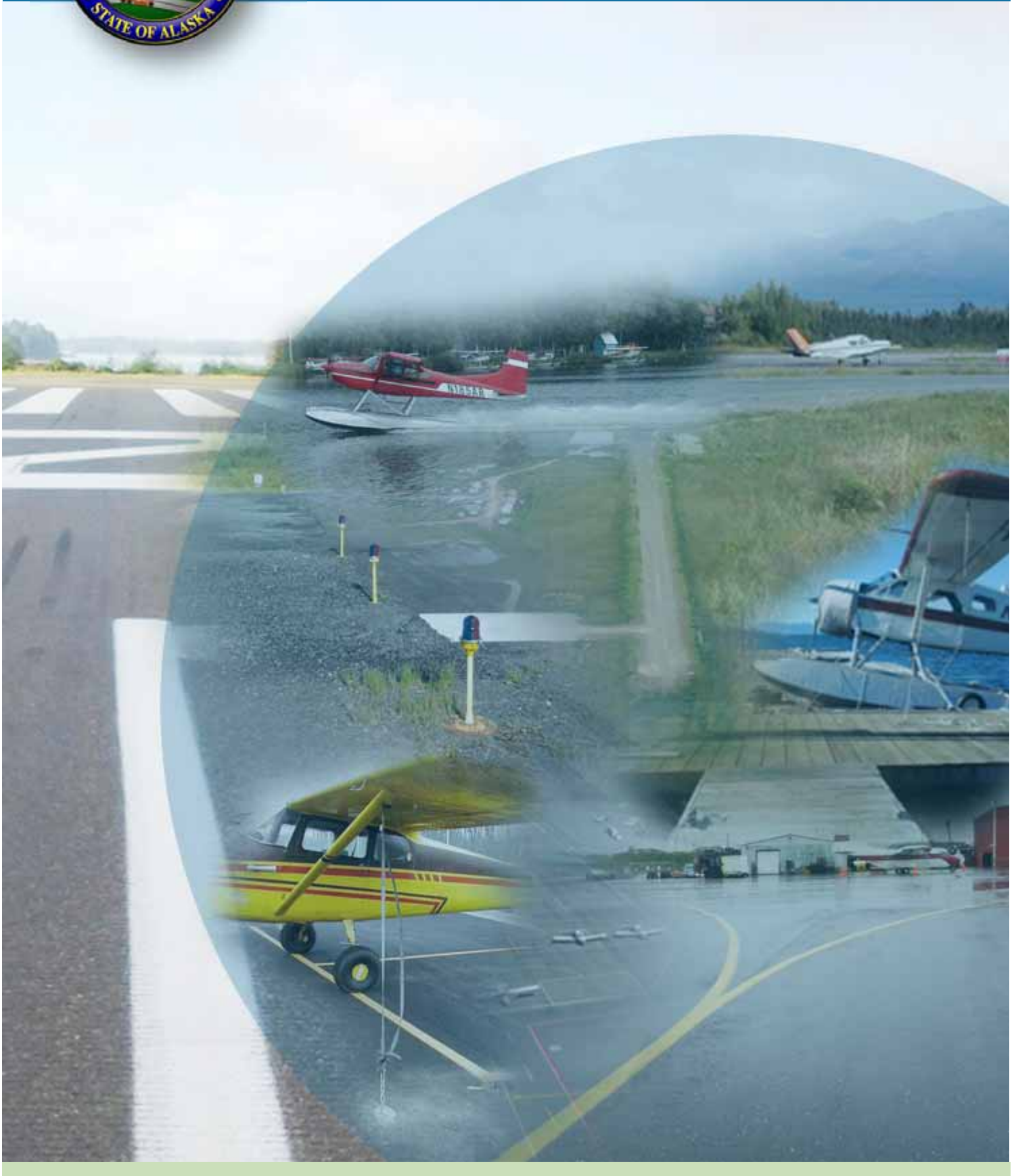


Airport Snow Removal Equipment will be inventoried in next AASP





# APPENDICES



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**APPENDIX A**

Preliminary Issues Overview





## Preliminary Issues Overview

Compiled from AASP Survey responses, meeting and conversation notes, and FAA's 2004 Survey Results

### Funding

- M&O staff/equipment are under-funded.
- FAA/TSA mandates are increasing while funding is not.
- Funding is not keeping up with inflation and increased needs/requirements.
- Need for additional state funding source for capital and operating budgets.
- More needs than funding. Are funds being spent on highest priorities?  
Need to evaluate funding prioritization.
- Need greater consideration of economics in funding decisions.
- Airports on road system are not getting deserved funding.
- Central Region airport projects are more expensive, complicated, and take longer to accomplish.
- Need more outreach to municipal airports about funding.
- Spending Plan needs to be extended out more years.

### Maintenance & Operations

- Inadequate training of M&O staff, contractors, and municipal airport operators.  
Training needs are growing.
- Inadequate M&O equipment & staffing levels. Bare minimum staffing/equipping is not acceptable.
- Need to compare M&O needs/requirements to what is actually being funded and accomplished.
- Encourage local responsibility for M&O and/or for airport ownership.
- Capital projects increase M&O requirements without an increase in M&O funding.
- Need a more aggressive program to develop lease lots.
- What are costs and benefits of Part 139 certification and decertification?
- Federal requirements unreasonable (e.g., SREBs, TSA, sanding).

### Planning, Design, & Construction

- Plan for the future, but build for current needs and budgets.
- Need more flexibility without decreasing the credibility of standards.
- Plans should be based on individual airport needs - economic development, fleet, postal hubs, fuel delivery, medevac, etc.
- Fleet mix forecasts would help determine airport needs.
- Newer generation 737 aircraft are creating need for longer runways & higher levels of maintenance.
- RSA and runway standards -- unreasonable, expensive, need flexibility.
- Quality of construction, especially pavement.
- Consider other/additional criteria in the determination of minimum service levels (e.g., population, economic development, schools, post offices).
- Need for amenities like passenger/freight shelters, bathroom facilities, runway lighting, transient pilot facilities.
- Runway surfacing program is successful and cost-effective. Make greater use of program.
- Need for better coordination and information sharing between DOT&PF divisions.
- Longer/more expensive projects because DOT&PF does not stick to schedules, focus on cost-effective solutions, solve internal disagreements, and hire experienced staff.

### **FAA / Nav aids**

- Poor communication between FAA, airports, & pilots on approaches/nav aids needs, plans, & designs.
- FAA needs to staff up to implement new approaches.
- Unclear DOT&PF vs. FAA role in construction & ownership of weather equipment, lighting, & PAPIs.
- Need more weather equipment and airport lighting.
- Aging FAA nav aids not being replaced/improved.
- Will NextGen be used by those currently flying VFR?
- NextGen airplane equipment financial uncertainties.

### **Policy**

- The AASP should play a stronger role in addressing aviation policy, and the policies should be implemented.
- Specific policy guidance is needed for: consolidating (sharing) airports, airport lighting, flexible use of airport land to generate revenues, runway length standards, USPS hubs, native allotments - BIA - ROW issues, economic impacts of aviation, airport shelters, floatplane facility standards, addressing TSA mandates, and backcountry airstrips.
- Need to review funding priorities considering community population levels, economic development, road system airports, enplanements/operations and other factors.

### **Environment**

- Primary environmental issues mentioned include: dust, wildlife hazards, wetlands, runway chemicals, noise, eagles and other birds, runoff, global warming, material sources, & land use.
- Difficulty addressing Alaska's unique environment with national policies (e.g., noise, air quality).
- DOT&PF staff not consistent between regions, not coordinated with FAA, and improperly segments some projects.
- FAA staff sometimes unhelpful, inconsistent, and counterproductive.
- Environmental documents are often too large, time-consuming, & expensive for project needs.
- FAA staff and consultants disagree sometimes about capabilities/expertise of Alaska NEPA consultants.
- Conflicts between wetlands preservation and wildlife hazard management.

### **Airport Owner / FAA**

- DOT&PF and the FAA need better communication and coordination of efforts/projects.
- DOT&PF divisions need better communication and to work together as a team.
- DOT&PF and FAA sometimes are unable to effectively resolve differences in a timely manner.
- FAA structure is unclear (the internal division of roles, responsibilities).
- National FAA policies and priorities are not necessarily shared by Alaska.
- DOT&PF is increasingly being asked to take on what used to be an FAA responsibility.

### **Other Issues**

- Need to identify the economic impact of aviation in Alaska.
- DOT&PF does not adequately advocate for aviation and make it a priority.
- A data management system (GIS) is desired.
- Effects of fuel prices and fuel delivery costs on aviation.

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## **APPENDIX B**

Documents Available on  
[www.AlaskaASP.com](http://www.AlaskaASP.com)





## **Documents Available on [www.AlaskaASP.com](http://www.AlaskaASP.com)**

### **Final Reports - 2013**

Alaska Aviation System Plan Final Report  
2013 AASP Executive Summary

### **AASP Mission, Goals, Measures, & Classifications - 2011**

AASP Mission, Goals, Measures, & Classifications

### **Phase 1 - 2008**

AASP Phase 1, Stage 1 Executive Summary  
AASP Phase 1, Stage 1 Executive Summary  
AASP Phase 1, Stage 1 Final Report Body  
AASP Phase 1, Stage 1 Final Report Appendices  
Appendix A - Document Index  
Appendix B - Forecast Documentation  
Appendix C - Economic Impacts Documentation  
Appendix D - Initial Outreach and Issues  
Appendix E - Public Involvement Plan  
Appendix F - AASP 2008 Mailing List  
Appendix G - Decision Making Structure  
Appendix H - Inventory and Database Documentation  
Appendix I - Website Documentation  
Appendix J - Airspace and NavAids Documentation

### **Aviation Functions within DOT&PF - 2010**

Aviation Functions within State of Alaska DOT& PF  
DOT&PF Aviation Organization Charts  
Responsibilities Matrix  
List of Rural Airport/Aviation Management Elements

### **Forecasts -2011**

Final AASP Forecast Report

## **Economic Studies - 2009-2011**

The Economic Contribution of the Aviation Industry to Alaska's Economy - Full Report

The Economic Contribution of the Aviation Industry to Alaska's Economy - Brochure

An Economic Analysis of Runway Extensions - Full Report

An Economic Analysis of Runway Extensions - Brochure

Economic and Community Contributions of Selected Alaska Airports: 12 Case Studies - Full Report

Bethel Airport: Economic Contributions - Brochure

Deadhorse Airport: Economic Contributions - Brochure

Eek Airport: Economic Contributions - Brochure

Fairbanks International: Economic Contributions - Brochure

Haines Airport: Economic Contributions - Brochure

Hooper Bay Airport: Economic Contributions - Brochure

Iliamna Airport: Economic Contributions - Brochure

Juneau Airport: Economic Contributions - Brochure

Kodiak Airport: Economic Contributions - Brochure

Kotzebue Airport: Economic Contributions - Brochure

Talkeetna Airport: Economic Contributions - Brochure

Wasilla Airport: Economic Contributions - Brochure

## **Maintenance & Operations - 2009-2013**

Impacts of Rising Airport Commodity Prices Fact Sheet

Rural Airport Deferred Maintenance Fact Sheet

Costs of Federal Regulatory Requirements Fact Sheet

AIP Equipment Sustainability Analysis

## **USPS - 2009**

Intra-Alaska Mail Service by Air

## **Aeronautical Surveys-Flight Procedures - 2012**

Aeronautical Survey and Instrument Flight Procedures Fact Sheet

Aeronautical Survey and Instrument Flight Procedure Work Group

Prioritization Methodology

## **Videos & Video Fact Sheets - 2012-2013**

Aviation – Alaska's Lifeline Video

Aviation – Alaska's Lifeline Fact Sheet

Aviation Lifeline - Counting the Cost Video

Aviation Lifeline – Counting the Cost Fact Sheet

## **Needs versus Funding - 2013**

Airport Needs Inspection Pilot Project

## **Yukon-Kuskokwim Region Air Versus Roads Access Construction and Maintenance Baseline Cost Comparison -2013**

Yukon-Kuskokwim Region Air Versus Roads Access Construction and Maintenance Baseline Cost Comparison

## **Other**

2011 AASP Executive Summary

AASP Fact Sheet

Project Overview

AASP Special Studies Overview

## **Reference Material**

AIP Grant Funding History

FAA AIP Historical Report FY'82-FY'10

Federal Financial Assistance for Airports - Slideshow by Pat Oien and Brad Garland, April 28, 2010

*Note:* This list is valid as of May 15, 2013.



