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Ted Stevens Anchorage International Airport 2014 MASTER PLAN UPDATE

Executive Summary

RSSM IN ASSOCIATION WITH: HDR DOWL HKM RIM Architects ATAC

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Ted Stevens Anchorage International Airport is planning for the future. This Master Plan Update is a roadmap for future development to meet the needs of the traveling public, the aviation industry, and the Airport.

Whose project is this?

The Ted Stevens Anchorage International Airport Master Plan Update was prepared by Airport management and their consultants in coordination with the Alaska Department of Transportation and Public Facilities. The Airport contracted with the firm RS&H to lead the Master Plan Update process.

The preparation of this document was financed in part through a planning grant from the Federal Aviation Administration (FAA) as provided under Section 505 of the Airport and Airways Improvement Act of 1982, as amended by the Airway Safety and Capacity Expansion Act of 1987. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein, nor does it indicate that the proposed development is environmentally acceptable in accordance with applicable public laws.

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Master Plan Update at a Glance

The Ted Stevens Anchorage International Airport, owned by the State of Alaska and operated by the Alaska Department of Transportation and Public Facilities, serves a critical transportation function in Alaska. The Airport connects Alaska to the lower-48 states and to international destinations, serves a key role in domestic and international cargo transportation, and links Alaskan travelers to other locations within the state. The Mission of the Airport is to "develop, operate, and maintain the Airport for Anchorage, Alaska, and the World." To help fulfill this mission and to strategically position the Airport for the future, the Airport initiated an Airport Master Plan Update effort in 2012.

The Master Plan Update process included an inventory of existing conditions at the Airport, a summary of the forecast of future demand, an assessment of facility requirements, development and evaluation of alternatives, and an implementation plan. The demand forecast and facility requirements indicate that facility upgrades and future development projects will be needed within the 20-year planning horizon of the Master Plan Update. Following a detailed evaluation of alternatives, the Master Plan Update team formulated a Plan for Future Development based on a demand-driven, phased approach. The technical analysis was complemented by a thorough public involvement process. The Plan for Future Development reflects public and stakeholder input received during the public involvement process. Shanghai

Hong Kong

What is a Master Plan?

According to the FAA, "an airport master plan is a comprehensive study of an airport and usually describes the short-, medium-, and long-term development plans to meet future aviation demand." FAA Advisory Circular 150/5070-6B Airport Master Plans



Mission

The mission of the Ted Stevens Anchorage International Airport is to Develop - Operate - Maintain The Airport for Anchorage - Alaska - the World.

Introduction

Ted Stevens Anchorage International Airport (Airport) plays a vital transportation role in the State of Alaska, serving a critical function for regional, domestic, and international passengers and cargo.

The Airport Master Plan Update (Master Plan Update) provides Airport management and the Alaska Department of Transportation & Public Facilities (DOT&PF) with a strategy to develop the Ted Stevens Anchorage International Airport. The intent of the Master Plan Update is to provide guidance that will enable Airport management to strategically position the Airport for the future by maximizing operational efficiency and business effectiveness, as well as by maximizing property availability for aeronautical development through efficient planning. While long-term development is considered in master planning efforts, the typical planning horizon for the Master Plan Update is 20 years.

Goals and Objectives

Master Plan Update goals consist of broad foundational statements that have been adhered to and considered throughout the planning process. The Master Plan Update Goals, identified at the project's outset, were established through consultation between Airport staff and consultants on the Master Plan Update team. Goals were developed in consideration of feedback from Airport staff, tenants, users, and members of the general public throughout the Master Plan Update process. The following Master Plan Update Goals were identified:

- » Safety: Maintain or enhance the safe operation of the Airport
- » Efficiency: Maintain or enhance the efficient operation of the Airport
- » **Environmental Awareness:** Minimize the impact of airport development through environmental awareness
- » Fiscal Sustainability: Enhance the long-term fiscal sustainability of the Airport
- » Land Management: Facilitate long-term Airport development through strategic land management planning
- » Communication: Engage stakeholders through open communication

Did you know?

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The Ted Stevens Anchorage International Airport is less than 9.5 hours from 90% of the industrial world and is #2 in the US for landed weight of cargo aircraft. (Memphis, TN is #1)

The Ted Stevens **Anchorage International** Airport...

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✓ has a huge economic impact that includes 1 in 10 jobs in Anchorage

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\checkmark is among the top 6 in the world for cargo throughput

services approximately 45 different

air carriers



The Process

Airport master planning follows a cyclical process in which master plan updates serve as the first step. Airport master plan updates typically occur every 5 to 7 years.

A comprehensive Master Plan Update for the Airport was last prepared in 2002, and a partial update was undertaken between 2006 and 2008. This Master Plan Update will be updated again in another 7 to 10 years.

The Airport Master Plan Update was completed in accordance with Federal Aviation Administration (FAA) guidelines, which include all the required study elements to develop a comprehensive airport plan that meets the aviation demand for a 20-year horizon and is compatible with the surrounding community.

The completed Master Plan Update does not authorize the Airport to begin construction of recommended projects. The projects recommended in the Master Plan Update may require additional justification, study, design, and construction. The Airport would be required to conduct environmental analyses in accordance with the National Environmental Policy Act (NEPA), advanced planning, preliminary and final design, permitting and other approvals prior to construction of major projects that are eligible for FAA funding.

Public Involvement

Public involvement improves the decision making process by recognizing the needs and interests of participants. In recognition of the importance of involving the public in the planning process, the Master Plan Update team implemented a thorough Public Involvement Program to seek public feedback during all phases of the project and at all key decision points.

Stakeholders include any group or individual with an interest in the Master Plan Update process or who may be affected by the plan's outcomes. Stakeholder participation is the process used to collect, understand, and incorporate meaningful stakeholder input so that project decisions reflect both technical requirements and public concerns.

Did you know...

There were 20 public meetings, 280,000 post cards mailed, 22 e-newsletters sent, and 75 stakeholder meetings held during the process.

The Airport and the Master Plan Update team made it a priority to share timely and comprehensive information in formats that were useful to stakeholders in acknowledgment that information sharing is at the heart of the public process. Throughout the Master Plan Update process, the Airport remained committed to considering the interests and values of stakeholders. As a result of the Master Plan Update process, the Airport developed a Communication Plan to provide a plan for future communication between the Airport, stakeholders, and the public.

Public Involvement Schedule



Appendix A: Public Involvement Summary includes all comments received during the MPU process and responses.



Future Demand

The forecast of aviation activity demand provides a basis for determining the facility requirements and the type, size, and timing of aviation development. Consequently, the forecast influences virtually all phases of the planning process. The forecast of aviation activity demand includes:

- » Annual passenger boardings
- » Annual cargo tonnage
- » Annual landings and takeoffs

The Airport anticipates growth in passenger boardings, cargo tonnage, and in landings and takeoffs.

The 2013 Alaska International Airport System (AIAS) Forecast Technical Report (AIAS Forecast) was used as the basis for the determination of facility requirements for the Master Plan Update process. The baseline year of the AIAS Forecast is 2010, and activity was forecast through 2030.

For the Master Plan Update, the forecast activity demand for the planning horizon was presented at four planning activity levels (PALs). PALs represent future levels of activity used to assess facility requirements. PALs are not tied to a specific year and could occur earlier in time or later in time dependent on the actual rate of growth.

Annual Passenger Boardings

Total enplaned passengers (passengers boarding aircraft) are forecast to grow at an average annual rate of 1.3% during the planning period. Total enplaned passengers are forecast to grow from approximately 2.4 million annual enplaned passengers in 2010 to 3.1 million annual enplaned passengers at PAL 4.

Total passengers include enplaned, deplaned, and transit (passengers remaining on aircraft) passengers. Total passengers are forecast to grow from approximately 5.0 million passengers in 2010 to 6.2 million passengers at PAL 4.

Where can I learn more?

Chapter 3 provides a summary of the forecast of aviation activity at the Airport, Appendix H provides an analysis of the levels of service at the Airport, and Appendix I details the airfield capacity and demand.

Annual Cargo Tonnage

Total cargo tonnage is forecast to grow at an average annual rate of 2.9% during the planning period. Total cargo tonnage is forecast to grow from approximately 5.0 million short tons in 2010 to 8.8 million short tons at PAL 4. The largest increase in growth will come from international cargo.

Annual Landings and Takeoffs

Annual landings and takeoffs are forecast to grow at an average annual rate of 1.4%. Total landings and takeoffs are forecast to grow from approximately 215,000 landings and takeoffs in 2010 to 282,000 landings and takeoffs at PAL 4.





Facility Requirements

Facility requirements assess the broad need for future development of the Airport. The facility requirements analysis documents whether forecast demand can be met with existing facilities, and if not, what additional infrastructure would be required to meet forecast demand.

The Master Plan Update team determined near-term, mid-term, and longterm facility requirements for the following functional areas:

» Airfield

» Cargo

- » Terminal
- » Landside

- » General aviation
- » Airport / airline support

The need for new facilities at the Airport is based on growth in passengers, cargo, and landings and take-offs as well as facility lifecycle and changes in regulations. Facility requirements are presented for the near term, mid-term, and long-term. Generally, the near-term reflects needs through PAL 2, mid-term needs correspond to PAL 3, and long term needs are those through PAL 4.

Airfield Requirements

- » Near term: Upgrades to airfield facilities will be required to meet new FAA airport design standards.
- » Mid term: Continue to maintain and operate.
- » Long term: Increases to airfield capacity, including the construction of an additional runway, will be required to meet increased demand.

Terminal Requirements

- » Near term: The Airport has a sufficient number of gates and adequate space accommodate regional operations.
 - enhanced to meet future demand.
- to maintain and operate terminal.
- to maintain and operate terminal.

Landside Requirements

- future demand levels.
- » Mid term: Continue to maintain and operate.
- parking, rental car, and airport landslide access will be needed.

Cargo Facility Requirements

- » Near term: The Airport's cargo facilities work well to accommodate today's demand.
- and landside facilities to meet growth in future cargo demand.
- cargo demand.

Did you know?

The FAA defines facility requirements as "an assessment of the ability of existing facilities to meet current and future demand."

in the terminal facilities to meet current demand; however, regional gate parking positions should be continuously monitored to determine how to best

- In the South Terminal, Transportation Security Administration (TSA) space deficits in passenger security and screening checkpoint, baggage screening and inspection, and TSA administration areas will need to be

The North Terminal is beyond its design life and many systems will need to be upgraded or renovated to maintain the desired level of service. » Mid term: Monitor international, domestic, and regional gate usage, and continue

» Long term: Monitor international, domestic, and regional gate usage, and continue

» Near term: Additional tenant parking area is needed today to meet current and

STATISTICS TO BE

» Long term: The Airport's landslide facilities will be at capacity. Improvements to

» Mid term: The Airport is prepared to provide additional cargo aprons, buildings,

» Long term: The Airport's planned development will meet long-term forecast



General Aviation Requirements

- » Near term: Additional general aviation building space is forecast to be needed. Similar to cargo landside facilities, additional tenant parking for general aviation facility users is needed today.
- » Mid term: Increases in building space, apron capacity, and landside area will be necessary to meet increased demand. This is driven by an increase in jet aircraft through the planning horizon (5% average annual growth rate).
- » Long term: Continue to maintain and operate.

Airport / Airline Support Requirements

- » Near term: Continue to maintain and operate.
- » Mid term: Airport / airline support facility requirements that will need to be addressed include:
 - Safer tug and service vehicle access between facilities.
 - Additional snow storage areas as demand warrants.
 - Centralized deicing pad and storage for materials if necessitated by future regulatory changes.
- » Long term: Continue to maintain and operate.

Land Use

Developable land on Airport property is limited. The largest remaining tracts of contiguous developable land for future Airport development are located east of the North Airpark, the West Airpark, and the western portion of the South Airpark. Remaining lands will need to be preserved for aviation use or for generating additional revenue.

Where can I learn more?

Chapter 4, Facility Requirements, documents the technical analysis methodology used to determine facility requirements, and the space required to accommodate forecast demand through 2030.





Plan for Future Development

Following the determination of the forecast of aviation activity and facility requirements for the Airport, a variety of concepts were developed that could potentially meet the forecast demand and facility requirements. Airport staff, tenants, and other stakeholders, including members of the public, discussed these concepts, and the best concept elements were combined into a set of distinct comprehensive alternatives. Through a formal evaluation process of the alternatives based on previously established criteria and informed by various technical analysis efforts, a Plan for Future Development was recommended.

A demand dependent, phased approach to airport development was selected to enable the Airport to adapt to an uncertain future and manage growth in a financially responsible manner.

Such an approach is adaptable to future demand levels because the Airport would only implement improvements as necessitated by actual demand. It is also financially responsible because it prioritizes low or no cost enhancements. The Plan for Future Development includes four phases, with specific recommended projects associated with each phase. It must be recognized that the phases are not necessarily sequential and that each recommended project may require additional planning, environmental assessment, design, permitting, and construction prior to its completion.

Additionally, another Master Plan Update will be completed in 7-10 years and will reassess the need for many of the longer-term projects currently recommended.

What is a demand dependent, phased approach?

A demand dependent, phased approach is flexible and based on real growth at the Airport. The Master Plan Update recommends that the Airport implement a number of different projects as they are needed. Conversely, if the need for a project does not arise, the project may be

Where can I learn more?

Chapter 5 presents the alternatives developed in the Master Plan Update process and the evaluation of those alternatives, and **Chapter 6** details the Master Plan Update implementation plan. needed at a later date or not at all. As an example, this Master Plan Update notes that if more flights come to Anchorage and congestion increases, a new runway may eventually be needed. This Master Plan Update identifies the best place to provide a new runway and recommends the Airport protect its ability to build a runway in the future by securing necessary lands. However, this Master Plan Update also recognizes that growth is unpredictable and that growth may occur more slowly than forecast or not at all. The Airport's best course of action in those scenarios would be to delay the implementation of a new runway or not build it at all. Development of the Airport should be based on the real need to maintain its safe and efficient operation. The demand dependent, phased approach enables the Airport to do just that.





Phase 1 - Minimize Development

The purpose of Phase 1 is to meet current FAA airport design standards while minimizing capital expenditures by the Airport as well as to enable tenants to invest in new facilities as they see fit. Phase 1 projects include upgrades to the runway and taxiway system to meet FAA standards, identification of preferred tenant development sites in the North Airpark and South Airpark, and construction of a new ground run-up enclosure and Aircraft Rescue and Fire Fighting training facility.





"Meet FAA Design Standards and enable tenant development."

Phase 2 - Optimize ANC

The purpose of Phase 2 is to optimize use of the Airport's existing facilities by consolidating passenger operations in the South Terminal and enabling enhanced use of existing runways by modifying the daytime preferential runway use program. Phase 2 would provide additional capacity with the existing three-runway system by reducing restrictions on runway use during the hours between 7:00 a.m. and 10:00 p.m. Phase 2 would also accommodate some cargo activity growth with the development of new cargo parking positions in North Airpark.

Phase 2 includes a phased implementation of a South Terminal expansion. The South Terminal expansion includes construction of a new South Terminal concourse with five new gates to accommodate domestic and international operations. The North Terminal concourse would be demolished. Other recommended projects in this phase include construction of two new roadways, extension of two taxiways, and reconfiguring the layout of public parking facilities to increase parking capacity.



"Optimize use of existing Anchorage runways and consolidate terminal facilties."

Recommended Projects

- » Construct Ground Run-up Enclosure
- » Construct ARFF Training Facility
- » Extend Taxiway R
- » Develop Hotel
- » Expand Fuel Farm
- » Realign Crossfield Taxiways
- » Decouple Runway 33
- » Widen Runway 15-33
- » Expand / Redevelop North & South Airparks

- » Modify the Preferential Runway Use Program
- » Expand South Terminal
- » Construct South Airpark Access Roadway
- » Extend East / West Parallel Taxiway
- » Construct North Airpark Roadway
- » Expand Taxiway P RON Apron and Postmark Bog Development
- » Extend Taxiway T and Expand North Airpark to the East
- » Reconfigure Public Parking Facilities



Phase 3 - Optimize AIAS

The purpose of Phase 3 is to optimize Alaska International Airport System (AIAS) assets at Anchorage and Fairbanks International Airports to manage demand at the Airport. While Phase 2 enables more complete use of existing facilities at the Airport, Phase 3 would enable more complete use of Alaska's two International Airports by promoting use of Fairbanks International Airport (FAI) for a portion of cargo refueling stops in Alaska. For example, AIAS has a program to encourage new cargo airlines flying to Alaska to consider operating at FAI. Phase 3 would likely require improvements at FAI, which would be sponsored and funded by FAI. Additionally, successful implementation of Phase 3 may depend on financial incentives to encourage airlines to consider Fairbanks International Airport as an alternative to the Airport, particularly for cargo "gas-n-go" flights which primarily conduct refueling and crew changes in Alaska.

Phase 4 - Widely Spaced Runway

This phase is intended to increase Airport capacity to meet the highest levels of forecast demand by allowing simultaneous landings and takeoffs in all weather. Phase 4 would increase capacity by adding a new north-south runway parallel to and west of Runway 15-33. The parallel runways would be separated by more than 3,000 feet between runway centerlines.

The wide spacing of the two north-south parallel runways would substantially increase capacity for landings and takeoffs. During poor weather, the two runways would accommodate landings and takeoffs at the same time, providing substantial additional capacity in all weather conditions during which north-south runways are in use.

The Airport would only consider building a new runway if consistent, sustained high numbers of operations are demonstrated over several years to justify such a project. The Airport would be required to conduct an environmental analysis, evaluate alternatives, seek airline and legislative approvals, and complete design and permitting before Phase 4 could be implemented.



PHASE



"Optimize use of existing Anchorage and Fairbanks Airports to meet cargo demand."



"Expand Anchorage with a new widely spaced N/S runway that meets highest levels of forecast demand."



 » Use Fairbanks International Airport for some Technical Stop Cargo Flights
» Implement Fairbanks International Airport Improvements

- » Develop West Airpark
- » Construct West Airpark Tunnel
- » Implement Potential North / South Runway and Associated Taxiways





Projects

- Construct Ground Run-Up Enclosure
- 2 Construct ARFF Training Facility
- 3 Extend Taxiway R
- 4 Develop Hotel
- 5 Expand Fuel Farm
- 6 Realign Crossfield Taxiways
- Decouple Runway 33, Widen Runway 15-33
- 8 Expand / Redevelop North and South Airparks



"Meet FAA Design Standards and enable tenant development."





Projects

- Modify the Preferential Runway Use Program
- 2 Construct South Airpark Access Roadway
- 3 Implement South Terminal Expansion Project
- 4 Extend East / West Parallel Taxiway
- **5** Construct North Airpark Roadway
- 6 Expand Taxiway P RON Apron and Postmark Bog
- Extend Taxiway T and Expand North Airpark
- 8 Reconfigure Public Parking Facilities







Projects



Enhance Use of Fairbanks International Airport for Technical Stop Cargo Flights (Optimize AIAS Strategy [OAIASS])



2 Implement Fairbanks International Airport Improvements



"Optimize use of existing Anchorage and Fairbanks Airports to meet cargo demand."





Projects

4,000 Feet

- 1 Develop West Airpark
- 2 Construct West Airpark Tunnel
- B Implement Potential North / South Runway and Associated Taxiways



Financial Plan

An element of the Master Plan Update implementation plan is a financial overview of the proposed Master Plan Update capital improvement projects and order of magnitude project cost estimates, as well as identification of sources of capital. Considerations when examining proposed capital improvements will include the project cost estimates, eligibility of the projects for federal funding, and the general timing of the projects.

Funding sources for the projects recommended in the Master Plan Update consist of grants (FAA Airport Improvement Grants and federal grants), passenger facility charges, airport operating revenue, and airport revenue bonds.

None of the projects within the Master Plan Update would be funded from State General Funds.

Chapter 6, Implementation Plan, of the Master Plan Update details the projected costs, along with the likely funding sources for each of the capital improvement projects. The funding split between Federal FAA funds, local Airport funds, and funding by others is provided based upon current eligibility standards and does not guarantee that these projects will be funded due to changing federal and state priority ratings or other state and national needs.

For purposes of the Master Plan Update financial analysis, a specific implementation schedule was assumed based on forecast demand; however, the actual implementation years for the improvements identified in the Master Plan Update will be defined by development triggers and actual demand, not forecast demand.

Where can I learn more?

Chapter 6, Section 12 details the financial plan for the Master Plan Update implementation, and Appendix J presents order of magnitude cost estimates for the recommended projects, as well as a summary of the methods and assumptions used to develop the cost estimates.

Environmental Overview

The Master Plan Update process included an inventory of the existing environmental conditions on and surrounding the Airport. Potential environmental impacts associated with the alternatives were considered through the alternatives evaluation process and informed the Plan for Future Development. The Airport will consider and, if necessary, assess the environmental impacts of individual Airport development projects, and some of the projects will be subject to review under the National Environmental Policy Act (NEPA).

The Master Plan Update team looked at the 23 FAA impact categories and inventoried the existing environmental conditions for each category (found in Chapter 2). The team also documented all environmental impact concerns raised during the public involvement process. Public comments most frequently focused on the following potential categories:

- » Noise
- » Parks & Recreation (Coastal Trail, Point Woronzof Park)
- » Cultural and Historic Resources
- » Birds, Wildlife, and Habitat



Did you know...

The Airport is never closed for snow! Five-time winner of Balchen Post Award for Large Airport Snow Removal Programs, awarded to airports able to keep runways open under adverse snow conditions.



www.anchorageairport.com

The Airport would like to thank the individuals, organizations, and businesses that participated in the Master Plan Update process. Input provided by the diverse range of Master Plan Update participants was vital to the development and assessment of alternatives and, ultimately, to the selection of the demand dependent, phased approach of the Plan for Future Development.

The Ted Stevens Anchorage International Airport will continue to serve an integral transportation role in Alaska and the world. Developed through a thorough and inclusive planning process, the Master Plan Update will strategically position the Airport for the future and assist the Airport in continuing to meet its mission to "develop, operate, and maintain the Airport for Anchorage, Alaska, and the World."

