Alaska International Airport System Winter Storm Efficiency Study

Deliverable #8:

Ramp Management Plan / Project Summary

October 2024 to March 2025

DOWL

Winter Storm Efficiency Study

Participants

- Alaska International Airport System (AIAS)
  - Ted Stevens Anchorage International Airport (ANC)
  - Fairbanks International Airport (FAI)

Background

- Severe weather in winter 2023 - 2024 caused:
  - Extensive delays
  - Diversions to other airports

Aircraft queued on taxiway **(in red)** during severe storm event in Anchorage *(October 29, 2024)*

Background: Severe Weather Event

Results of severe weather event January 28 and 29, 2024

- Restrictions for large aircraft
- Congested parking
- FAI received 18 diversions
- FAI diversions had unusually long delays

Cargo aircraft parked at ANC North Terminal

Winter Storm Efficiency Study

Purpose

- Drive continuous improvement for all airport users, especially during winter
- Improve experience by international cargo carriers
  - Tech stops are important core business for ANC
  - AIAS to protect ANC desirability for tech stops

Actions Performed

- Analyze current system
- Confirm what is working
- Develop recommendations

China Airlines cargo jet taxiing

Winter Storm Efficiency Study

Method and Approach

- Review existing documents, plans, procedures
- Review industry standards and guidelines
- Conduct staff interviews and site visits
- Review AIAS Winter Storm Working Group findings
- Benchmark against other airports
- Review and incorporate research and analyses by industry experts
- Closely collaborate with ANC and FAI, Airfield Maintenance and Operations

Winter Storm Efficiency Study Tasks

1. Develop Winter Storm Emergency Plan
2. Cost Benefit Analysis of Aircraft Controls
3. Inventory Assessment and Analysis
4. Assessment of Operational Controls
5. Assessment of Operating and Lease Agreements
6. Cost Benefit Analysis of Diversion Plans
7. Anchorage Landside Snow Removal Study
8. Summary Ramp Management and Study Overview

9. FAI Landside Snow Removal Study subsequently added *(In Progress)*

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Develop Winter Storm Emergency Plan

Task 1 – Develop Winter Storm Emergency Plan

Scope	Focus Areas
Develop a comprehensive plan to be implemented before, during, and after winter storm events.	Communication Storm levels Staffing

Deliverable
Actionable Winter Storm Emergency Plan

Task 1 – Develop Winter Storm Emergency Plan

Working well

- Communications between internal groups and airports
- Use of Everbridge for stakeholder communications
- Pre-emptive staffing adjustments and accommodations
- Contingency parking guides

Recommendations

- Establish storm levels:
  - *Green*
  - *Orange*
  - *Red*
- Establish irregular operations (IROPS) stakeholder group
- Communicate as early as possible to stakeholders

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Cost Benefits Analysis of Aircraft Controls

Task 2 – Cost Benefit Analysis of Aircraft Controls

Scope

- Conduct cost-benefit analysis of aircraft parking
- Evaluate available space to confirm it is being maximized
- Provide guidance for controlling, prioritizing, or slotting landing aircraft

Challenges

- Insufficient data to perform cost benefit analysis, such as:
  - Detailed versus planned OOOI* times
- Snow clearing times
- Data integrity

**OOOI = Time Out, Time Off, Time On, Time In*

Task 2 – Cost Benefit Analysis of Aircraft Controls

Revised Scope

- Evaluate software solutions
- Analyze potential controls
- Analyze parking and use locations

Deliverable

- Summary Presentation

Task 2 – Cost Benefit Analysis of Aircraft Controls

Recommendations

Software

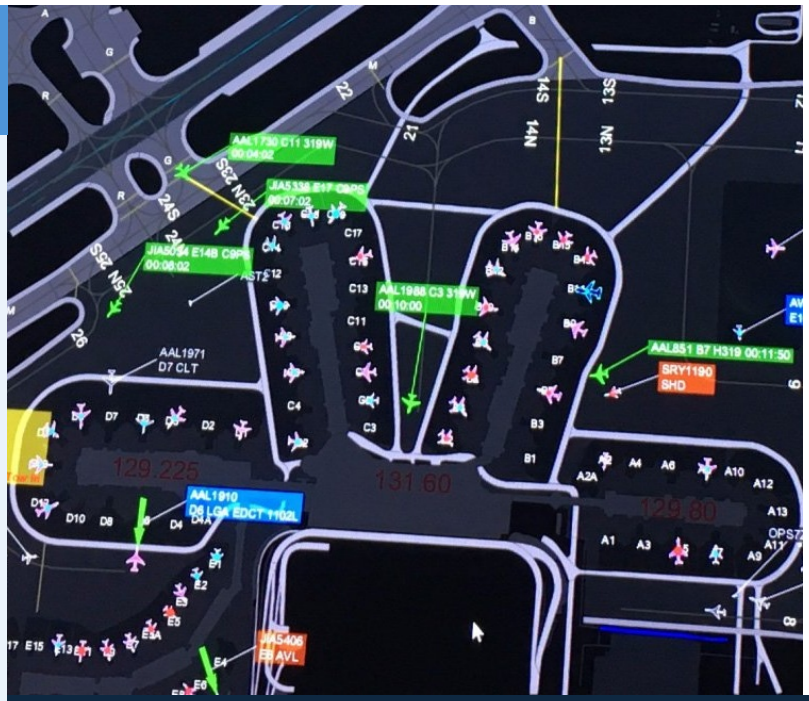
- Recommend Aerobahn Surface for accurate data collection

Aircraft parking

- Temporary Deice location

Controls

- **Prior Permission Required (PPR):** Issue PPR NOTAM for airport-administered parking spots
- **Incentives:** Create monetary incentives to encourage FAI usage when feasible



Example of Aerobahn software

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Inventory Assessment and Analysis

Task 3 – Inventory Assessment And Analysis

Scope Perform inventory assessment and analysis

Focus areas

- Materials/consumables
- Equipment
  - Quantity
  - Condition
- Staffing

Deliverable

- Memo of assessment and recommendations

ANC Snow Removal Fleet

Task 3 – Inventory Assessment And Analysis

Working well

- Quantity and conditions of equipment and consumables

Recommendations

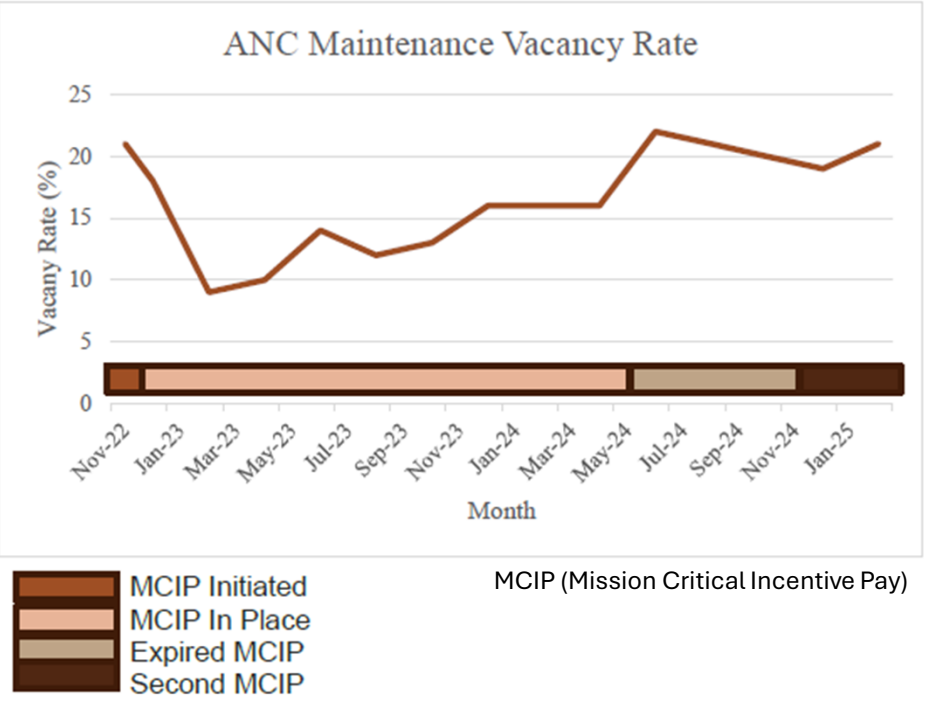
- **Key finding:** airside maintenance is understaffed
- Need to attract and retain quality staff
- Investigate software solutions to enhance efficiency and situational awareness
  - Gate Management Software at FAI
  - Part 139 Compliance Software at ANC

Airport	Average age of all equipment (years)
ANC	6.0
FAI	7.1
Across all studied airports	10.0

Task 3 – Inventory Assessment And Analysis

Staffing (key finding) recommendations

- Compensation study
- Create job class for international airport
  - Allows the airport more control
  - Differentiates airport from highway
- Create opportunities for entry-level staff
- Create pathways for staff advancement



MCIP (Mission Critical Incentive Pay)

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Assessment of Operational Controls

Task 4 – Assessment of Operational Controls

Scope Assess established controls

Focus areas

- Airfield clearing plan and priorities
- Contingency parking guides
- Deicing procedures
- Holdover times calculations
- Winter event data collection and goal development

Deliverable

- Report of analysis, findings, and recommendations

Example of the contingency parking guide

Task 4 – Assessment of Operational Controls

Working well

- Snow clearing and closure thresholds
- Contingency parking guide
- Coordination meetings

Recommendations/Findings

FAI

- Reconstruct South Cargo Apron to allow deicing

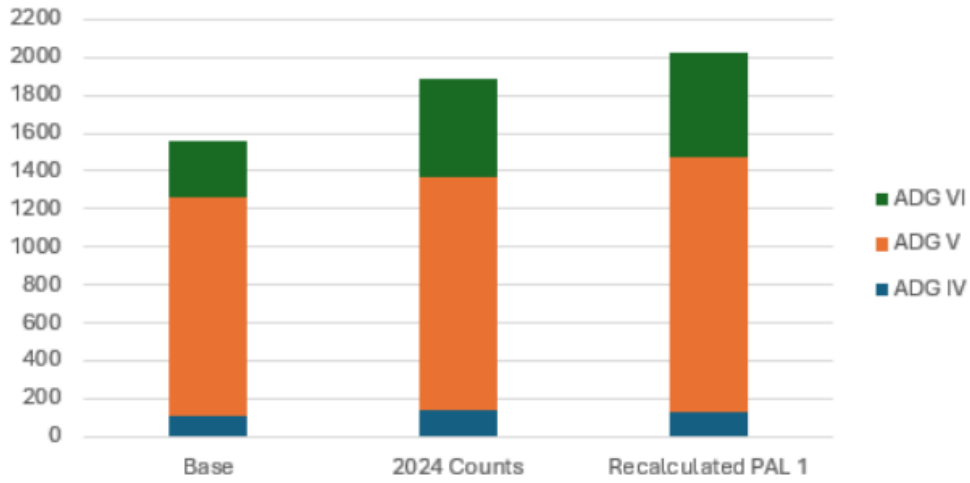
ANC

- **Key finding:** construct additional cargo spaces
- Evaluate preferential use agreements
- Deconflict deicing and taxiing on TLs E1 and E2
- Compare FAA holdover times with SureWx
- Centralized deice facility is not a clear solution to the delays and diversions issues

Task 4 – Assessment of Operational Controls

Key Findings

- **Aircraft parking demand (ANC)**
  - Base condition is lower than 2024 counts
  - Existing spaces are smaller than ACRP standard
  - Cargo activity is higher than forecasted in the most recent master plan update
- **Aircraft parking recommendations (ANC)**
  - Construct 7 spots now
  - Construct 4 additional spots by 2027
  - NorthLink, when constructed, will provide additional recommended parking



2024 counts were higher than the assumed “base” case. The PAL1 was re-calculated off the accurate 2024 counts

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Assessment of Operating and Lease Agreements

Task 5 – Assessment of Operating and Lease Agreements

Scope

Investigate lease provisions

Deliverable

Technical memorandum

Documents Investigated

AIAS Operating Agreement and Terminal Passenger Lease

ANC Airport Land Use Permit (Atlas Air Preferential Lease Agreement)

ANC Business Activity Permit (Integrated Deicing Services, LLC)

Task 5 – Assessment of Operating and Lease Agreements

Working well

- All agreements are complete and effective

Recommendations

- Allow the airport to lease back portion for snow storage
- Reduce allowable time on remote parking spots
- Require reporting of OOOI

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Cost Benefit Analysis of Diversion Plans

Task 6 – Cost Benefit Analysis of Diversion Plans

Scope

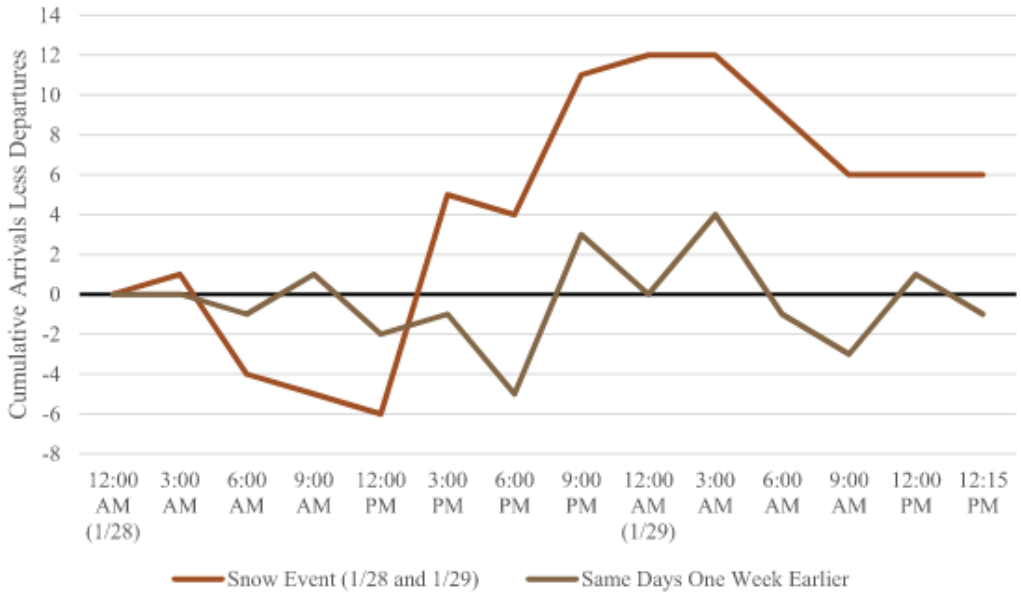
Cost Benefit Analysis of diversion plans

Focus areas

- Variety of users
- Disruptions vary by user
- Spaces beyond preferentially leased spaces required?
- 8 scenarios were modeled
  - With lower Atlas usage
  - With higher Atlas usage

Deliverable

- Report of analysis and recommendations



Cumulative arrivals less departures for snow event day versus normal day

Task 6 – Cost Benefit Analysis of Diversion Plans

Working well

- ANC remained open
- Parking contingency plan
- Robust communication
- FAI able to accept and park diverted aircraft

Fairbanks South Cargo Apron

Challenges

- Forecast accuracies
- January 2024 event was rare
- International carriers require significant advance notice
- FAI's limited capacity
- Additional spaces beyond preferentially leased
- Storm severity, duration, and timing compared to arrival rate

Task 6 – Cost Benefit Analysis of Diversion Plans

Scenario	Note	Comment	Arrival Demand	Pre-Departure	Landings	Diversions	Delay Hours
Scenario 1	15 Spaces Lower Atlas Demand		40	12	22	18	104
Scenario 2	23 Spaces Lower Atlas Demand		40	12	30	10	146
Scenario 3	26 Spaces Lower Atlas Demand		40	12	33	7	161
Scenario 4	34 Spaces Lower Atlas Demand	Runway 7L Closed	40	12	40	0	175
Scenario 5	15 Spaces Higher Atlas Demand		47	15	21	26	121
Scenario 6	23 Spaces Higher Atlas Demand		47	15	29	18	169
Scenario 7	26 Spaces Higher Atlas Demand		47	15	32	15	184
Scenario 8	34 Spaces Higher Atlas Demand	Runway 7L Closed	47	15	40	7	231

Task 6 – Cost Benefit Analysis of Diversion Plans

Findings

- Impacts are not uniform across all airport users
- Impacts vary based on the combination of the storm severity and aircraft demand
- Adding spaces by closing RW 7L has other significant impacts

Recommendations

- Prioritize flights that do not require landing at ANC for diversions
- Balance the impacts to FAI against other effects
- Continue improving early communications
- Consider software purchase and use

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ANC Landside Snow Removal Study

Task 7 – ANC Landside Snow Removal Study

Scope

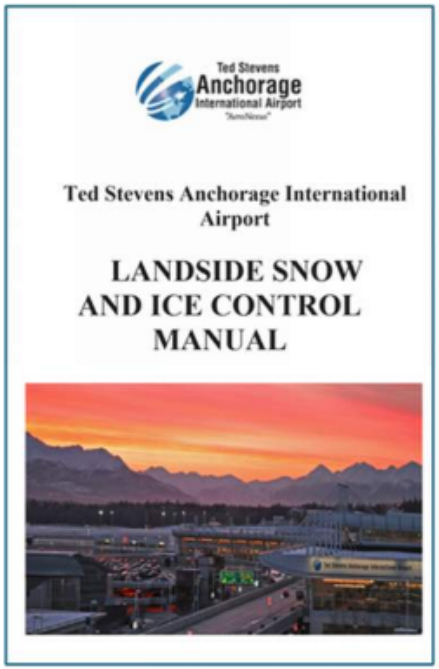
Evaluate landside area snow removal

Deliverable

- Study report with analysis and recommendations

Focus

- Existing manuals
- Snow removal responsibilities
- Safety concerns in surface lots
- Labor intensive work
- Top deck of parking garage



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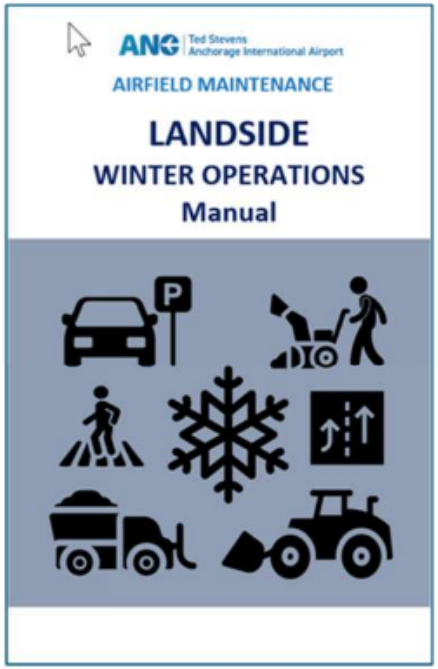

2024

Existing winter weather operations manuals

Task 7 – ANC Landside Snow Removal Study

Working well

- Excellent landside snow removal plans
- Frequent updates
- Easily formatted for field use
- Sufficient snow storage/ dump sites
- Detailed contract for snow removal areas

Recommendations

- Expand the sidewalk snow melt
- Consider using alternate lots
- Separate tracking of landside equipment costs
- New parking garage
- Infrastructure to provide improved employee and customer service

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ANC Landside Snow Removal Study

Task 9 – FAI Landside Snow Removal Study

Scope

Evaluate landside area snow removal at FAI

Study is currently in progress

Study Team

DOWL

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