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**Seattle-Tacoma International Airport – Hard Stand Operations Analysis, Gate Capacity and Analysis of Impacts from closures and changes**



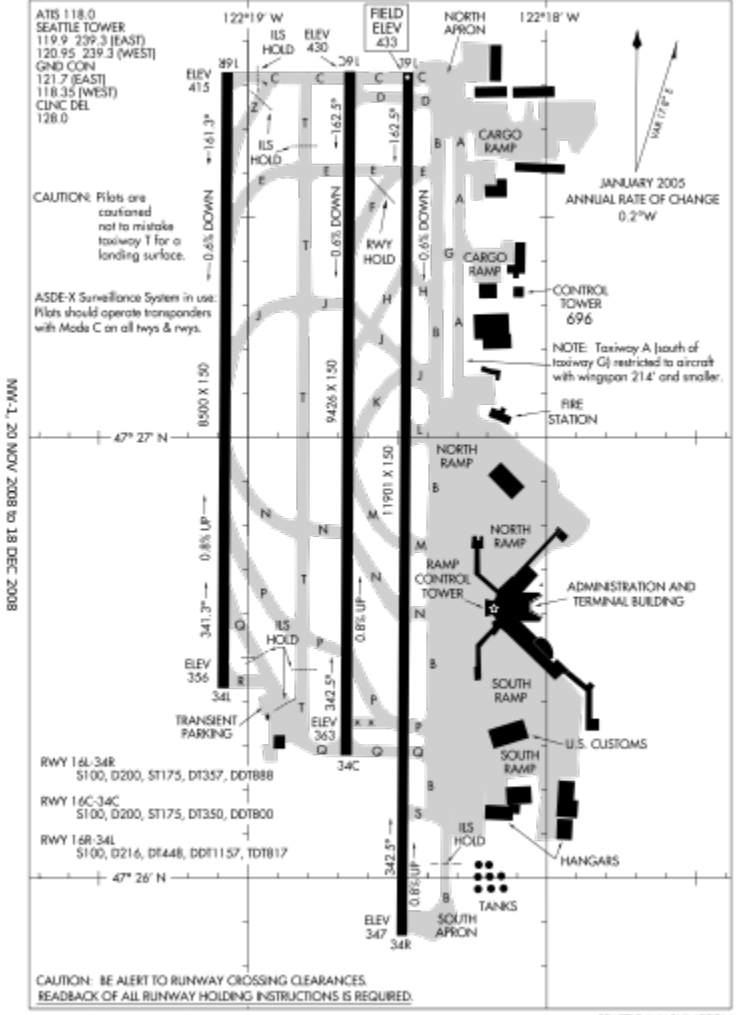
*Seattle-Tacoma International Airport (Complete Airfield)*

08325

# AIRPORT DIAGRAM

AL-582 (FAA)

SEATTLE-TACOMA INTL (SEA)  
SEATTLE, WASHINGTON



NW-1, 20 NOV 2008 to 18 DEC 2008

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# AIRPORT DIAGRAM

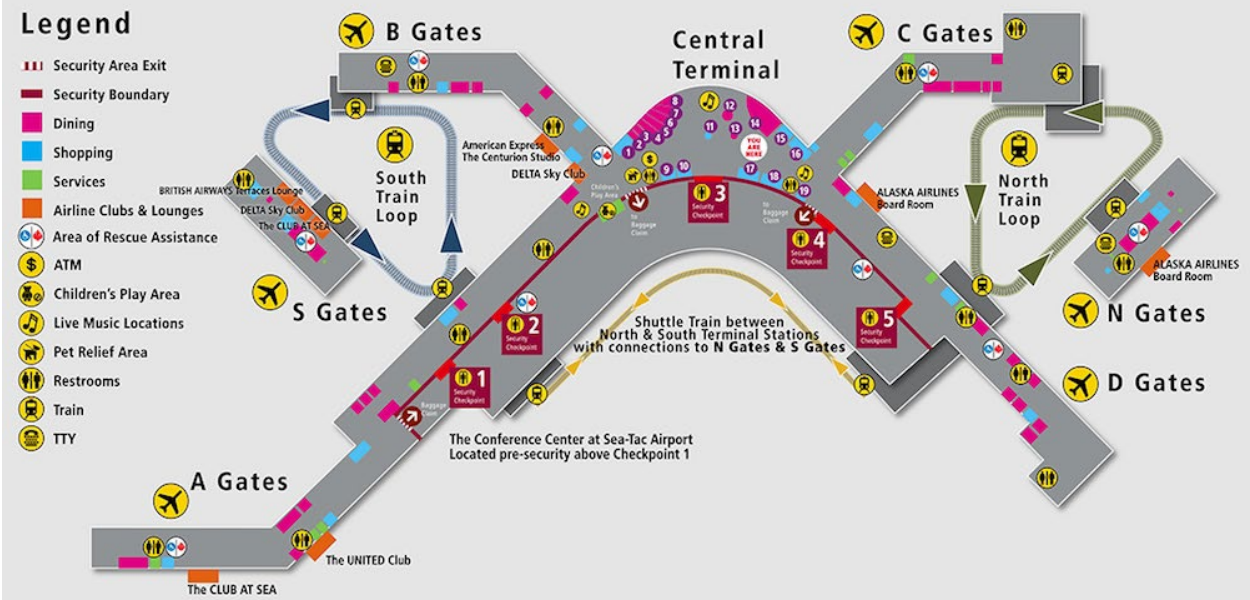
SEATTLE, WASHINGTON  
SEATTLE-TACOMA INTL (SEA)

08325



Seattle-Tacoma International Airport (Terminal & Apron Areas)

## Terminal Overview



## Background

Located exactly halfway between London and Tokyo, Sea-Tac Airport is the closest U.S. West Coast gateway to both Europe and Asia.

Over the past ten years, Sea-Tac has welcomed 16 new intercontinental services including new routes to Beijing, Dubai, Frankfurt, Hong Kong, Reykjavik, Shanghai, and Shenzhen.

For three years, Sea-Tac was among the fastest-growing large hub airports in North America. It was the 9th largest airport based on total passengers in 2017.

International passenger activity requiring customs clearance at Sea-Tac has more than doubled in the past 10 years, growing 117% from 2006 to 2016.

To handle the increase in international traffic SeaTAC has a number of planned and active construction and modernization projects underway. To assist in identifying potential airside congestion or delay issues during construction of the new NorthSTAR (North Satellite Modernization) and IAF (International Arrivals Facility) the airside operations were modelled, simulated, and evaluated against the 2016 and 2019 projected flight schedules.

<a href="#">Runways</a>			
<a href="#">Direction</a>	Length		Surface
	ft	m	
16L/34R	11,901	3,627	Concrete
16C/34C	9,426	2,873	Concrete
16R/34L	8,500	2,591	Concrete

Terminal	Concourse	Gates - Parking Slips	Note
Main Terminal	Central	None	Transportation Security Administration Checkpoints /Retail Services
	A	14	A1 - A14
	B	13	B1, B3-B12, B14-B15
	C	7 - 14	C3, C9, C11, C15, C17-C18, C20 - Q1-Q8, Q10, Q12-Q16 served via 20 podiums
	D	11	D1-D11
North Satellite	N	10 - 3	N1-N4, N6-N10, N16 - N12A-N12C
South Satellite	S	14 - 1	S1-S12, S15-S16 - S1A

Annual passenger traffic (enplaned + deplaned) at SEA

Year	Passengers	Annual Increase
2014	37,498,267	108%
2015	42,340,537	113%
2016	45,736,400	108%
2017	46,934,194	103%

### North Satellite Modernization Project

The expansion and renovation of a 45-year-old facility to better serve passengers with more choices and amenities for an enhanced travel experience. This investment by the Port of Seattle and Alaska Airlines will be built to preserve resources and meet our strict sustainability standards. The entire venue will open up with natural light and views of the airfield and mountains, befitting of a world-class airport.

North satellite renovation details

- A new upper level mezzanine with open circulation areas, natural light and a new full-service dining venue with dramatic airfield views
- Renovated interior with new building forms and functional interests that are cost effective, environmentally friendly and express Pacific Northwest culture
- Seismic upgrades
- Baggage handling improvements
- Access walkways, elevators and stairway improvements

- A nature-inspired “living wall” art piece of plants that will complement the open design of the building, and celebrate the ecology and environment of the Northwest
- New rooftop Alaska Airlines lounge with Olympic Mountain views
- Rainwater collected to supply flushing water to the restrooms
- Enhanced exterior with an iconic design evoking movement
- New dynamic, interactive signage
- More robust Wi-Fi service
- Refurbished transit system lobby

Project timeline

Build in two phases, beginning with the expansion of eight gates to the west of the current facility, followed by renovation.



**New international Arrivals Facility**

Increased Capacity

- Nearly double international capable gates (from 12 to 20)
- Increase passenger capacity by more than double to 2,600 passengers per hour
- More than double passport check positions and kiosks (from 30 to 80 kiosks)
- Increase size and number of bag claim carousels from four to seven
- Reduce minimum passenger connection time from 90 to 75 minutes

Planned Facility Improvements

The IAF will be a new multi-level, 450,000 square-foot facility located east of the current Concourse A

An iconic aerial walkway, which will span 900 feet across and 85 feet above the existing taxi lane, will connect arriving international passengers from the South Satellite across the top of Concourse A to the new IAF



Project timeline

Construction begins/groundbreaking

Q3 2017

Projected IAF opening

Q4 2019

## Project Brief

**Client Name:** Seattle-Tacoma International Airport

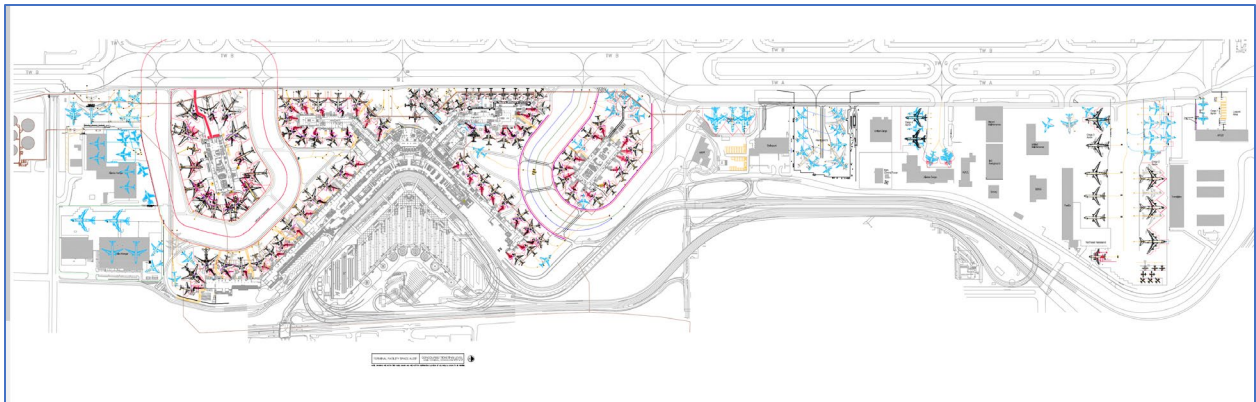
**Date Started:** June 2016 **Duration:** 4 Weeks??? **Date Completed:** August 8, 2016

**Project Lead:** Romi Singh **Team Size:** ??

**Toolset:** Google Earth, Jeppeson Charts, ArcPORT, AutoCAD, Microsoft Excel, Microsoft PowerPoint

Transoft Solutions Inc. was contracted to perform ArcPORT simulation modelling and analysis by the Port of Seattle for to evaluate the construction impact of the IAF and NorthSTAR projects on the 2016 & 2019 flight schedules. The purpose of the project was to:

- Develop airside models consistent with Sustainable Airport Master Plan (SAMP) assumptions based on a previous ArcPORT study model provided by SeaTAC
- Validate and calibrate the model based on the 2016 Site Plan and flight schedule and match the ramp chart as closely as possible
- Investigate impacts to gate capacity with construction closures based on the 2016 and 2019 flight schedule, comparing the results
- Model hardstand (remote, bussed stand) operations
- Investigate taxi-lane/ taxiway congestion
- Prepare report and brief SeaTac staff to continue work with models

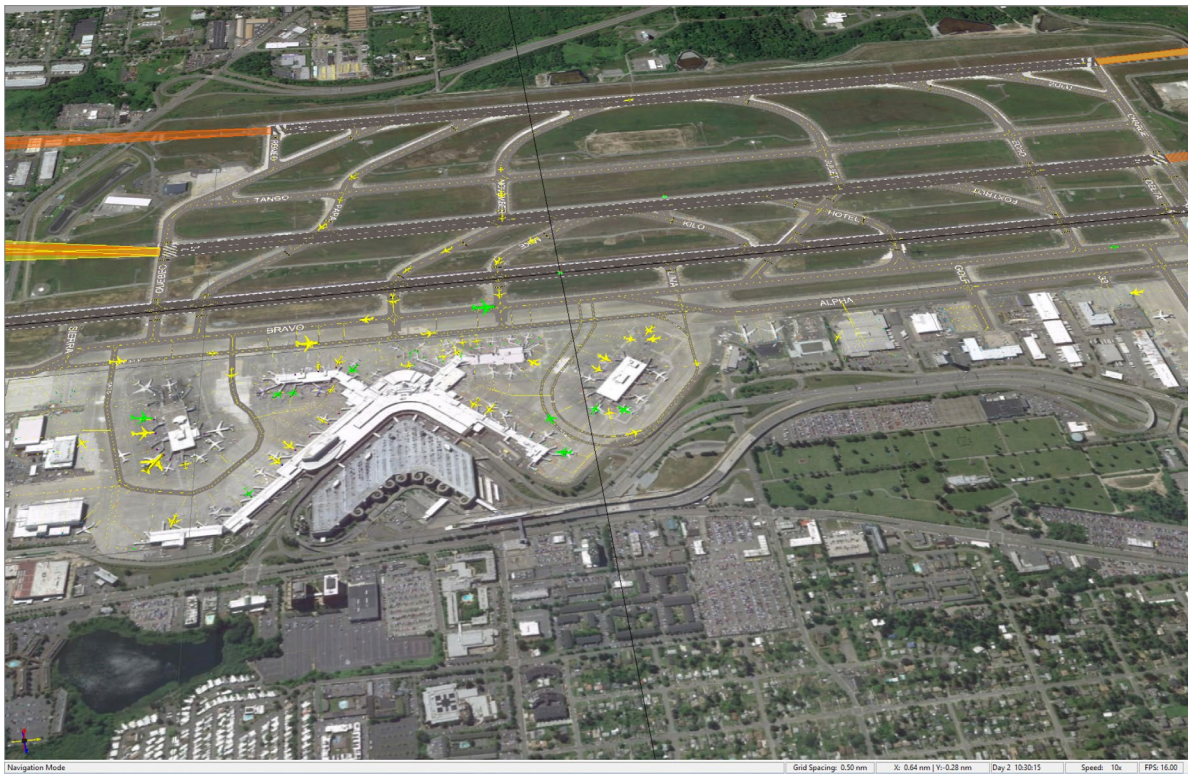


*SeaTAC 2016 Site Plan*

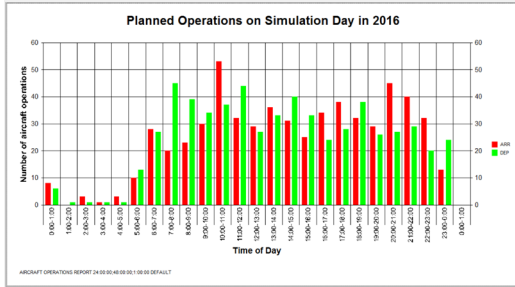




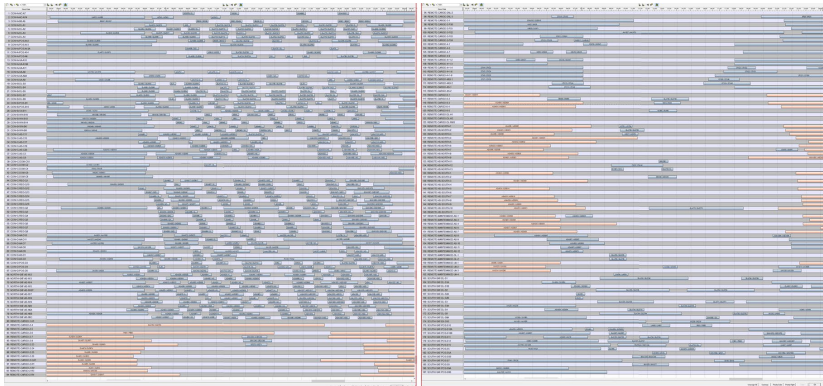
SeaTAC 2016 Flight Schedule – Peak Day – 4:30 AM



SeaTAC 2016 Flight Schedule – Peak Day – 10:30 AM



*Planned Operations – Peak Day – 2016 Flight Schedule*



*Stand/Gate Allocation – Peak Day – 2016 Flight Schedule*

**Note:** orange bars are overnighting aircraft which use remote, maintenance or cargo stands and do not account for the demand for passenger flight hard stands.

The summary findings provided conclusions for the impact of construction on the 2016 Flight Schedule and also reported on the impacts on runway incursions, taxiway congestion, and stand utilization for the projected 2019 Flight Schedule.

Transoft Solutions Inc. delivered the project modelling, analysis, and summary reporting stages on time and on budget to the noted satisfaction of the Port of Seattle Executive and Management teams.