

SEA Part 150 Technical Review Committee

TRC meeting summary

Working Partners: Port of Seattle, ESA, PRR

Date: Monday, June 10, 2024

Location: Zoom/Virtual

In Attendance:

Alaska Airlines – Lynae Craig -- ATM & Airfield Operations Director
Delta Air Lines – Kalena Glover – Senior Engineer
Federal Way – Bill Vadino for Brian Davis – Federal Way City Administrator
Des Moines – Jason Woycke – Senior Planner
Normandy Park – Nicholas Matz – Community Development Director
Burien – Liz Stead – Community Development Director
SeaTac – Zach Shields – Senior Planner
Tukwila – Neil Tabor – Senior Planner
FAA – Joseph Bert – Acting Group Manager
FAA – Matt Prevo – Environmental Protection Specialist
Port of Seattle – Tom Hooper – Aviation Planning Program Manager
Port of Seattle – Tom Fagerstrom – Noise Programs Manager
Port of Seattle – Ryan McMullan – Noise Programs Senior Manager
Port of Seattle – Paris Edwards – Noise Programs Coordinator
ESA – Autumn Ward, Project Manager
ESA – Justin Cook, Assistant Project Manager
ESA – Mike Arnold, Senior Project Manager

Subject: Introductory Technical Review Committee (TRC) Meeting

Andres Mantilla initiated the Part 150 Technical Review Committee meeting by reviewing expectations and meeting format. He also invited members of the StART Aviation Noise Working Group to stay and participate.

Technical Review Committee meeting (5:45pm – 6:45pm)

Tom Fagerstrom introduced ESA as the technical consultant on the Part 150 Study and asked the Technical Review Committee members to introduce themselves.

The Technical Review Committee is made up of:

TRC Members

- Alaska Airlines – Lynae Craig
- Delta Airlines – Kalena Glover
- Des Moines – Jason Woycke
- Burien – Liz Stead
- Federal Way – Brian Davis
- Normandy Park – Nicholas Matz
- SeaTac – Zach Shields
- Tukwila – Neil Tabor

TRC Liaisons

- FAA
 - Western Service Center ATO – Joe Bert
 - FAA Seattle ADO – Matthew Prevo
 - FAA SEA ATCT – TBD
- Port of Seattle
 - Tom Fagerstrom
 - Ryan McMullan
 - Paris Edwards
 - Tom Hooper

In this meeting, Bill Vadino filled in for Brian Davis for Federal Way.

Part 150 overview:

Mike Arnold and Autumn Ward from ESA went over the role of the TRC members, which is to review assumptions, provide technical feedback, and respectfully offer their opinions. They also described the Part 150 process, the Airport's history of Part 150 studies, and how airport noise is regulated.

The key priorities for the Part 150 Study are to:

- Understand community concerns about aircraft operations
- Meaningful engagement with the community
- Communicate the Part 150 Study process and manage expectations
- Avoid confusion about ongoing Port programs that are separate from the Study.

Airport noise modeling overview:

Justin Cook gave a primer on measuring and modeling aircraft noise. He explained terms like Day-Night Average Sound Level (DNL), weighted decibels, Lmax (Maximum Sound Level), Leq (Equivalent Sound Level), and SEL (Sound Exposure Level). He also reviewed the noise model that the Study will use (FAA's Aviation Environmental Design Tool version 3f), and the data inputs, which include:

- Airport layout
- Aircraft types
- Terrain
- Daytime and nighttime flights
- Runway utilization rates
- Flight track use
- Weather conditions

The Study will also look at land use compatibility. Levels below DNL 65 dB are compatible for all land uses, and levels above DNL 65 dB are not compatible with residential land use or other sensitive uses, including, but not limited to:

- Places of worship
- Schools, colleges, universities
- Libraries and cultural institutions
- Hospitals

The Noise Compatibility Program (NCP) phase of the Study will explore mitigation measures that can help in reducing noise impacts on noise-sensitive land uses above DNL 65 dB.

Frequently asked questions:

- Will the study fix all of SEA's noise issues?
 - Unfortunately, no. But we can institute efforts that can improve the situation, which will be evaluated in the NCP.
- Will noise monitoring be conducted?
 - We can use noise monitors for informational purposes or to identify trends for further evaluation in the operational areas of the Airport.
- What does a Part 150 Study not cover?
 - Anything outside of noise such as aircraft emissions, quality of life, and safety.
- Benefits to communities?

- Mitigation measures such as the current sound insulation program
- Encourage jurisdictions to implement building codes that meet sound insulation requirements
- Building relationships with communities
- Encouraging voluntary noise reduction programs such as updates to the voluntary Fly Quiet program

Schedule:

Autumn Ward shared the preliminary Study schedule:

- Noise Exposure Maps (NEMs)
 - Summer 2024 – Aircraft operations and land-use data collection
 - Summer/Fall 2024 – Continuing public outreach
 - Spring/Summer 2025 – Noise modeling, Draft NEM report, and public workshops
 - Fall/Winter 2025 – Final NEM report/FAA review
- Noise Compatibility Program (NCP)
 - Summer/Fall 2025 – Alternatives analysis
 - Fall/Winter 2025-2026 – NCP report
 - Summer 2026 – Public Hearing
 - 2027 – FAA 180-day review

Autumn reported back on the kickoff workshops held during the first week of June:

Three workshops were held in:

- Burien (June 5, 2024)
- Des Moines (June 6, 2024)
- SeaTac (June 8, 2024)

Over 150 attendees came between the three workshops and contributed over 60 written comments.

Questions and answers:

- Q – Will there be a new noise exposure map?
 - A – There will be a new map and the new contour may be different than the current boundary based upon SEA operational changes in recent years.
- Q – Are there land use recommendations that come out of the study that jurisdictions could or should already be implementing?
 - A – Yes, and the study would encourage their implementation.
- Q – With the implementation of NextGen technology allowing aircraft to fly closer to each other, are you getting pressure to incorporate more precision technology into the noise modeling? Is there pressure to encourage aircraft to fly closer?
 - A – We will be modeling an entire year of actual flights, so if there are precision operations occurring during the year, then we will model accordingly. We have not had

pressure from the FAA to encourage more precision flying. But we do look at potential alternative measures when we are analyzing noncompatible land uses.

- Q – Is the 65 dB DNL an average over a 24-hour period?
 - A – Yes.
- Q – We won't be using noise monitors to measure noise?
 - A – We will be conducting portable noise monitoring; however, the modeling will be using actual airport operations. The noise monitoring will let us understand if there are deviations between what the model is predicting and what we are actually hearing.
- Q – Are the slides and info available in a project site?
 - A – All information will be on www.seapart150.com. The TRC slides are in your information packet that was sent prior to the meeting.
- Q - As it regards modeling, will proximity between aircraft be decreased?
 - A - As it relates to noise modeling, the corridors through which aircraft travel will be modeled based upon what is actually occurring and the proximity between them will be evaluated.

Andres closed the meeting by thanking attendees and reiterating that the meeting materials will be available at www.seapart150.com

Seattle-Tacoma International Airport



Part 150 Study Technical Review Committee

Meeting #1 | June 10, 2024



Agenda

- Welcome and Introductions
- Purpose and Role of the Technical Review Committee (TRC)
- Airport Overview
- Part 150 Study Overview
- Introduction to Aircraft Noise and Modeling
- Overview of Land Use Compatibility
- Project Schedule
- Questions

Welcome and Introductions – Consultant Team

Environmental Science Associates (ESA)

- 700+ person environmental consulting firm
- Experience at more than 230 airports nationally
- Highly complex projects
 - LaGuardia Part 150
 - John F. Kennedy International Part 150
 - Fort Lauderdale-Hollywood International Part 150
 - Los Angeles International Part 150
 - Tampa International NEM Update
 - San Antonio NEM Update
 - San Francisco International NEM Update



Welcome and Introductions – Consultant Team



Barry Technologies, Inc.

Noise Monitoring



BridgeNet International

Visualization/Graphics



Diverse Vector Aviation Consulting (DVAC)

Air Traffic Control/Airspace



PRR, Inc.

Community Engagement



Ricondo

Forecasting, Airspace, Modeling, and Integration



VMC

Airspace/Flight Procedures

Welcome and Introductions – TRC

TRC Members

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- Delta Airlines – TBD
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Technical Review Committee

Purpose and Role of the TRC

- TRC members represent the interests of their organization and/or constituents
- The TRC's role is to support the SEA Part 150 Study
 - Review study assumptions
 - Provide technical feedback within the context of the Part 150 Study
 - TRC members are encouraged to express their opinions and expected to respect the range of opinions expressed by their fellow TRC members
- TRC members are expected to advise their organization and/or constituents of the TRC's discussions
- The Port will respect and consider the TRC's technical input, but retains responsibility for, and decision-making authority on, the SEA Part 150 Study

Role of the TRC Meeting Facilitator

- To ensure that the TRC meetings are effective, meetings will be facilitated by a professional meeting facilitator
- The meeting facilitator:
 - Is responsible for ensuring that the TRC meetings adhere to the meeting agenda
 - May extend or shorten the length of a discussion related to an agenda item at their discretion
 - As well as the Port, may cancel or suspend a TRC meeting due to disrespectful or disruptive behavior

TRC Charter and Participation Agreement

- The TRC Charter and Participation Agreement are included in today's meeting materials
- The Charter describes the role of the TRC and describes the conduct of the TRC meetings
- Please return the signed Participation Agreement to The Port
- The Port anticipates there will be 15 to 20 TRC meetings during the Study's duration
- TRC meetings will typically be held every other month
- TRC membership is voluntary and TRC members will not be compensated for their time

Airport Overview

SEA Overview

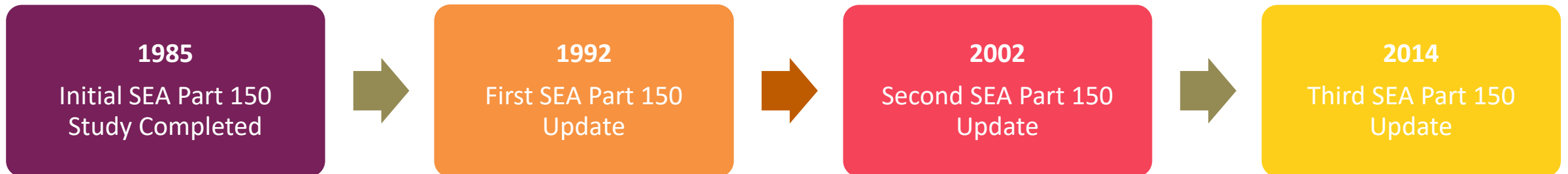
- SEA is one of the Pacific Northwest's leading economic engines
 - 151,400 jobs, including 87,300 direct jobs
 - \$7.1 billion in total personal income
 - \$22.5 billion in total business revenue
 - \$415 million in state taxes reflecting direct and secondary activities
- In 2023, the Airport had 422,500+ operations
- Served 50 million passengers in 2023
- Processed 417,000+ metric tons of cargo in 2023
- The only large hub airport in the PNW
- Non-stop flights to over 120 domestic and international cities



Part 150 History at SEA

The 14 CFR Part 150 process is the Airport Sponsor's mechanism to improve the compatibility between the Airport and surrounding communities

SEA's Part 150 Efforts Span Four Decades



Part 150 Study Overview

Regulations and Guidelines

- Interim Rule on Federal Aviation Regulations (FAR) Part 150, *Airport Noise Compatibility Planning*, issued in 1981 and finalized in 1985, later recodified as Title 14 Code of Federal Regulations (CFR) Part 150
- Issued in response to provisions contained in the Aviation Safety and Noise Abatement Act (ASNA) of 1979
- Establishes the methodology to be followed when preparing aircraft noise exposure maps and developing airport/airport environs land use compatibility programs
- Part 150 studies are voluntary, but...
- Part 150 studies must adhere to 14 CFR Part 150 guidelines to be considered and accepted and approved by FAA

Regulatory Framework

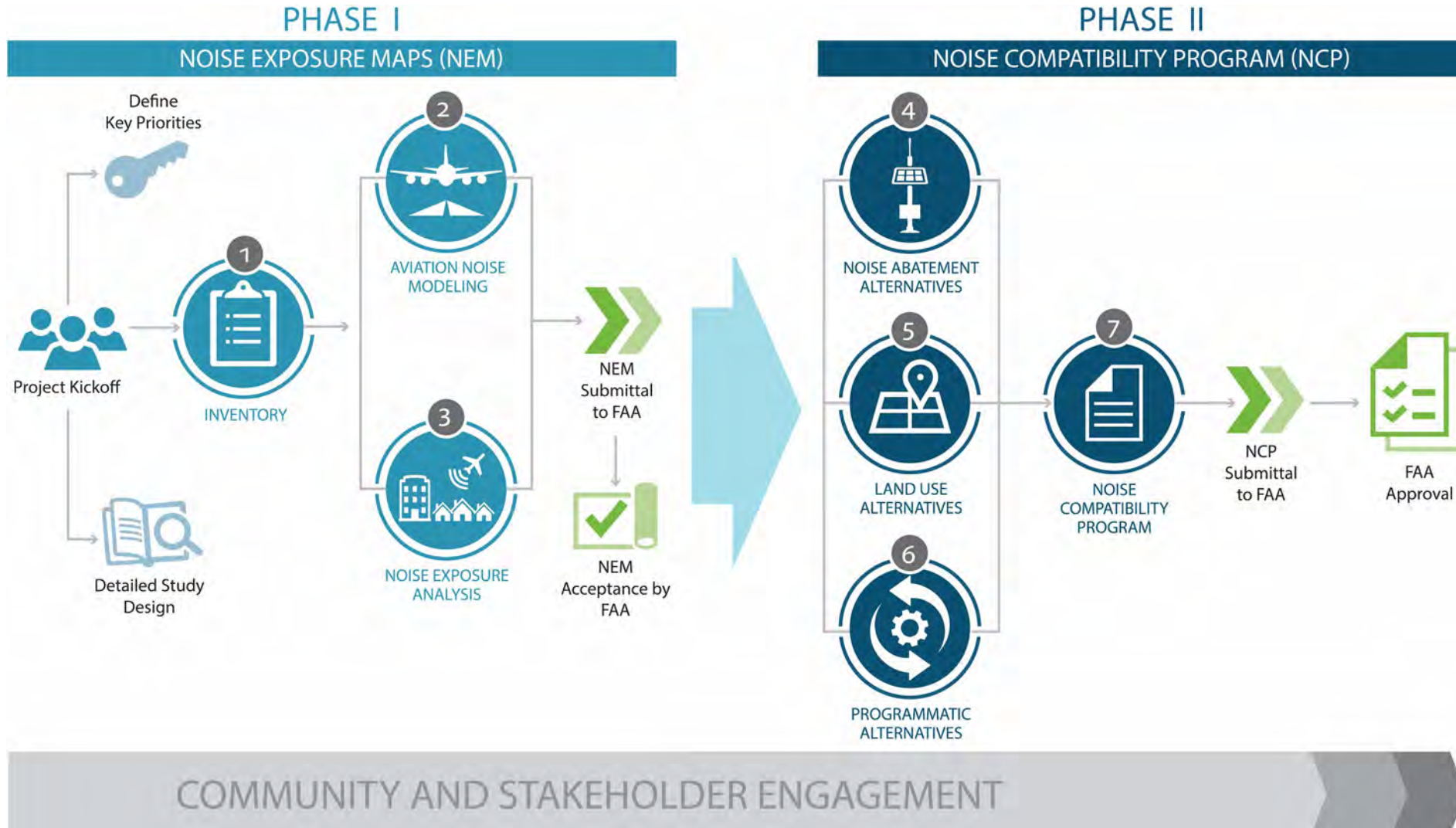
- Three core organizations are involved in aircraft operations at SEA:
 - **Federal Aviation Administration (FAA)** - Directs the safe movement of aircraft in the air and on the ground
 - **The Port:** Manages the airport, improves and maintains airport facilities; has no control over where aircraft fly
 - **Pilots:** The pilot in command has ultimate responsibility for the safe operation of his/her aircraft
- **Federal law**
 - Sets aircraft noise standards, prescribes operating rules, establishes the compatibility planning process, and limits airport proprietor's ability to restrict aircraft operations.
- **State law**
 - Sets forth compatibility planning guidelines and noise standards but aircraft are exempt.
- **Local noise ordinances**
 - Set noise standards and provide for compatible land use planning but aircraft are exempt

Who Can Regulate Airport Noise

- **Federal Aviation Administration**
 - Controls aircraft while in flight
 - Responsible for controlling noise at its source (i.e., aircraft engines)
 - Certifies aircraft and pilots
- **Airport Proprietors/Port of Seattle**
 - Responsible for capital improvement projects and infrastructure.
 - Can establish a "noise office", which services as a bridge between the Airport, FAA, and the community to minimize the impact of aircraft noise while ensuring the Airport operates safely and efficiently.
 - Very limited authority to adopt local restrictions though can adopt and promote voluntary noise abatement measures
- **Local Governments and States**
 - Promote compatible land use through zoning
 - Can require real estate disclosure
 - Can mandate sound-insulating building materials

**FEDERAL LAW TAKES PRECEDENCE
OVER STATE AND LOCAL
REGULATIONS**

Phases of a Part 150 Study



Part 150 Study Overview

- **Noise Exposure Map Report (NEM)**
 - Develop a comprehensive database of current conditions
 - Noise contour development and impact analysis
 - Prepare and submit NEM Report
- **Noise Compatibility Program (NCP)**
 - Identify and evaluate noise abatement alternatives
 - Identify and evaluate compatible land use alternatives
 - Identify and evaluate administrative measures
 - Prepare and submit NCP Report
- **Stakeholder Outreach Program**
 - Local Jurisdictions/Agencies
 - FAA
 - Public

Analyze, Evaluate, Educate

- Determine existing and future noise conditions in the vicinity of an airport
- Identify noncompatible uses
- Identify measures to improve compatibility
 - Evaluate the feasibility of possible flight procedure/land use changes
 - Submit locally-endorsed recommendations to the FAA regarding noise reduction measures
 - Approved measures may be eligible for Federal grant funding
- Educate communities on the Federal process and what can and cannot be done to address aircraft noise concerns

Part 150 Studies Must Adhere to 14 CFR Part 150 Guidelines to be Accepted and Approved by FAA

Key Priorities for this Part 150 Study

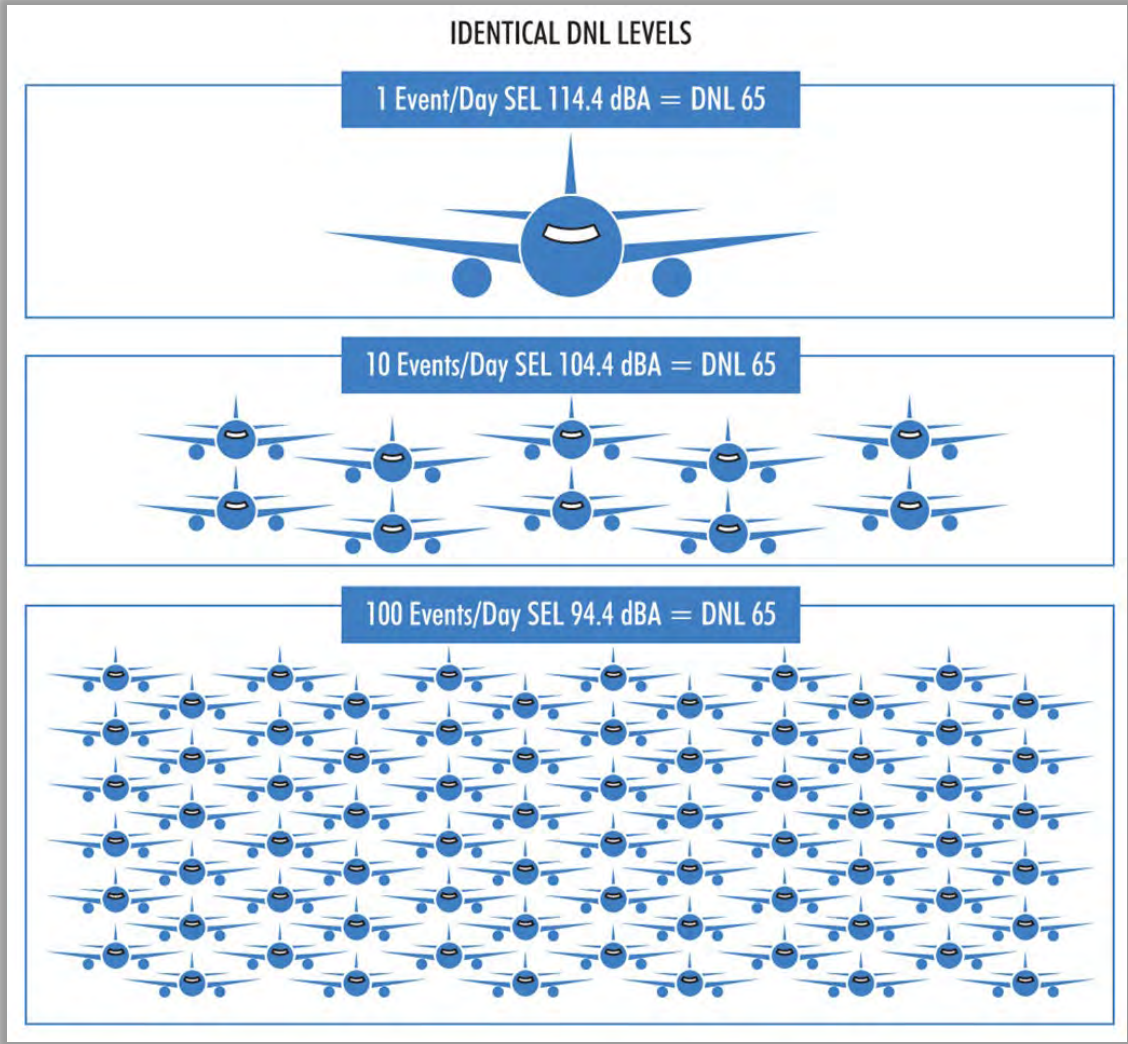
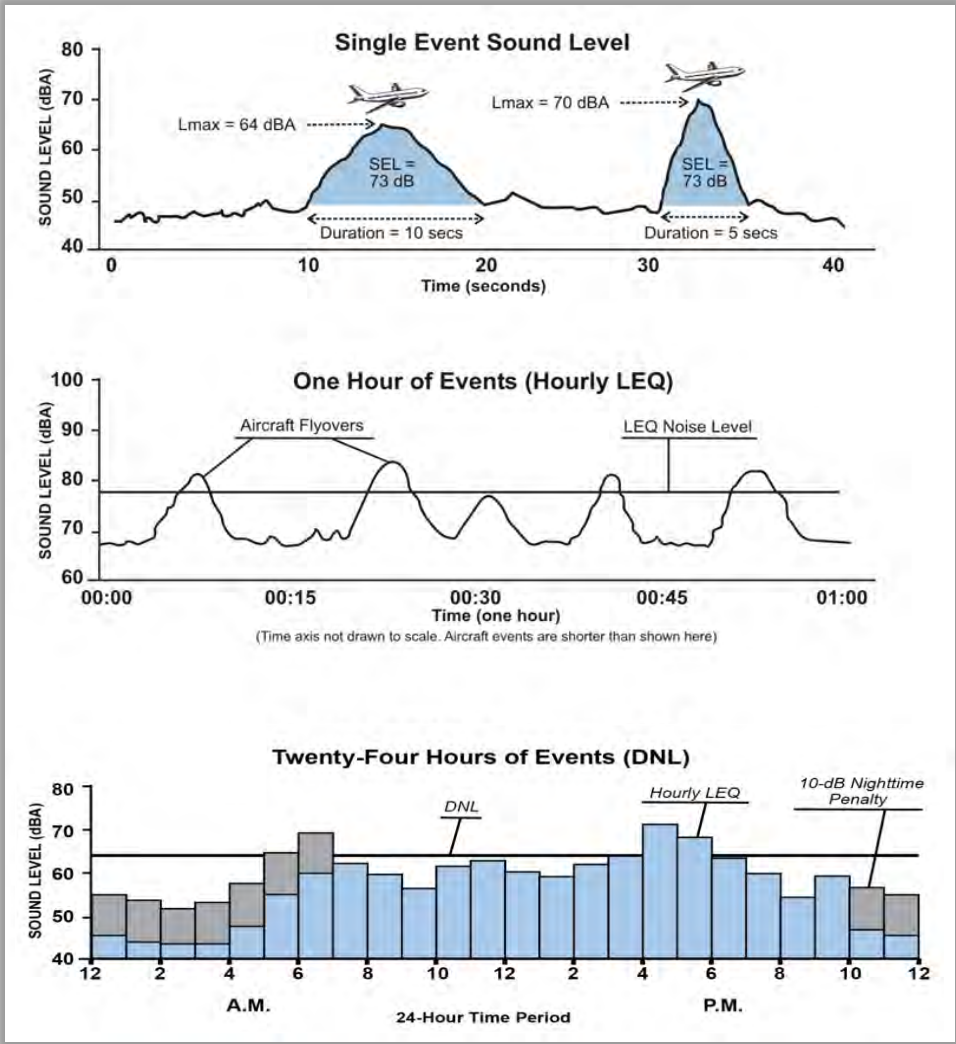
- Understanding community concerns about aircraft operations
 - Seasonal operations (north flow typically in summer)
 - Increase in annual aircraft operations
- Meaningful community engagement
- Communicating the Part 150 Study process and managing expectations
- Avoiding confusion about ongoing Port programs separate from the Part 150 Study:
 - Sustainable Airport Master Plan Near-Term Projects (SAMP NTP)
 - Ongoing Sound Insulation Program
 - Sound Insulation Repair and Replace Pilot Program

Noise and Noise Modeling

Introduction to Aircraft Noise

- Day-Night Average Sound Level (DNL)
 - 24-hour time weighted energy average noise level based on A-weighted decibels (dBA)
 - Noise occurring between 10 p.m. to 7 a.m. is penalized by 10 dB to account for the higher sensitivity to noise during nighttime hours and for the expected decrease in background levels that typically occur in the nighttime
 - FAA requires the use of DNL for airport noise analyses
 - Average Annual Day (AAD) aircraft noise exposure is calculated over a broad area and then depicted using contour lines of equal noise levels

Introduction to Aircraft Noise



Noise Modeling

- Aircraft noise modeling allows:
 - Calculation of noise exposure at any point
 - Depicting annual average aircraft noise exposure
 - Predicting future aircraft noise exposure
 - Assessing changes in noise impacts resulting from runway configuration changes or new runways
 - Assessing changes in fleet mix and/or number of operations
 - Evaluating operational procedures
- Aviation Environmental Design Tool (AEDT) replaced the Integrated Noise Model (INM) when it was released in 2015. The current version, AEDT 3f, will be used for the SEA Part 150 Study.

Noise Model Inputs

- The Amount of Noise Exposure is determined by:
 - Aircraft types
 - Stage length (AEDT input for takeoff weight based on distance to destination)
 - Number of average annual day operations
 - Nighttime weighting (1 nighttime operation = 10 daytime operations)
- The Noise Exposure Distribution is determined by:
 - Runway configuration and use
 - Flight track locations
 - Flight track use
- Other Factors
 - Meteorological conditions



Aviation Environmental
Design Tool (AEDT)
Version 3f

Land Use Compatibility

Land Use Compatibility

- 14 CFR Part 150 Appendix A, Table 1 provides noise and land use compatibility guidelines
- Considers levels below DNL 65 dB to be compatible with all land uses
- Allows for the adoption of appropriate local land use standards for land use compatibility planning purposes

The 14 CFR Part 150 process is the Airport Sponsor's mechanism to improve the compatibility between the Airport and surrounding communities

| LAND USE | Yearly Day-Night Average Sound Level (Ldn) in decibels | | | | | |
|--|--|-------|-------|-------|-------|---------|
| | Below 65 | 65-70 | 70-75 | 75-80 | 80-85 | Over 85 |
| RESIDENTIAL | | | | | | |
| Residential, other than mobile homes and transient lodgings | Y | N(1) | N(1) | N | N | N |
| Mobile home parks | Y | N | N | N | N | N |
| Transient lodgings | Y | N(1) | N(1) | N(1) | N | N |
| PUBLIC USE | | | | | | |
| Schools | Y | N(1) | N(1) | N | N | N |
| Hospitals and nursing homes | Y | 25 | 30 | N | N | N |
| Churches, auditoriums, and concert halls | Y | 25 | 30 | N | N | N |
| Governmental services | Y | Y | 25 | 30 | N | N |
| Transportation | Y | Y | Y(2) | Y(3) | Y(4) | Y(4) |
| Parking | Y | Y | Y(2) | Y(3) | Y(4) | N |
| COMMERCIAL USE | | | | | | |
| Offices, business and professional | Y | Y | 25 | 30 | N | N |
| Wholesale and retail—building materials, hardware and farm equipment | Y | Y | Y(2) | Y(3) | Y(4) | N |
| Retail trade—general | Y | Y | 25 | 30 | N | N |
| Utilities | Y | Y | Y(2) | Y(3) | Y(4) | N |
| Communication | Y | Y | 25 | 30 | N | N |
| MANUFACTURING AND PRODUCTION | | | | | | |
| Manufacturing, general | Y | Y | Y(2) | Y(3) | Y(4) | N |
| Photographic and optical | Y | Y | 25 | 30 | N | N |
| Agriculture (except livestock) and forestry | Y | Y(6) | Y(7) | Y(8) | Y(8) | Y(8) |
| Livestock farming and breeding | Y | Y(6) | Y(7) | N | N | N |
| Mining and fishing, resource production and extraction | Y | Y | Y | Y | Y | Y |
| RECREATIONAL | | | | | | |
| Outdoor sports arenas and spectator sports | Y | Y(5) | Y(5) | N | N | N |
| Outdoor music shells, amphitheaters | Y | N | N | N | N | N |
| Nature exhibits and zoos | Y | Y | N | N | N | N |
| Amusements, parks, resorts and camps | Y | Y | Y | N | N | N |
| Golf courses, riding stables and water recreation | Y | Y | 25 | 30 | N | N |

Numbers in parenthesis refer to notes

NOTES

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be achieved in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB. Thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

(2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.

(5) Land use compatible provided special sound reinforcement systems are installed.

(6) Residential buildings require an NLR of 25.

(7) Residential buildings require an NLR of 30.

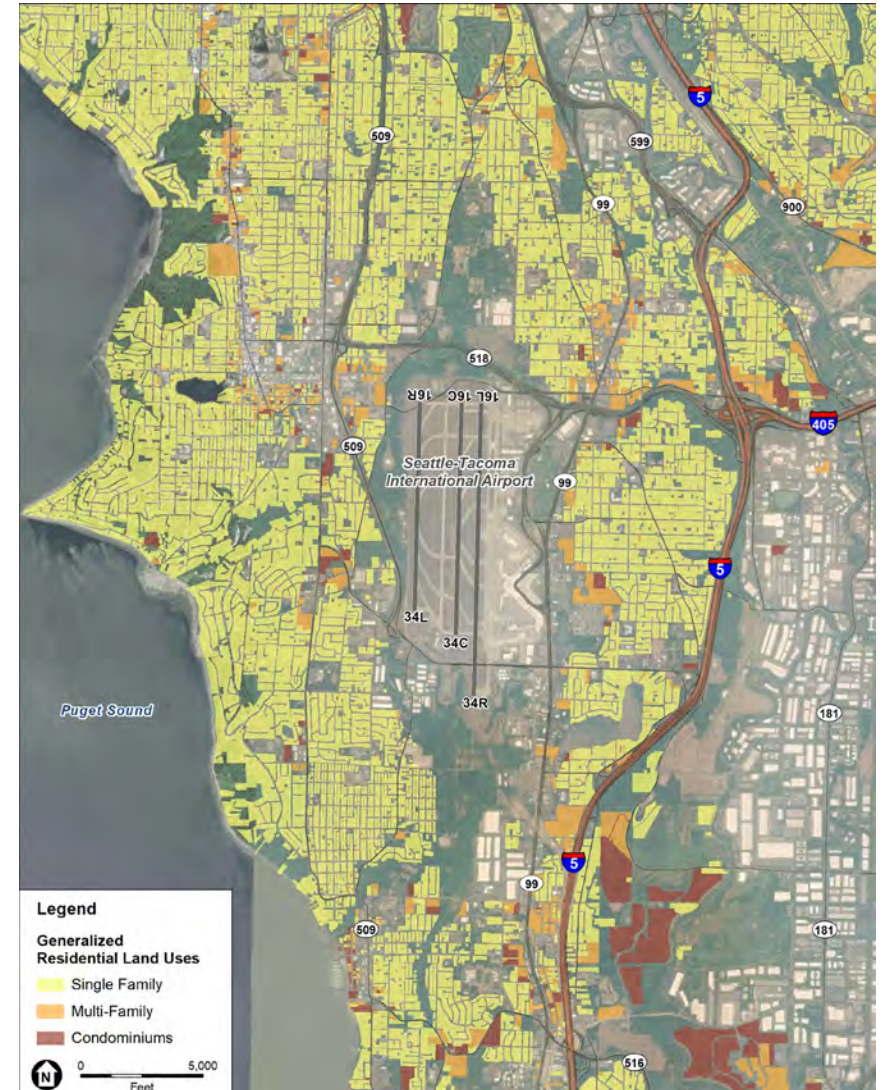
(8) Residential buildings not permitted.

KEY TO TABLE

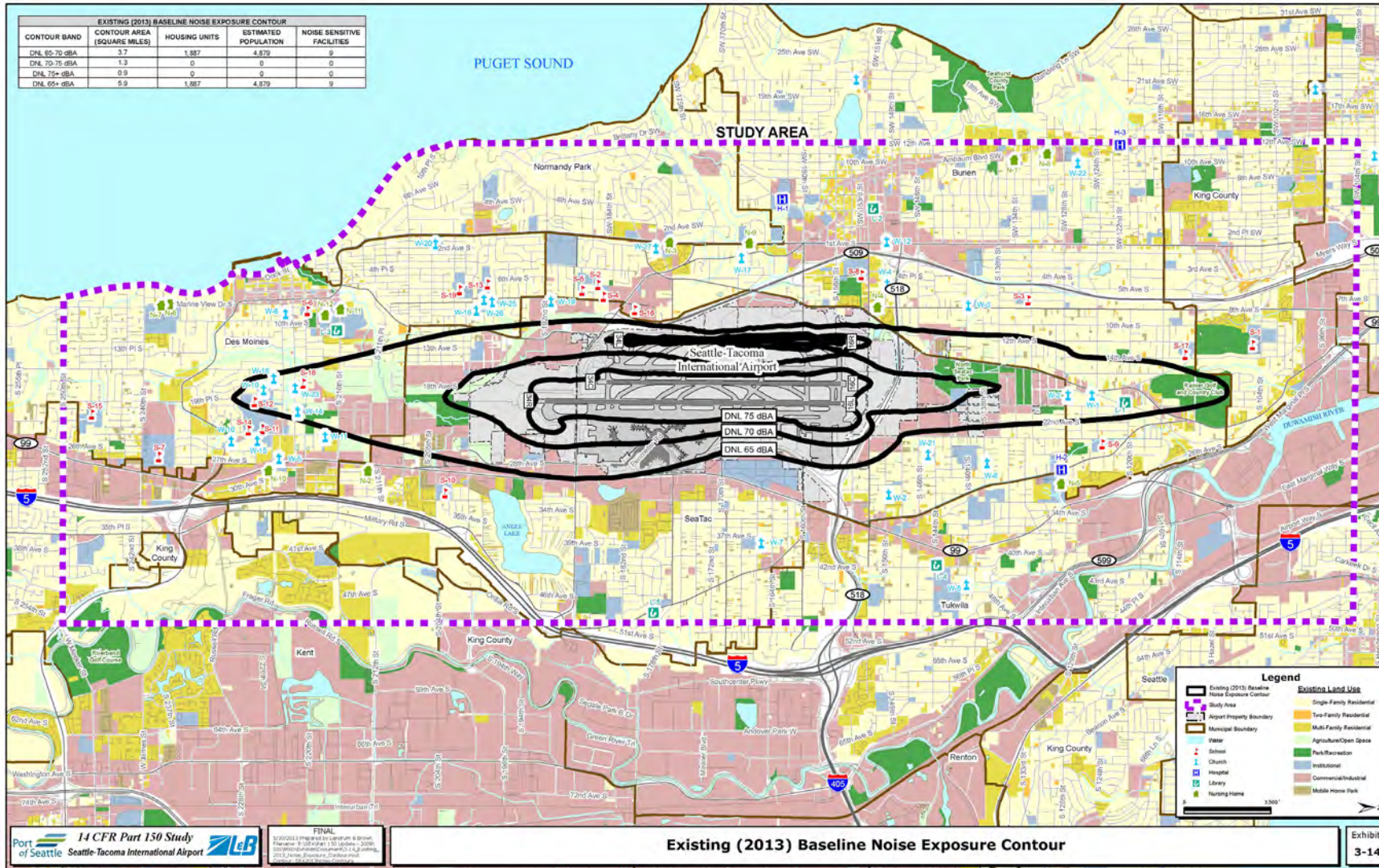
| | |
|----------------------|---|
| SLUCM | Standard Land Use Coding Manual. |
| Y (Yes) | Land Use and related structures compatible without restrictions. |
| N (No) | Land Use and related structures are not compatible and should be prohibited. |
| NLR | Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure. |
| 25, 30, or 35 | Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure. |

Land Use Compatibility

- Land Uses
 - Existing and future land use
 - Land parcel data
 - Zoning
 - Jurisdictional boundaries and neighborhoods
- Noise Sensitive Uses
 - Residential
 - Places of worship
 - Schools, colleges and universities
 - Libraries/cultural institutions
 - Hospitals and residential healthcare facilities
 - Daycare and assisted living facilities
 - Historic properties



Sample Noise Exposure Map



Frequently Asked Questions

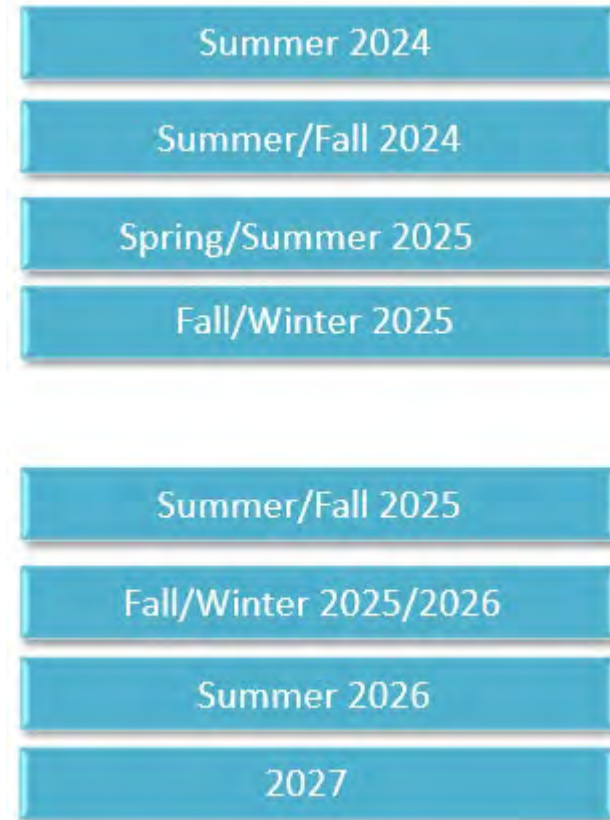
- Will the study “fix” all the noise issues around the airport?
 - No, overflights of residential areas are unavoidable and sensitivity to noise varies by person
- What type of noise monitoring will be conducted?
 - While all analysis is modeling based, which allows consistency and evaluation of future conditions, noise monitoring will be conducted to identify trends that should be evaluated in the operational data
- Will the Study address concerns about safety, soot, or other concerns related to aircraft operation?
 - The Part 150 process focuses exclusively on noise and land use compatibility

Part 150 Study Schedule

Preliminary Part 150 Study Schedule

Preliminary 14 CFR Part 150 Schedule

- Noise Exposure Maps
 - Data Collection
 - Public Outreach
 - Noise Modeling
 - NEM Report/FAA Acceptance
- Noise Compatibility Program
 - Alternatives Analysis
 - NCP Report
 - Public Hearing
 - FAA 180 Day Review/ROA



Summary of Kickoff Public Workshops

(1) Gregory Heights Elementary School

16216 19th Avenue SW

Burien, WA 98166

6:00 P.M. – 8:00 P.M.

June 5th, 2024

Attendees shown in yellow

(2) Mount Rainier High School

22450 19th Avenue S

Des Moines, WA 98198

6:00 P.M. – 8:00 P.M.

June 6th, 2024

Attendees shown in red

(3) Glacier Middle School

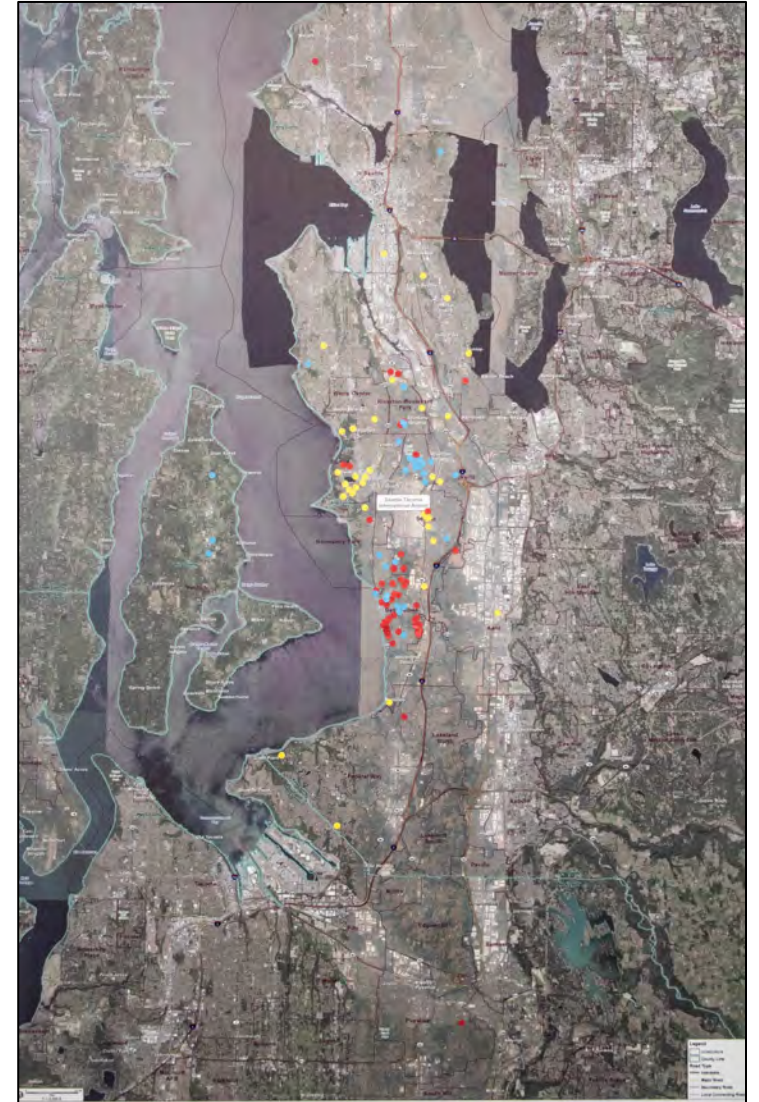
2450 S 142nd Street

SeaTac, WA 98168

10:00 A.M. – 12:00 P.M.

June 8th, 2024

Attendees shown in blue



Future Meetings

Technical Review Committee

- TRC Meeting #2 (Tentative)
- TRC Meeting #3 (Tentative)

August 2024

October 2024

- Reminder notices will be sent out in advance of each meeting
- Following the meeting, TRC materials will be posted on the Project Website at www.seapart150.com

Communications

- Project Website
 - Project Information
 - Process
 - FAQs
 - Tentative Schedule
 - Public Draft and Final NEM and NCP Reports
 - Reference Material
- Communication and Feedback:
 - Upcoming meetings including location/dates/times
 - Comment portal during public comment periods
 - Links to other websites/resources

Questions?