

2021 REDAC Spring Meeting

Research on Operational Procedures

Presented to: REDAC E&E Subcommittee

By: Chris Dorbian

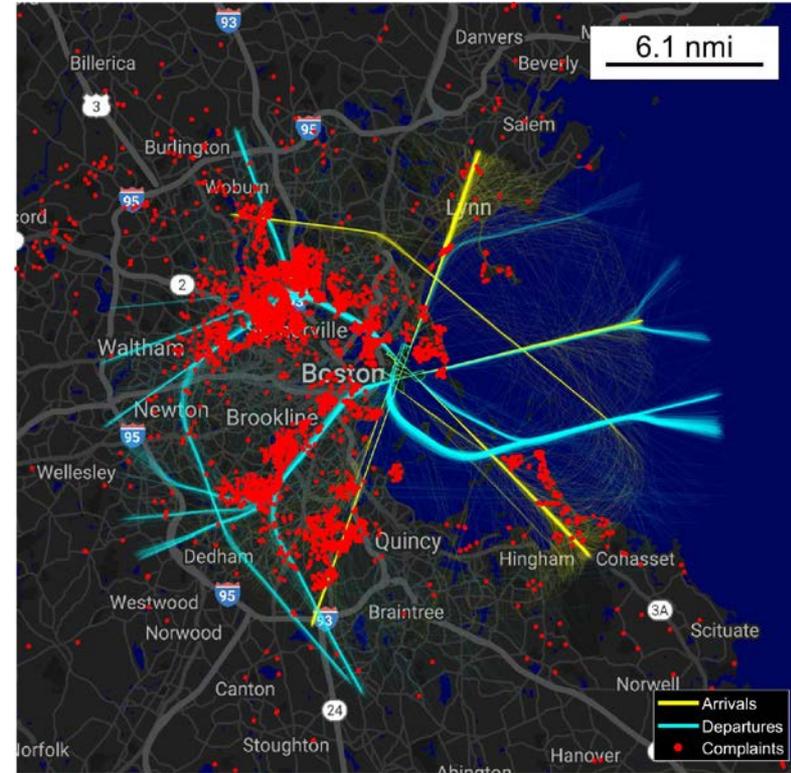
Date: March 10, 2021



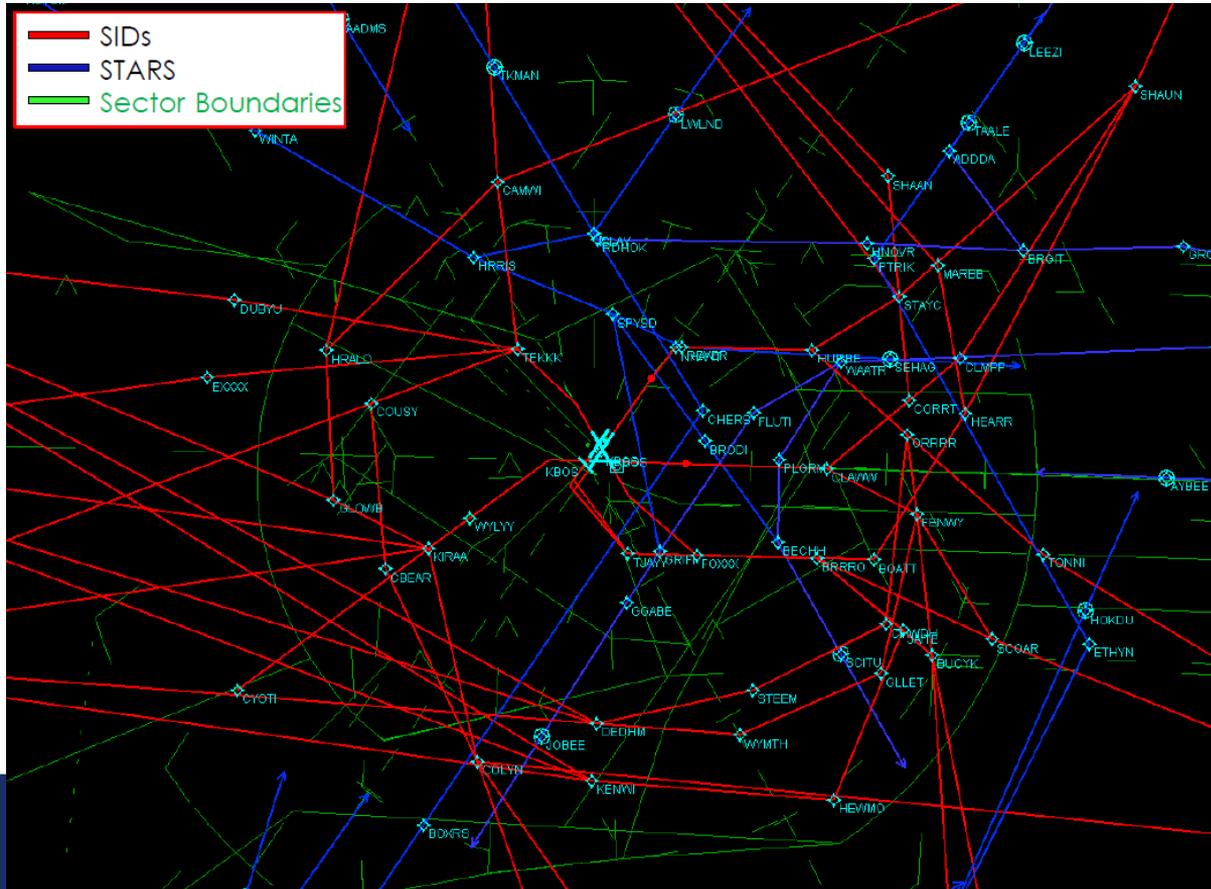
**Federal Aviation
Administration**

Massport MOU Update

- Signed in September 2016 – established framework for cooperation between Massport & FAA to explore operational changes to mitigate noise impacts
- Two Block 1 proposals advancing (33L arrival, 15R departure)
- FAA/Industry provided preliminary feedback on Block 2 proposals in August 2020
 - Dispersion over land (33L/27 departures); more complex overwater procedures (22L approach; 22/15 departures)
 - All proposals determined to be “Not a Candidate for Further Evaluation”
- MIT has since worked collaboratively with FAA to refine proposals

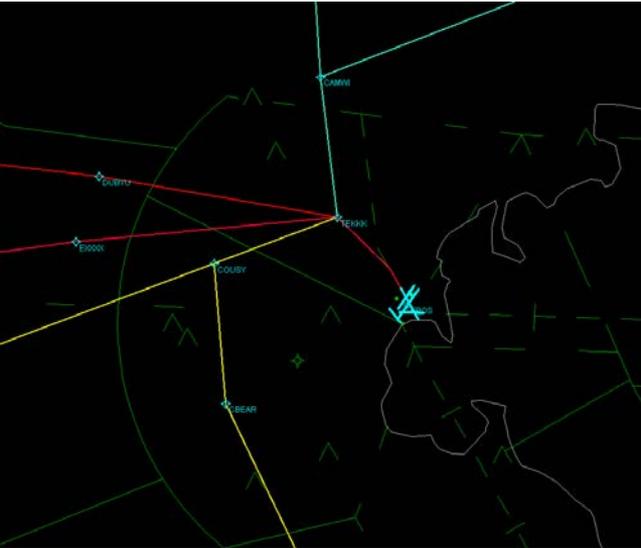


BOS Airspace Complexity

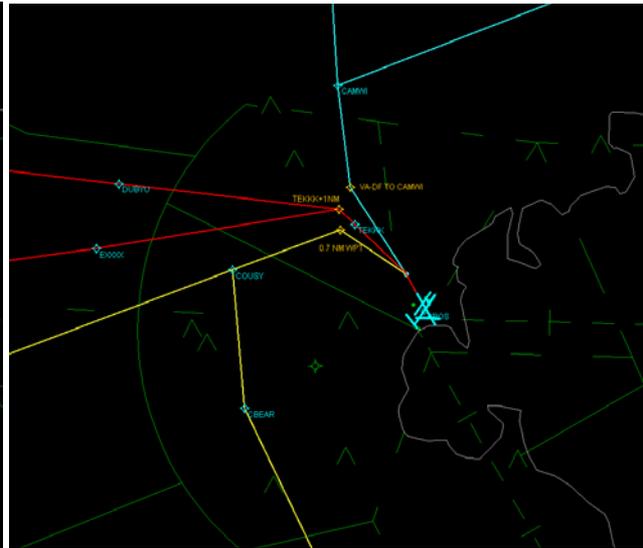


Runway 33L Departure

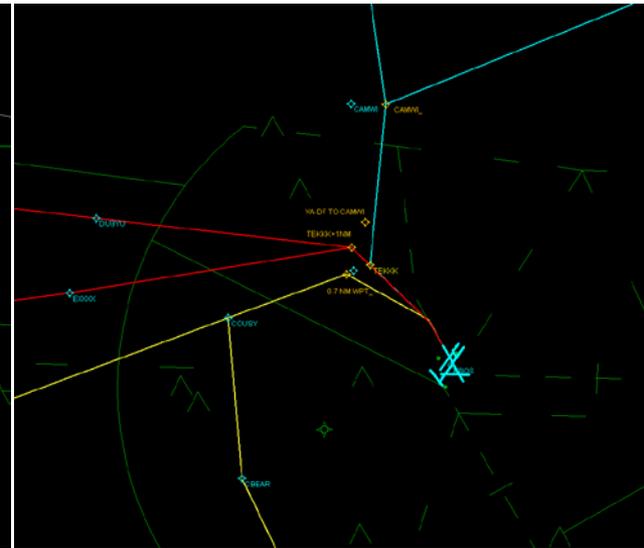
Current Procedure



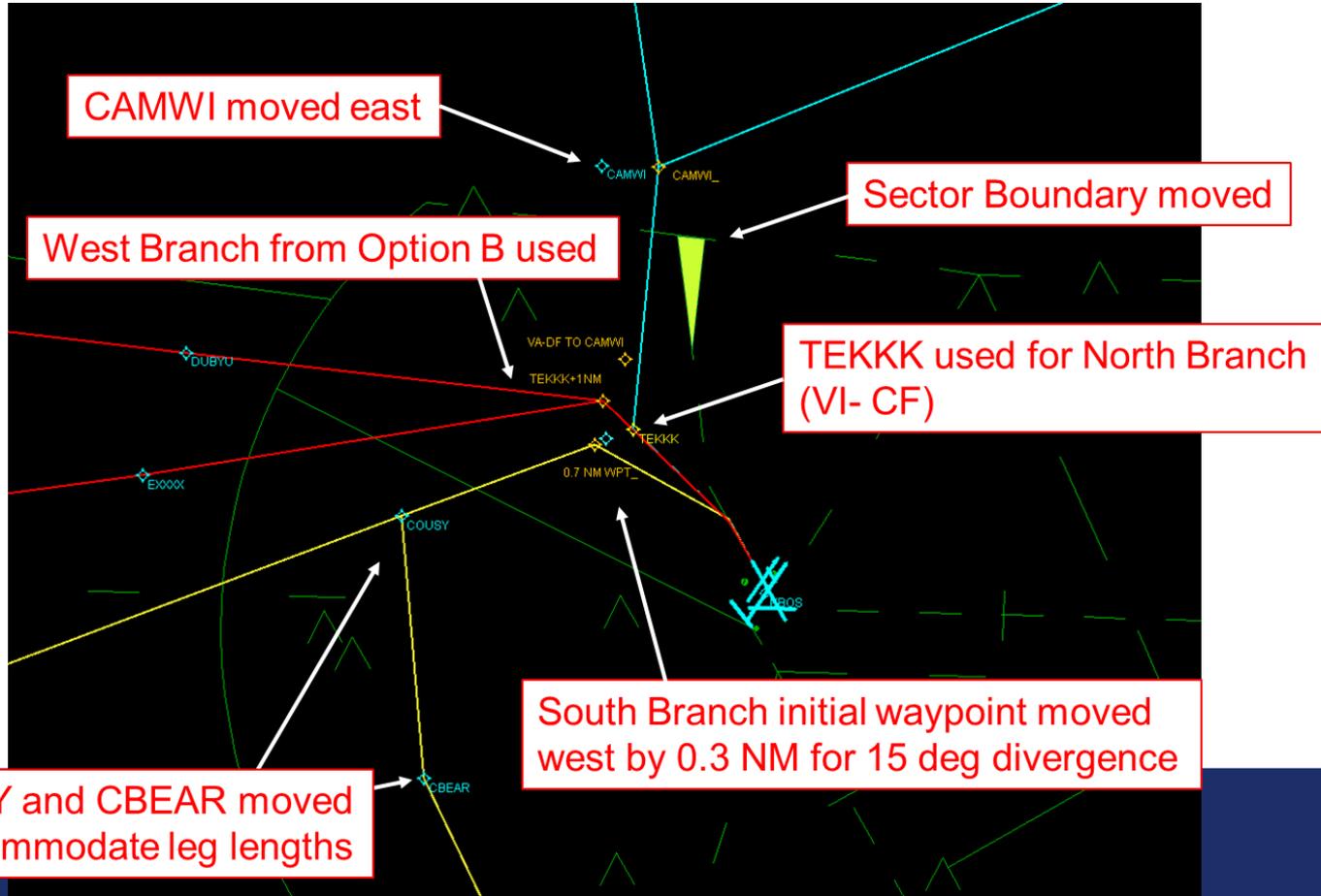
MIT Design (Aug 2020)



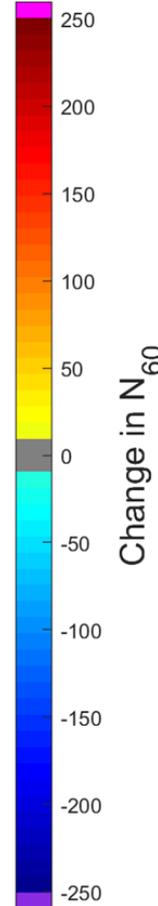
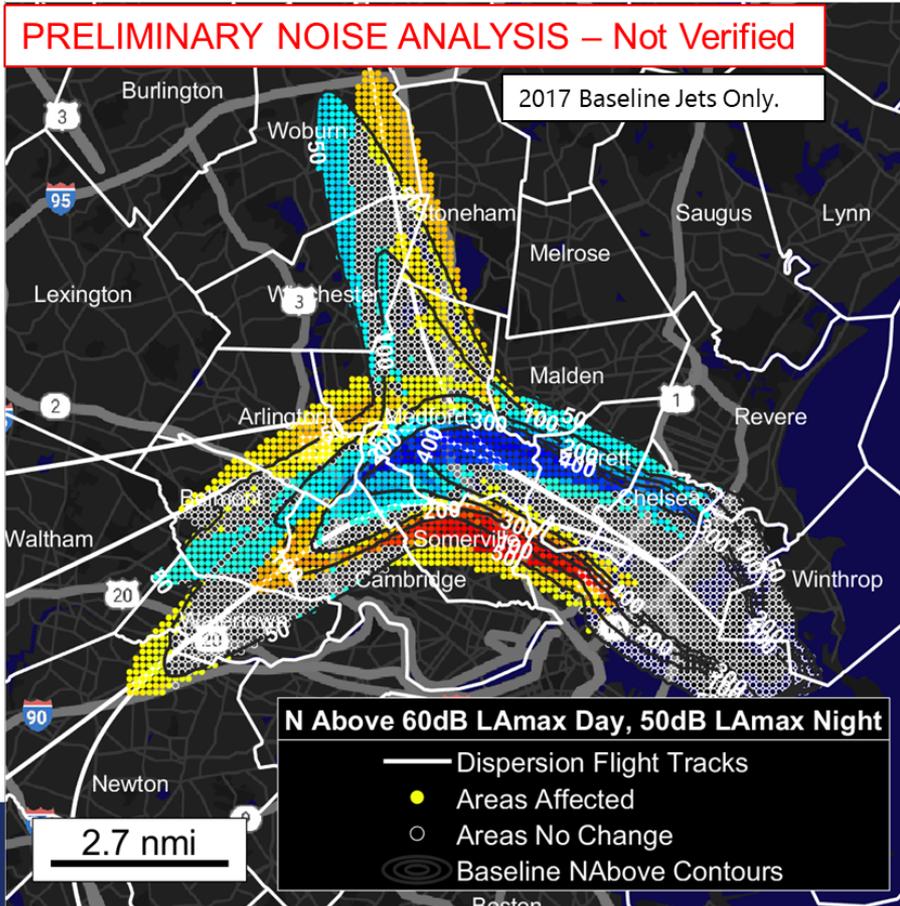
Latest Revision



Boston TRACON (A90) Proposed Modifications



Change in N₆₀ Relative to 2017



Population Exposure

N ₆₀	50x
Baseline 2017	335,823
Divergent Headings Rev 2	352,775
Baseline - Dispersion	-16,952

Analysis updated Oct. 17 2019 to remove Turboprops and refine lateral tracks
Modeling/Discretization effects near airport removed

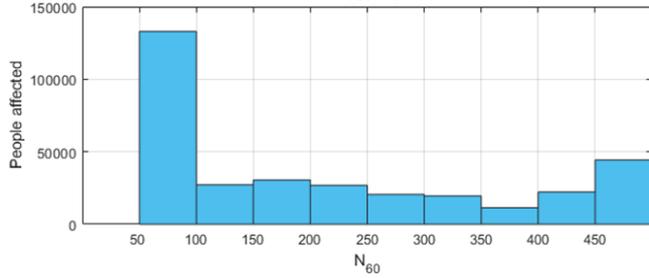
Analysis based on peak day operations; only includes 33L departures

N₆₀ Thresholds:
60dB L_{A,max} Day, 50dB L_{A,max} Night

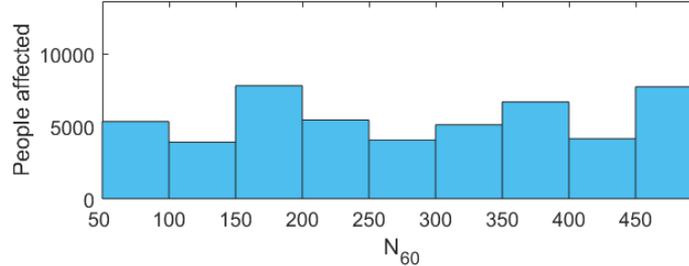
A Closer Look...

EXAMPLE ONLY

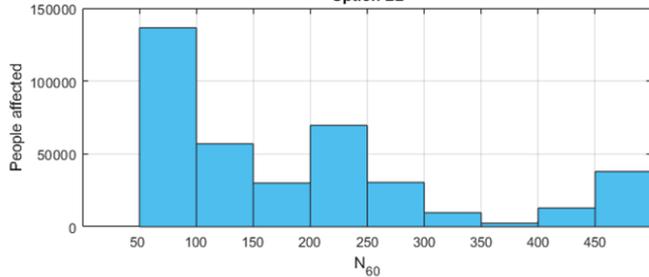
Baseline



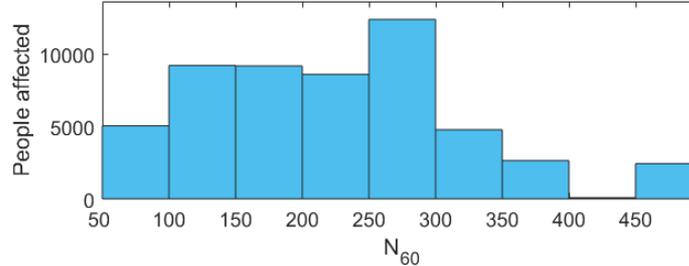
Medford: Baseline



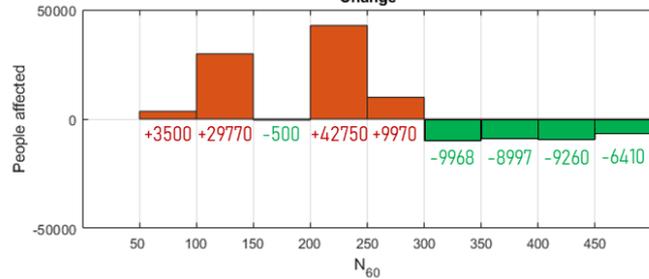
Option B2



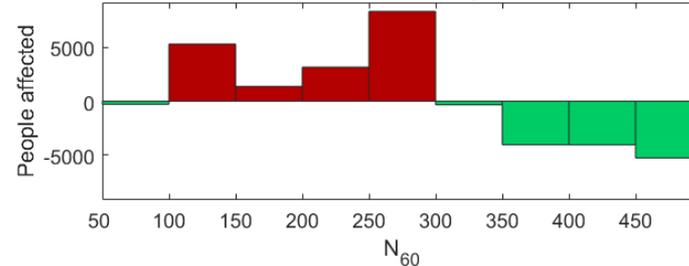
Medford: Dispersion Rev 2



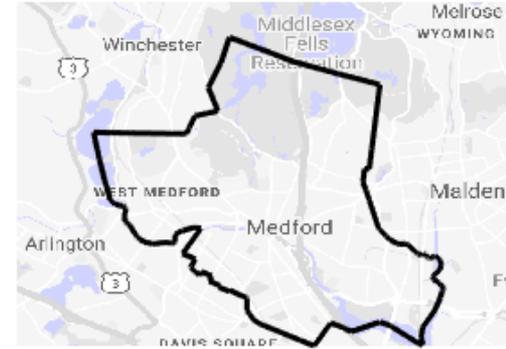
Change



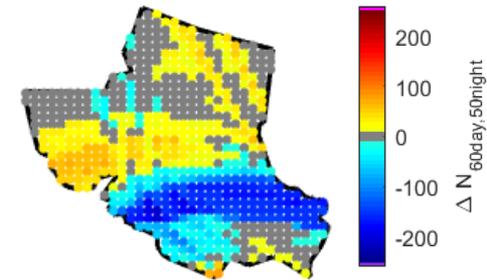
Medford: Change



Town Map

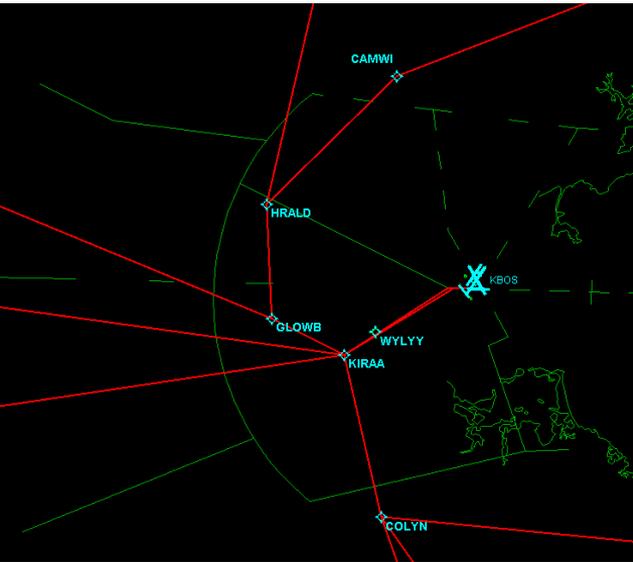


Delta N_{60} : Rev 2 - Baseline

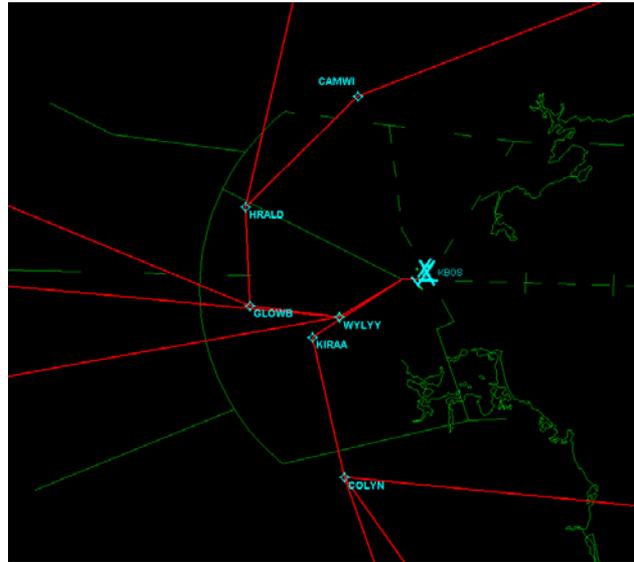


Runway 27 Departure

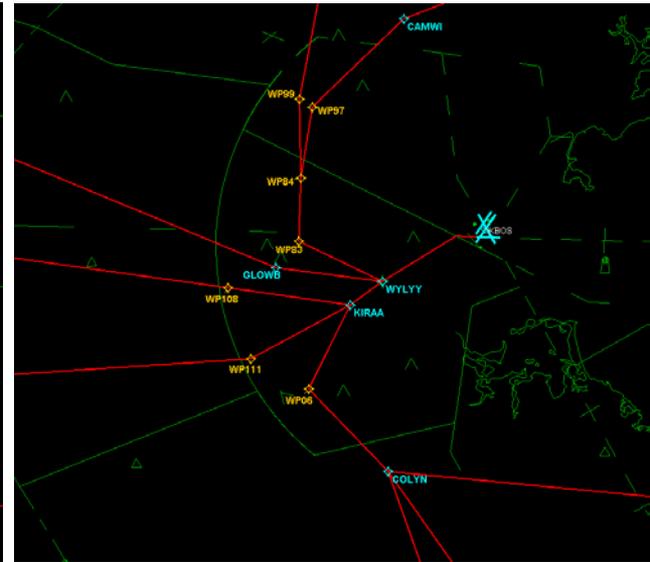
Current Procedure



MIT Proposal



FAA Revision



Baseline -
Dispersion

14,915

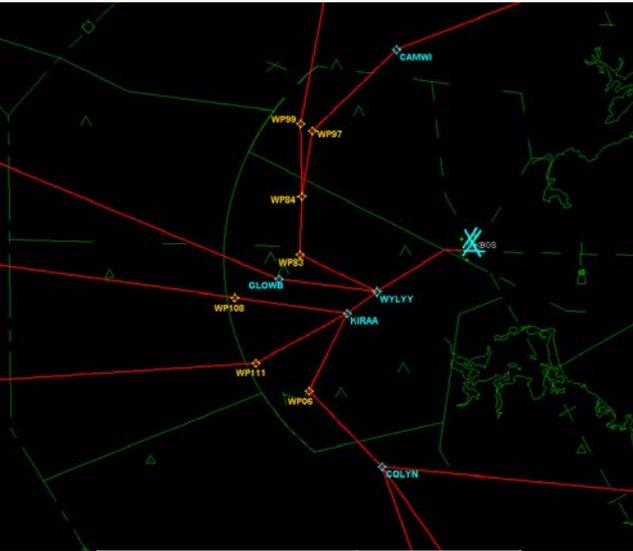
Baseline -
Dispersion

-211



27 Departure Redesign

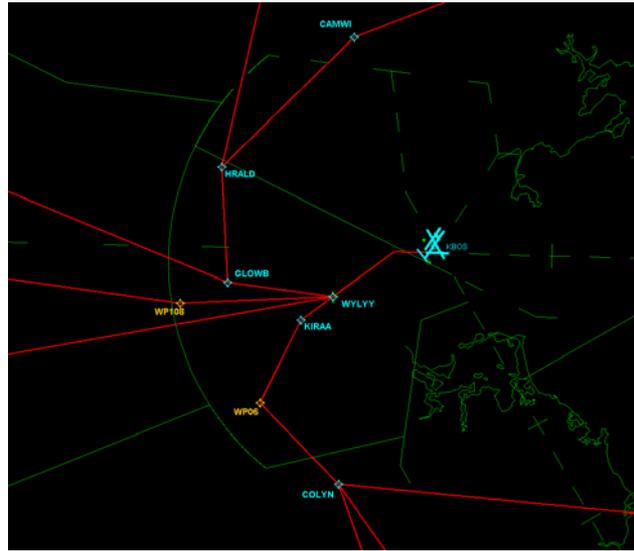
FAA Revision



Baseline -
Dispersion

-211

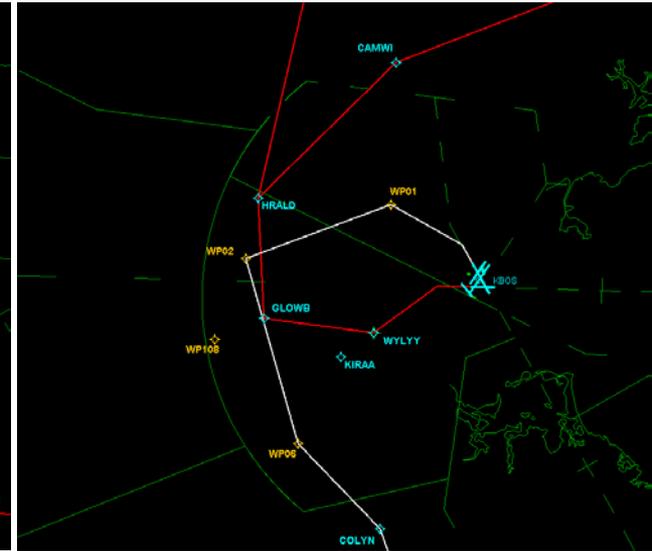
MIT Rev2



Baseline -
Dispersion

18,308

Potential Conflict w/Southbound 33L Deps



MOU Takeaways (Ongoing)

- Airspace is complex and highly interdependent; current procedures optimized for safety and efficiency, taking into account runway layout, weather, geography, etc.
- Understanding constraints is necessary to identifying feasible procedures
- Assessment in TARGETS is necessary, but passing criteria/flyability does not guarantee procedure can/should be implemented
 - Difficult to replicate FAA institutional knowledge
 - Understanding of noise goals/impacts at the procedure design stage is helpful
- Engagement with stakeholders is highly beneficial

Next Steps:

- MIT to present Block 2 proposals to community in April
- Once community approves, Massport will submit formal proposal to FAA, at which point FAA will conduct formal 7100.41A review

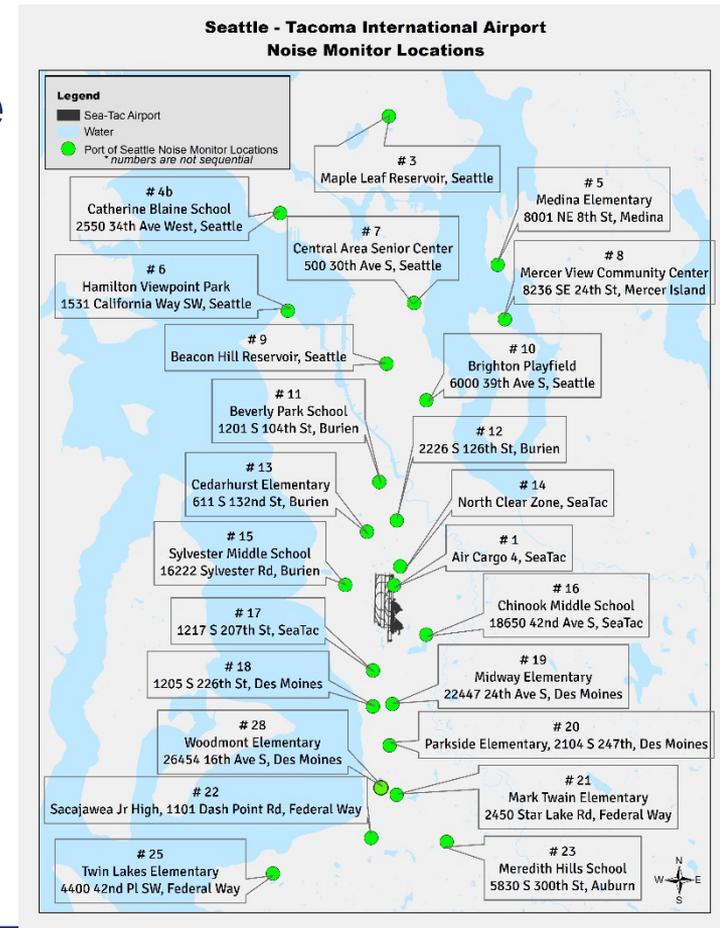
ASCENT-44 (Noise Abatement Procedure Modeling/Validation) Update

Primary Objectives:

- Collect aircraft state and noise measurement data to support validation/identification of low-noise behaviors
- Gain stakeholder perspectives on flyability and implementation barriers to low-noise procedures

Current Status:

- Received 2019 noise monitor data from SeaTac
- Processing radar data for correlation analysis



In other news...

CNN BUSINESS

LIVE TV



Airlines can now pick their own routes across the Atlantic. Huge fuel savings could follow

By Will Godley, CNN Business

Updated 10:58 AM ET, Wed February 10, 2021



- UK NATS and NAV Canada opening up more flexible transatlantic tracks
- Increased interest in operational opportunities for reduced climate impact
- Direct/wind-optimal routing? Intermediate stop operations? Formation flight? Contrail avoidance...?



Federal Aviation
Administration



Chris Dorbian
Federal Aviation Administration
Office of Environment and Energy
Email: christopher.dorbian@faa.gov

