2021 REDAC Spring Meeting

Research on Operational Procedures

Presented to: REDAC E&E Subcommittee
By: Chris Dorbian
Date: March 10, 2021
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

- CAMWI moved east
- West Branch from Option B used
- TEKKK used for North Branch (VI- CF)
- Sector Boundary moved
- South Branch initial waypoint moved west by 0.3 NM for 15 deg divergence
- COUSY and CBEAR moved to accommodate leg lengths
Change in $N_{60}$ Relative to 2017

**Baseline 2017** 335,823
**Divergent Headings Rev 2** 352,775
**Baseline - Dispersion** -16,952

Population Exposure

N

<table>
<thead>
<tr>
<th>Population Exposure</th>
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<tbody>
<tr>
<td>$N_{60}$</td>
<td>50x</td>
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<tr>
<td>Baseline 2017</td>
<td>335,823</td>
</tr>
<tr>
<td>Divergent Headings Rev 2</td>
<td>352,775</td>
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<td>-16,952</td>
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Analysis based on peak day operations; only includes 33L departures.

$N_{60}$ Thresholds:
60dB $L_{A_{\text{max}}}$ Day, 50dB $L_{A_{\text{max}}}$ Night
A Closer Look…

**Baseline**

![Baseline Graph]

**Option B2**

![Option B2 Graph]

**Medford: Baseline**

![Medford Baseline Graph]

**Medford: Dispersion Rev 2**

![Medford Dispersion Rev 2 Graph]

**Change**

![Change Graph]

**Medford: Change**

![Medford Change Graph]

**Delta N_{60}: Rev 2 - Baseline**

![Delta N_{60} Map]
Runway 27 Departure

Current Procedure

MIT Proposal

FAA Revision

Baseline - Dispersion 14,915

Baseline - Dispersion -211
27 Departure Redesign

FAA Revision

MIT Rev2

Potential Conflict w/Southbound 33L Deps

Baseline - Dispersion: -211

Baseline - Dispersion: 18,308
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…

- UK NATS and NAV Canada opening up more flexible transatlantic tracks
- Increased interest in operational opportunities for reduced climate impact
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