14 CFR PART 150 NOISE AND LAND USE COMPATIBILITY STUDY

Technical Committee Meeting #4
November 7, 2018

Agenda

• Introductions
• Review of the Role of the TC Meeting Facilitator
• Review of Prior TC Meetings
• 2018 Noise Exposure Assumptions and Contours
• 2023 Noise Exposure Assumptions and Contours
• Noncompatible Land Use Analysis
• Noise Compatibility Program Overview
• Future TC Meetings
• Questions from TC Members
Welcome and Introductions

Purpose and Objectives of the TC

• TC members represent the interests of their organization and/or constituents

• The TC’s role is to support the FLL Part 150 Study
  — Review study assumptions
  — Provide technical feedback within the context of the Part 150 Study (noise exposure maps and noise compatibility program)
  — TC members are encouraged to express their opinions and expected to respect the range of opinions expressed by their fellow TC members

• TC members are also expected to advise their organization and/or constituents of the TC’s discussions

• BCAD will respect and consider the TC’s technical input, but retains responsibility for, and decision making authority on, the FLL Part 150 Study
TC Members

- BCAD
- ANAC
- Southwest Airlines
- Delta Airlines
- JetBlue
- Spirit Airlines
- UPS
- NBAA
- Greater Fort Lauderdale Chamber of Commerce
- Greater Hollywood Chamber of Commerce
- Greater Fort Lauderdale Alliance Economic Development Agency
- Broward Workshop
- City of Dania Beach
- City of Fort Lauderdale
- City of Hollywood
- Town of Davie
- City of Plantation
- City of Cooper City
- Town of Southwest Ranches
- City of Weston
- Broward County School Board
- FAA - Orlando Airports District Office
- Miami Air Traffic Management/TRACON
- FLL Airport Traffic Control Tower
- South Florida Flight Standards Division (FSDO)

Role of the Meeting Facilitator
Role of the TC Meeting Facilitator

• To ensure that the TC meetings are effective they will be facilitated by a professional meeting facilitator
• The meeting facilitator is responsible for ensuring that the TC meetings adhere to the published meeting agenda
• The meeting facilitator may extend or shorten the length of a discussion related to an agenda item at his or her sole discretion
• The meeting facilitator, or BCAD, may cancel or suspend a TC meeting due to disrespectful or disruptive behavior
• TC meetings will be open to the public, subject to space availability

Prior Technical Committee Meetings

TC #1 – May 26, 2017
• Purpose and Objectives of the Technical Committee
• Airport Overview
• Part 150 Study Overview
• Introduction to Aircraft Noise, Modeling, and Compatibility
• Initial Data Collection
• Project Schedule

TC #2 – August 23, 2017
• Data collection process and status
• AEDT Model inputs
• Aircraft Activity Forecast
• Runway Use
• Flight Track Methodology
Prior Technical Committee Meetings

TC #3 – March 7, 2018
• Public Workshop Summary
• Land Use Data Collection
• Aircraft Activity
• Runway Use
• Flight Track Analysis
• Modeling Assumptions

2018 ASSUMPTIONS AND RESULTS
2018 Baseline Contour Assumptions

- 2018 Total Aircraft Operations: 335,000 (Master Plan Update)
- 2016 Airport Noise and Operations Monitoring System (ANOMS) data for fleet mix, runway utilization, and day / night
- 2016 ANOMS Radar data used to develop flight tracks and assign flight track utilization by aircraft category
- 10-Year Average Meteorological Data (AEDT, NOAA NCDC)
- National Elevation Dataset (NED) terrain data (USGS)

Runway Use – East Flow

Legend

Arrivals

Day: 52%
Night: 74%

Day: 29%
Night: 7%

Day: 49%
Night: 65%

Day: 32%
Night: 16%
Runway Use - West Flow

Runway Usage

<table>
<thead>
<tr>
<th>Operation Type</th>
<th>Runway</th>
<th>Day</th>
<th>Night</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Arrivals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Runway</td>
<td>10L</td>
<td>52%</td>
<td>74%</td>
<td>55%</td>
</tr>
<tr>
<td></td>
<td>28R</td>
<td>12%</td>
<td>18%</td>
<td>13%</td>
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<td></td>
<td>Total</td>
<td>64%</td>
<td>92%</td>
<td>68%</td>
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<td>South Runway</td>
<td>10R</td>
<td>29%</td>
<td>7%</td>
<td>26%</td>
</tr>
<tr>
<td></td>
<td>28L</td>
<td>7%</td>
<td>1%</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>36%</td>
<td>8%</td>
<td>32%</td>
</tr>
<tr>
<td><strong>Departures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Runway</td>
<td>10L</td>
<td>49%</td>
<td>65%</td>
<td>51%</td>
</tr>
<tr>
<td></td>
<td>28R</td>
<td>12%</td>
<td>16%</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>61%</td>
<td>81%</td>
<td>64%</td>
</tr>
<tr>
<td>South Runway</td>
<td>10R</td>
<td>32%</td>
<td>16%</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td>28L</td>
<td>7%</td>
<td>3%</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>39%</td>
<td>19%</td>
<td>36%</td>
</tr>
</tbody>
</table>

Source: Airport Noise Monitoring and Management System (ANOMS), 2016.
10L Arrival Flight Tracks: 55% of All Arrivals (SAMPLE)

Daytime: 52%
Nighttime: 74%

• 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 further decrease in background levels that typically occur in the nighttime

• FAA requires the use of DNL for airport noise assessments

• Average Annual Day aircraft noise exposure is calculated over a broad area and then depicted using contour lines of equal noise levels
2023 Future Condition Contour Assumptions

- 2023 Total Aircraft Operations: 364,765 (Master Plan Update)
- 2016 ANOMS Radar data used to develop flight tracks and assign flight track utilization by aircraft category and day/night utilization
- Master Plan Update used for fleet mix and operations
- Runway utilization used information from the Master Plan Update, Air Traffic Control Tower meetings, future airline/gate assignments, and internal analysis
- 10-Year Average Meteorological Data (AEDT, NOAA NCDC)
- National Elevation Dataset (NED) terrain data (USGS)

2023 Part 150 Runway Use

<table>
<thead>
<tr>
<th>Runway Usage</th>
<th>Operation Type</th>
<th>North Runway</th>
<th>South Runway</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Arrivals</td>
<td>10L</td>
<td>49%</td>
<td>66%</td>
<td>52%</td>
</tr>
<tr>
<td></td>
<td>28R</td>
<td>12%</td>
<td>12%</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>62%</td>
<td>84%</td>
<td>65%</td>
</tr>
<tr>
<td></td>
<td>10R</td>
<td>31%</td>
<td>15%</td>
<td>29%</td>
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<td></td>
<td>28L</td>
<td>7%</td>
<td>1%</td>
<td>6%</td>
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<tr>
<td></td>
<td>Total</td>
<td>38%</td>
<td>16%</td>
<td>35%</td>
</tr>
<tr>
<td>Departures</td>
<td>10L</td>
<td>44%</td>
<td>59%</td>
<td>46%</td>
</tr>
<tr>
<td></td>
<td>28R</td>
<td>14%</td>
<td>18%</td>
<td>14%</td>
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<td>Total</td>
<td>58%</td>
<td>77%</td>
<td>60%</td>
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<tr>
<td></td>
<td>10R</td>
<td>37%</td>
<td>21%</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>28L</td>
<td>5%</td>
<td>3%</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>47%</td>
<td>23%</td>
<td>40%</td>
</tr>
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</table>

Draft Analysis For Internal Review Only – Work In Progress
FLL 2023 Part 150 DNL 65/70/75 Contours

FLL 2018 Part 150 Noise Contours vs 2023 Part 150 Noise Contours
Noncompatible Land Use Analysis

FLL 2018 Part 150 Noise Contours vs 2023 Part 150 Noise Contours with Existing Land Use

Draft For Illustration Purposes Only – Work In Progress
FLL 2018 Part 150 Noise Contours vs 2023 Part 150 Noise Contours with Non-Compatible Land Use

Example Non-compatible Land Uses (North Arrival)
Example Non-compatible Land Uses (South Arrival)

Example Non-compatible Land Uses (South)
2018 and 2023 Summary of Noise Sensitive Uses

<table>
<thead>
<tr>
<th>Noise Sensitive Sites Exposed to DNL 65 and Higher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise Level</td>
</tr>
<tr>
<td>---------------</td>
</tr>
<tr>
<td>2018</td>
</tr>
<tr>
<td>DNL 65-70</td>
</tr>
<tr>
<td>DNL 70-75</td>
</tr>
<tr>
<td>DNL 75+</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>2023</td>
</tr>
<tr>
<td>DNL 65-70</td>
</tr>
<tr>
<td>DNL 70-75</td>
</tr>
<tr>
<td>DNL 75+</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

SOURCES:
1. Noise contours from Environmental Science Associates (ESA)
2. Housing units and population estimates derived from 2010 Census block-level data.
3. Public school data from Broward County Public Schools; private schools from Florida Geographic Data Library (FGDL).
4. All other noise sensitive site data from Florida Geographic Data Library (FGDL).

No Other Noise Sensitive Sites within DNL 65:
- Schools
- Hospitals
- Religious Facilities
- Day Cares
- Nursing Homes/ Group Care
- Libraries
FLL 2018 & 2023 Part 150 Noise Contours with Sound Insulation Program

2018 and 2023 Non-Mitigated Residential Land Uses

<table>
<thead>
<tr>
<th>Noise Level</th>
<th>Housing Units Outside SIP</th>
<th>Housing Units within SIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DNL 65-70</td>
<td>89</td>
<td>114</td>
</tr>
<tr>
<td>DNL 70+</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>89</td>
<td>114</td>
</tr>
<tr>
<td>2023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DNL 65-70</td>
<td>105</td>
<td>387</td>
</tr>
<tr>
<td>DNL 70+</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>105</td>
<td>387</td>
</tr>
</tbody>
</table>

**SOURCES:**
1. FLL Sound Insulation Program housing unit data from Broward County Aviation Department
2. Noise contours from Environmental Science Associates (ESA)
3. Housing units derived from 2010 Census block-level data.
Noise Compatibility Program (NCP) Overview

• The NCP explores operational, land use, and administrative measures to minimize aircraft noise exposure

• The FAA reviews entire NCP for completeness
  – Technical, policy, effectiveness review

• The NCP Report must include a provision for revising the NCP if made necessary by a revision of the Noise Exposure Map

• FAA has 180 days to review the NCP

• During its review, the FAA will respond as follows for each measure:
  – Approved
  – Disapproved
  – Approved or disapproved in part
  – No action (only relevant for NCP measures involving flight procedures)
## Major NCP Strategy Options

### Noise Abatement
- Noise abatement flight tracks
- Preferential runway use
- Arrival/departure procedures
- Airport layout modifications
- Run-up enclosures
- Use restrictions*
- Other actions proposed by stakeholders

### Land Use
- Remedial Mitigation
  - Land acquisition
  - Sound insulation
  - Avigation easements
- Preventative Mitigation
  - Land use controls
  - Zoning
  - Building codes
  - Comprehensive plans
  - Real estate disclosures
- Other actions proposed by stakeholders

### Programmatic
- Implementation tools
- Promotion, education, signage, etc.
- Monitoring
- Reporting
- NEM update
- NCP revision
- Other actions proposed by stakeholders

* Subject to further notice, review, and approval requirements in 14 CFR Part 161

## Distinction Between Noise Abatement and Noise Mitigation

**Noise Mitigation**
- Addresses non-compatible land uses
  - Preventative: addresses future uses
  - Remedial: addresses existing uses

**Noise Abatement**
- Reduces noise exposure by moving the source

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Review of NCP Measures

All NCP Measures Must Consider:

- Reduction of existing incompatible land use and prevention / reduction of future incompatible land use
  - The FAA will not approve NCP measures that do not reduce exposure to noise of DNL 65 and higher
- Safety and efficiency
- Consistency with the powers and duties of the FAA
- Avoidance of unjust discrimination against certain aircraft types
- Interstate commerce
  - Measures cannot impose an undue burden on interstate commerce (requires balancing of interests)
- The ability to meet both local needs and national air transportation system needs

Importance of TC Involvement During the NCP Phase

- TC members represent the interests of their organization and/or constituents

- TC involvement in the NCP phase is key for a successful NCP
  - Identify potential NCP measures
  - Provide subject matter expertise
  - Advise organization and/or constituents of NCP discussions
  - Solicit feedback from organization and/or constituents

- 14 CFR Part 150 requires consultation with the following stakeholders, and most are members of the TC:
  - FAA regional officials
  - Officials of the state and of any public agencies and planning agencies that have any area of jurisdiction within the DNL 65
  - Other Federal officials having local responsibility of land uses in an NEM
  - Aircraft operators using the airport
  - General Public
Future TC Meetings

Future Meetings

Technical Committee
- TC Meeting #5 (Tentative) - January 2019

Public Workshop
- NEM Report Public Workshop - January 2019

TC and Public Workshop materials will be available on the project website following each meeting
www.filpart150.com
Next Steps

- Study Coordination Committee Meeting (11-7-18)
- Publish Draft NEM Report
- NEM Public Workshop (January 2019)
- Incorporate NEM Comments and Submit to FAA for Acceptance
- Solicit Alternatives to be Evaluated in Noise Compatibility Program (NCP)

Questions from TC Members
Adjourn