14 CFR PART 150 NOISE AND LAND USE COMPATIBILITY STUDY

Technical Committee Meeting #1
May 26, 2017
Agenda

- Introductions and Opening Remarks
- Technical Committee (TC)
  - Purpose and Objectives of the Technical Committee
  - Role of the TC Meeting Facilitator
  - TC Charter and Participation Agreement
- Airport Overview
- Part 150 Study Overview
- Introduction to Aircraft Noise, Modeling, and Compatibility
- Initial Data Collection
- Project Schedule
- TC Questions
Welcome and Introductions
Welcome and Introductions – Consultant Team

Environmental Science Associates (ESA)

- 500+ person environmental consulting firm
- Experience at more than 150 airports nationally
- Highly complex projects
  - LaGuardia Part 150
  - John F. Kennedy International Part 150
  - Los Angeles International Part 150
  - San Francisco International Part 150
  - Hartsfield-Jackson Atlanta International Part 150
  - O’Hare Modernization Program EIS
- More than 100 airport noise-related studies in Florida
Welcome and Introductions – Consultant Team
Welcome and Introductions – Consultant Team

Garth Solutions, Inc. (GSI)
Public Outreach/Facilitation/Communications

Kimley-Horn and Associates, Inc. (KHA)
Land Use Planning/Public Outreach Support

Vanasse Hangen Brustlin, Inc. (VHB)
Technical Support/Public Outreach Support

American Infrastructure Development, Inc. (AID)
Strategic Planning/Public Outreach Support

Lewis, Longman, & Walker, P.A. (LLW)
Land Use Planning Legal Support

Planning Technology, Inc. (PTI)
Website Design

Arora Engineers (Arora)
Geographic Information Systems/Mapping
Technical Committee
TC Members

- BCAD
- ANAC
- Southwest Airlines
- Delta Airlines
- JetBlue*
- Spirit Airlines
- FedEx*
- UPS*
- NBAA
- Greater Fort Lauderdale Chamber of Commerce
- Greater Hollywood Chamber of Commerce
- Greater Dania Beach 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 Planning and Development Management Division*
- 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)

*Participation in the Technical Committee not yet confirmed.
Broward County Aviation Department (BCAD) has formed a Technical Committee (TC) for the Part 150 Study for Fort Lauderdale-Hollywood International Airport (FLL)

- BCAD has invited a cross section of key stakeholders to serve on the TC
- The TC is composed of primary and alternate members who are authorized to represent their organization and/or constituents for the duration of the FLL Part 150 Study, which is estimated at three years
- TC meetings will be conducted in a professional and respectful manner
- TC meetings will be open to the public, subject to space availability
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
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.
The TC Charter and Participation Agreement are included in today’s handout materials.

The Charter describes the role of the TC and describes the conduct of the TC meetings.

Please return the signed Participation Agreement to BCAD today.

BCAD anticipates there will be 8 TC meetings during the Study’s duration.

TC meetings will be held quarterly, on average.

Every effort will be made to schedule TC meeting dates and times that will be convenient to the majority of TC members.

TC membership is voluntary and TC members will not be compensated for their time.
Airport Overview
FLL Overview

- FLL is 21st in the U.S. in total passenger traffic and 13th in domestic origin and destination passengers.
- Each day an average of 80,000 travelers pass through FLL.
- The new South Runway opened in September 2014.
- Nonstop flights to over 100 U.S. and international cities.
- 139,920 total jobs (direct, indirect, and induced).
Three core organizations are involved in aircraft operations at FLL:

- **Federal Aviation Administration (FAA)**
  - Directs the safe movement of aircraft in the air and on the ground

- **BCAD**
  - Manages the airport(s), improves and maintains airport facilities
  - No control over where aircraft fly

- **Pilots**
  - The pilot in command has ultimate responsibility for the safe operation of his/her aircraft
14 CFR Part 150 Overview


- Issued in response to provisions contained in the *Aviation Safety and Noise Abatement Act 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
The 14 CFR Part 150 process is the Airport Sponsor’s mechanism to improve the compatibility between the Airport and surrounding communities.
Part 150 Study Overview

Key Issues

• Operational Concerns
  – Opening of New Runway
  – Change in Operation of North Runway
  – Potential Changes Related to NextGen/Metroplex

• Ongoing Residential Sound Insulation Program

• Community Education

• Expectation Management
Regulatory Framework

- **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**: (1) Controls aircraft while in flight; (2) Responsible for controlling noise at its source (i.e., aircraft engines); (3) Certifies aircraft and pilots.

- **Airport Proprietors/BCAD**: (1) Very limited authority to adopt local restrictions; (2) Responsible for capital improvement projects and infrastructure.

- **Local Governments and States**: (1) Promote compatible land use through zoning; (2) Require real estate disclosure; (3) Mandate sound-insulating building materials.

**FEDERAL LAW PREEMPTS STATE AND LOCAL REGULATIONS**
Part 150 Study Overview

Analyze, Evaluate, Educate

• Determine existing and future noise conditions in the vicinity of an airport
• Identify incompatible 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
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 Noise Exposure Map (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 Noise Compatibility Program (NCP) Report

Stakeholder Outreach Program
- Local Jurisdictions/Agencies
- FAA
- Public
Other Milestones:

- BCAD Initiation of a Study Coordination Committee in Fall 2016
- FAA Approval of the FLL Part 150 Study Forecast on April 10, 2017
- Website launched on May 3, 2017
Noise, Modeling and Compatibility
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 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
Introduction to Aircraft Noise - DNL

**Single Event Sound Level**

- $L_{max} = 64$ dBA
- $L_{max} = 70$ dBA
- Duration = 10 secs
- Duration = 5 secs

**One Hour of Events (Hourly LEQ)**

- Aircraft Flyovers
- LEQ Noise Level

(Time axis not drawn to scale. Aircraft events are shorter than shown here)

**Twenty-Four Hours of Events (DNL)**

- DNL
- Hourly LEQ
- 10-dB Nighttime Penalty

- 1 Event/Day SEL 114.4 dBA = DNL 65
- 10 Events/Day SEL 104.4 dBA = DNL 65
- 100 Events/Day SEL 94.4 dBA = DNL 65
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 2C, will be used for the FLL Part 150 Study.
Model Inputs

• The Amount of Noise Exposure is determined by:
  – Aircraft types
  – Stage length
  – 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
Land Uses

• Existing and Future Land Use
• Land parcel data
• Zoning
• Jurisdictional boundaries and neighborhoods

Noise Sensitives Uses

• Residential
• Places of worship
• Schools, colleges and universities
• Libraries/cultural institutions
• Hospitals and residential healthcare facilities
• Daycare and assisted living facilities
• Historic properties
Land Use Compatibility

- Table 1 in Appendix A of 14 CFR Part 150 provides noise and land use compatibility guidelines
- Deems levels below 65 dB DNL 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
Part 150 Study Overview – Land Use Compatibility
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?
  – None, all analysis is modeling based which allows consistency and evaluation of future conditions

• 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
Initial Data Collection
Noise Exposure Maps – Baseline Conditions

• Base year and a future year which is at least 5 years into the future
• Basis of comparison for effectiveness of potential noise abatement measures
• Year of submittal must be consistent with base year
  – Existing Condition: 2017
  – Future Condition: 2022
• Existing Condition based on recent 12 months of operational data applied to 2017 projected activity level
Data Collection – Operational Information

• CY 2016 data from the BCAD’s Airport Noise and Operations Management System (ANOMS):
  – Airport Operations
  – Aircraft Fleet Mix
  – Time of Day of Operation
  – Arrival and Departure Flight Tracks
  – Flight Profiles
  – Stage Length

• 2016 FAA Air Traffic Activity Data System (ATADS)

• BCAD Master Plan Update Forecasts
# Data Collection - 2016 Operational Information

## Annual Aircraft Operations

<table>
<thead>
<tr>
<th>Date</th>
<th>Air Carrier</th>
<th>Air Taxi</th>
<th>General Aviation</th>
<th>Military</th>
<th>Total</th>
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</thead>
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<tr>
<td>January 2016</td>
<td>19,945</td>
<td>2,849</td>
<td>3,377</td>
<td>39</td>
<td>26,210</td>
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<tr>
<td>February 2016</td>
<td>19,026</td>
<td>2,711</td>
<td>3,188</td>
<td>49</td>
<td>24,974</td>
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<tr>
<td>March 2016</td>
<td>21,120</td>
<td>3,343</td>
<td>3,948</td>
<td>55</td>
<td>28,466</td>
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<tr>
<td>April 2016</td>
<td>18,871</td>
<td>3,203</td>
<td>3,334</td>
<td>52</td>
<td>25,460</td>
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<tr>
<td>May 2016</td>
<td>17,807</td>
<td>3,031</td>
<td>2,884</td>
<td>106</td>
<td>23,828</td>
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<tr>
<td>June 2016</td>
<td>17,461</td>
<td>2,704</td>
<td>2,672</td>
<td>47</td>
<td>22,884</td>
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<tr>
<td>July 2016</td>
<td>17,853</td>
<td>2,818</td>
<td>2,781</td>
<td>42</td>
<td>23,494</td>
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<tr>
<td>August 2016</td>
<td>17,382</td>
<td>2,586</td>
<td>2,551</td>
<td>73</td>
<td>22,592</td>
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<td>September 2016</td>
<td>15,224</td>
<td>2,203</td>
<td>2,267</td>
<td>55</td>
<td>19,749</td>
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<td>October 2016</td>
<td>15,498</td>
<td>2,182</td>
<td>2,622</td>
<td>45</td>
<td>20,347</td>
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<td>November 2016</td>
<td>18,378</td>
<td>2,599</td>
<td>3,450</td>
<td>50</td>
<td>24,477</td>
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<td>December 2016</td>
<td>21,455</td>
<td>2,832</td>
<td>3,437</td>
<td>34</td>
<td>27,758</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>220,020</strong></td>
<td><strong>33,061</strong></td>
<td><strong>36,511</strong></td>
<td><strong>647</strong></td>
<td><strong>290,239</strong></td>
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</table>

Source: FAA Air Traffic Activity Data System (ATADS), 2016.
### Daytime and Nighttime Operations

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<th>Operation Type</th>
<th>Day</th>
<th>Night</th>
<th>Grand Total</th>
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</thead>
<tbody>
<tr>
<td>Arrivals</td>
<td>84%</td>
<td>16%</td>
<td>100%</td>
</tr>
<tr>
<td>Departures</td>
<td>90%</td>
<td>10%</td>
<td>100%</td>
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<tr>
<td><strong>Grand Total</strong></td>
<td>87%</td>
<td>13%</td>
<td>100%</td>
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</table>

Source: Airport Noise Monitoring and Management System (ANOMS), 2016.

### 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>Arrivals</td>
<td>10L</td>
<td>52%</td>
<td>74%</td>
<td>55%</td>
</tr>
<tr>
<td></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>28R</td>
<td>12%</td>
<td>18%</td>
<td>13%</td>
</tr>
<tr>
<td><strong>Arrivals Total</strong></td>
<td></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Departures</td>
<td>10L</td>
<td>49%</td>
<td>65%</td>
<td>51%</td>
</tr>
<tr>
<td></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>
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<tr>
<td></td>
<td>28R</td>
<td>12%</td>
<td>16%</td>
<td>13%</td>
</tr>
<tr>
<td><strong>Departures Total</strong></td>
<td></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Airport Noise Monitoring and Management System (ANOMS), 2016.
Project Schedule
Preliminary Study Schedule

Noise Exposure Maps
- Data Collection: Summer 2016-Fall 2017
- Public Outreach: Fall-Winter 2017
- Noise Modeling: Fall-Winter 2017*
- NEM Report/FAA Acceptance: Summer 2018*

Noise Compatibility Program
- Alternatives Analysis: Spring-Fall 2018
- NCP Report: Fall-Winter 2018
- Public Hearing: Spring 2019
- FAA 180 Day Review/ROA: Fall-Winter 2019

* Schedule may shift depending on availability of FAA’s Metroplex flight path data.
Future Meetings

Technical Committee

• TC Meeting #2
• TC Meeting #3 (Tentative)

Public Workshops

• Overview of Part 150 Process

Tentatively August 2017
Fall 2017
TBD*

* Date for public involvement is dependent on the Study Coordination Committee.

TC and Public Workshop materials will be available on the project website immediately following each meeting
www.fllpart150.com
Project Website – www.fllpart150.com

- Project information
- Notification of upcoming meetings
- Comment mechanism
- Links to other websites
Questions from TC Members