



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

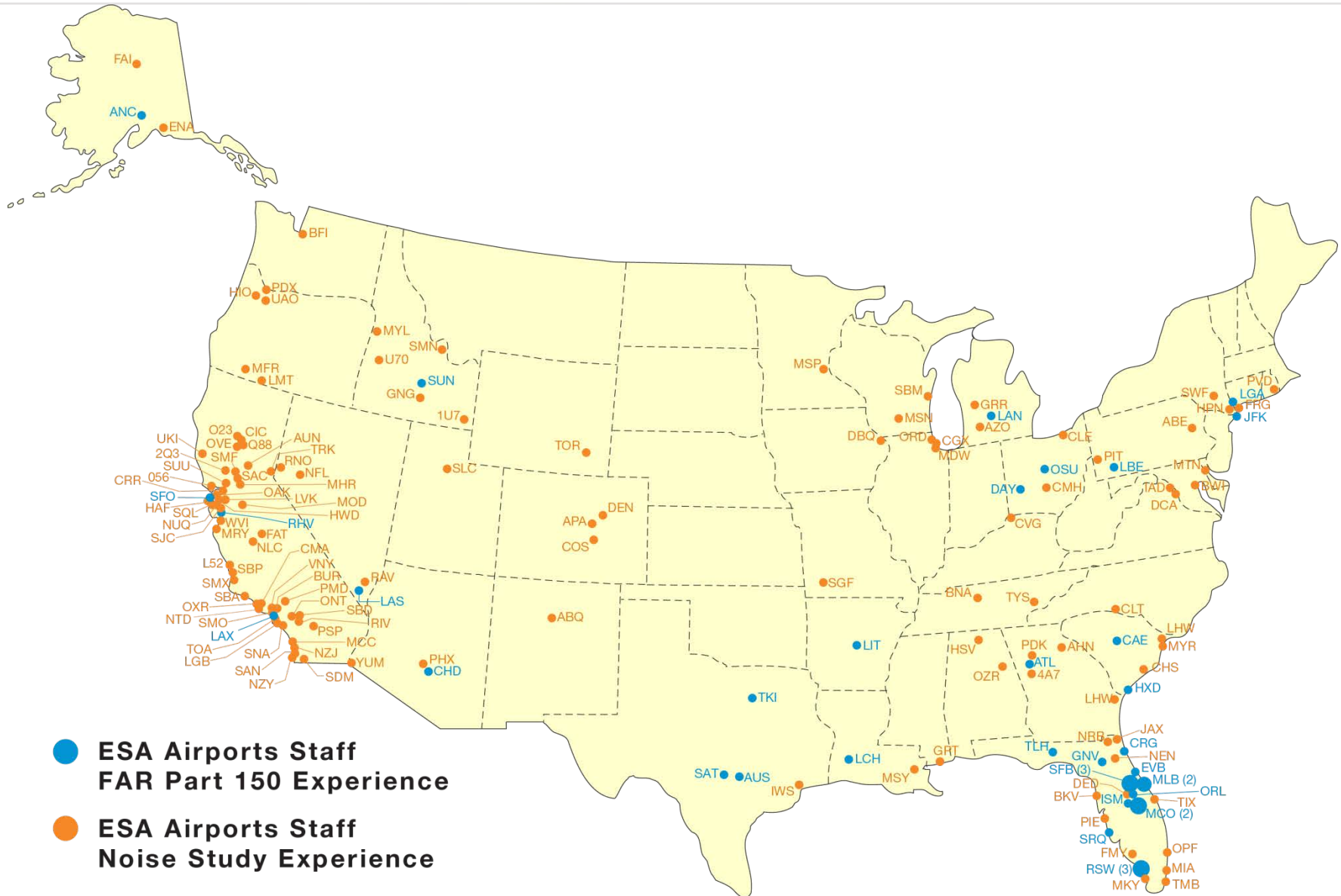


Environmental Science Associates (ESA)

- 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.

Purpose and Objectives of the TC

- 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

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



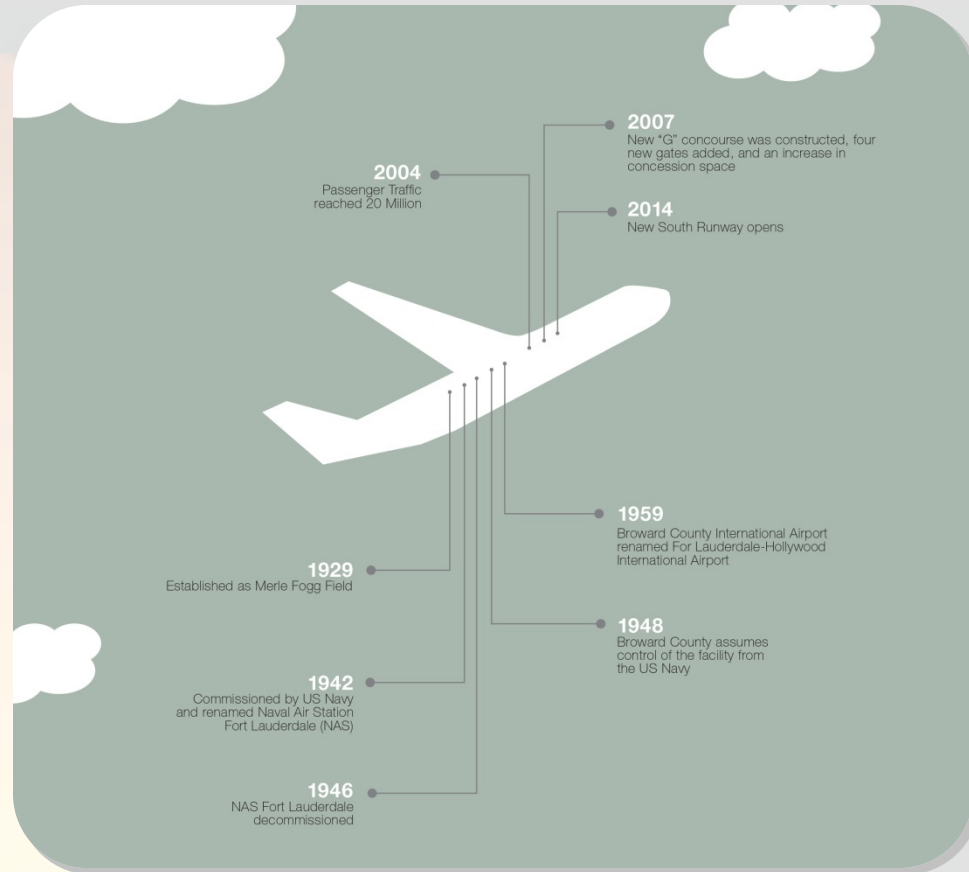
TC Charter and Participation Agreement

- 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)



FLL Overview



FLL Overview - Roles and Responsibilities

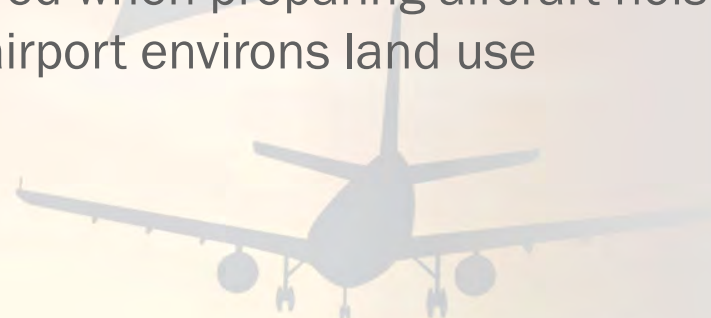
Three core organizations are involved in aircraft operations at FLL:

- 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

Part 150 Study Overview

14 CFR Part 150 Overview

- 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 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



Part 150 Study Overview

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

FLL's Part 150 Efforts Span 3 Decades



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



Part 150 Study Overview

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

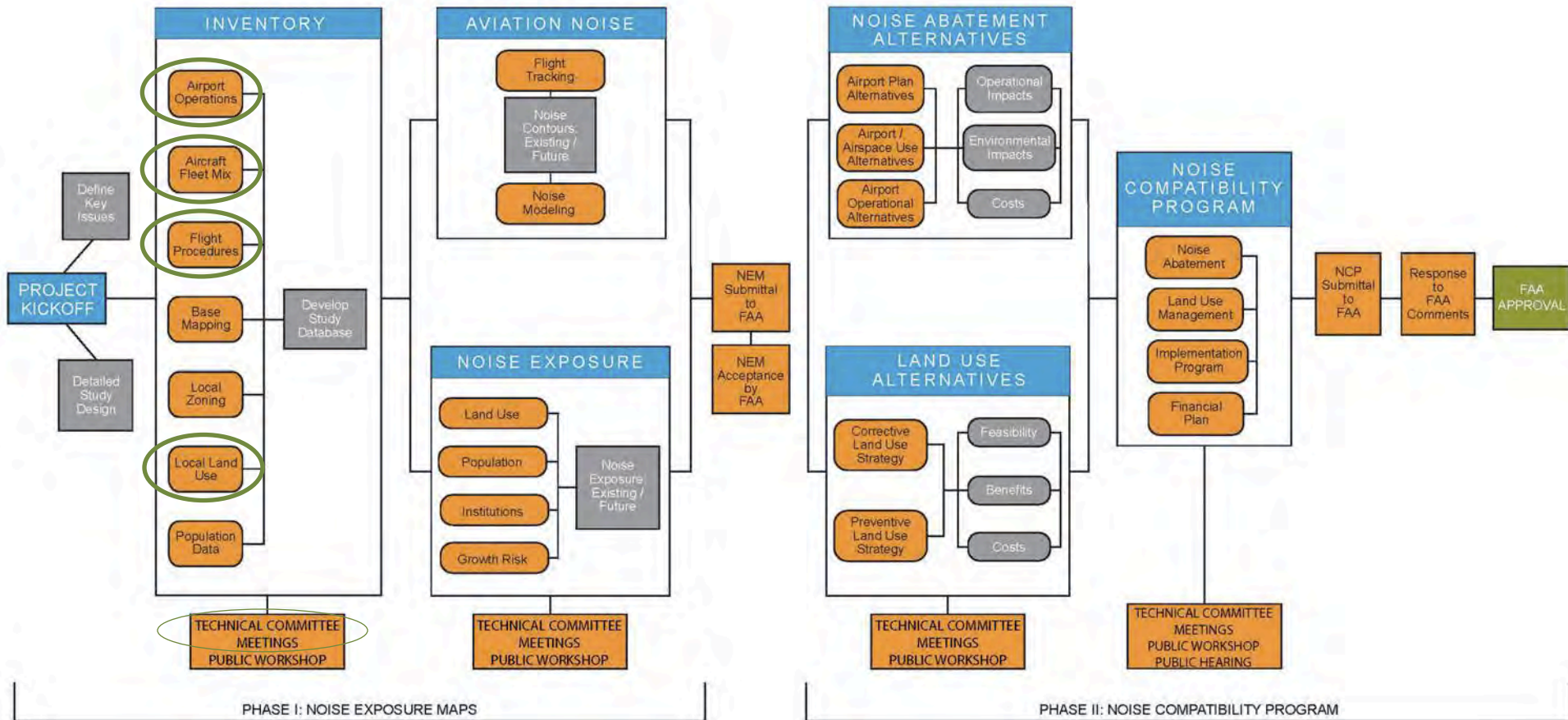
Noise Compatibility Program (NCP)

- 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

Part 150 Study Overview – General Study Process



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

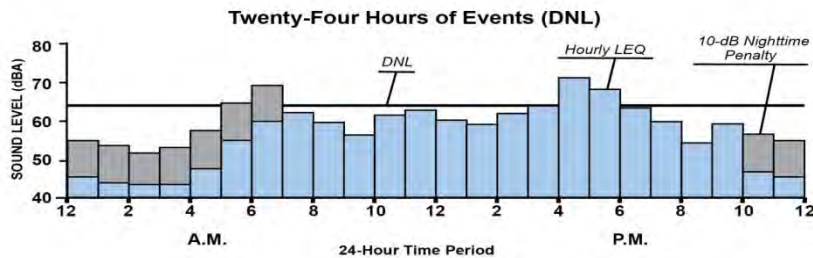
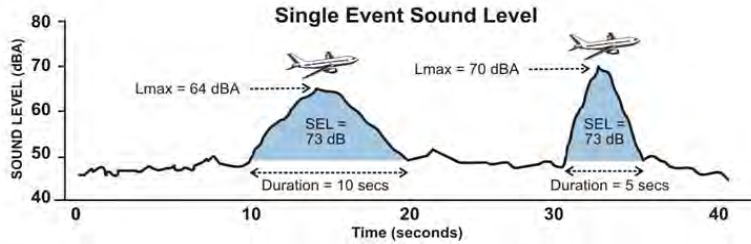
Noise, Modeling and Compatibility

Introduction to Aircraft Noise - DNL

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



IDENTICAL DNL LEVELS

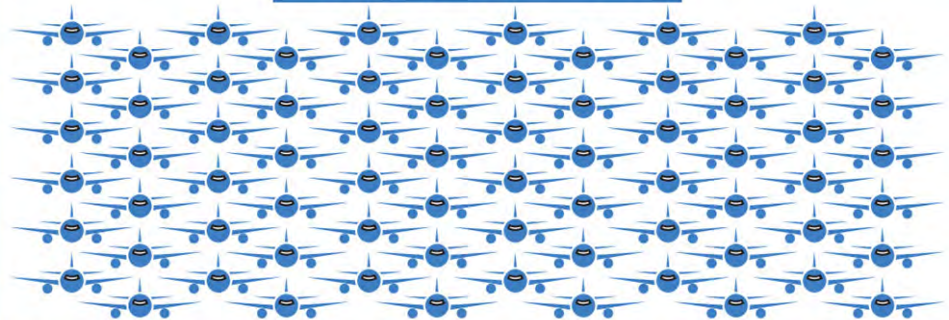
1 Event/Day SEL 114.4 dBA = DNL 65



10 Events/Day SEL 104.4 dBA = DNL 65



100 Events/Day SEL 94.4 dBA = DNL 65



Part 150 Study Overview – Modeling

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.

Part 150 Study Overview – Modeling

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



Aviation Environmental
Design Tool (AEDT)
Version 2C



Part 150 Study Overview – 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



Part 150 Study Overview - Land Use Compatibility

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

Land Use	Yearly Day-Night Noise Level (DNL) 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)(2)	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 parentheses refer to notes.

* The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

Key to Table 1

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.

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 to 30 dB should be incorporated into building codes and be considered 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 of 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 of 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 noise level is low.
(5)	Land use compatible provided that 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.

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 focusses exclusively on noise and land use compatibility

Initial Data Collection

Part 150 Study Overview - Years of Analysis

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

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

Source: FAA Air Traffic Activity Data System (ATADS), 2016.

Data Collection - 2016 Operational Information

Daytime and Nighttime Operations

Operation Type	Day	Night	Grand Total
Arrivals	84%	16%	100%
Departures	90%	10%	100%
Grand Total	87%	13%	100%

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

Runway Usage

Operation Type	Runway	Day	Night	Grand Total
Arrivals	10L	52%	74%	55%
	10R	29%	7%	26%
	28L	7%	1%	6%
	28R	12%	18%	13%
Arrivals Total		100%	100%	100%
Departures	10L	49%	65%	51%
	10R	32%	16%	30%
	28L	7%	3%	6%
	28R	12%	16%	13%
Departures Total		100%	100%	100%

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

Project Schedule

Preliminary Study Schedule

Noise Exposure Maps

- Data Collection
- Public Outreach
- Noise Modeling
- NEM Report/FAA Acceptance

Summer 2016-Fall 2017

Fall-Winter 2017

Fall-Winter 2017*

Summer 2018*

Noise Compatibility Program

- Alternatives Analysis
- NCP Report
- Public Hearing
- FAA 180 Day Review/ROA

Spring-Fall 2018

Fall-Winter 2018

Spring 2019

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)

Tentatively August 2017

Fall 2017

Public Workshops

- Overview of Part 150 Process

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.flpart150.com

Study Website

Project Website – www.fllpart150.com

- Project information
- Notification of upcoming meetings
- Comment mechanism
- Links to other websites



Questions from TC Members