



WELCOME!



FORT LAUDERDALE-HOLLYWOOD INTERNATIONAL AIRPORT



14 CFR PART 150 NOISE AND LAND USE COMPATIBILITY STUDY



Public Information Workshop
November 2017

14 CFR Part 150 Overview

- Establishes the methodology to be followed when preparing aircraft noise exposure maps and developing airport/airport environs land use compatibility programs.
- 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*.
- Part 150 studies must adhere to 14 CFR Part 150 guidelines to be considered, accepted, and approved by FAA.

Overview of 14 CFR Part 150

- Why conduct a 14 CFR Part 150 noise study?
 - Determine existing and future noise conditions in the vicinity of an airport
 - Evaluate the feasibility of possible flight procedure/land use changes
 - Educate communities on the Federal process and what can and cannot be done to address aircraft noise concerns
 - Submit locally-endorsed recommendations to the FAA regarding noise reduction measures
- 14 CFR Part 150 studies are voluntary
- 14 CFR Part 150 studies must adhere to 14 CFR Part 150 guidelines to be accepted and approved by FAA

FLL's Part 150 Efforts Span 3 Decades



Overview of 14 CFR Part 150

Key Issues for this Part 150 Study

- 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



Overview of 14 CFR Part 150

Overview of 14 CFR Part 150

- 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

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)	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(2)	Y(3)	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.	(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.
(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.	(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.

Overview of 14 CFR Part 150

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

Overview of 14 CFR Part 150

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

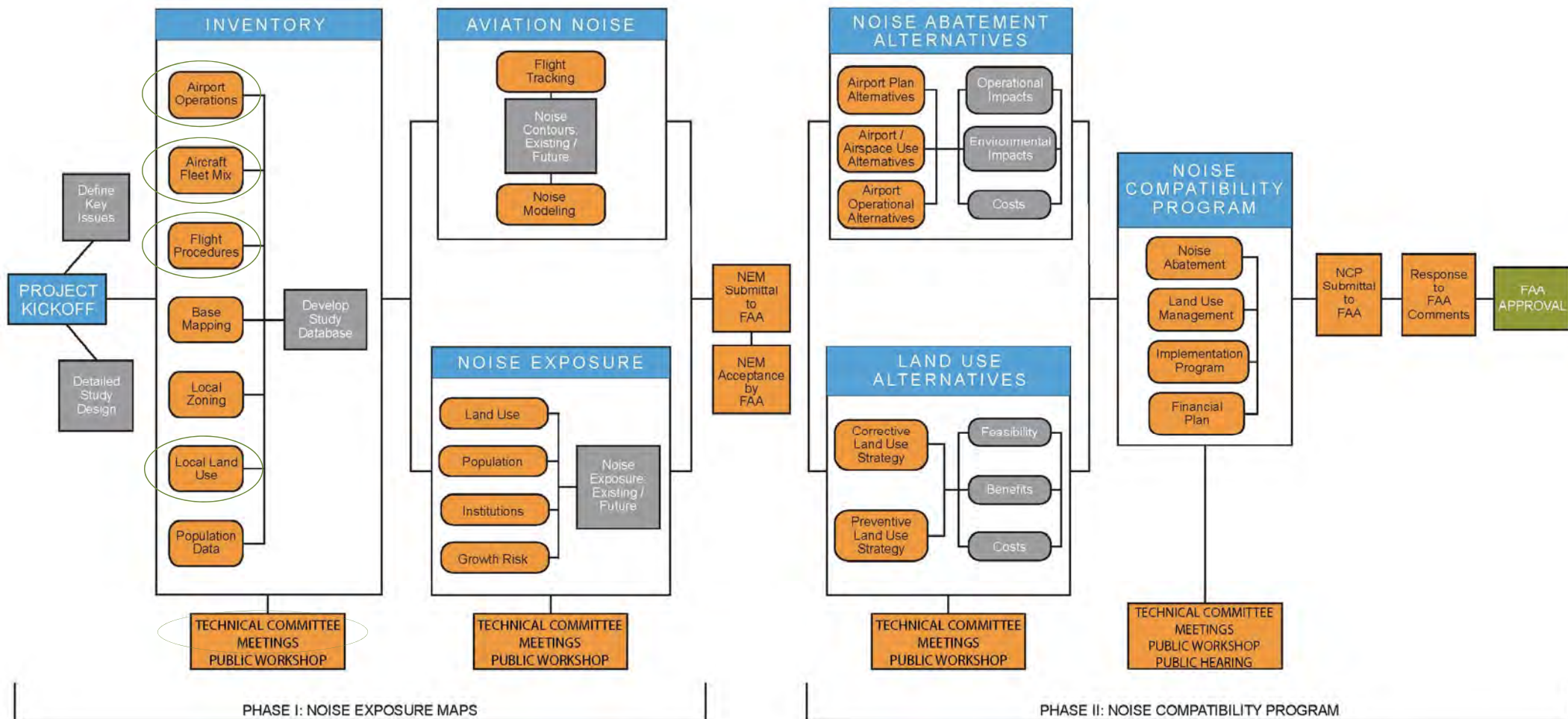
Noise Compatibility Program (NCP)

- 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

Overview of 14 CFR Part 150 – 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

Overview of 14 CFR Part 150

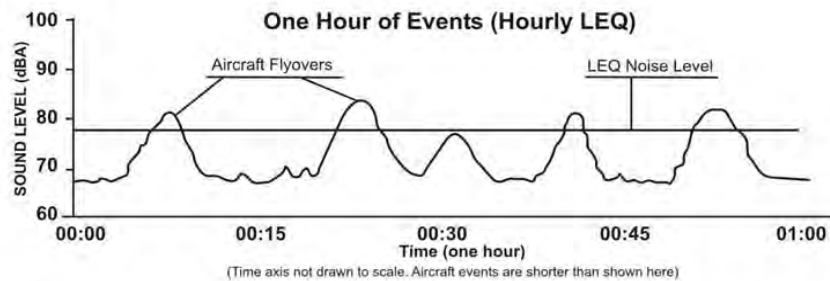
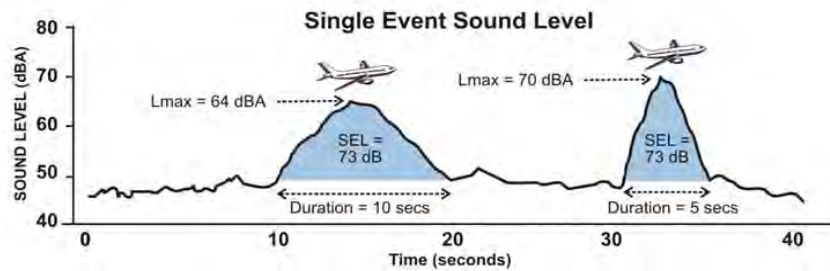
14 CFR Part 150 Terminology

- **Noise Exposure Contours** - A noise exposure contour identifies areas of equal noise exposure around an airport. Noise exposure contours are similar to contours on topographic maps which show areas of equal elevation.
- **Noise Exposure Maps** - A noise exposure map is a map showing noise exposure contour lines (or footprints) which identify areas of specific noise levels around an airport. NEMs also include a graphic depiction of geographical features and land uses that surround an airport.
- **Noise Compatibility Programs** - A noise compatibility program report includes descriptions and a detailed evaluation of noise abatement and noise mitigation options applicable to an airport.
- **Noise Abatement Measures** - These measures are intended to reduce actual aircraft noise levels in noise-sensitive areas by either reducing aircraft noise at the source by using quieter aircraft, shielding noise sensitive areas, or by instituting operational measures, such as changes in aircraft flight tracks or in approach or departure flight profiles.
- **Noise Mitigation Measures** - These measures are intended to reduce the effects of aircraft noise on the receiver. Noise mitigation strategies may include outright property acquisition, acoustical treatment/ soundproofing programs, purchase of aviation easements, and land use control measures.

Day-Night Average Sound Level

- 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

Understanding Aircraft Sound Levels



IDENTICAL DNL LEVELS

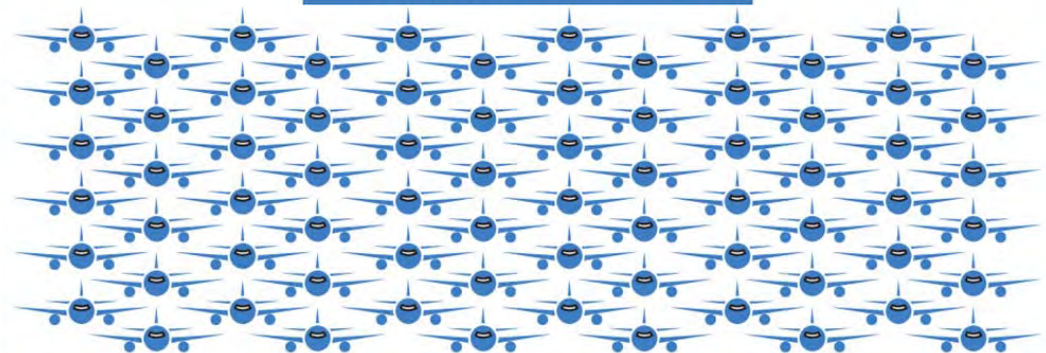
1 Event/Day SEL 114.4 dBA = DNL 65



10 Events/Day SEL 104.4 dBA = DNL 65



100 Events/Day SEL 94.4 dBA = DNL 65



DNL Noise Contour Example



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

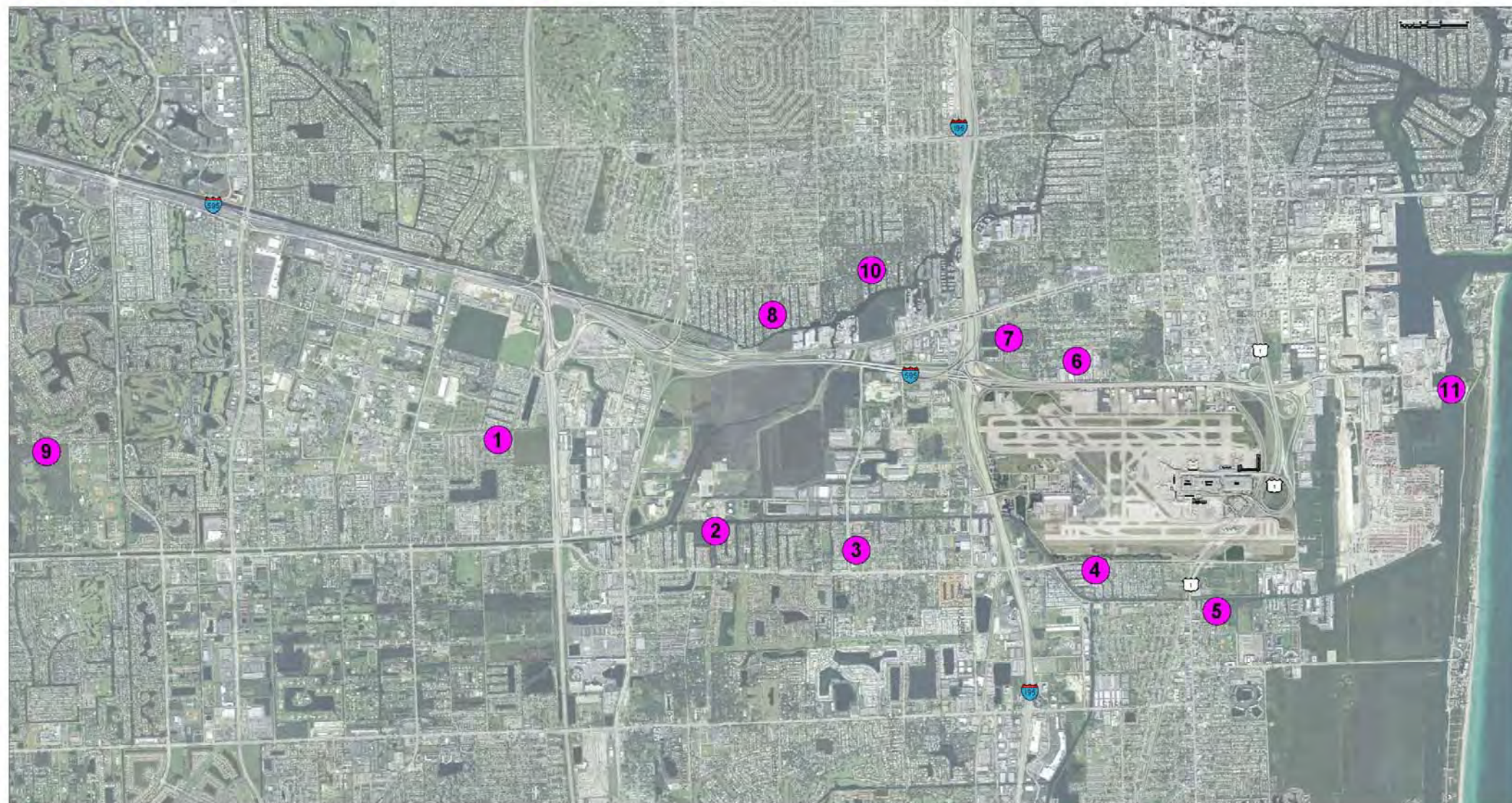
- Residential
- Places of worship
- Schools, colleges, and universities
- Libraries/cultural institutions
- Hospitals and residential healthcare facilities
- Daycare and assisted living facilities
- Historic properties



Noise Monitoring Sites/Limitations

FORT LAUDERDALE-HOLLYWOOD INTERNATIONAL AIRPORT

EXISTING NOISE MONITOR LOCATION



Public Outreach Plan Development and Initial Workshops

Public Outreach

- Initial Coordination with Nearby Jurisdictions
 - 8 meetings to present project and solicit TC members
- Initial Kickoff Public Workshops
 - 5 informal workshops over 5 consecutive days
- NEM Public Workshop
 - Single large venue informal workshop
- Newsletters (6)
- NCP Public Workshop/Hearing
 - Single large venue informal workshop followed by formal hearing



Purpose and Objectives of the Technical Committee

- 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 meetings will be open to the public, subject to space availability

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.

Project Schedule

Preliminary Part 150 Schedule

Noise Exposure Maps

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

Summer 2016-Winter 2017

Fall 2017

Fall-Winter 2017

Summer-Fall 2018

Noise Compatibility Program

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

Spring 2018-Winter 2019

Summer 2019

Summer 2019

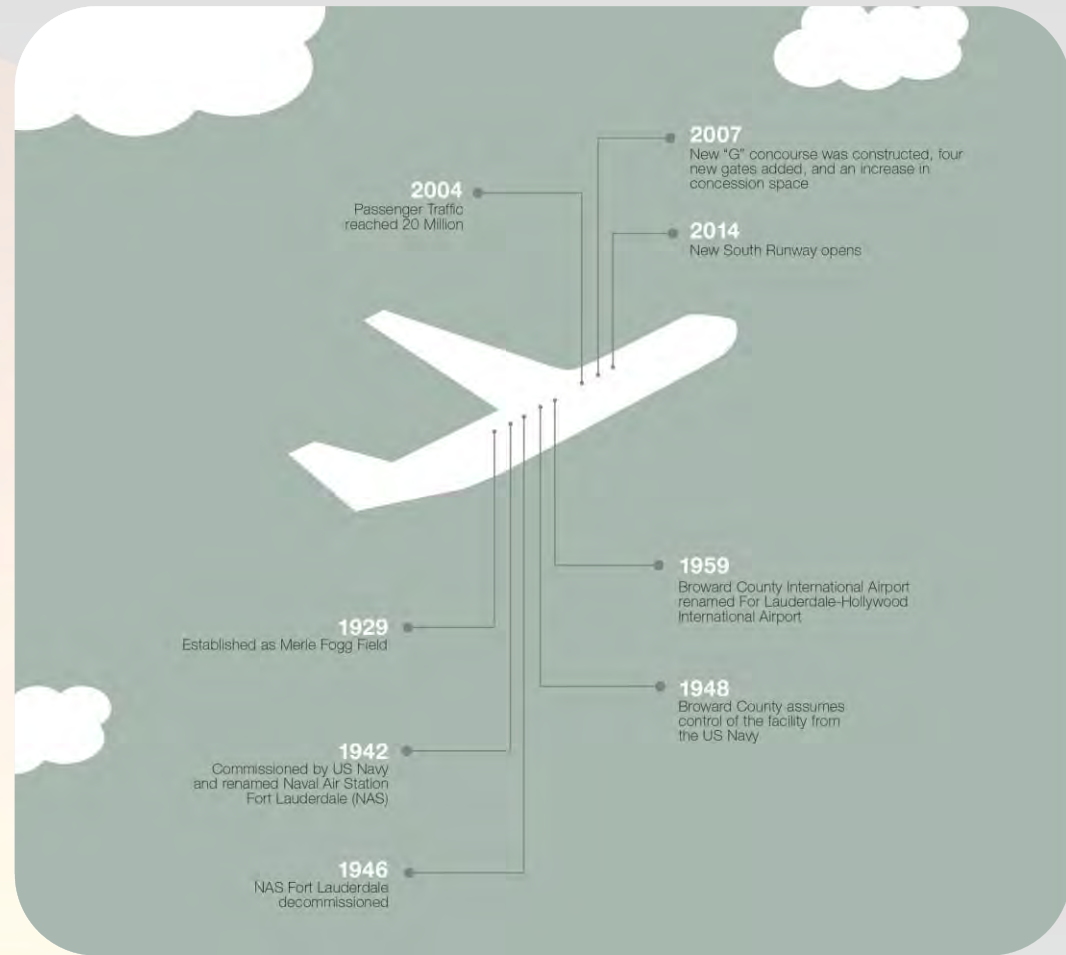
Winter 2019

FLL 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)



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.

Aircraft Activity Forecast

FAA Forecast Approval:

- FAA approved use of Master Plan Update (MPU) Accelerated Baseline Forecast for the FLL 14 CFR Part 150 Study

Fiscal Year	FAA TAF	MPU Accelerated Baseline Forecasts
2017	304,590	329,300
2018	311,559	335,000
2023	343,194	364,765

Sources: FAA, Terminal Area Forecasts, 2017;
Ricondo & Associates, Inc., 2016.



ORLANDO AIRPORTS DISTRICT OFFICE
5950 Hazeltine National Drive
Suite 400
Orlando, FL 32822
Phone: (407) 812-6331 Fax: (407) 812-6978

April 10, 2017

Mr. William Castillo
Airport Planning Manager
Broward County Aviation Department
2200 SW 45th Street, Suite 101
Dania Beach, Florida 33312

Dear Mr. Castillo:

RE: Fort Lauderdale-Hollywood International Airport, Fort Lauderdale, FL
Approval of Forecast for use in the 14 CFR Part 150 Study

This letter responds to your request for approval to use the Accelerated Baseline Forecasts for the purposes of the 14 Code of Federal Regulations (CFR) Part 150 Study for the Fort Lauderdale-Hollywood International Airport (FLL).

On January 13, 2017, the Federal Aviation Administration (FAA) approved the Baseline Forecast for FLL and accepted the Accelerated Baseline Forecast prepared in the Master Plan Update for sensitivity purposes and for the purpose of establishing facility requirements.

The FAA notes that the Accelerated Baseline Forecast varies less than 10 percent in the 5 year period and 15 percent in the 10 year period from the FAA's 2016 Terminal Area Forecast (TAF) published in January, 2017.

The FAA has determined that the Accelerated Baseline Forecast is consistent with the FAA's most recent TAF for FLL, and therefore, we approve the use of the Accelerated Baseline Forecast for the ongoing FLL Part 150 Study.

If you have any questions, please feel free to contact me at (407) 812-6331, ext. 130.

Sincerely,

Allan M. Nagy
FAA Orlando ADO Environmental Program Specialist

2016 Runway Use – East Flow

Legend



Arrivals



Departures

Day: 52%
Night: 74%

Day: 29%
Night: 7%

Day: 49%
Night: 65%

Day: 32%
Night: 16%

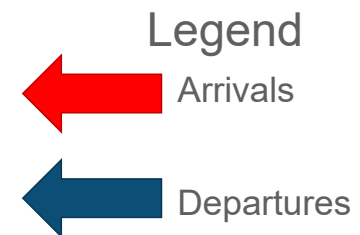
10L

28R

10R

28L

2016 Runway Use – West Flow



Day: 12%
Night: 16%

10 L

28 R

Day: 12%
Night: 18%

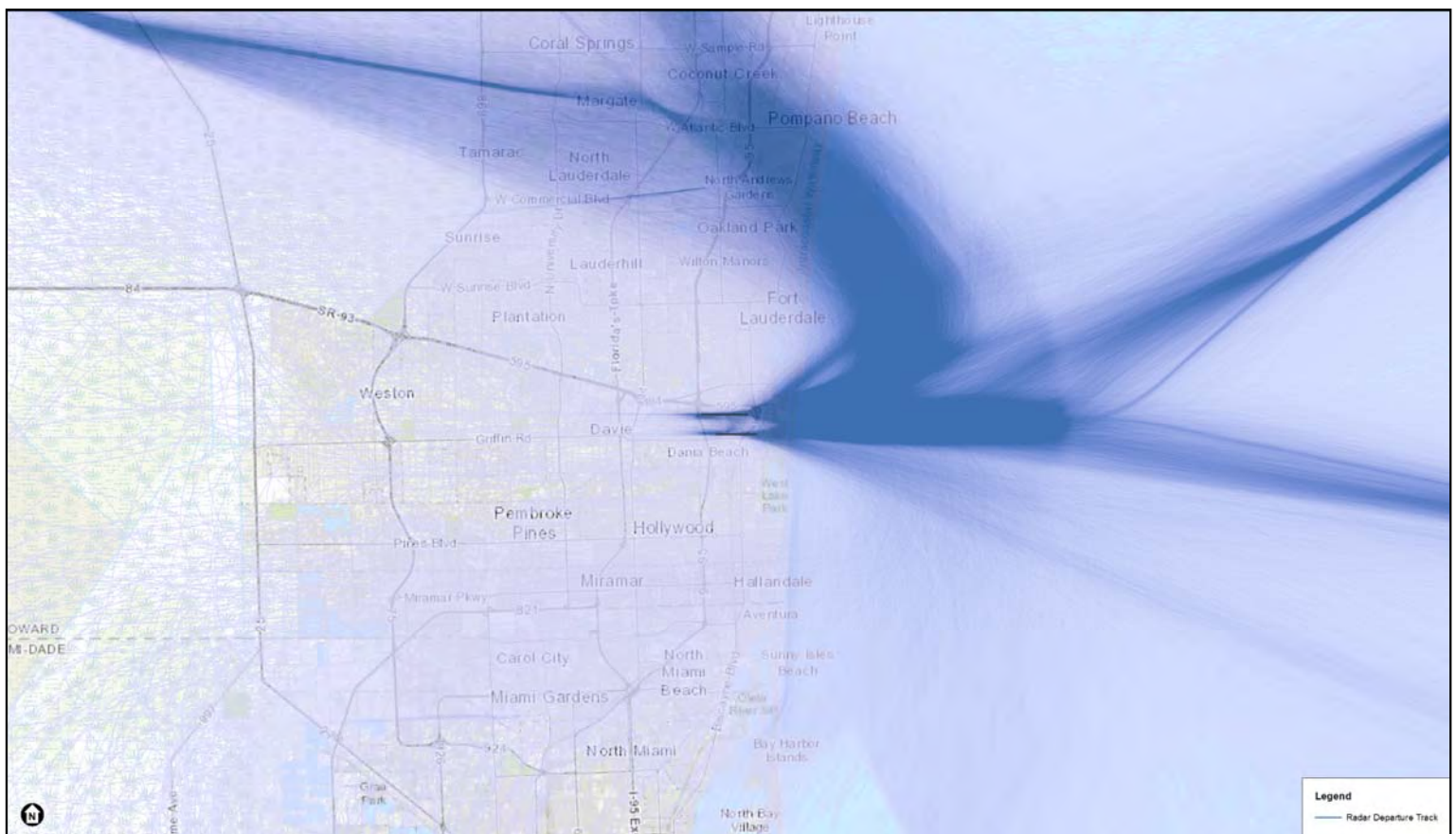
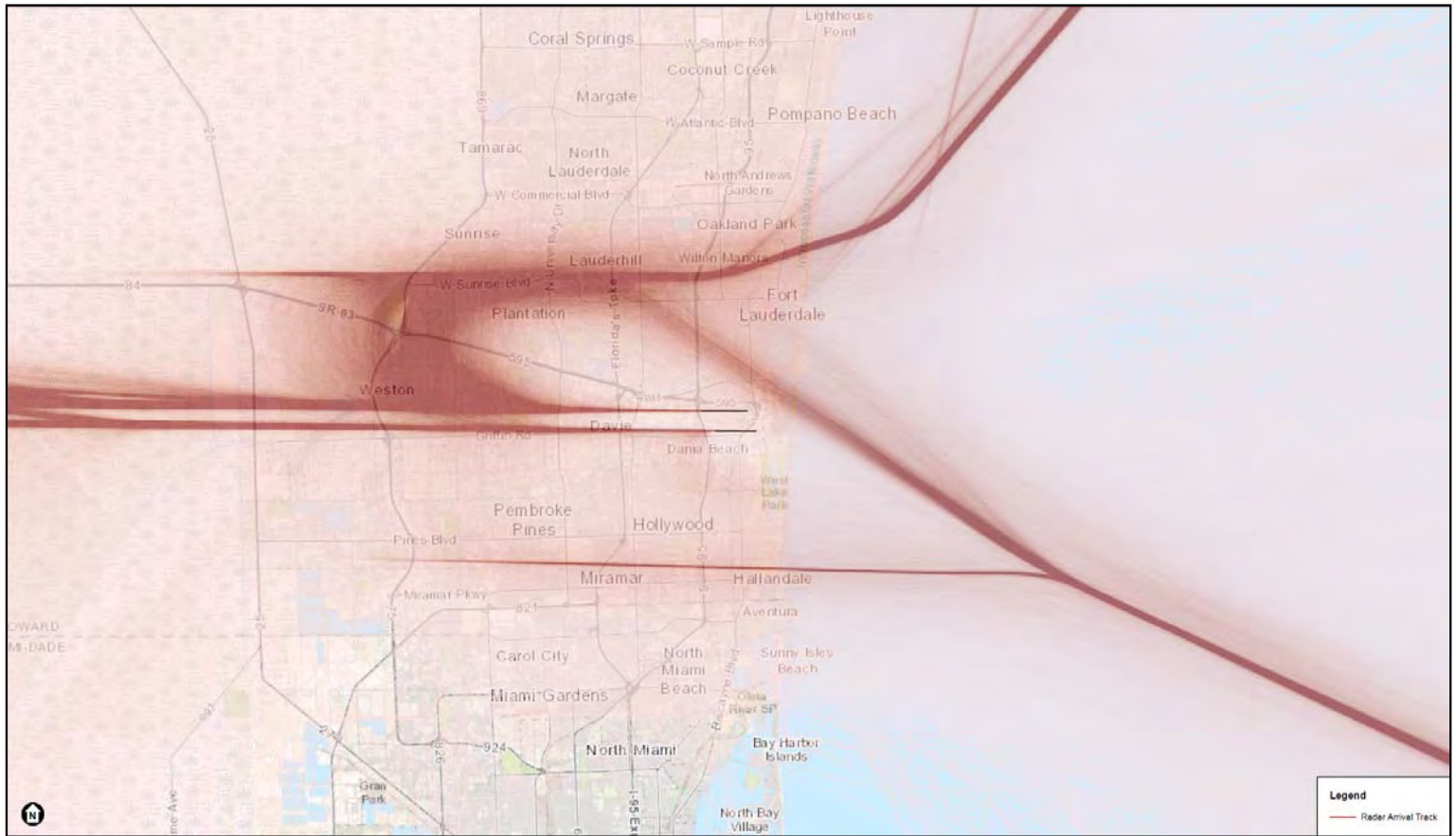
Day: 7%
Night: 3%

10 R

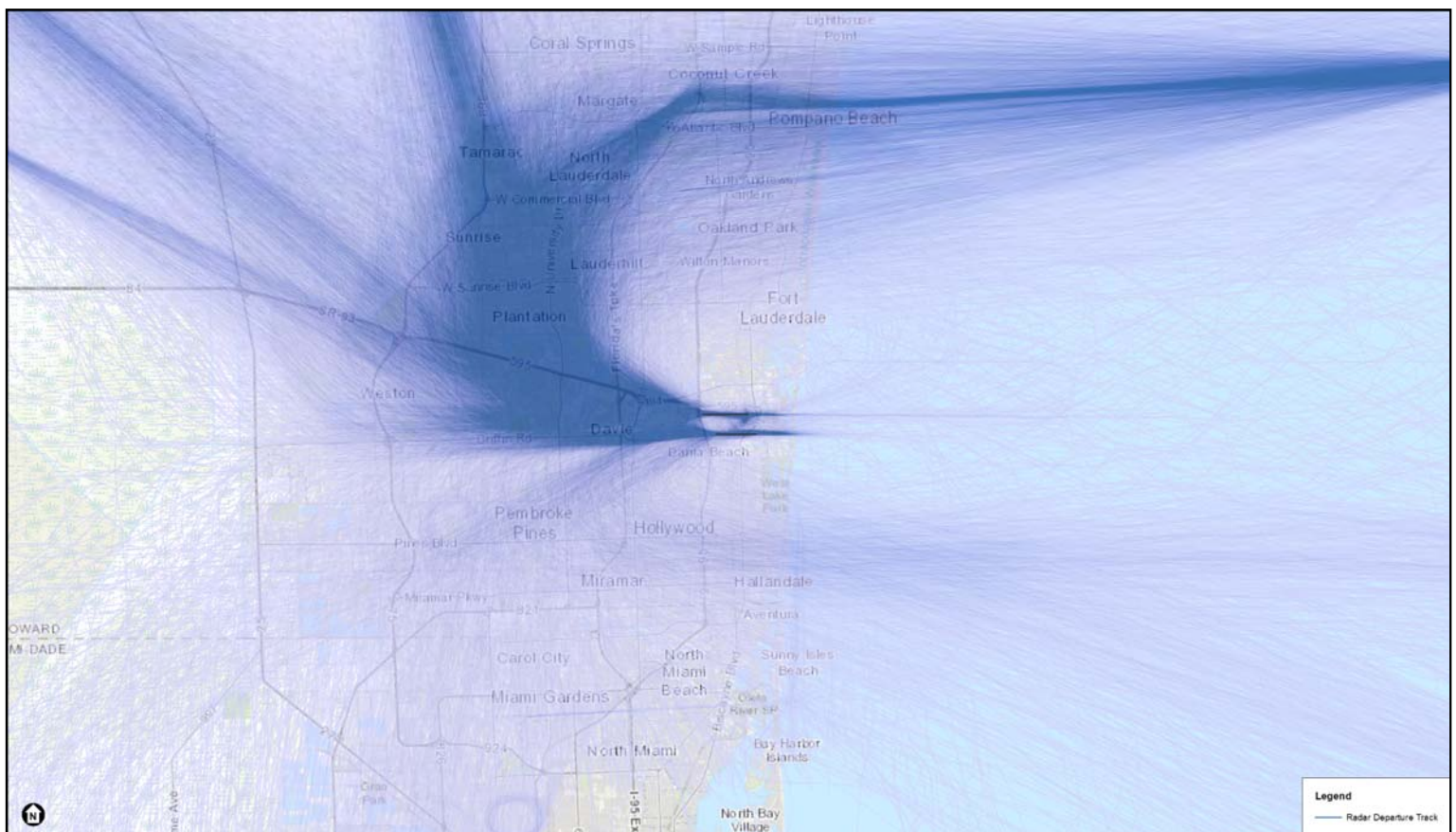
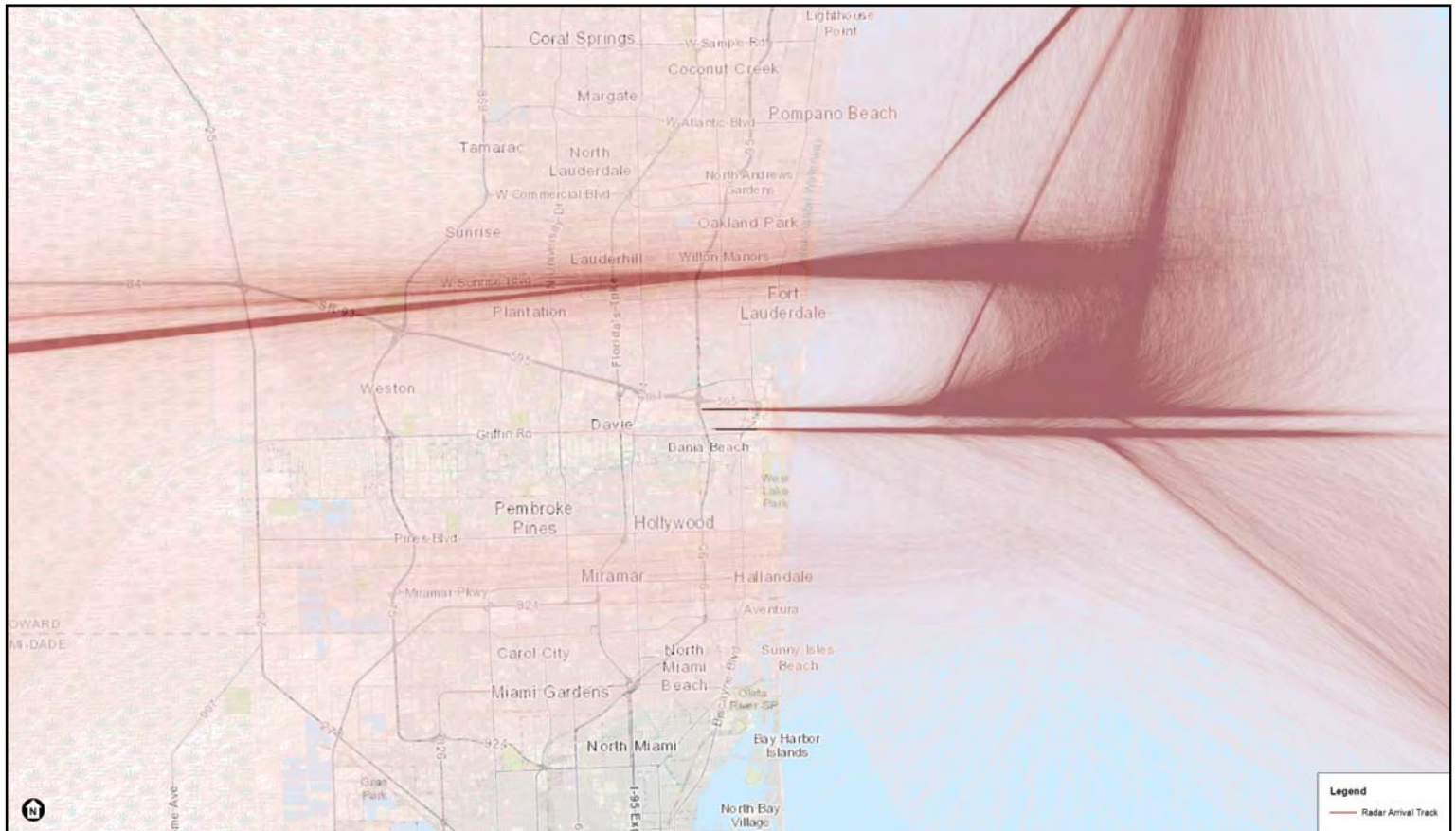
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Day: 7%
Night: 1%

2016 East Flow Arrivals & Departures



2016 West Flow Arrivals & Departures



Runway Use

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	North Runway			
	10L	52%	74%	55%
	28R	12%	18%	13%
	Total	64%	92%	68%
	South Runway			
	10R	29%	7%	26%
	28L	7%	1%	6%
	Total	36%	8%	32%
Departures	North Runway			
	10L	49%	65%	51%
	28R	12%	16%	13%
	Total	61%	81%	64%
	South Runway			
	10R	32%	16%	30%
	28L	7%	3%	6%
	Total	39%	19%	36%

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

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
 - Terrain

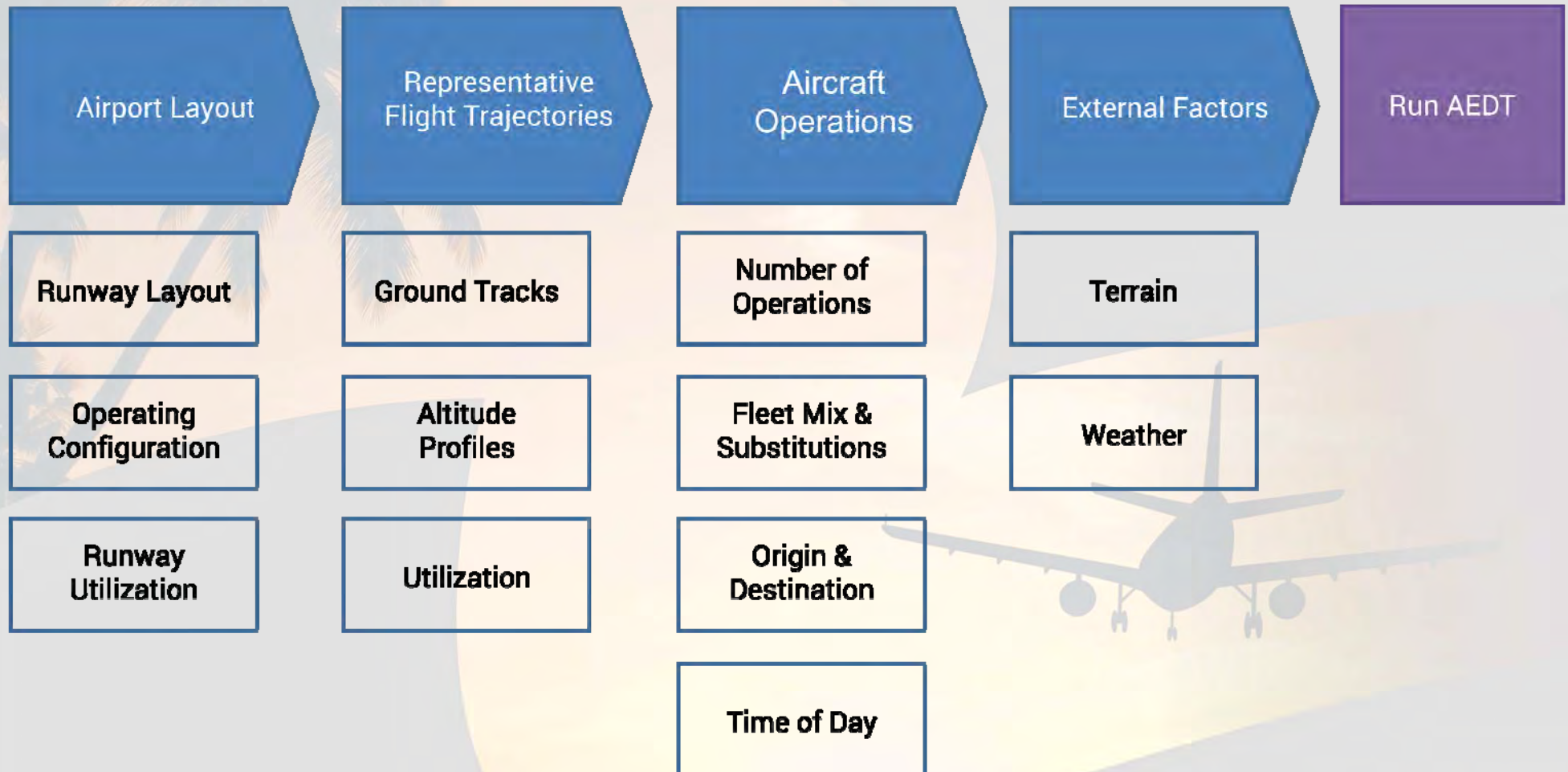


Aviation Environmental
Design Tool (AEDT)
Version 2C



AEDT Model Inputs

AEDT Inputs



Existing Noise Program Overview

- Aircraft Noise and Operations Monitoring System (ANOMS)
- Residential Sound Insulation Program
- Airport Noise Abatement Committee (ANAC)
- Noise Comment Hotline (866-822-7910)
- Noise Comment Form
(<http://www.broward.org/Airport/NoiseInformation/Pages/BCADNoiseCommentForm.aspx>)
- Helicopter Flight Corridors



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 as part of the study?
 - None, all analysis is modeling based which allows consistency, prediction of noise levels where there are no monitors 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

Additional Frequently Asked Questions are available on
www.fllpart150.com/faq

Feedback – What We've Heard

Concerns that we've heard so far:

- Early morning low altitude overflights
- Changes in north runway flight paths
- Nighttime use of south runway
- Low altitude of overflights
- High frequency of overflights
- Overflight impacts on horses



Study Website

Project Website – www.flipart150.com

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



Comments

You may provide written comments during this public workshop.
Comment forms are available at this meeting to submit here or by mail
to:

Aviation Department
C/O FLL Part 150 Study
2200 SW 45th Street, Suite 101
Dania Beach, FL 33312

Please submit your comments by **December 1, 2017**.

Part 150 Study updates are provided on the Project website at:

www.fllpart150.com

Thank You for Your Participation!