




## 14 CFR PART 150 NOISE AND LAND USE COMPATIBILITY STUDY

Technical Committee Meeting #6  
May 23, 2019

## Agenda

- Introductions
- Review of the Role of the TC Meeting Facilitator
- Review of TC Meetings
- Review of January 2019 Noise Exposure Map Public Workshop
- Noise Compatibility Program Overview
  - Operational Suggestions
  - Land Use Suggestions
  - Programmatic Suggestions
- Future TC Meetings
- Questions from TC Members



## Welcome and Introductions

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## 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

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## 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)

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## 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

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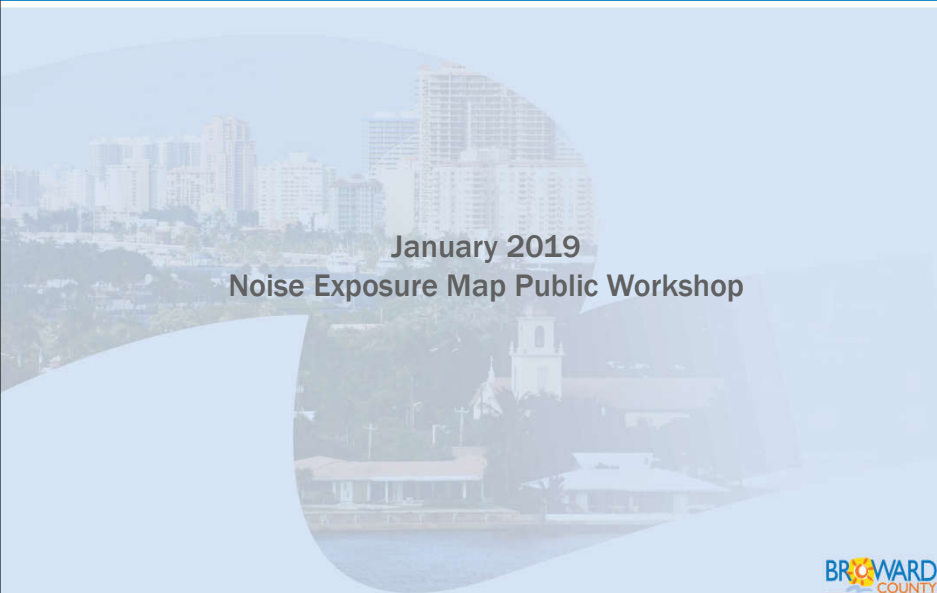


## Prior Technical Committee Meeting

### TC #5 – January 16, 2019


- Review of Noncompatible Land Use
- Noise Compatibility Program Introduction

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A background image showing a cityscape with several high-rise buildings and a church with a white steeple in the foreground, set against a blue sky and water.

## January 2019 Noise Exposure Map Public Workshop

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The logo for Broward County, Florida, featuring the text "BROWARD COUNTY FLORIDA" in a stylized font with a sun icon.

## NEM Public Workshop

January 16, 2019, 6:00PM – 8:30PM

Signature Grand, Davie, FL

- Attendance:
  - Three elected officials
  - One media representative
  - Approximately 166 residents/members of the community
- Public Comment Period:
  - Approximately a dozen letters
  - Approximately 150 website comment submittals
  - Approximately 100 comment forms (including appx. 75 comment cards / petitions)

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## Workshop Attendees




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## All Comments

- 536 Comment Letters/Emails/Forms
- 2,011 Individual Comments
- Sources:
  - General public and elected officials
  - First round of Public Workshops (November 2016)
  - Website comments
  - NEM Public Workshop (January 2019)
  - Mailed letters

Fort Lauderdale-  
Hollywood  
International Airport  
Part 150 Study

  
STATUS  
In-Review

  
SUBMISSIONS  
536

  
COMMENTS  
2011



## Noise Compatibility Program (NCP) Overview



## NCP Stakeholder Suggestions

- Approximately 150 individual NCP suggestions (includes duplicates)
  - Noise Abatement Suggestions: 128
  - Land Use Suggestions: 9
  - Programmatic Suggestions: 10
- Sources:
  - ANAC
  - Technical Committee
  - Dania Beach
  - NEM Workshop
  - Website Comments

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## Required Elements of an NCP

- 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)

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## Distinction Between Noise Abatement and Noise Mitigation

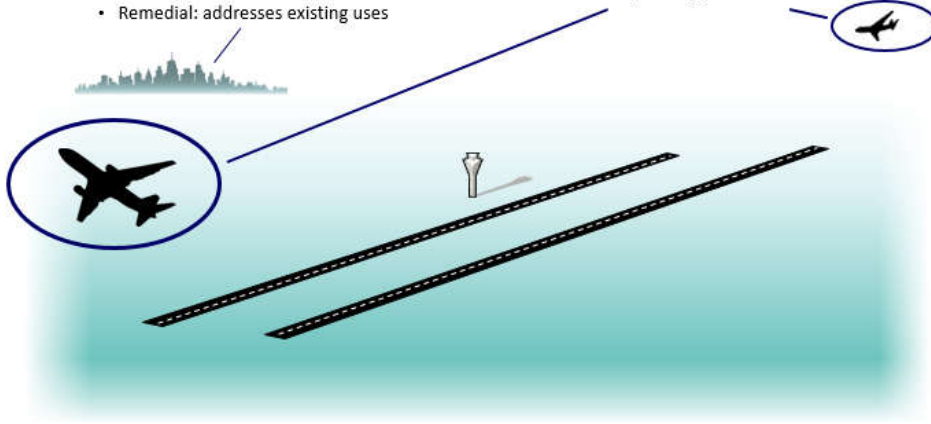
### Noise Mitigation

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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## 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

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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

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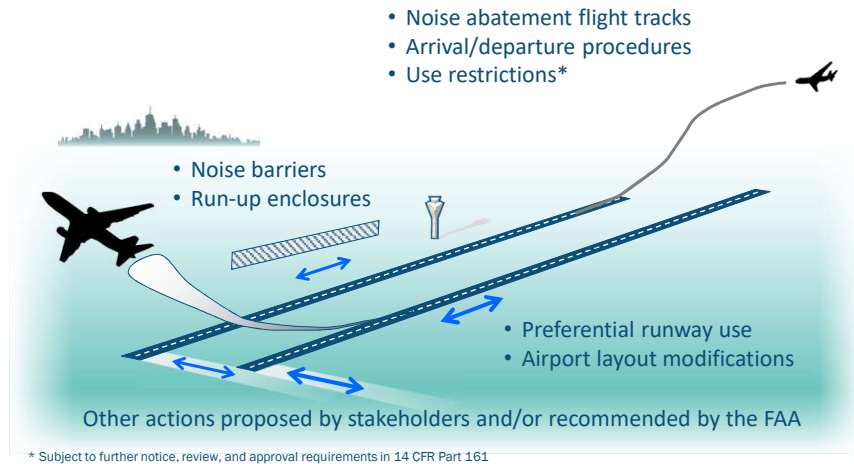


## Operational Measures

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## Types of Noise Abatement Strategies



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## Stakeholder Operational Suggestions

- Flight Paths
  - Flights departing to the west should follow Interstate 595 till the Everglades (Public)
  - Aircraft should take off only over water unless for safety or wind conditions (Public)
  - Takeoffs should fly runway heading 090 or 270 until 10,000 feet before turning north (Public)
  - Restructure arrival and departure routes for North Runway to replicate arrival and departure routes from pre-2014 (ANAC)
  - Establish and use a waypoint on runway heading west of the Turnpike for departures (Public)
  - Reduce frequency of flights over Davie (Public)

The information in this presentation represent suggestions received from the Public and Stakeholders during the Public Comment Period. These are not official FLL Part 150 Noise Compatibility Program recommendations.

## Stakeholder Operational Suggestions

- Arrivals and Departure Procedures

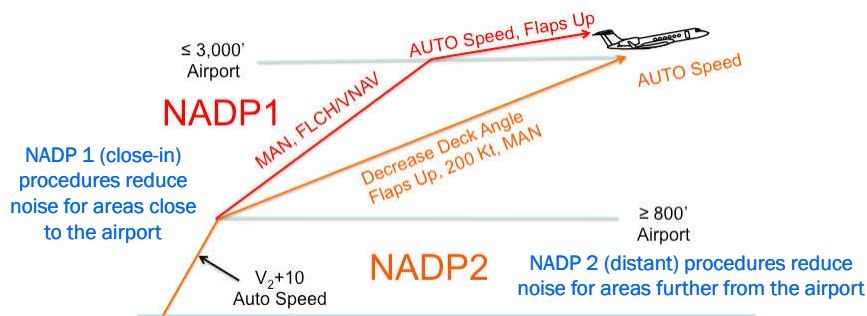
- Implement NADP1 (Dania Beach)
- Minimize low approaches (Public)
- Stagger flights from north and south runways to maintain use of heading 275 for departures - eliminate heading 290 completely, and maintain runway heading to 3 miles / 3,000 feet before turning (Public)
- Establish steep takeoff rules (Public)
- Use RNAV controlled descent approaches (Public)
- Implement idle-power 3:1 ratio glide landings (Public)
- Use steeper descents close to the airport (Public)
- Use of close-in noise abatement departure procedure to north and south runways (ANAC)
- Implement optimized profile descents (OPD) (TC)

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## Noise Abatement Departure Procedures

### EXAMPLE: Noise Abatement Departure Procedures (NADPs)



Actual noise abatement departure procedures are aircraft- and operator-specific.

- SOURCE: Flight Operations, Supplement Number GAC-OMS-02: Noise Abatement Departure Procedures for JAA / EASA Operators. Gulfstream. June 25, 2008. Last Accessed: November 30, 2016. [http://code7700.com/pdfs/gac\\_oms\\_2.pdf](http://code7700.com/pdfs/gac_oms_2.pdf)
- Image from [http://code7700.com/noise\\_abatement.html](http://code7700.com/noise_abatement.html). Last Accessed: November 30, 2016.
- Blue annotations by ESA.

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## Stakeholder Operational Suggestions

- Preferential Runway Use

- Re-affirm and implement voluntary night closure approved in Broward County/Dania Beach Interlocal Agreement (Dania Beach)
- Dedicate north runway as preferential runway used exclusively and primarily until it reaches capacity (ANAC)
- Prefer arrivals on north runway and departures on south runway (ANAC)
- Use north and south runways at the same utilization (Public)
- Close south runway from 9pm to 9am (Public)
- Assign all arrivals to 10L and all Departures to 10R (Public)
- Prohibit arrivals to 10R from the west except for maintenance or emergencies (Public)

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## Stakeholder Operational Suggestions

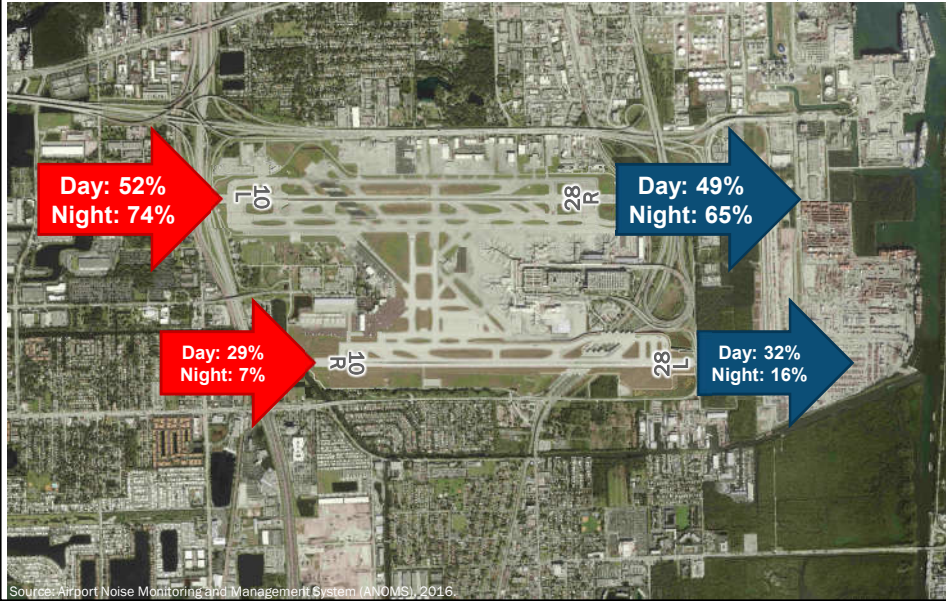
- Use Restrictions

- Implement penalties to deter operational negligence (Dania Beach)
- FAA Notams and/or airport bulletins should be binding to all operations (Dania Beach)
- Address and decrease frequency of flights (Public)
- Establish airport curfews (Public)
- Mandatory 10pm-7am south runway curfew (ANAC)
- Nighttime south runway closure from 9pm-9am (Dania Beach, TC)
- Impose fines on flights that turn north before I-75 and/or violate noise ordinances (Public)
- Prohibit aircraft that have been recorded as being too loud (Public)

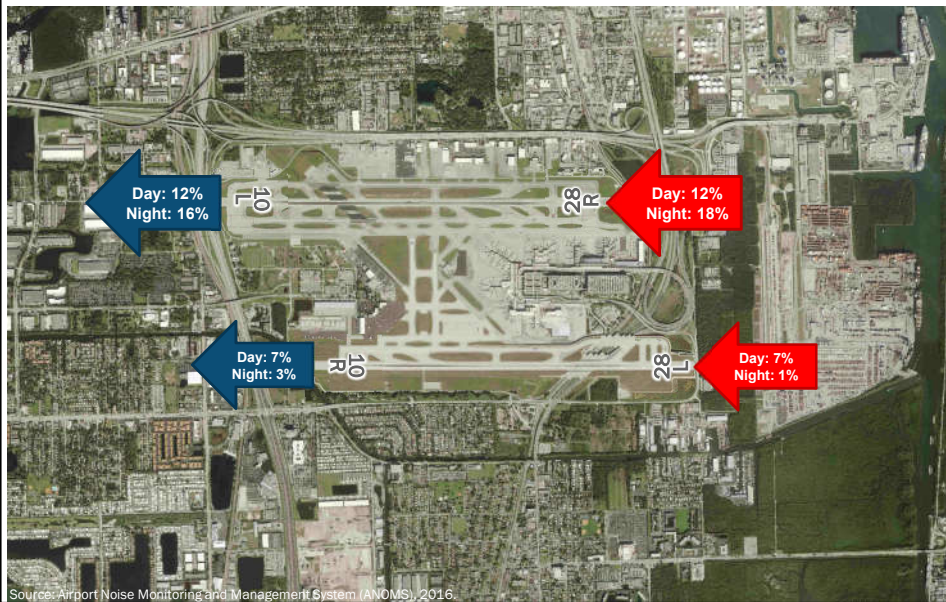
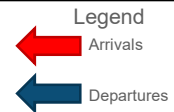
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## Runway Use – East Flow



## Runway Use – West Flow



## Baseline Condition Runway Use

### Runway Usage

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

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

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## 2023 Part 150 Runway Use

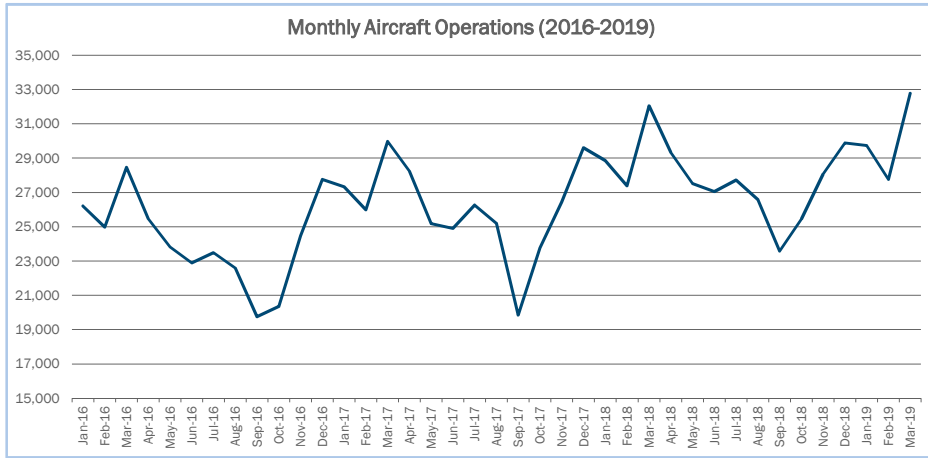
### Runway Usage

Operation Type	Runway	Day	Night	Grand Total
Arrivals	North Runway			
	10L	49%	66%	52%
	28R	12%	12%	13%
	<b>Total</b>	<b>62%</b>	<b>84%</b>	<b>65%</b>
	South Runway			
	10R	31%	15%	29%
28L	7%	1%	6%	
	<b>Total</b>	<b>38%</b>	<b>16%</b>	<b>35%</b>
Departures	North Runway			
	10L	44%	59%	46%
	28R	14%	18%	14%
	<b>Total</b>	<b>58%</b>	<b>77%</b>	<b>60%</b>
	South Runway			
	10R	37%	21%	35%
28L	5%	3%	5%	
	<b>Total</b>	<b>42%</b>	<b>23%</b>	<b>40%</b>

Source: Airport Noise Monitoring and Management System (ANOMS), 2016; adapted by ESA, 2018.

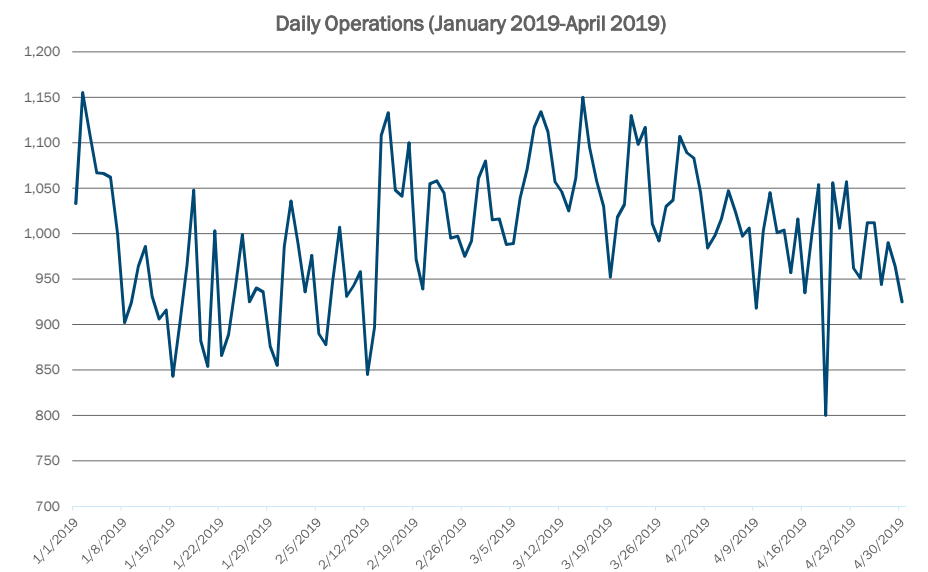
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## Seasonality of Aircraft Operations



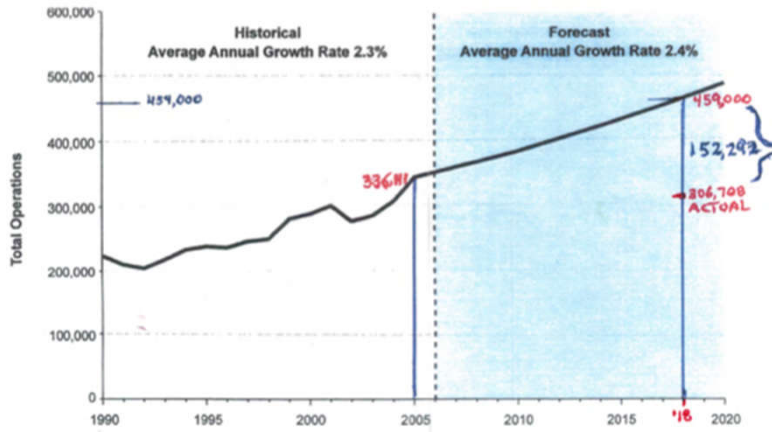
Source: FAA Air Traffic Activity System (ATADS), 2019.

## Daily Change in Aircraft Operations



Source: FAA ATADS, 2019.

## 2005 Forecast Data (ANAC)



Source: Forecast Data Federal Aviation Administration, Terminal Area Forecast, January 2005.

### TOTAL AIRCRAFT MOVEMENTS (ARRIVING AND DEPARTING)

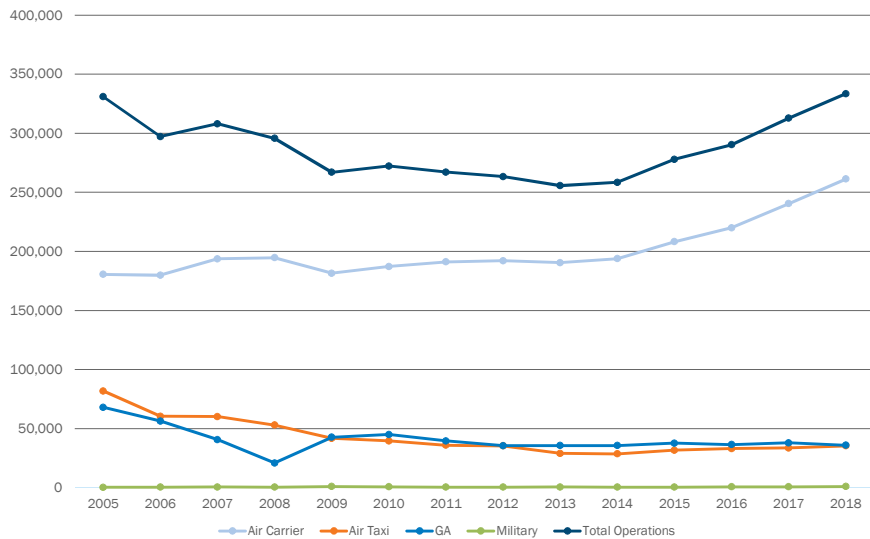
Month:	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
'17 VS '18	5.6%	5.4%	6.8%	3.9%	9.2%	8.6%	-86.3%	5.5%	18.8%	7.0%	8.2%	0.9%	-1.9%
2018	28,861	27,379	32,041	29,333	27,508	27,045	967	28,587	23,582	25,440	28,084	29,881	306,708
'16 VS '17	4.3%	4.1%	5.3%	10.9%	5.7%	8.8%	11.8%	11.5%	0.6%	16.8%	8.0%	6.7%	7.8%
2017	27,336	25,995	29,988	28,242	25,188	24,901	26,263	25,198	19,847	23,774	26,436	29,604	312,763

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Source: Gary Luedtke, ANAC Representative, email dated May 5, 2019.

## Historic Growth in Aircraft Operations

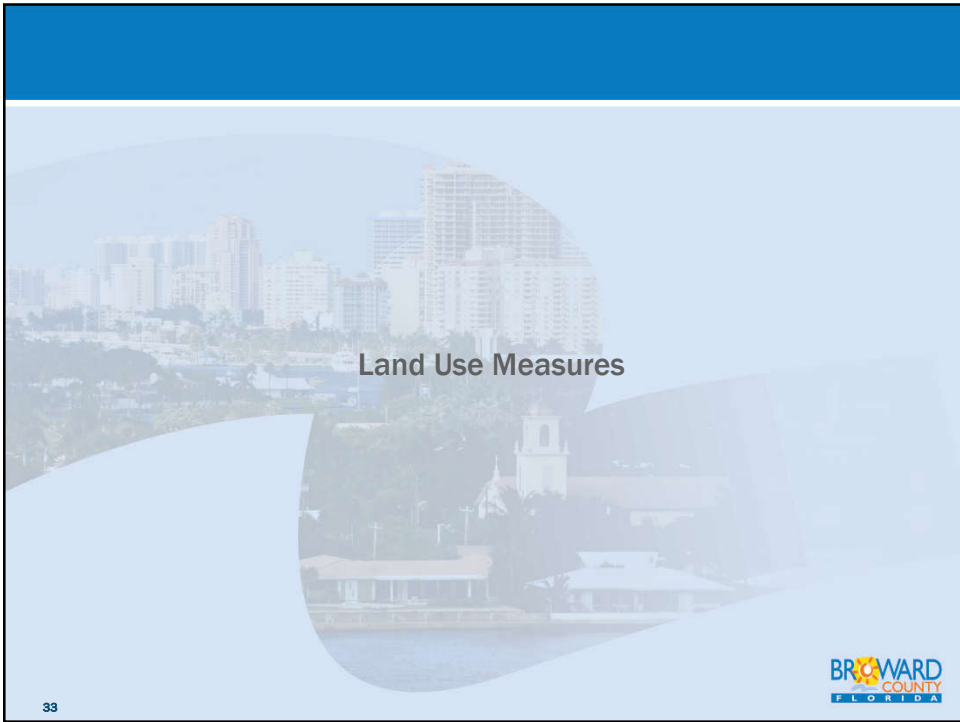
### FLL Operations 2005-2018



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Source: FAA ATADS, 2019.





## Types of Land Use Strategies

<p><b>Remedial Mitigation</b></p> <ul style="list-style-type: none"><li>• Land acquisition</li><li>• Sound insulation</li><li>• Avigation easements</li></ul>	<p><b>Preventative Mitigation</b></p> <ul style="list-style-type: none"><li>• Land use controls</li><li>• Zoning</li><li>• Building codes</li><li>• Comprehensive plans</li><li>• Real estate disclosures</li></ul>
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Other actions proposed by stakeholders and/or recommended by the FAA

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## Stakeholder Land Use Suggestions

- **Sound Insulation**

- Provide opportunity for new interior noise testing for Dania Beach homes located in the 2008 EIS DNL 65 contour and 2023 DNL 65 contour that were previously deemed compatible in the initial testing for the existing Sound Insulation Program (SIP)(Dania Beach)
- Dania Beach homes within the 2023 DNL 65 contour that were eligible for the existing SIP and did not receive testing for the SIP should be provided a new opportunity for noise testing (Dania Beach)
- Homes that are not mobile homes and are located in the Ocean Waterway MHP and also within the 2023 DNL 65 contour should be provided the opportunity to participate in a SIP and CAR (Dania Beach)
- Retest interior noise levels to determine qualification for sound-insulating windows (Public)
- Give proper noise insulation to residents (Public)

- **Avigation Easements**

- Provide Conveyance and Release (CAR) program participation opportunity to Dania Beach homes included in 2023 DNL 65 contour (Dania Beach)

- **Land Acquisition**

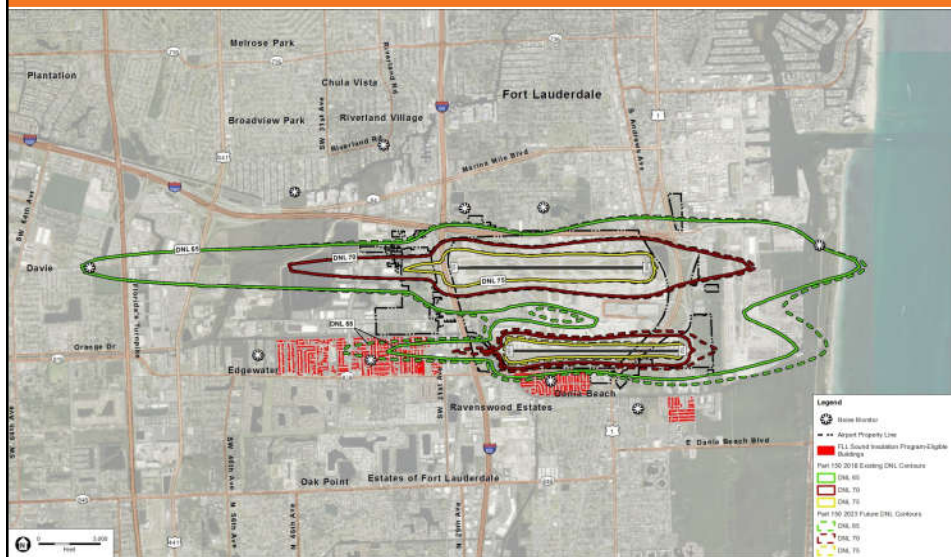
- Relocate residents (Public)
- Purchase or compensate all homes north of Griffin and west of Ravenwood (Public)

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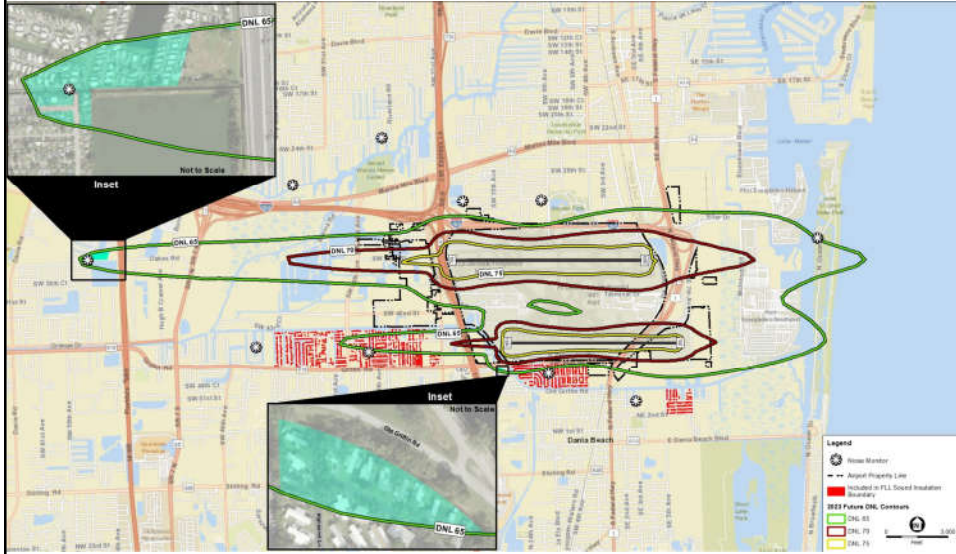
## FLL 2018 & 2023 Part 150 Noise Contours with EIS Sound Insulation Program Limits



For Illustration Purposes Only

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## FLL 2023 Part 150 Noise Contours with Sound Insulation Program



For Illustration Purposes Only

## Programmatic Measures

## Types of Programmatic Measures

- Reporting
- NEM update
- NCP revision
- Implementation tools
- Promotion, education, signage
- Monitoring
- Other actions proposed by stakeholders and/or recommended by the FAA

### General Challenges for Airports:

- Funding is required to implement and continue programmatic strategies
- Programs must be effectively staffed
- These challenges are not unique to FLL

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## Stakeholder Programmatic Suggestions

### • Monitoring

- Update monitoring system (ANAC)
- Install more noise monitors in Southeast Fort Lauderdale (Public)
- Put noise monitor in Plantation Harbor (Public)
- Install noise monitor in neighborhood (Public)
- Establish sufficient off-site noise sensors to monitor effectiveness and compliance of arrival and departure management (Dania Beach)

### • Other Types of Strategies

- Continued voluntary night closure (Dania Beach Interlocal Agreement) (TC)

### • Reporting

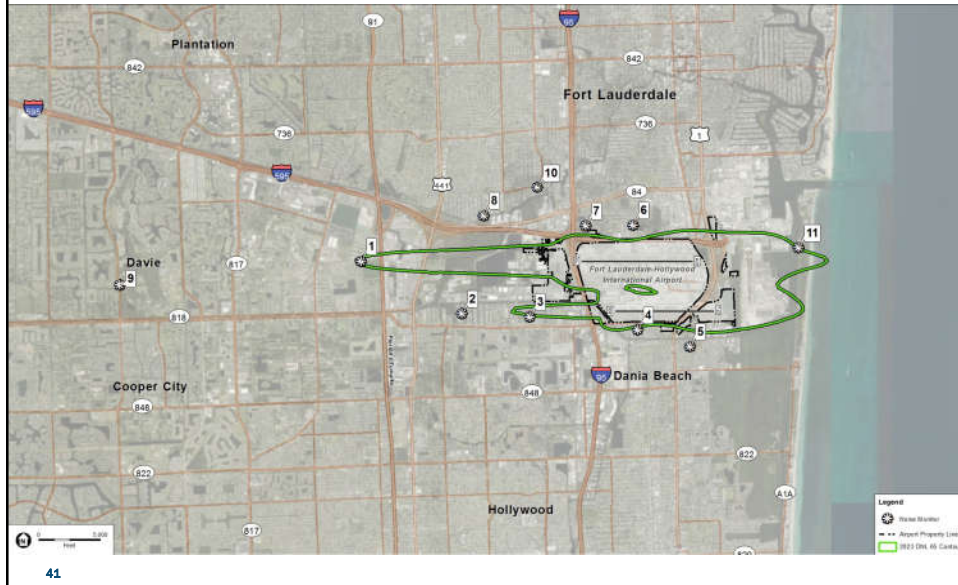
- Improve website reporting (ANAC)
- Evaluate flight tracks of smaller turboprop and prop aircraft (TC)
- Document Runway 28L/28R simultaneous departures: how many times there was 0 degrees of separation (i.e. both planes on runways 28L and 28R depart with a 290 heading) and how many times there were 15 degrees of separation (one plane departs with a 275 heading and the other plane in the other runway departs with a 290 heading) (Public)
- Document how many simultaneous departures occur on 28L and 28R per day as an annual average for 2015, 2016, 2017, and 2018 (Public)

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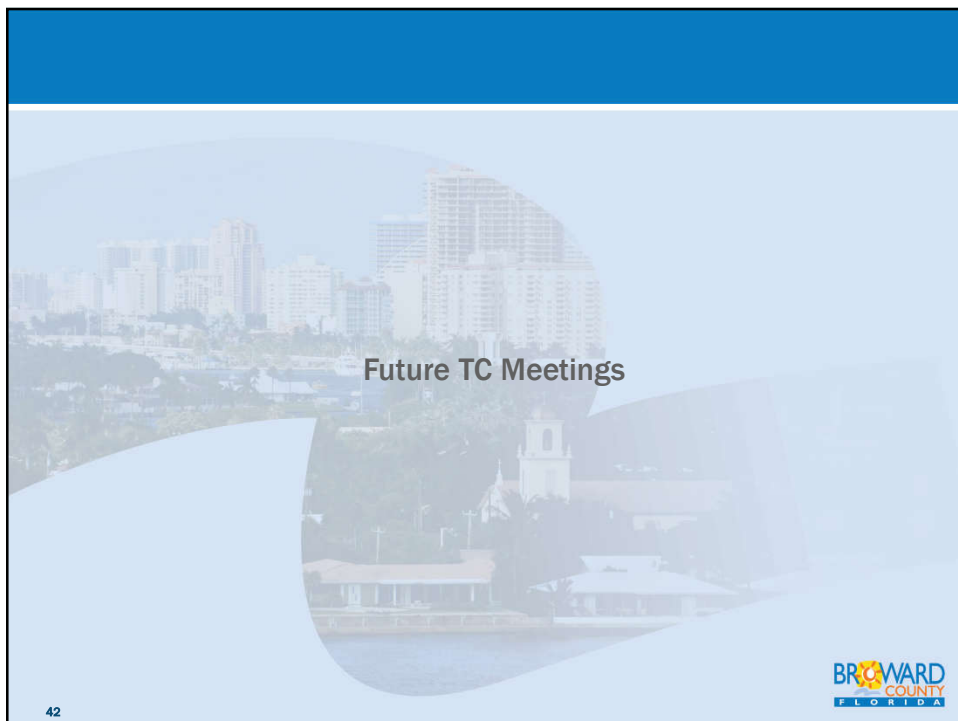
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## Current Noise Monitoring Locations with 2023 DNL 65 dB



## Future TC Meetings



## Future Meetings

### Technical Committee

- TC Meeting #7 (Tentative)
- TC Meeting #8 (Tentative)

September 25, 2019

December 4, 2019

TC materials will be available on the project website following each meeting  
[www.flpart150.com](http://www.flpart150.com)

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## Next Steps

- Submit Final NEM Report to FAA for acceptance
- Begin evaluating alternatives in support of the NCP
- Document all suggestions in support of the NCP Report


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Questions from TC Members



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The slide features a light gray background with a stylized sunset scene. On the left, there are silhouettes of palm trees. In the center, a large blue circle with a white question mark is prominent. To the right, a silhouette of an airplane is shown in flight. The top of the slide has a solid orange horizontal bar. The Broward County Florida logo is located in the bottom right corner.

Adjourn

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The slide features a light gray background with a stylized sunset scene. On the left, there are silhouettes of palm trees. In the center, the word "Adjourn" is written in a simple, dark font. To the right, a silhouette of an airplane is shown in flight. The top of the slide has a solid orange horizontal bar. The Broward County Florida logo is located in the bottom right corner.