14 CFR PART 150 NOISE AND LAND USE COMPATIBILITY STUDY

Study Coordination Committee
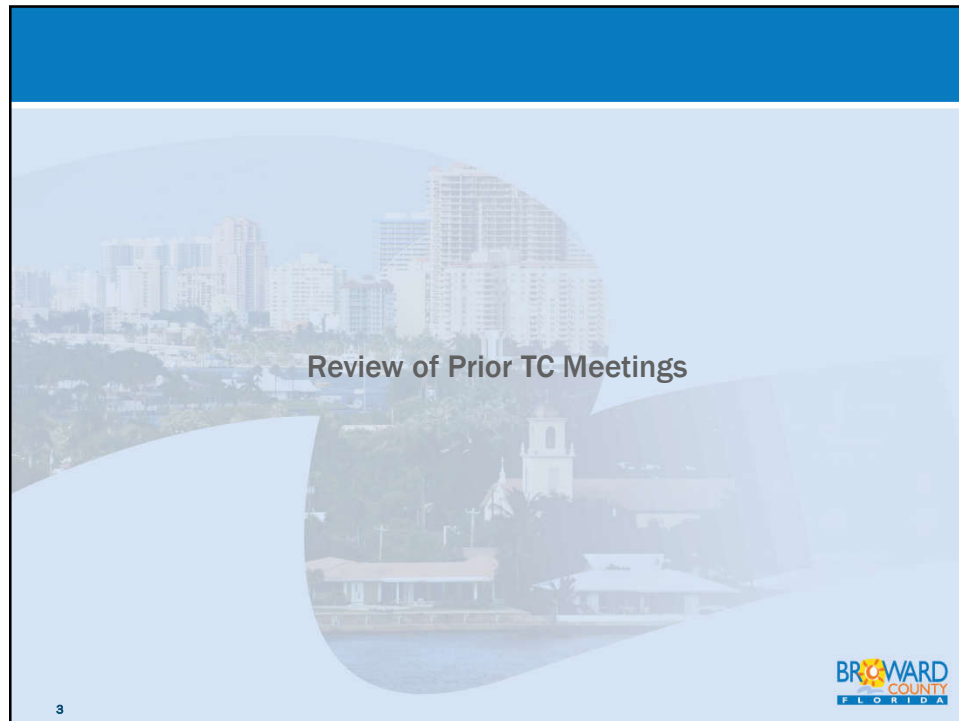November 7, 2018

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Agenda

- 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
- Next Steps
- Questions from SCC Members

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Review of Prior TC Meetings

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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

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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

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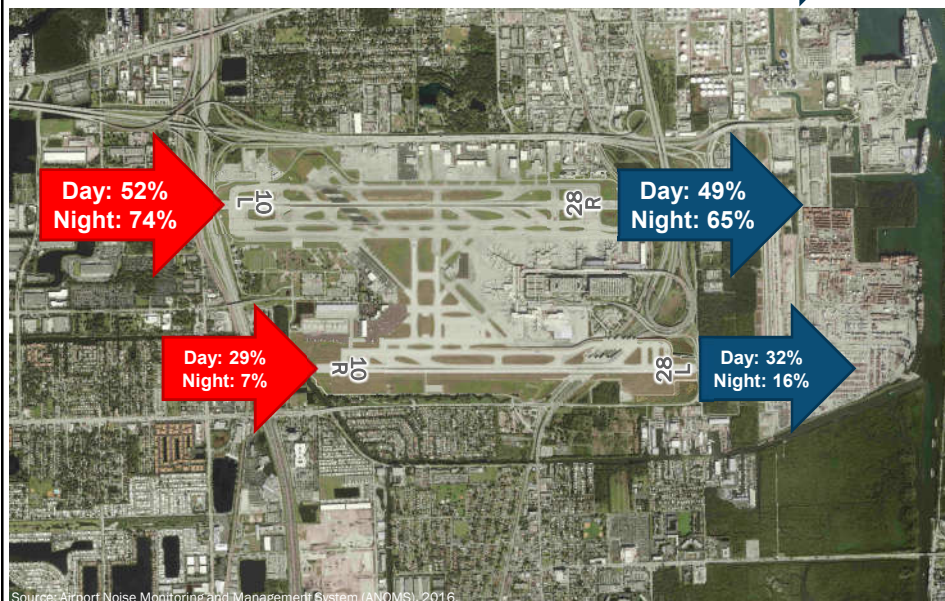
2018 ASSUMPTIONS AND RESULTS

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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)*

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Runway Use – East Flow

Legend
Arrivals
Departures

Day: 52%
Night: 74%

Day: 49%
Night: 65%

Day: 29%
Night: 7%

Day: 32%
Night: 16%

10L   28R

10R   28L

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

Runway Use – West Flow

Legend
Arrivals
Departures

Day: 12%
Night: 16%

Day: 12%
Night: 18%

Day: 7%
Night: 3%

Day: 7%
Night: 1%

Source: Airport Noise Monitoring and Management System (ANOMS), 2016.
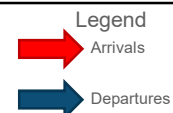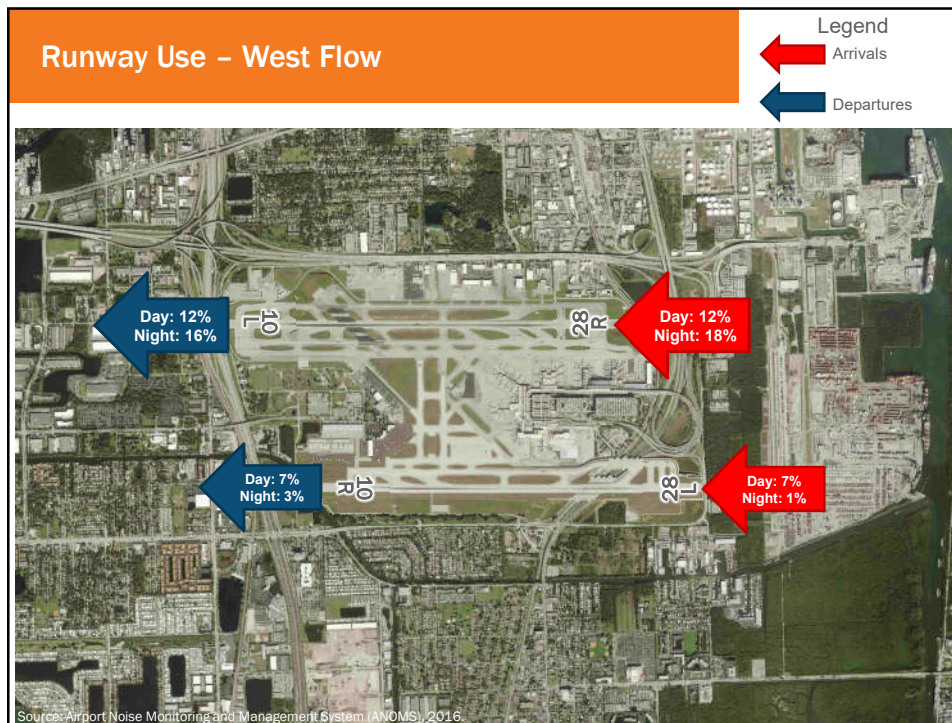
Baseline Condition Runway Use

Runway Usage

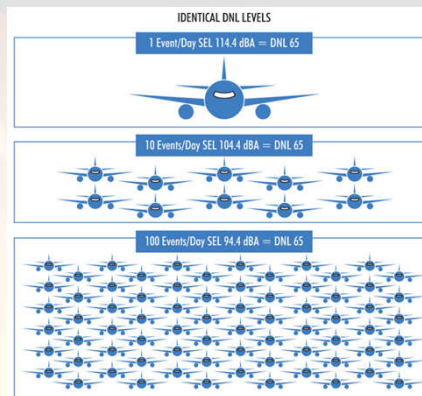| Operation Type	Runway	Day	Night	Grand Total
	North Runway			
	10L	52%	74%	55%
	28R	12%	18%	13%
	Total	**64%**	**92%**	**68%**
Arrivals	South Runway			
	10R	29%	7%	26%
	28L	7%	1%	6%
	Total	**36%**	**8%**	**32%**
	North Runway			
	10L	49%	65%	51%
	28R	12%	16%	13%
	Total	**61%**	**81%**	**64%**
Departures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

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

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10L Arrival Flight Tracks: 55% of All Arrivals (SAMPLE)

Daytime: 52%
Nighttime: 74%
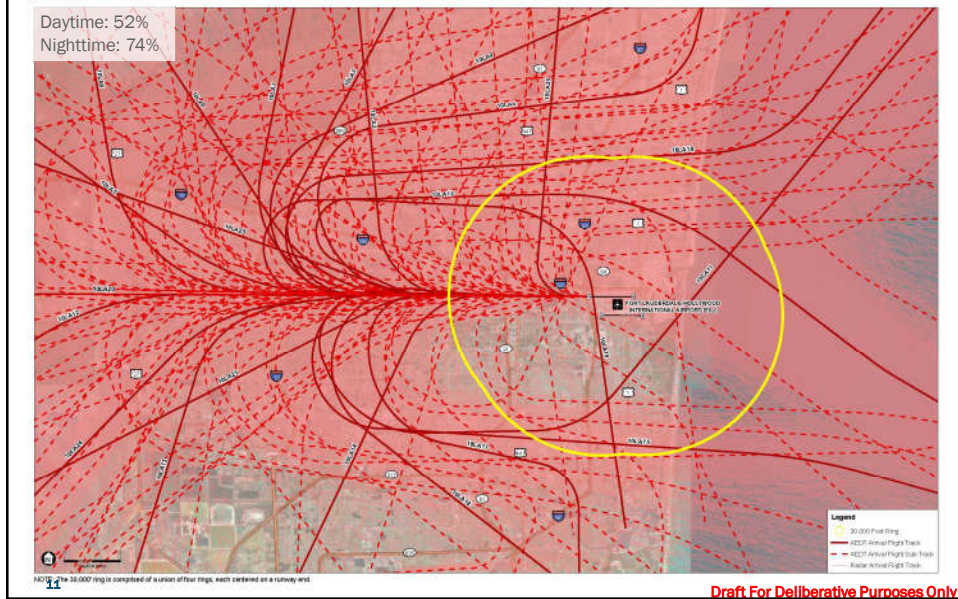
Aircraft Noise - Day-Night Average Sound Level (DNL)

- 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

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

FLL 2018 Draft Part 150 DNL 65/70/75 Contours

Draft For Illustration Purposes Only – Work In Progress

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2023 ASSUMPTIONS AND RESULTS

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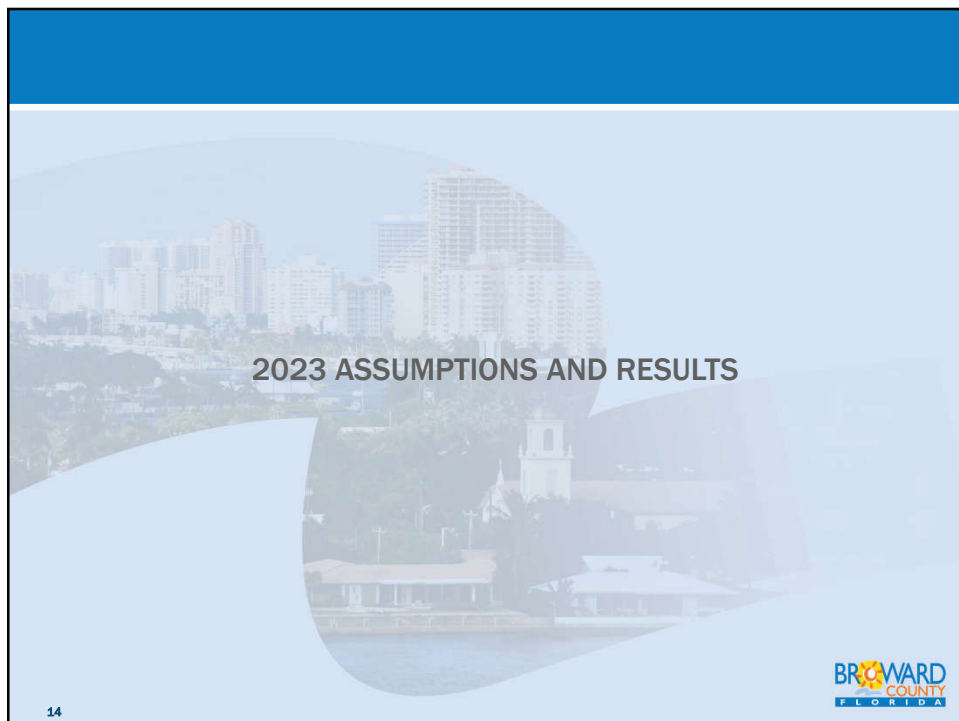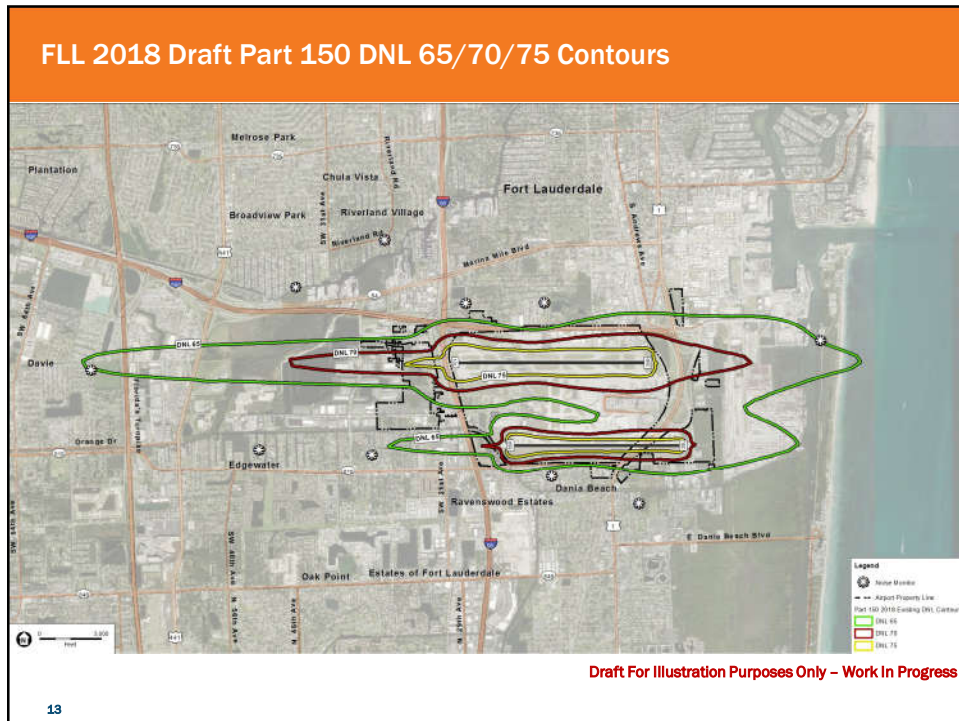
2023 Future Condition Contour Assumptions

- 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)*

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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%
	Total	**62%**	**84%**	**65%**
	South Runway			
	10R	31%	15%	29%
	28L	7%	1%	6%
	Total	**38%**	**16%**	**35%**
Departures	North Runway			
	10L	44%	59%	46%
	28R	14%	18%	14%
	Total	**58%**	**77%**	**60%**
	South Runway			
	10R	37%	21%	35%
	28L	5%	3%	5%
	Total	42%	23%	40%

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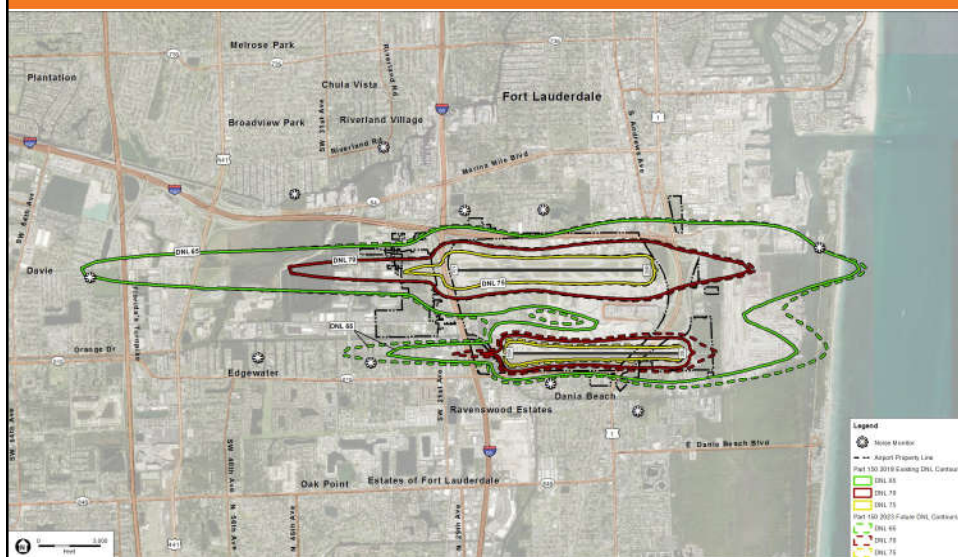
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FLL 2023 Part 150 DNL 65/70/75 Contours
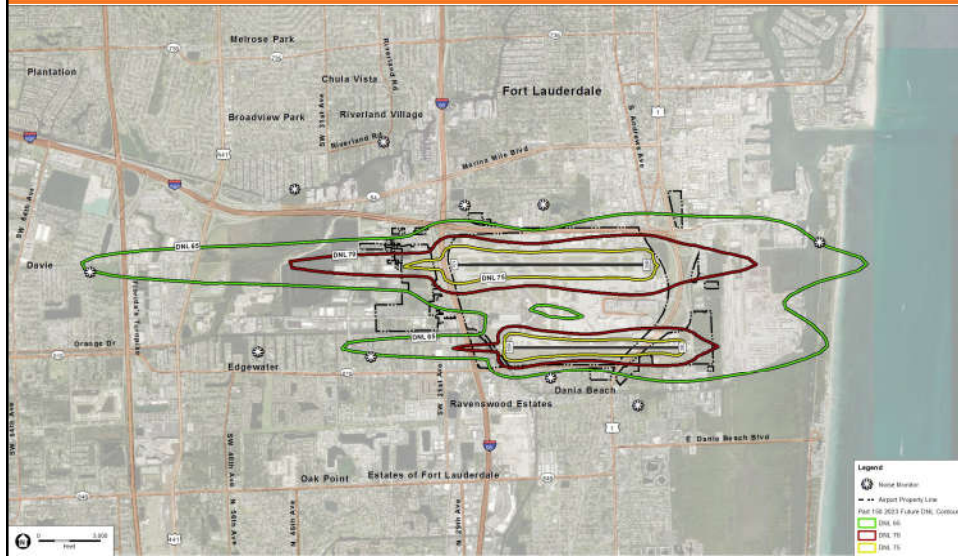
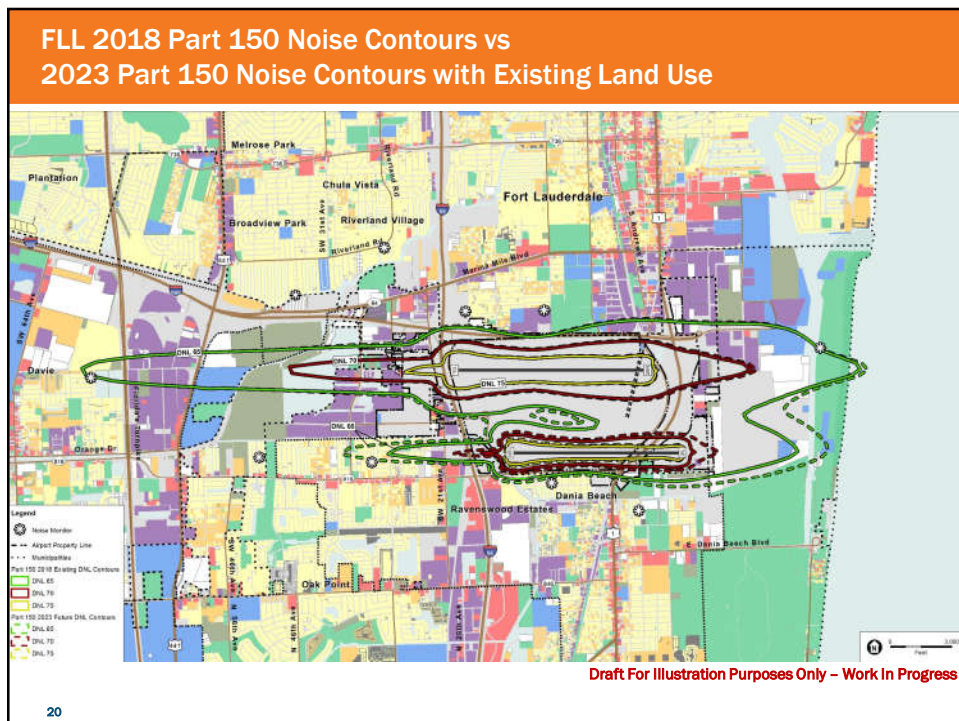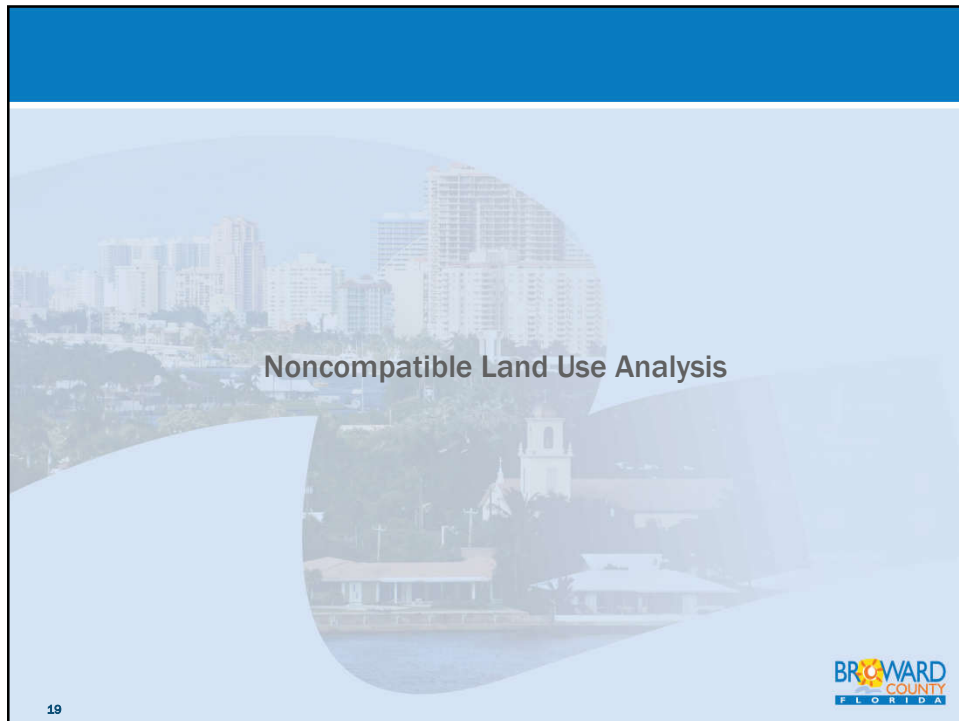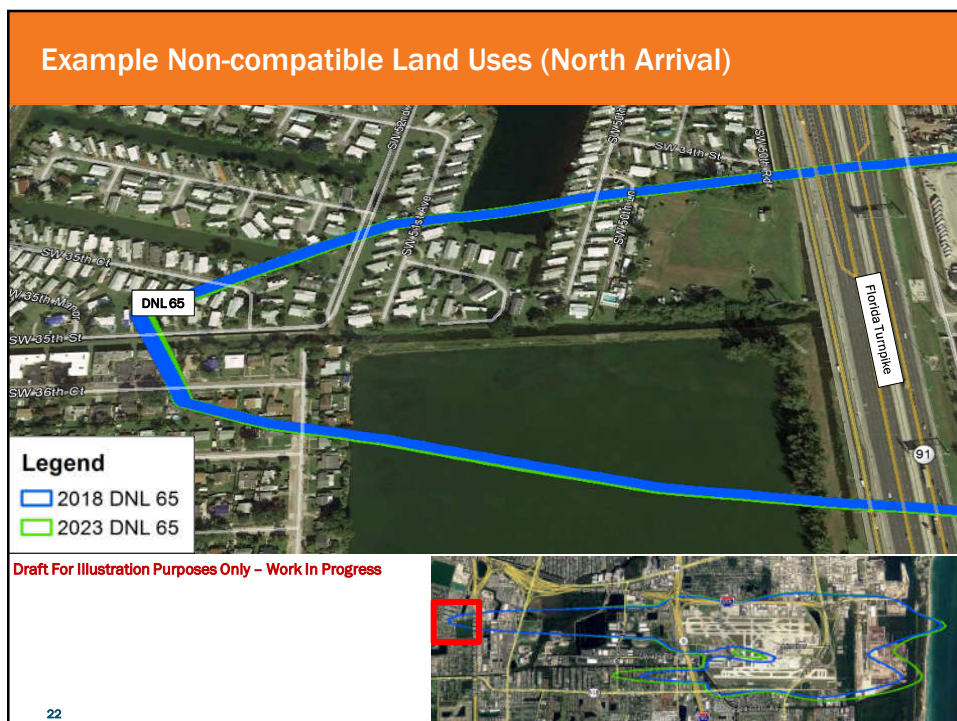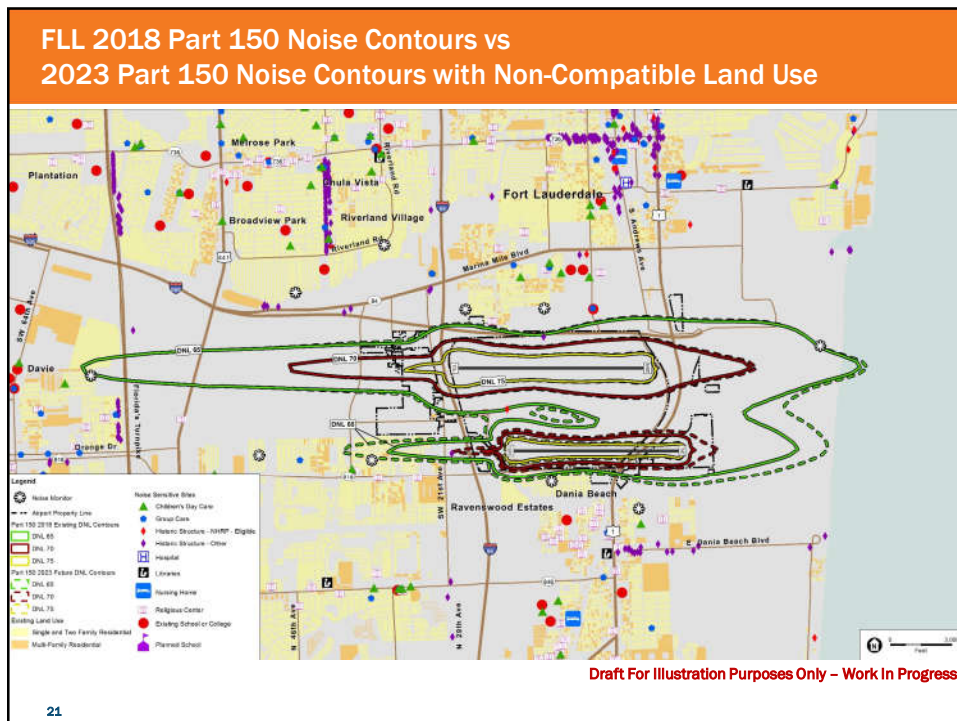Draft For Illustration Purposes Only – Work In Progress

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FLL 2018 Part 150 Noise Contours vs 2023 Part 150 Noise Contours

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Noncompatible Land Use Analysis

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

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FLL 2018 Part 150 Noise Contours vs
2023 Part 150 Noise Contours with Non-Compatible Land Use

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Example Non-compatible Land Uses (North Arrival)

Legend
- 2018 DNL 65
- 2023 DNL 65

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Example Non-compatible Land Uses (South Arrival)

DNL 65

DNL 65

Legend
2018 DNL 65
2023 DNL 65

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Example Non-compatible Land Uses (South)

DNL 65

DNL 65

Legend
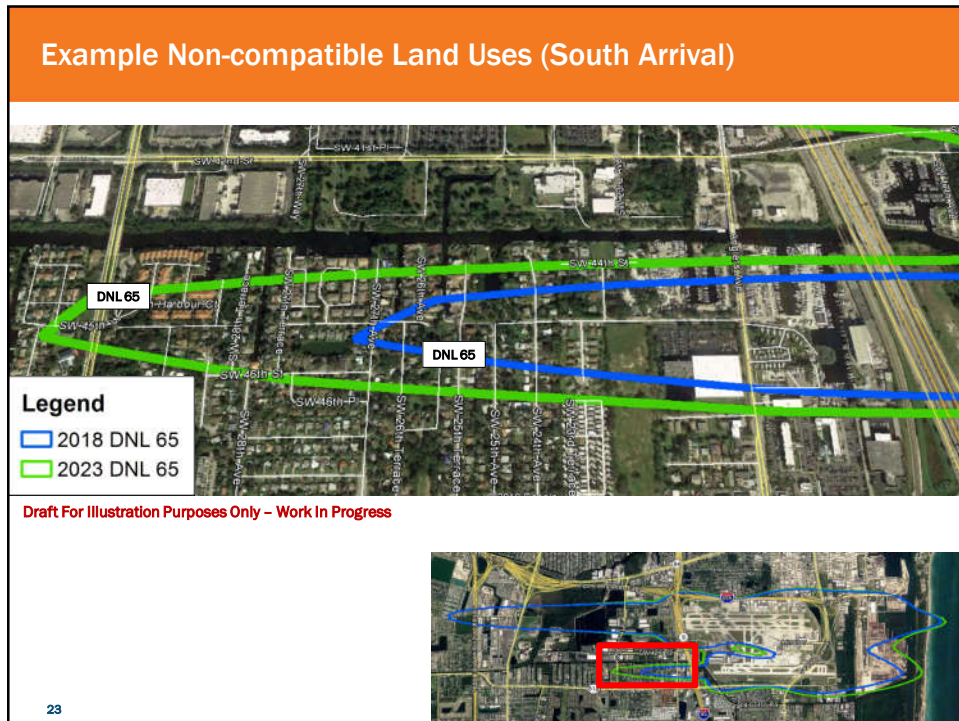2018 DNL 65
2023 DNL 65

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2018 and 2023 Summary of Noise Sensitive Uses

Noise Sensitive Sites Exposed to DNL 65 and Higher				
Noise Level[1]	Total Area (Acres)	Housing Units[2]	Population[2]	Historic Resources
2018				
DNL 65-70	2,276.00	203	430	3
DNL 70-75	710.1	0	0	0
DNL 75+	459.6	0	0	0
Total	**3,445.70**	**203**	**430**	**3**
2023				
DNL 65-70	2,579.00	492	1,073	3
DNL 70-75	805.7	0	0	0
DNL 75+	503.3	0	0	0
Total	**3,888.00**	**492**	**1,073**	**3**

No Other Noise Sensitive Sites within DNL 65:

- Schools
- Hospitals
- Religious Facilities
- Day Cares
- Nursing Homes/ Group Care
- Libraries

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).
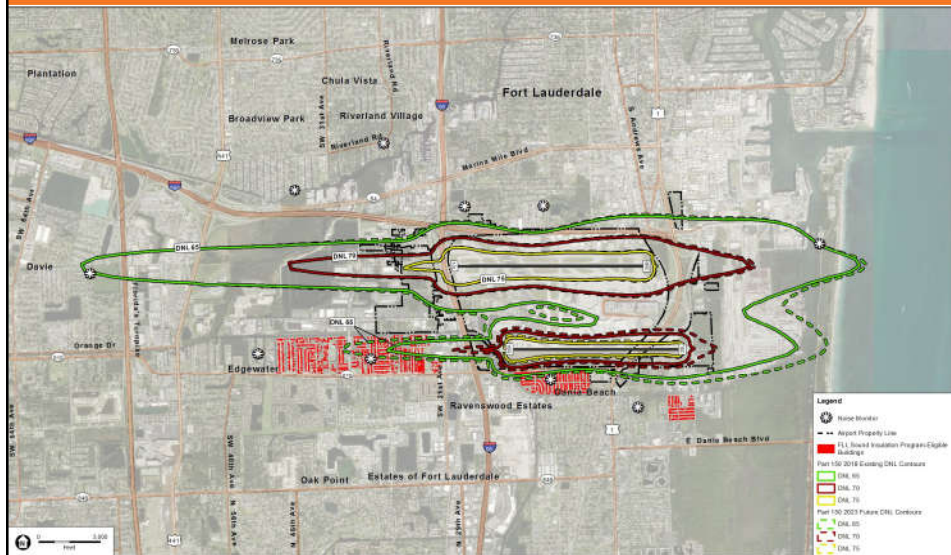Draft Analysis For Internal Review Only – Work In Progress
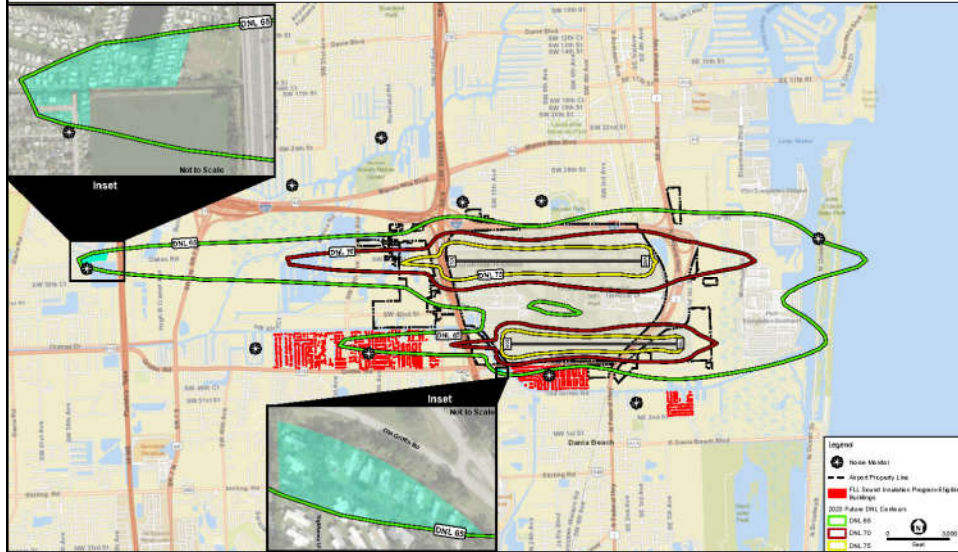
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FLL 2018 & 2023 Part 150 Noise Contours with Sound Insulation Program

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

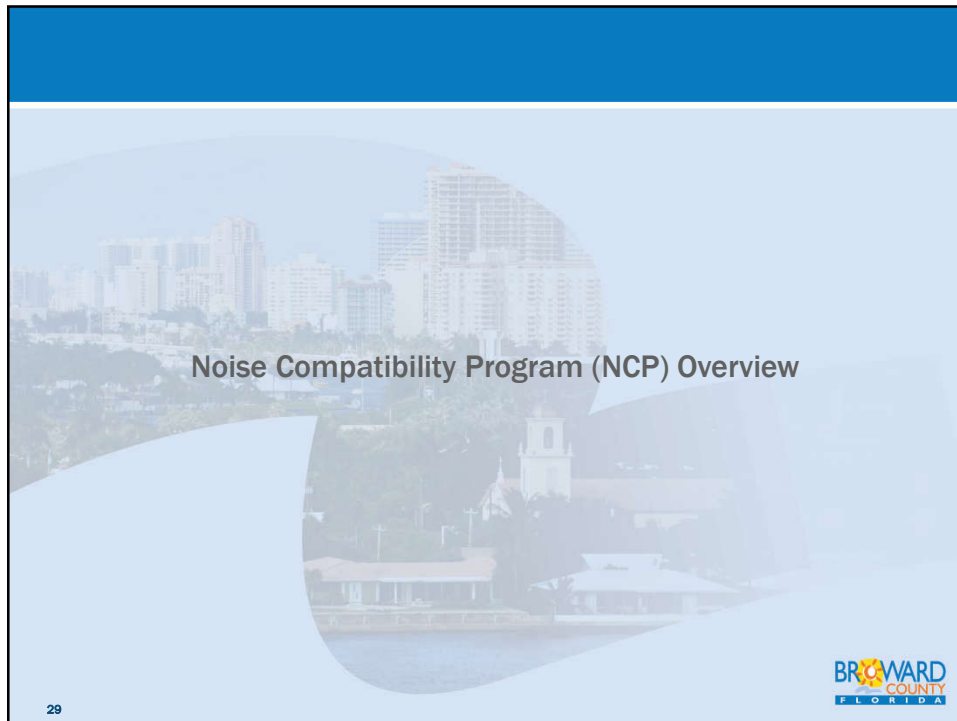Draft For Illustration Purposes Only – Work In Progress

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2018 and 2023 Non-Mitigated Residential Land Uses

HOUSING UNITS NOT IN CURRENT FLL SOUND INSULATION PROGRAM[1]		
Noise Level[2]	Housing Units Outside SIP[3]	Housing Units within SIP[1]
2018		
DNL 65-70	89	114
DNL 70+	0	0
TOTAL:	89	114
2023		
DNL 65-70	105	387
DNL 70+	0	0
TOTAL:	105	387

SOURCES:
[1] FLL Sound Insulation Program housing unit data from Broward County Aviation Department. Not all homes may be eligible for sound insulation.
[2] Noise contours from Environmental Science Associates (ESA)
[3] Housing units derived from 2010 Census block-level data.

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Noise Compatibility Program (NCP) Overview

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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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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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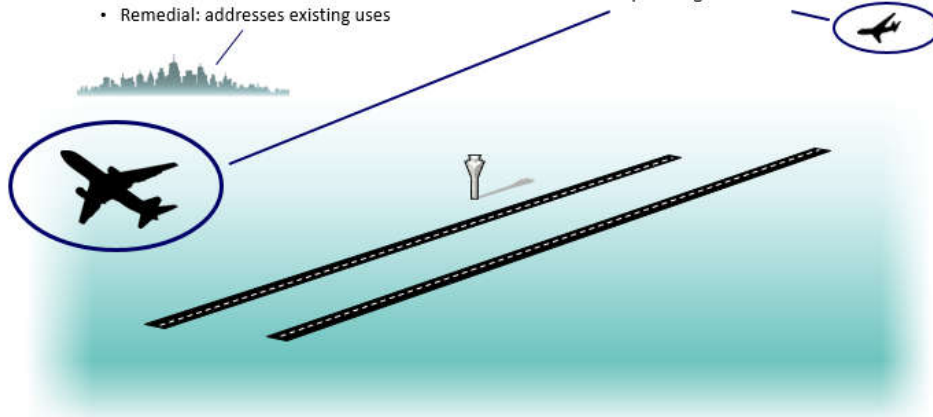## Distinction Between Noise Abatement and Noise Mitigation

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

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Involvement During the NCP Phase

- 14 CFR Part 150 requires consultation with the following stakeholders, and most are members of the Study's 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
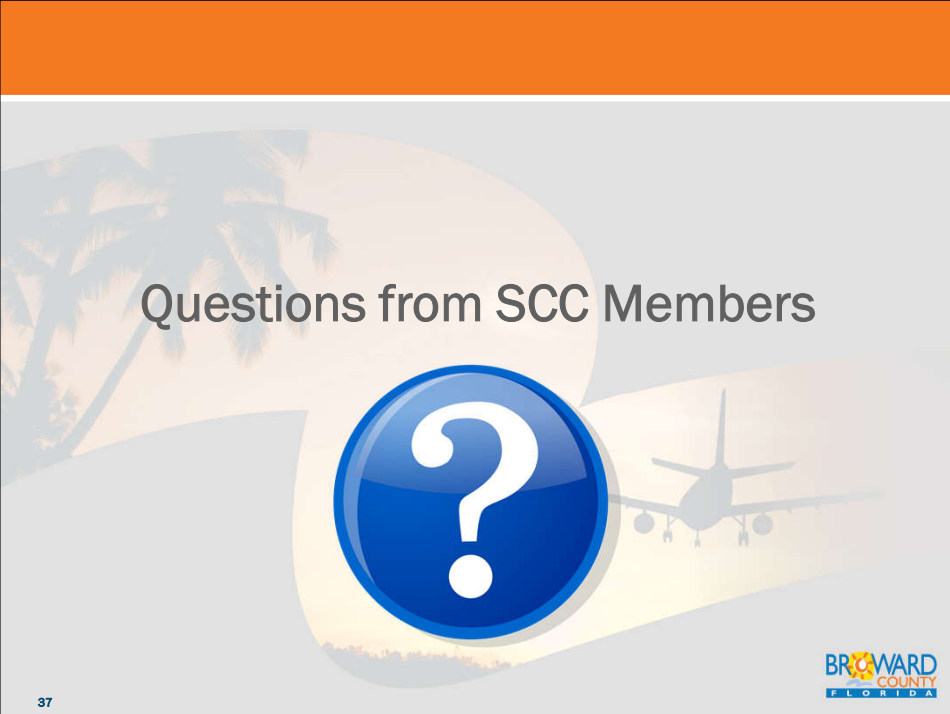 – General Public

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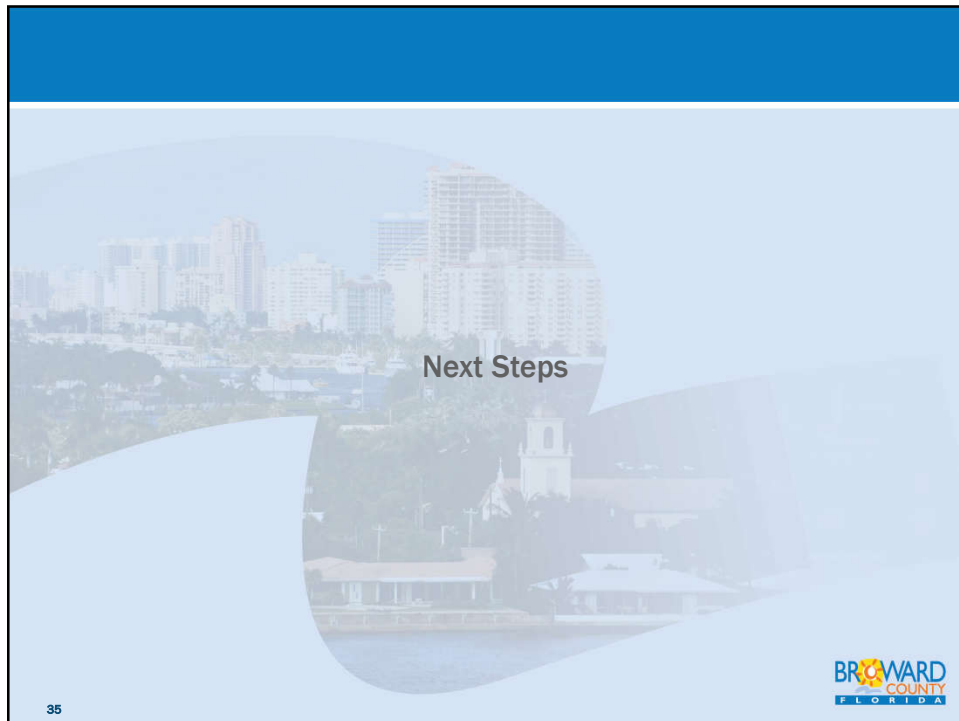
Next Steps

Next Steps

- 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)

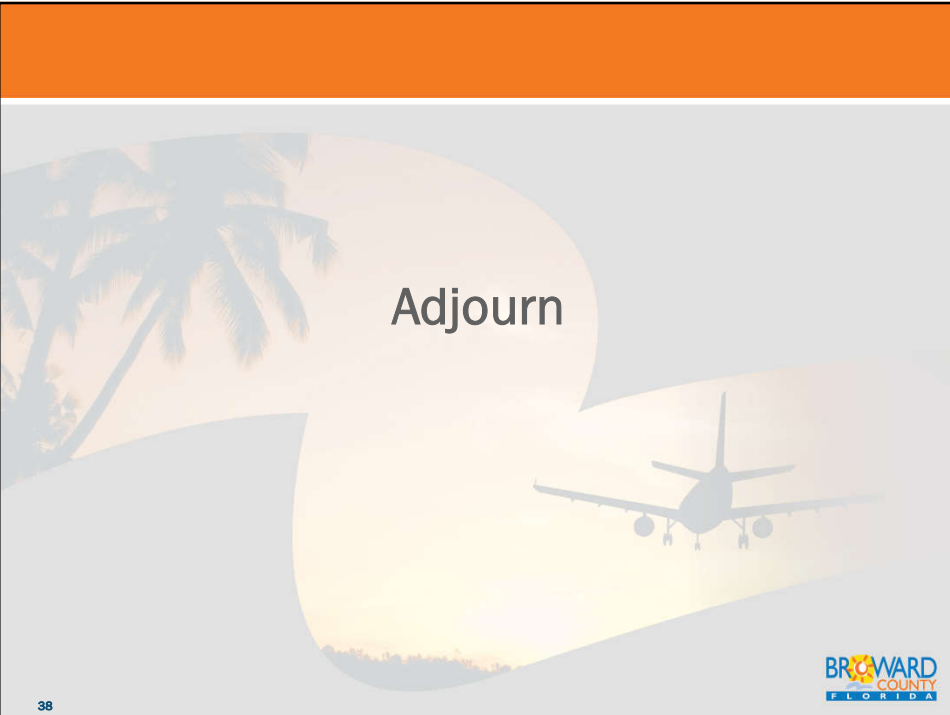Questions from SCC Members

Adjourn