

# ***Part 150 Noise Compatibility Study***

Technical Advisory Committee Meeting #1  
December 11, 2019



**JOHN GLENN**  
INTERNATIONAL



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# *Agenda*

- Welcome and Introductions
- Part 150 Noise Compatibility Study Process
- Role of the Technical Advisory Committee
- History of Noise Compatibility Planning
- Existing Data Collection
- Types of Noise Compatibility Program Measures
- Schedule and Next Steps
- Group Discussion

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# ***Part 150 Noise Compatibility Study Process***

## *Overview*

- Code of Federal Regulations (14 CFR) Part 150
  - Established requirements for airport owners who choose to submit noise exposure maps and develop noise compatibility planning programs for FAA review and approval
  - Part 150 Studies undertake an in depth and public oriented approach to noise and compatible land use
- Part 150 Studies Are Planning Studies
  - Identify noise and land use impacts that exist today and in the future
  - Work to develop solutions within the FAA's framework
- Part 150 Studies can open funding sources
  - Following 14 CFR Part 150 guidelines makes airport eligible to apply for grants for implementing recommendations of the study
  - Funding is subject to availability and not guaranteed

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# ***Part 150 Noise Compatibility Study Process***

## *Overview*

- Part 150 Studies do not:
  - Recommend closing an airport or implementing mandatory restrictions on aircraft
  - Give environmental approval for implementing noise abatement or land use programs

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# ***Part 150 Noise Compatibility Study Process***

## ***Essential Elements of a Part 150 Study***

- Noise Exposure Maps:
  - Description of the noise levels for existing and future (+5 years) conditions
  - Future condition should take into account any changes (physical or operational) that may have an effect on the noise levels around the airport
    - Examples of physical changes may include: runway threshold relocation, changes in terminal/gate layout, new aircraft parking facilities
    - Examples of operational changes may include: changes in aircraft operating levels, and fleet mix, new flight tracks, new destinations
- Noise Compatibility Program:
  - Recommendations for reducing, minimizing, and/or mitigating aircraft noise and land use conflicts
    - Noise Abatement
    - Land Use Mitigation
    - Implementation Measures

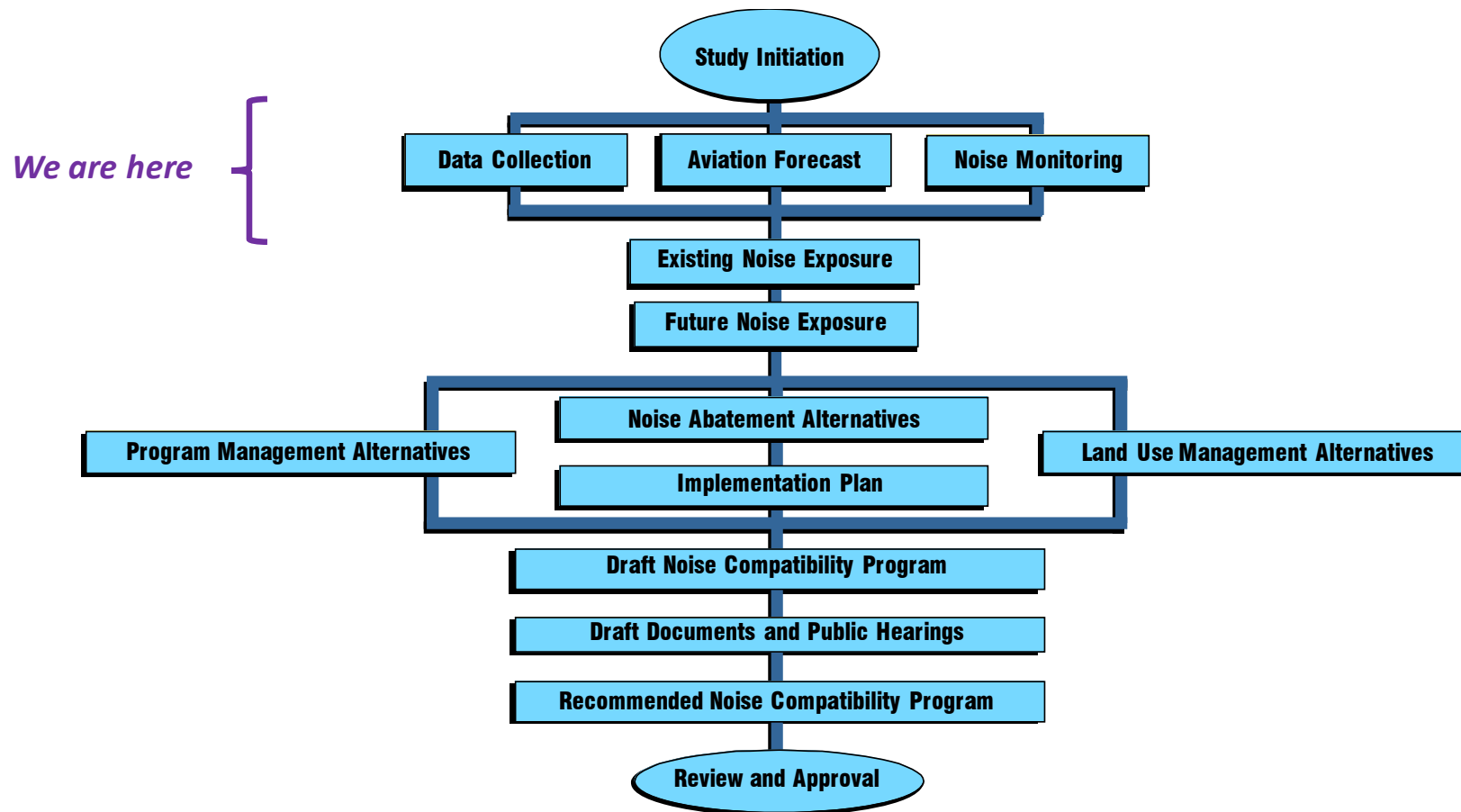
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# ***Part 150 Noise Compatibility Study Process***

## ***Essential Elements of a Part 150 Study***

- Public Involvement:
  - Technical Advisory Committee – Group of stakeholders affected by, or having oversight responsibilities for, issues covered by the Part 150 Study Update
    - Airport Authority officials
    - Aircraft operators
    - Government Officials / Land Use Planners
    - Community Groups
    - Air Traffic Controllers
  - Public Workshops - Open house, informational meetings to discuss and gather comments on potential aviation noise, land use, and other mitigation measures
  - Public Hearings - to receive comments (either oral or written) from the public on the Draft Part 150 Study Update document
  - Project Website / Social Media
    - Project website and social media will be updated with study information, including images and documents pertinent to the study
    - Posting of all meeting notices
    - Posting of study process and draft findings

# *Part 150 Noise Compatibility Study Process*



# Part 150 Noise Compatibility Study Process

Part 150 Task and Subtasks	2019				2020												2021		
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Project Kick-Off and Data Collection																			
Prepare Aviation Demand Forecasts																			
Conduct Noise Monitoring																			
Existing Noise Exposure																			
Future Noise Exposure Map																			
Noise Abatement Alternatives																			
Land Use Alternatives																			
Noise Compatibility Program																			
Draft Part 150 Report and Public Hearing																			
Part 150 NCP Adoption by CRAA																			
Prepare and Submit Final Part 150 NCP to FAA																			
FAA Record of Approval																			
Meetings and Coordination																			
Technical Advisory Committee Meetings																			
Public Information Meetings																			
Public Hearing/Responses																			



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## *Technical Advisory Committee*

- Role of the Technical Advisory Committee (TAC)
  - Sounding Board
  - Link to the Community
  - Technical Review
  - Aid to Implementation
- TAC Meeting Schedule
  - Meeting #1 – December 2019
  - Meeting #2 – Spring 2020
    - Review preliminary noise exposure maps, forecast, and results of noise measurement program
  - Meeting #3 – Summer/Fall 2020
    - Analysis of noise abatement measures
  - Meeting #4 – Winter 2020
    - Review Draft Noise Compatibility Program

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# *History of Noise Compatibility Planning*

## *Federal Regulations and Guidelines*

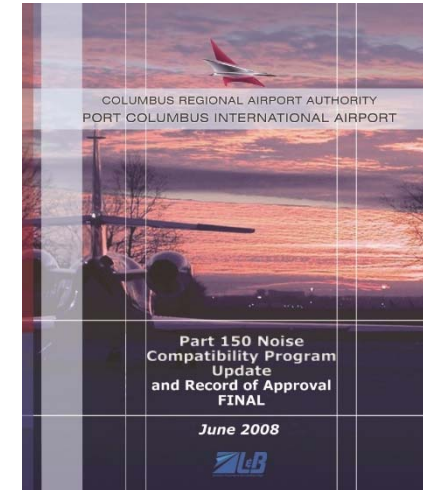
- Jet Age + Rapid Expansion of Airports + Continued Suburban Development/Sprawl = Adverse Noise Impacts
- Aviation Noise Abatement Policy of 1976
- Aviation Safety and Noise Abatement Act of 1979
  - 14 CFR Part 150 (1981) established requirements for airport owners who choose to submit noise exposure maps and develop noise compatibility planning programs to the FAA for review and approval.
  - Typically voluntary on the part of the sponsor and is not an automatic requirement of the Federal government.
- Airport Noise and Capacity Act of 1990
  - Established phase-out timeline of Stage 2 aircraft (Commercial aircraft >75,000 lbs.)
  - Restricted airports from imposing locally based, non-voluntary restrictions without first completing a Part 161 Study. (To date no Part 161 restrictions request has been submitted and fully approved by the FAA)
- FAA Final Policy on Part 150 Noise Mitigation Measures (Oct 1, 1998)
  - New homes constructed within an FAA-approved and published noise exposure contour are NOT eligible for remedial noise mitigation.

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# *History of Noise Compatibility Planning*

## *Previous Part 150 Studies Completed at CMH*

- 1987 Part 150 Study (original)
- 1993 Part 150 Study Update
- 1999 Part 150 Study Update
  - 5 Noise Abatement Measure Recommendations
  - 11 Land Use Management Recommendations
  - 6 Implementation Management Recommendations
- 2001 Noise Exposure Map Update
  - Updated Noise Contours to 2001/2006 conditions
  - Extended the Sound Insulation Program boundary
- 2007 Part 150 Study Update (FAA Record of Approval in 2008)
  - Concurrent with EIS for relocation of the south runway
  - Extended the Sound Insulation Program boundary and reviewed other noise abatement measures
  - Proposed the “Airport Land Use Management District” fixed boundary for land use compatibility planning



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# ***History of Noise Compatibility Planning***

## *Current Part 150 Study Update*

- Continuation of CRAA's commitment to proactive noise compatibility planning and goal to be a "Good Neighbor" to the surrounding community
- Commitment of the 2009 Environmental Impact Statement and Record of Decision for the relocation of the south runway at CMH
  - Relocated runway opened in August 2013
  - Delayed start of Part 150 while north runway underwent rehabilitation in 2016



## Future (2012) Noise Exposure Map from 2007 Part 150 Noise Compatibility Program Update



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# ***History of Noise Compatibility Planning***

## *Current Part 150 Study Update*

- Residential Sound Insulation
  - CRAA has provided sound insulation to nearly 800 homes
- Acquisition Program
  - Acquisition of 35 homes impacted by relocation of the south runway
  - Provided relocation assistance to affected residents
- Tracking and Measuring Noise
  - Operates WebTrack System with 16 permanent noise monitors
  - Allows staff and the general public the ability to track flight activity and noise levels
- Noise Complaint & Inquiries
  - Dedicated staff to respond to complaints and inquiries about aircraft operations and noise
- Proactive planning
  - Adhere to both federal and local regulations
  - Maintain transparent communication
  - Provide information to land use planners, developers, and the general public

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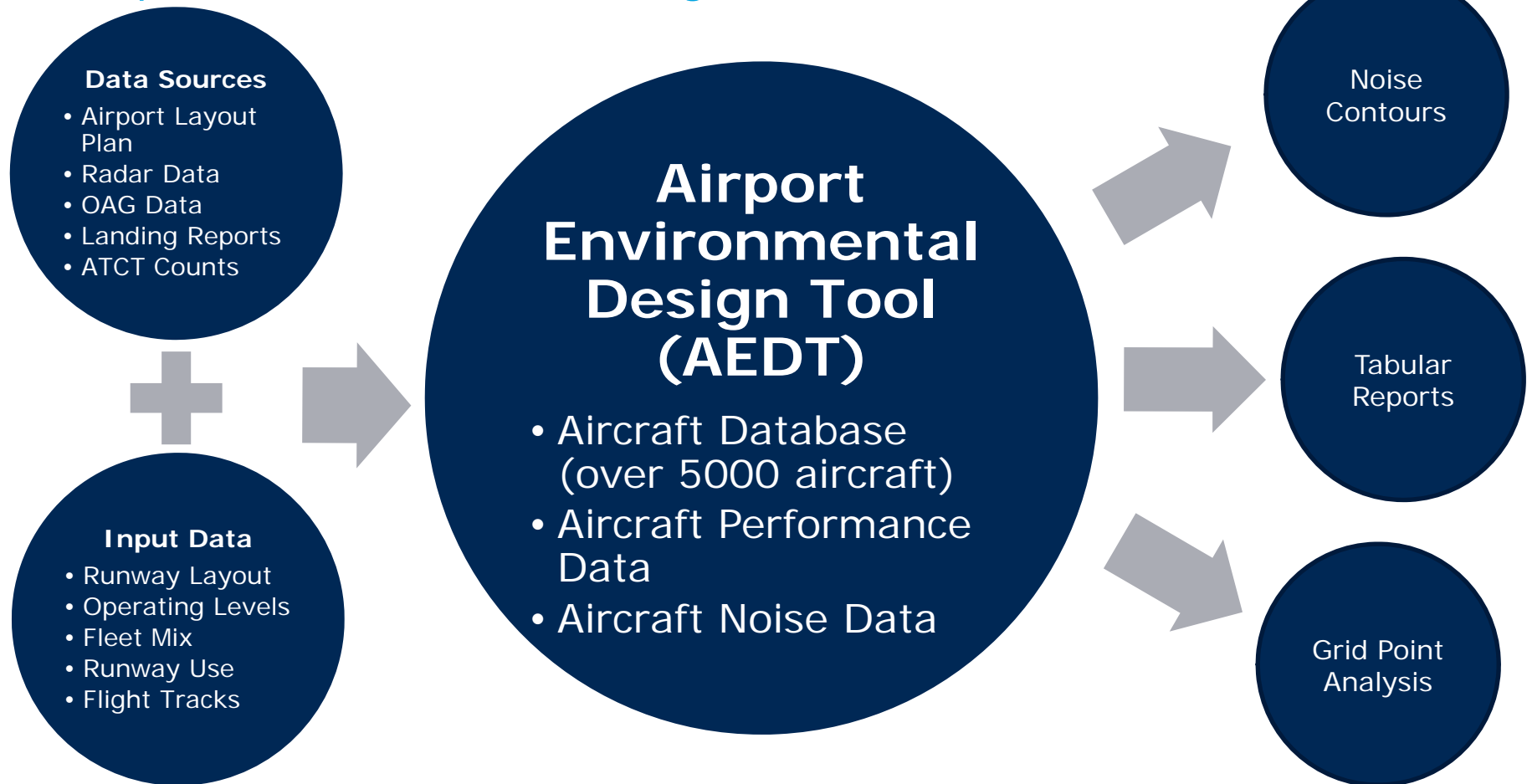
# *Existing Data Collection*

## *Technical Requirements*

- Represents an annual-average day (1 year of operations/365 days).
- Described with a set of continuous lines that represent equal levels of noise.
- Prepared using the FAA's Airport Environmental Design Tool (AEDT) Version 3b
- Must use specific noise metric: Day-Night Average Sound Level (DNL)
  - DNL represents 24-hour average noise level
  - Penalty for nighttime (10:00 p.m. - 6:59 a.m.) flights (x 10)
  - National standard for all Federal agencies
  - 65 DNL identified as threshold for impact to noise sensitive land uses

# Existing Data Collection

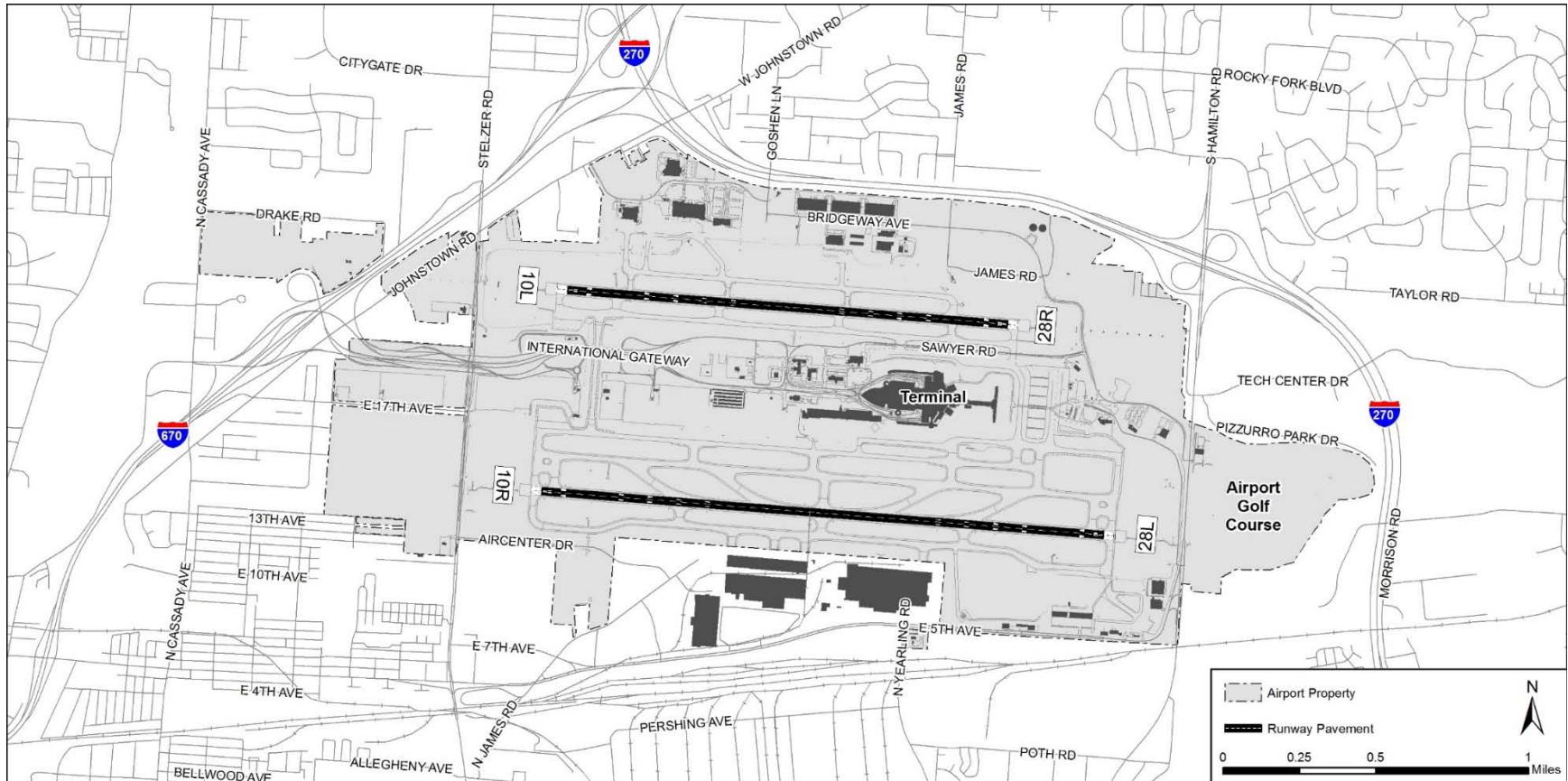
## Airport Environmental Design Tool (AEDT)





# Existing Data Collection

## Runway Layout



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## ***Existing Data Collection***

### *Operating Levels*

- Existing 2018/19 Operations
  - Actual based on FAA Air Traffic Control Tower records for September 2018 through August 2019

<b>Aircraft Category</b>	<b>2018 Existing Operations</b>		
	<b>Actual</b>	<b>Average Annual Day</b>	<b>Percent</b>
<b>Air Carrier &amp; Commuter</b>	113,961	312	84.4%
<b>General Aviation</b>	20,294	56	15.0%
<b>Military</b>	744	2	0.6%
<b>Total</b>	134,999	370	100.0%

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## ***Existing Data Collection***

### *Operating Levels*

- Forecasted 2025 Operations
  - Based on aviation activity forecast prepared for this Part 150 Study

<b>Aircraft Category</b>	<b>2025 Forecast Operations</b>		
	<b>Forecast</b>	<b>Average Annual Day</b>	<b>Percent</b>
<b>Air Carrier &amp; Commuter</b>	128,580	352	85.6%
<b>General Aviation</b>	20,930	57	13.9%
<b>Military</b>	630	2	0.4%
<b>Total</b>	150,140	411	100.0%

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# *Existing Data Collection*

## *Fleet Mix*

- Types of aircraft that operate at the airport
- Input Data Based on most recent 12 months of data from the following sources:
  - Airport Landing Reports
  - Official Airline Guide
  - Radar Data
- Air Carrier operations primarily made of:
  - Airbus 319 / 320 / 321
  - Boeing 737-700 / 737-800
  - Embraer E170 / 175
  - Bombardier CRJ-700 and CRJ-900
- Air Taxi/General Aviation operations include business jets, turboprops, and piston engine propeller aircraft

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## *Existing Data Collection*

### *Runway Use*

- West Flow (arrive and depart Runways 28L and 28R)
  - Historically: approximately 75% of the operations
- East Flow (arrive and depart Runways 10L and 10R)
  - Historically: approximately 25% of the operations
- Runway Direction is dictated by wind, weather, and other operational factors
- South runway (10R/28L) is longer and used slightly more often
- Input data based on the most recent 12 months of available flight tracking data

# Existing Data Collection

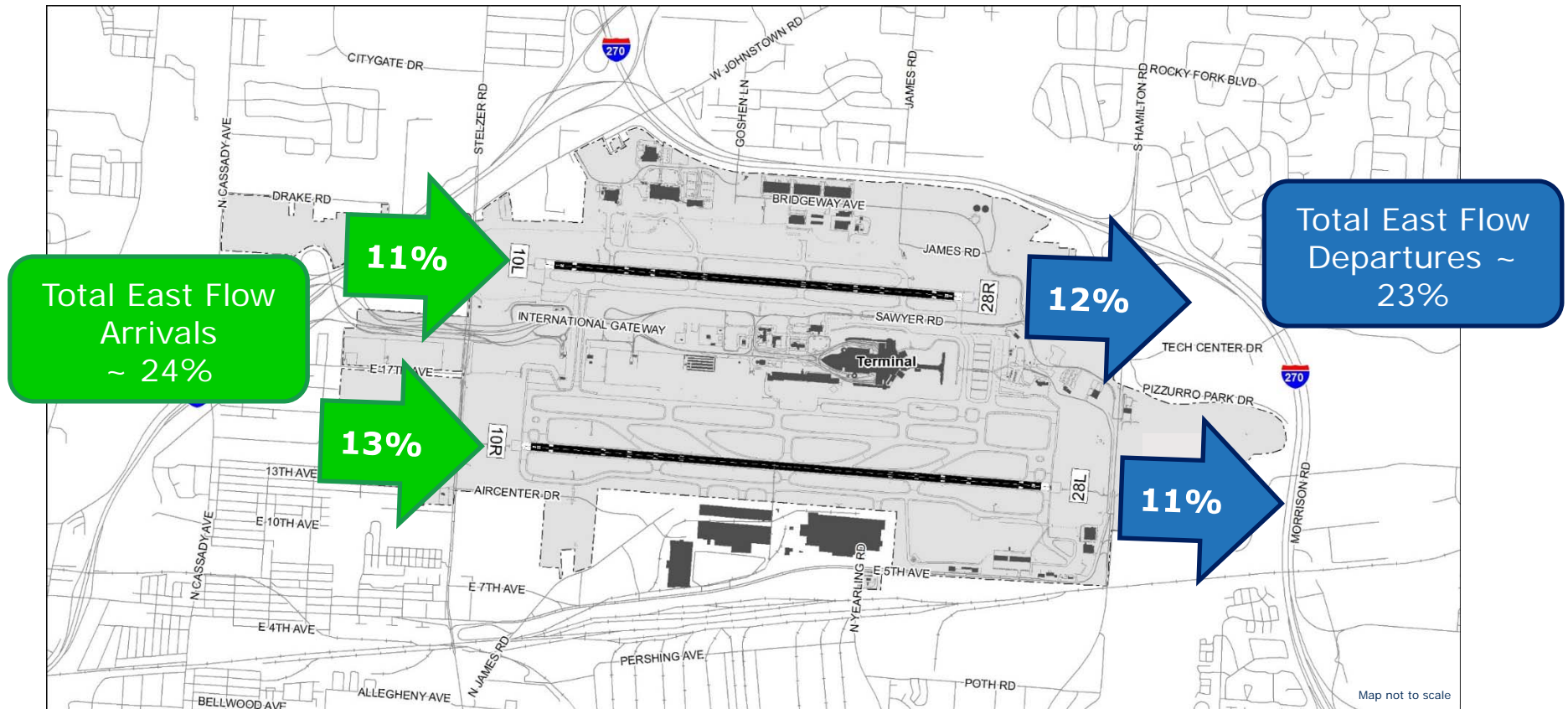
## Runway Use – West Flow





# Existing Data Collection

## Runway Use – East Flow



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## ***Existing Data Collection***

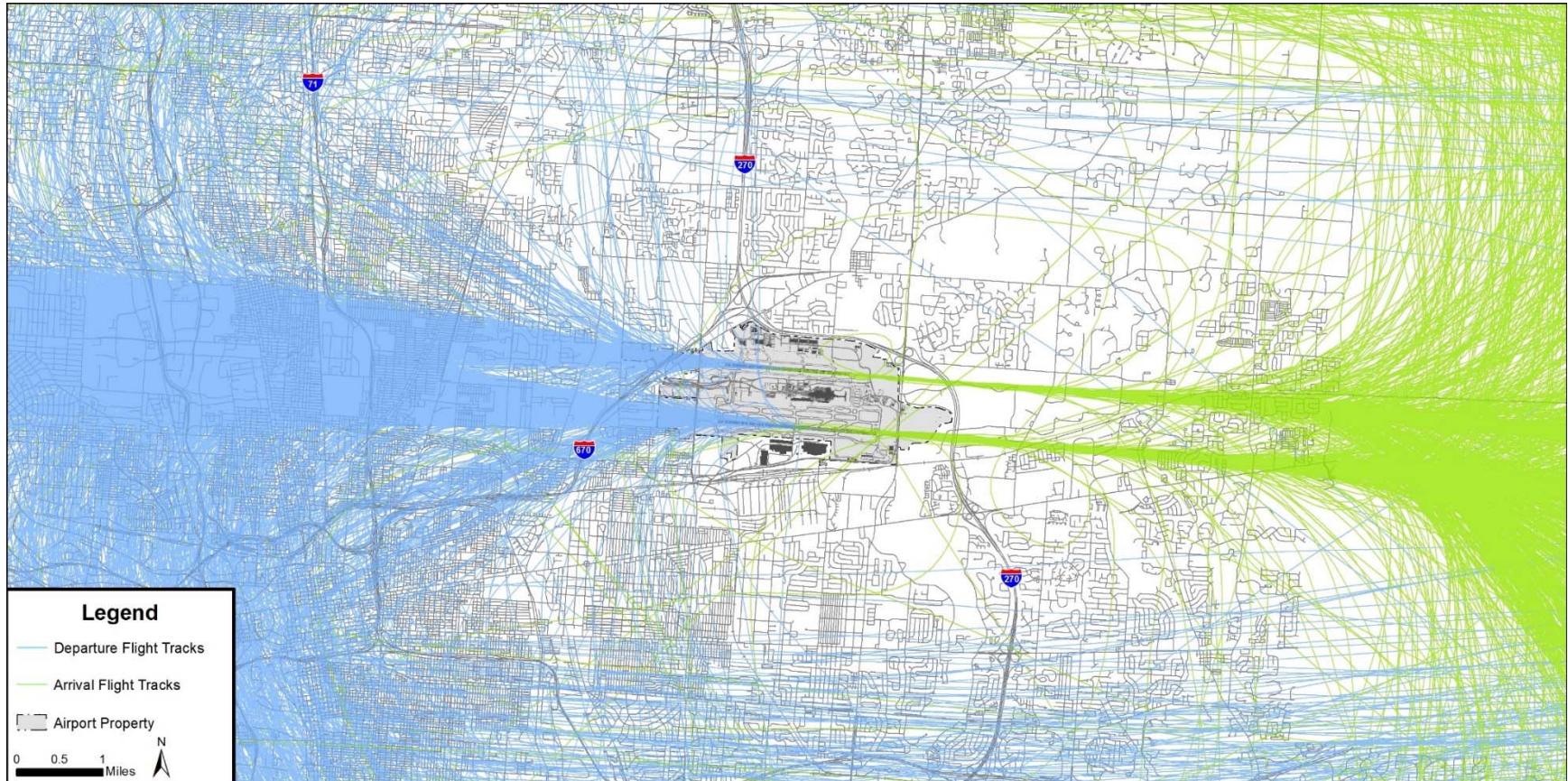
### *Flight Tracks*

- Flight tracks are lines that represent the ground path of an aircraft as it arrives or departs the airport
- AEDT applies a 3-dimensional profile to each track that includes altitude, speed, thrust, and flap settings to calculate aircraft noise along each flight route
- Radar data was collected from the Airport's Flight Tracking System representing each season
- Representative tracks were created in the AEDT to model operations



# *Existing Data Collection*

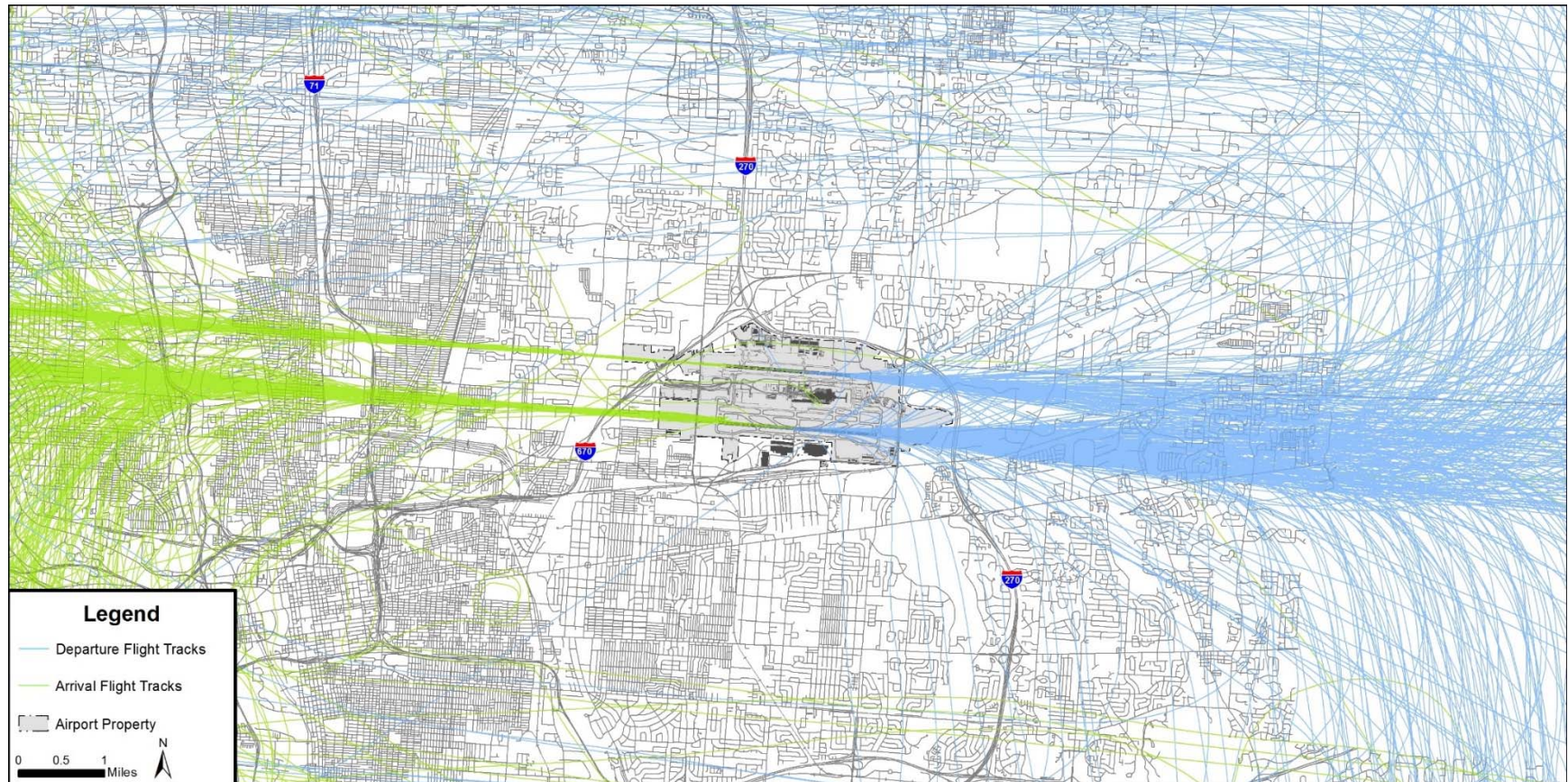
## *West Flow Flight Tracks*





# Existing Data Collection

## East Flow Flight Tracks



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# *Existing Data Collection*

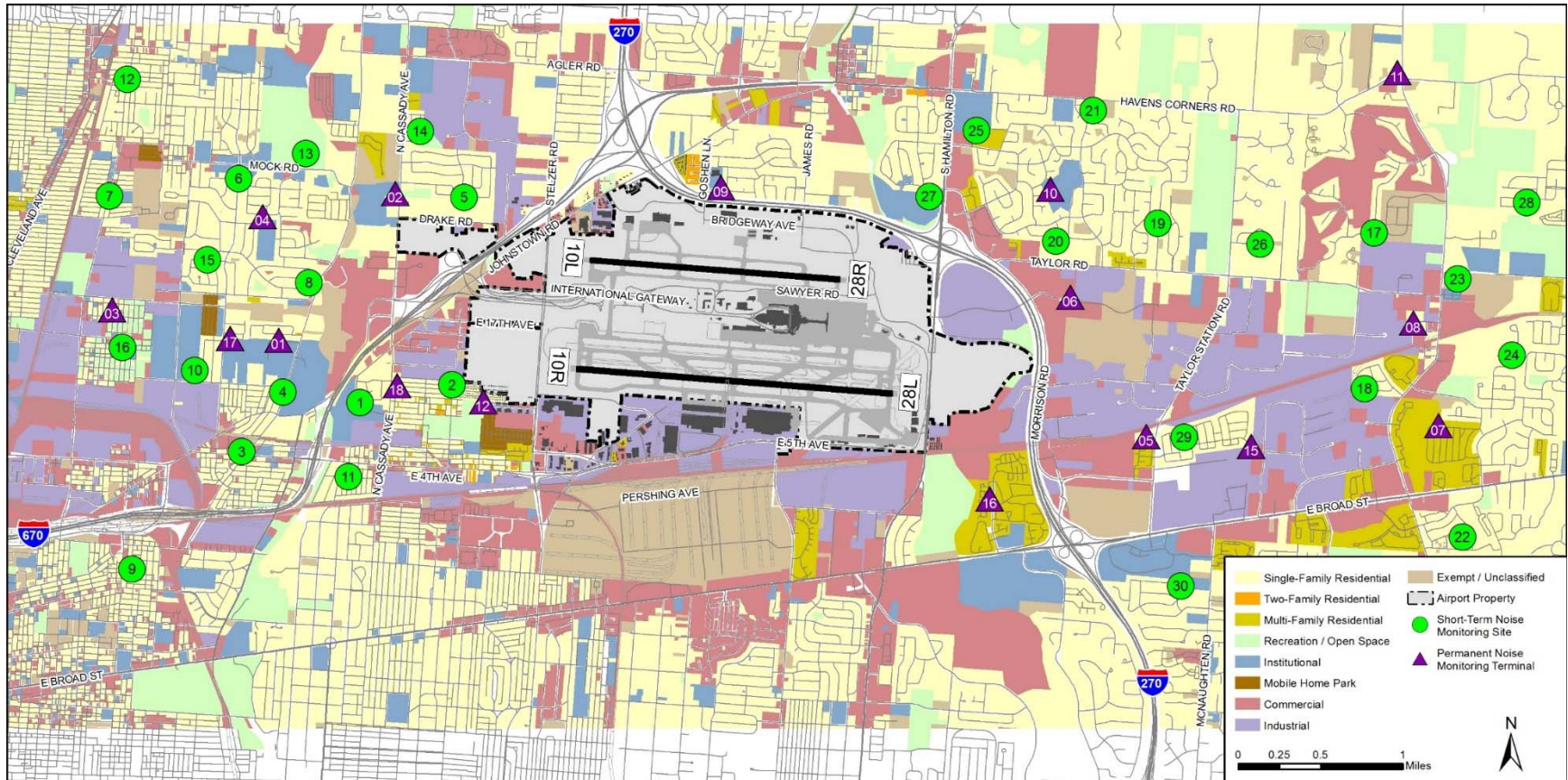
## *Noise Monitoring Program*

- Purpose
  - Validate/verify the input data in the AEDT (focus on departures)
  - Obtain “real-life” noise measurements to assist in understanding the total noise environment
- Conducted the week of November 11, 2019
- Collected noise readings at 30 sites (approx. 1 hour at each site)
  - Sites selected to provide wide coverage within residential areas and areas of noise complaints
  - Three person team
  - Used ANSI Type 1 Sound Level Meters
- Preliminary Results
  - Loudest aircraft recorded was an Embraer ERJ-175
  - Average number of aircraft observed at each site was 11 to 12
- Next Steps
  - Further analysis to be completed
  - Incorporate data from permanent noise monitors
  - Compare to AEDT noise database
  - Final results to be presented at next TAC meeting



# Existing Data Collection

## Noise Monitoring Program



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# *Types of Noise Compatibility Measures*

## *Noise Abatement Measures*

- Measures to control noise at the source (i.e. aircraft)
- Examples
  - Flight location (e.g., departure flight corridors)
  - Runway use program (e.g., how often runway ends are used)
  - Ground activity restrictions (e.g., run-up locations/time)
  - Facility modifications (e.g., runway extensions, berms)
  - Flight management (e.g., mandatory curfews / restrictions -- would require Part 161 Study)

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# *Types of Noise Compatibility Measures*

## *Land Use Measures*

- Preventive strategies
  - Prevent the introduction of additional noise-sensitive land uses within existing and future noise exposure contours
  - May also be applicable outside of the 65 DNL noise contour
  - Examples:
    - Zoning Codes
    - Subdivision Regulations
    - Airport Environs Overlay Zone
- Corrective strategies
  - Mitigate existing and projected future unavoidable noise impacts in areas of existing incompatible land use
  - Applicable to 65+ DNL noise contour
  - Examples
    - Property acquisition
    - Sound Insulation
    - Avigation Easements

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# *Types of Noise Compatibility Measures*

## *Implementation Measures*

- Measures designed to assist with the implementation and management of the Noise Compatibility Program (NCP)
  - Examples:
    - Noise Program Office and Staff Support
    - Flight tracking / Noise Monitoring System
    - Focus Groups / Roundtables
    - Periodic Review / Update to the Program

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## ***Next Steps***

- Complete review of Noise Measurement Data
- Submit Aviation Activity Forecast to FAA for Review & Approval
- Prepare the Existing and Future Noise Exposure Contours
- Identify Preliminary Noise Abatement, Land Use Management, and Implementation Alternatives
  - Analysis and discussion of potential alternatives
- Next TAC Meeting – Spring 2020