Agenda

- Welcome and Introductions
- NSAC Roles and Responsibilities
- Part 150 Basics
- Aviation Demand Forecast
- Noise Compatibility Program Review
- Next Steps
- Project Schedule
Noise Study Advisory Committee

• Membership covers full range of “stakeholders”

• Committee members are responsible for
  – Reviewing materials in advance of meetings
  – Assisting in obtaining data of value such as a run-up survey
  – Providing feedback on technical work
  – Representing the interests of their organizations
  – Communicating progress with their constituents
  – Sharing their constituents’ concerns and feedback
Part 150

- **Voluntary** Federal Aviation Administration (FAA) process
  - 250+ airports have participated

- **Why do airports participate?** Primary reasons include:
  - Provides access to FAA funding of some approved measures
  - Well-established, understood, accepted, and comprehensive process

- Two primary elements
  - Noise Exposure Map (NEM)
  - Noise Compatibility Program (NCP)

- Consultation required with
  - All local, state, and federal entities with control over land use within DNL 65+ dB
  - FAA regional officials, regular aeronautical users of the airport
  - All parties interested in review of and comment on the draft


Part 150 Noise Exposure Map

• NEM must include detailed description of
  – Airport layout, aircraft operations, and other inputs to noise model
  – Aircraft noise exposure in terms of Day-Night Average Sound Level (DNL)
  – Land uses within DNL 65+ decibel (dB) contours
  – Noise / land use compatibility statistics within DNL 65+ dB contours

• NEM must address two calendar years
  – Year of submission
  – Forecast year (at least five years from year of submission)
  – FAA reviews forecasts for consistency with Terminal Area Forecast (TAF)

• FAA “accepts” NEM as compliant with Part 150 standards

For this NEM:
Year of submission - 2019
Forecast year - 2024
Part 150 Noise Exposure Map

- DNL 65, 70 and 75 dB contours
- Within 65 dB DNL contour
  - Generalized land use categories
  - Noise sensitive sites
  - Identification of all non-compatible land uses
  - Jurisdiction(s) responsible for land use controls
- Modeled Flight tracks
  (typically on supplemental figures)
Part 150 Noise Exposure Map Process

We are here

Review Current NCP
• Operational measures
• Land Use Measures
• Program Measures

Noise Study Database
• Review Previous NEM and Studies
• GIS and land use data
• Flight track data
• Noise complaint data
• Operational forecasts
• Setup AEDT model

Develop NEMs
• Prepare aviation forecast
• Develop noise contours for existing and forecast conditions
• Noise impact evaluation for > DNL 65 dB
• Prepare maps in accordance with 14 CFR Part 150

NEM Report
• Document input data
• Document Land Use, Flight Tracks and DNL contours
• Provide population and housing counts
• Draft Report
• Final report submittal to FAA

Public Process
• Draft report available for review
• Workshops
• Response to comments received in Final report
NEM Forecast

- Aviation demand forecast developed from the Master Plan forecast

### Annual Operations

<table>
<thead>
<tr>
<th></th>
<th>Year</th>
<th>Air Carrier</th>
<th>Air Taxi</th>
<th>GA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>2017</td>
<td>135,135</td>
<td>30,540</td>
<td>36,577</td>
<td>205,802</td>
</tr>
<tr>
<td>NEM</td>
<td>2019</td>
<td>172,033</td>
<td>31,127</td>
<td>37,006</td>
<td>243,716</td>
</tr>
<tr>
<td>Master Plan</td>
<td>2022</td>
<td>183,362</td>
<td>32,029</td>
<td>37,658</td>
<td>256,599</td>
</tr>
<tr>
<td>NEM</td>
<td>2024</td>
<td>186,579</td>
<td>33,783</td>
<td>39,431</td>
<td>263,343</td>
</tr>
<tr>
<td>Master Plan</td>
<td>2027</td>
<td>191,530</td>
<td>36,595</td>
<td>42,249</td>
<td>273,924</td>
</tr>
</tbody>
</table>

Notes: The Air Carrier category includes both passenger and cargo operations. The totals include 3,550 military operations for each year.
Review of Existing Noise Compatibility Program
Existing Noise Compatibility Program

- 1989 Record of Approval from the FAA
- The NCP has dramatically reduced non-compatible land uses
- There are three types of measures in an NCP
  - Aircraft Operational / Noise Abatement Measures
  - Land Use Measures
  - Program Management Measures
Aircraft Operational / Noise Abatement Measures

Operational Strategy 1 – Balance daytime runway use

- Expected (50% South flow / 50% North flow) split
- Actual (50.7% South flow / 49.3% North flow) split

<table>
<thead>
<tr>
<th>Runway</th>
<th>July 2017 – June 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrivals</td>
</tr>
<tr>
<td>02C</td>
<td>10%</td>
</tr>
<tr>
<td>02L</td>
<td>5%</td>
</tr>
<tr>
<td>02R</td>
<td>9%</td>
</tr>
<tr>
<td>31</td>
<td>1%</td>
</tr>
<tr>
<td>North Flow</td>
<td>24%</td>
</tr>
<tr>
<td>20C</td>
<td>3%</td>
</tr>
<tr>
<td>20L</td>
<td>13%</td>
</tr>
<tr>
<td>20R</td>
<td>8%</td>
</tr>
<tr>
<td>13</td>
<td>0%</td>
</tr>
<tr>
<td>South Flow</td>
<td>25%</td>
</tr>
</tbody>
</table>
Operational Strategy 2 – Use of Runway 13-31 at night whenever conditions will allow

- Goal 96% during nighttime hours 10 p.m. – 7 a.m.
- Increased airport activity since 1989 led MNAA and ATCT to agree to relax this measure during the beginning and end of the nighttime interval (10 p.m. – 12 a.m. and 5:30 a.m. – 7 a.m.)
- Usage of Runway 13-31 over the full nighttime interval is minimal at 16% (down from 50% in 2009)
- Usage of Runway 13-31 is 23% between 12 a.m. and 5:30 a.m.
Operational Strategy 3 – Nighttime (10 p.m. to 7 a.m.) flight procedures

- Runway 13 departures turn to 090 degrees until 3,600 ft. (MSL)
  - Procedure has since been changed to 095 degrees
  - Not shown; departure numbers from Runway 13 are negligible
- Runway 31 departures turn at 2 DME to 280 degrees until 3,600 ft. (MSL)
- Runway 20R departures turn to 180 degrees until 3,600 ft. (MSL)
  - Procedure has since been changed to 260 degrees
- These were recommended for the purpose of reducing highly developed residential areas from unnecessary aircraft noise
NCP Noise Abatement Measures - continued

- **Operational Strategy 4** – Daytime (7a.m. to 10p.m.) flight procedures
  - Runway 31 departures turn to 050 degrees or 280 degrees at 2 DME
  - Runway 20R eastbound departures turn to 140 or 180 degrees
    - Procedure has since been changed to turn right 220 or 260 degrees or turn left to 140 or 180 degrees
  - Runway 20L westbound departures turn to 220 degrees
    - Procedure has since been changed to maintain runway heading or turn right to 220 degrees
  - These were recommended for the purpose of reducing highly developed residential areas from unnecessary aircraft noise.
NCP Land Use Measures

• Corrective Action 1 – Land Acquisition
  – Designed to eliminate non-compatible land uses
  – Implemented and complete
    • MNAA acquired one residential area in the extended approach areas

• Corrective Action 2 – Sound Insulation
  – Designed to mitigate eligible properties
  – Implemented and complete
    • MNAA sound insulated eligible residential properties
NCP Land Use Measures - continued

• Corrective Action 3 – Residential Sales Assistance Program
  – Implemented and complete
    • MNAA provided sales assistance to eligible residential properties

• Corrective Action 4 – Transition Area Zoning
  – Implemented and complete
    • MNAA worked with the Metropolitan Nashville-Davidson Planning Department (Metro Planning) to convert these areas to non-residential zoning
NCP Land Use Measures - continued

- Preventive Action 1 – Undeveloped Areas
  - Implemented and complete
    - MNAA works with the Metro Planning to discourage residential development in undeveloped areas within the DNL 65 dB contour.
    - Area 1: 19 parcels in this area have not been acquired
    - Area 2: This area has been rezoned to compatible use.
NCP Program Management Measures

• Management 1 – Install fan markers
  – Disapproved by the FAA
    • FAA stated ATC has determined due to various settings on aircraft these markers are generally ineffective

• Management 2 – Informal runway use program
  – Implemented and complete
    • MNAA worked with ATCT and implemented an informal runway use program
• Management 3 – Flight Tracking System
  – Implemented and complete
    • MNAA acquired and continues to operate a flight track monitoring system
    • The InFLIGHT system provides FAA radar data on a daily basis
    • The InFLIGHT system allows MNAA staff to review runway use, operations, flight procedures and investigate noise complaints
• Management 4 – Runway 2R Standard Instrument Departure Procedure (SID)
  – Disapproved by the FAA
    • The FAA objected to the proposed SIDs for noise abatement purposes. The SID as proposed would extend tracks well past required distances and may cause confusion or conflicts.
    • However, despite this objection, the FAA subsequently published the TITAN ONE SID that included the recommended noise abatement procedure for Runway 2R.

• Management 5 – Airport Noise Advisory Committee
  – Implemented and complete
    • MNAA established the committee to aid the airport with implementing the land use strategies.
    • The committee was disbanded when the land use strategies were complete.
Next Steps

- Complete development of noise study database
- Finalize noise model inputs
- Develop draft Day-Night Average Sound Level (DNL) noise contours
- Develop draft Noise Exposure Maps (NEM)
- Complete land use analysis
- Develop draft Noise Exposure Map (NEM) document
Thank You for Your Participation!
Next meeting – March 2019

Follow the Noise Exposure Map (NEM) Update on
https://www.flynashville.com/about/Pages/Noise-information.aspx

Comments or Questions
https://www.flynashville.com/contact/Pages/commentsandquestions.aspx