Agenda

- Welcome and Introductions
- Aviation Activity Forecast
- Facility Requirements
- Alternatives Analysis
- Project Schedule
- Next Steps
Aviation Activity Forecast
Forecast Summary

**2017 Baseline vs 2037 Projected**

- **Annual Aircraft Operations**
  - **206,000** → **311,000**
- **Annual Passenger Enplanements**
  - **7.1M** → **11.9M**
- **Based Aircraft**
  - **87** → **164**

**2037 - Projected**

- **Peak hour Operations**
  - **88**
- **Peak Hour Enplanements**
  - **4,114**
- **Peak Hour Deplanements**
  - **4,473**
- **Single-/Multi-Engine**
  - **53**
- **Jet**
  - **109**
- **Helicopter**
  - **2**

Metropolitan Nashville Airport Authority

AECOM
Airfield Facility Requirements
Airfield Capacity Summary: Sufficient for Projected Operations

**Hourly Capacity**
- **146** Operations
  - Under VMC Conditions (>90% of the year)
- **107** Operations
  - Under IMC Conditions (<10% of the year)

**Peak Hour Demand**
- **58** Operations
  - 2017
- **88** Operations
  - 2037 - Projected

**Annual Capacity – Current Airfield**
- **495,000** Operations

**Annual Demand – 2037 Projected**
- **311,000** Operations

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[Graph showing annual capacity and demand from 2017 to 2037]

**Notes:**
- 60% Annual Capacity: 297,000 Operations
- Metropolitan Nashville Airport Authority
- AECOM
Runway Length & Determining Factors

Required takeoff length is affected by three main factors:

- **Longer Range**
- **International Destinations**

- **Aircraft Weight**
- **Greater Payload, Seats, & Fuel, Heavier Aircraft**

- **Temperature**
- **Summer Avg. Temp 89.9 °F**

Longer runways are required primarily for take-off.
Connecting Nashville to the World

4,000NM - Western Europe

Representative Airlines

Runway Lengths

- B777-200ER
- B787-8/9
- A340-300/600
- A330-200
- B767-300ER

Takeoff Length Analysis Basis
Typical hot day at BNA (approx. 89.9 °F degrees)
Airport elevation at 599' MSL
Runway gradient accounted for
Connecting Nashville to the World

6,000NM - All Europe / Japan + Korea

Runway Lengths

- Rwy 2L/20R
- Rwy 2C/20C
- Rwy 2R/20L
- Rwy 13/31

( ) indicates maximum range at 100% payload.

- Existing Runway Length
- Required Takeoff Length at 100% MTOW

Takeoff Length Analysis Basis:
- Typical hot day at BNA (approx. 89.9°F degrees)
- Airport elevation at 599' MSL
- Runway gradient accounted for

Representative Airlines:
- Lufthansa
- TURKISH AIRLINES
- JAPAN AIRLINES
- ANA
- KOREAN AIR

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Connecting Nashville to the World

Runway Lengths

<table>
<thead>
<tr>
<th>Runway</th>
<th>Lengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rwy 2L/20R</td>
<td>6k, 7k, 8k, 9k, 10k, 11k, 12k, 13k</td>
</tr>
<tr>
<td>Rwy 2C/20C</td>
<td>6k, 7k, 8k, 9k, 10k, 11k, 12k, 13k</td>
</tr>
<tr>
<td>Rwy 2R/20L</td>
<td>6k, 7k, 8k, 9k, 10k, 11k, 12k, 13k</td>
</tr>
<tr>
<td>Rwy 13/31</td>
<td>6k, 7k, 8k, 9k, 10k, 11k, 12k, 13k</td>
</tr>
</tbody>
</table>

() indicates maximum range at 100% payload.

- Existing Runway Length
- Required Takeoff Length at 100% MTOW
- B777-200LR (7.6 km)
- B777-300ER (5.7 km)
- B777-200ER (5.8 km)

Takeoff Length Analysis Basis:
- Typical hot day at BNA (approx. 89.9°F degrees)
- Airport elevation at 599’ MSL
- Runway gradient accounted for
Runway Length Analysis - Summary

• Air Service to All Europe/Tokyo & Seoul/China & Middle East

• Foreign Flag Carriers and Representative Airline Fleets

• International Flights – runway length needed for 100% payload

• Hot Day/Airport Elevation/Runway Slope

• Result: Plan for 12,000-foot runway length
“Critical Aircraft” Identification

• “Critical Aircraft” – an aircraft used as basis for design of airfield and terminal facilities to FAA standards

• Requires more than 500 takeoffs and landings per year by the aircraft to qualify

• Current critical aircraft is B757 (Design Group IV)

• Upgrade critical aircraft to B787 (Design Group V)
  – Larger aircraft → greater runway & taxiway separations and clearance areas, greater taxiway turning radii and pavement widths, larger terminal gate parking positions, etc.
Terminal Facility Requirements
# Gate Requirements

<table>
<thead>
<tr>
<th>Year</th>
<th>Activity Level</th>
<th>Gates Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>2022</td>
<td>18 MAP</td>
<td>48 – 56</td>
</tr>
<tr>
<td>2026</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2027</td>
<td>20 MAP</td>
<td>51 – 58</td>
</tr>
<tr>
<td>2032</td>
<td>22 MAP</td>
<td>53 – 60</td>
</tr>
<tr>
<td>2037</td>
<td>24 MAP</td>
<td>54 – 61</td>
</tr>
</tbody>
</table>

MAP: Millions of Annual Passengers

Notes:
1. The Master Plan gate requirements were evaluated with a range:
   - Low range of gate count would require higher gate utilization and limited flexibility during construction to relocate airlines
   - High range of gate count provides gate utilization similar to existing and flexibility during construction to relocate airlines
Key Takeaway:

- After activity levels reach 22 MAP, the key processors will gradually reach capacity and need to be addressed.
Long-Range Development Concepts
Long-Range Development Concepts - E/W vs N/S

Concept 1 – East/West

Concept 2 – North/South
Long-Range Development Concept 1A

- East-West layout
- Split operations
Long-Range Development Concept 1B

- East-West layout
- Joint landside / airside operations
Long-Range Development Concept 2A

- North-South layout
- Split operations
Long-Range Development Concept 2B

- North-South layout
- Joint airside operations
Airfield Alternatives
Runway Extension Options - Overview

Option 1
Rwy 2L South Extension
Total 12,000ft

Option 2
Rwy 2R South Extension
Total 12,000ft

Option 3
Rwy 2R-20L Extensions
Total 13,000ft
Option 1: Runway 02L (South Extension)

12,000’ Total Runway Length

- New Pavement
- Building Demolition/Road Closure
- Roadway Tunnel/Proposed Roadway
- Property Acquisition

- Runway Safety Area/Taxiway Safety Area
- Runway Object Free Area/Taxiway Object Free Area
- Runway Protection Zone
- Airport Property Boundary
Option 2: Runway 02R (South Extension)

12,000’ Total Runway Length
Option 3: Runway 02R-20L (North & South Ext.)

13,000’ Total Runway Length
- 12,000’ declared and available for takeoff on both 20L and 2R

Note:
Roads in the RPZs will require FAA policy exception review.
East Runway Alternative

-East Runway Alternatives
8,000' - 12,000'

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Terminal Alternatives
BNA Vision

BNA VISION
Concourse A 7
Concourse B 10
Concourse C 19
Concourse D 6
T-Gates 6
Total Gates 48

Walking Distance Vision
Concourse A 1,275
Concourse B 1,000
Concourse C 1,575
Concourse D 1,260
T-Gates 390

Notes:
1. Walking distances rounded to nearest 5 ft.
2. Distances measured from center of SSCP exit to furthest gate.
3. Distances are approximate and may vary based on final interior configuration.

<table>
<thead>
<tr>
<th>Apron</th>
<th>Terminal</th>
<th>Gate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>Proposed</td>
<td></td>
</tr>
</tbody>
</table>
Alternative 1A

BNA MPU 2037  Option 1A
Concourse A  8
Concourse B  19
Concourse C  19
Concourse D  9
T-Gates     6
Total Gates 61

Walking Distance  Option 1A
Concourse A  1,600
Concourse B  1,625
Concourse C  1,575
Concourse D  2,050
T-Gates      390

Notes:
1. Walking distances rounded to nearest 5 feet
2. Distances measured from center of SSCP exit to furthest gate
3. Distances are approximate and may vary based on final interior configuration
Alternative 2

BNA MPU 2037

| Option 2 |
|---|---|
| Concourse A | 16 |
| Concourse B | 11 |
| Concourse C | 19 |
| Concourse D | 9 |
| T-Gates | 6 |
| Total Gates | 61 |

Walking Distance

<table>
<thead>
<tr>
<th>Option 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Concourse A</td>
<td>2,200</td>
</tr>
<tr>
<td>Concourse B</td>
<td>1,000</td>
</tr>
<tr>
<td>Concourse C</td>
<td>1,575</td>
</tr>
<tr>
<td>Concourse D</td>
<td>2,050</td>
</tr>
<tr>
<td>T-Gates</td>
<td>390</td>
</tr>
</tbody>
</table>

Notes:
1. Walking distances rounded to nearest 5 feet
2. Distances measured from center of SSCP exit to furthest gate
3. Distances are approximate and may vary based on final interior configuration
Alternative 3

BNA MPU 2037
Option 3
Concourse A 16
Concourse B 11
Concourse C 23
Concourse D 6
T-Gates 6
Total Gates 62

Walking Distances
Option 3
Concourse A 2,200
Concourse B 1,000
Concourse C 1,575
Concourse D 1,260
T-Gates 390

Notes:
1. Walking distances rounded to nearest 5 feet
2. Distances measured from center of SSCP exit to furthest gate
3. Distances are approximate and may vary based on final interior configuration
Alternative 4

BNA MPU 2037

<table>
<thead>
<tr>
<th>Option 4</th>
<th>Concourse A</th>
<th>Concourse B</th>
<th>Concourse C</th>
<th>Concourse D</th>
<th>T-Gates</th>
<th>Total Gates</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>11</td>
<td>19</td>
<td>9</td>
<td>6</td>
<td></td>
<td>61</td>
</tr>
</tbody>
</table>

Walking Distances

<table>
<thead>
<tr>
<th>Option 4</th>
<th>Concourse A</th>
<th>Concourse B</th>
<th>Concourse C</th>
<th>Concourse D</th>
<th>T-Gates</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,975</td>
<td>1,000</td>
<td>1,575</td>
<td>2,050</td>
<td>390</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Walking distances rounded to nearest 5 feet
2. Distances measured from center of SSCP exit to furthest gate
3. Distances are approximate and may vary based on final interior configuration

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Thank You for Your Participation!

Public Information Open House
March 5, 2019 (5-8pm)
Metro Southeast, 1417 Murfreesboro Pike
Nashville, TN 37217

Next CAC meeting
June 2019

Follow the Master Plan Update on
https://www.flynashville.com/about/Pages/MasterPlan.aspx

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https://www.flynashville.com/contact/Pages/commentandsquestions.aspx