Duluth Airport Master Plan
Runway 3/21 Technical Advisory Committee (TAC) Meeting #1

July 25, 2019

Kick off meeting agenda

• Welcome and introductions
• Master Plan overview
• Runway 3/21
  • Existing Runway 3/21 overview
  • Discussion
  • Facility requirements
  • Preliminary alternatives evaluation criteria
  • Next steps
Introductions

Tom Werner C.M.
Executive Director
Duluth Airport Authority
twerner@duluthairport.com

Kaci Nowicki
Project Manager/Sr. Aviation Planner
SEH
knowicki@sehinc.com

Introductions

- Name
- Organization
- Role
- Why is Runway 3/21 important to you or the organization you’re representing?
Master Plan Overview

What is a Master Plan?

Comprehensive study of an airport that describes short-, medium-, and long-term development plans.

The goal of a Master Plan is to provide the framework needed to guide future development that will cost-effectively satisfy aviation demand, while considering potential environmental and socioeconomic impacts.
What influences the Master Plan?

- FAA and MnDOT standards
- Aviation demand
- Environmental considerations
- Infrastructure constraints
- Financial feasibility
- Community goals and input
- Stakeholder input

Master Plan Stages

- Investigation
  - Inventory
  - Stakeholder needs & growth
  - Forecasts
  - Facility requirements

- Solutions
  - Alternatives development and analysis
  - Scenario considerations
  - Selection of preferred alternative

- Implementation
  - Financial planning
  - CIP
  - Final Master Plan document
  - ALP

Stakeholder engagement

2-3 year process
Runway 3/21 - Overview

Existing Runway 3/21

5,719’ x 150’

Non-Precision Instrument Runway

Air Carrier and General Aviation runway
Airport Activity Levels

- **Total Operations** (takeoffs or landings)
  - 66,649 in 2018
  - 182 operations per day
  - 91 flights per day

- A portion of these are done on Runway 3/21

Why aircraft use a second runway, like 3/21

- Wind – aircraft prefer to takeoff and land into the wind
  - The smaller the aircraft, the more it is affected by wind
- Training, or research and development
- Convenience
  - Taxi time
  - Flight time
- Noise considerations
- Emergency use
- Airfield capacity
- Unavailability of primary runway
### Instrument approach procedures (IAPs)

**Visual Approach**
- Visual guidance
- Nice weather, high clouds, if any

**Non-Precision Approach**
- Horizontal guidance
- Average cloudy day

**Precision Approach**
- Horizontal and vertical guidance
- Foggy, low visibility

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### Duluth Instrument Approach Procedures (IAPs)

<table>
<thead>
<tr>
<th>Approach Type</th>
<th>Runway 9/27</th>
<th>Runway 3/21</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RWY 9</td>
<td>RWY 27</td>
</tr>
<tr>
<td></td>
<td>Ceiling (feet)</td>
<td>Visibility (miles)</td>
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<tr>
<td><strong>Ground Based</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ILS – CAT II</td>
<td>101</td>
<td>1200 ft</td>
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<td>ILS – CAT I</td>
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<tr>
<td>Localizer</td>
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<td>1 1/4</td>
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<tr>
<td>VOR</td>
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<td></td>
</tr>
<tr>
<td>TACAN</td>
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<td>1</td>
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<tr>
<td><strong>Satellite Based</strong></td>
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<tr>
<td>LPV</td>
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<td>%</td>
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<tr>
<td>LNAV/VNAV</td>
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<td>1</td>
</tr>
<tr>
<td>LNAV</td>
<td>500</td>
<td>3/4</td>
</tr>
</tbody>
</table>
Preliminary Wind Analysis

- Aircraft like to take off and land into the wind – what are the predominant winds at DLH?

Wind Trends – All Weather
Wind Trends – VFR Weather

Visibility: 5 miles or greater
Ceiling: 3,000 or greater

Wind Trends – IFR Weather

Visibility: ½ mile to 3 miles
Ceiling: 500’ to 1,000’
Wind Trends – All Weather Summer (May-July)

Wind Trends – All Weather Winter (November-January)
How often do winds favor 9/27 in All-Weather conditions?

- **10.5 knot crosswind (typical allowable for small single engine aircraft):**
  - 91.16% of the time

- **13 knot crosswind (typical allowable for multi-engine or some small jets):**
  - 95.71% of the time

- **16 knot crosswind (typical allowable for current air carrier fleet):**
  - 99.05% of the time
2015 Master Plan – Runway 3/21
What was the plan, why do we need to look at it again?

Runway 3/21 Extended North to 8,000 feet
Considerations for Vision 2040

- Collaborative process
- Instrument approach needs
- Design standards
- Related infrastructure and locations
  - Taxiway network
  - Arresting gear (148th Fighter Wing)
  - Runway and approach lighting
- Environmental impacts
  - Noise impacts
  - Wetlands
  - Socioeconomic (land use and zoning impacts)
  - Others
- Operational impacts of geometry
- Financial feasibility and funding plan

Discussion Questions
What value does the existing Runway 3/21 bring to you and/or your organization, community, etc.?

How do you, your clients, your stakeholders, community, etc. use or rely on Runway 3/21?
How does Runway 3/21 fall short of meeting your, your clients, your stakeholders or your community’s needs?

What would you change about Runway 3/21 today, and why?

How might your (your organization's, community’s, etc.) needs for Runway 3/21 (or how it affects you) change in the future?
How may surrounding land uses change in the future?

What is your biggest concern or question with Runway 3/21 that you’d like the Master Plan to address?
Runway 3/21 - User’s Facility Requirements

- A Runway 3/21 that meets needs would include:
  - A longer runway – stated length needs vary from 6,000 – 8,000 feet
  - Better instrument approach minimums
    - Can be adequately provided with GPS approaches versus ground based (DIATA)
    - LPV is sufficient (tenant)
  - Approach lighting
  - Taxiway C straightened and aligned farther from 3/21
  - Runway 3/21 could be graded to remove ‘hump’ when reconstructed.

Runway 3/21 User Needs – What we’ve heard from users so far…
Runway 3/21 User Needs – What’s next…

• Detailed information request going to users, airlines, etc.
  • Specific operational requirements (specified temperature and pavement condition)
  • Additional needed infrastructure and reasoning

Alternatives Analysis – Evaluation Criteria

• Ability to meet user needs
• Ability to meet design standards
• Airport operational impacts
• Environmental impacts (on and off airport)
• Financial feasibility
• Land use and zoning impacts
• Others?
Runway 3/21 – What’s next?

- Meeting #2 (Late August / Early September)
  - Preliminary Alternatives
  - Comparison Matrix

- Meeting #3 (Fall 2019)
  - Refined Alternatives

- Meeting #4 (Spring / Summer 2020)
  - Final alternative selection
  - Including consideration of Part 150 Noise Study

Questions and Discussion
Thank You!

Airport Zoning
MnDOT Aeronautics Commissioner’s Standard Zoning Ordinance

- Zoned for Future Conditions
- Zone A – No structures
- Zone B – Density Restrictions

Existing DLH Zoning Ordinance

- Zoned for Future Conditions
- Zone A – No structures
- Zone B – Density Restrictions