JUNEAU RUNWAY INCURSION MITIGATION (RIM) PROGRAM

April 10th 2017
Recap
Background

- Master Plan considered the runway incursions data and found solutions for TWY E and TWY D
- Recommended further study for TWY C
- FAA funded a Runway Incursion Mitigation (RIM) Study
The goal of the JNU RIM Program is to determine mitigation solutions for Taxiway C that will reduce the risk of runway incursions at the Airport.

The objectives are:
- Examine runway incursions data related to Taxiway C, D, E
- Consider airfield design and geometry
- Develop potential solutions
- Priorities mitigation techniques
Schedule

**Task 1: Analysis of Existing Data**
- **RIM Kick Off**
  - October 17th
- **Visual Inspection**
  - November 7th – 10th

**Task 2: Development of Potential Solutions**
- **Stakeholder Meeting #1**
  - January 25th

**Task 3: SRM Panel**
- **Coordinate SRM Panel**
  - Seven Days prior to SRM Panel
- **Safety Risk Management Panel**
  - April 11th

**Task 4: Prioritize Runway Incursion Mitigation Techniques**
- **Additional Stakeholder Meeting** (if necessary)
  - April 10th
- **Draft Final Report**
  - Late April
- **Final Report**
  - Late May

We are here
Stakeholders

Group Includes:

» Airlines, Airport Staff, Air Traffic Controllers, FAA and Pilots

Vital to have those most familiar with the operations at JNU

We *NEED* the feedback to develop solutions that work

Your Feedback

Solution Adjustments
Juneau Runway Incursions

*Six runway incursions are not depicted because the location was undetermined.
Juneau Runway Incursions

By Location
- TWY C: 25%
- TWY D: 37%
- TWY E: 13%

By Season
- Fall: 31%
- Winter: 19%
- Spring: 22%
- Summer: 28%

By User
- Small Aircraft*: 56%
- Vehicle: 23%
- ATCT: 12%
- Operational Error: 13%

By Category
- Pilot Deviation: 59%
- Vehicle/Pedestrian Deviation: 28%

* Aircraft with a maximum takeoff weight under 12,500lbs.
Taxiway Design Deficiencies

**Taxiway Delta**
- Short taxi distance from ramp/apron to a runway.
- Direct taxiing access to runway from ramp.

**Taxiway Charlie**
- Short taxi distance from ramp/apron to a runway.
- Wide expanses of taxi pavement along a runway.
- Direct taxiing access to runway from ramp.
- Not a 90 degree angle.

**Taxiway Echo**
- Not a 90 degree angle.
Taxiway C - Design Challenges

- Wide Expanse of Pavement
- Direct Taxiing Access to Runway from Ramp
- Taxiway Intersects Runway at other than Right Angle
- Short Taxi Distance from Ramp to Runway
Potential Mitigation
Potential Mitigation

→ Non-Construction Mitigation
  » New Training Programs
  » New Communication Protocol
  » Revised Operational Procedures

→ Construction Mitigation
  » Signs, Lighting, Markings,
  » Taxiway Nomenclature
  » Taxiway Geometry

Exhibit Produced By: RS&H, 2016
Potential Mitigation Non-Construction

Air Traffic Controllers
» Encourage use of correct terminology and proper voice cadence.

Pilots
» Maintaining a sterile cockpit during taxiing, departing, and preparing for arrival.

Airport Personnel
» Promote the use of effective communication and encourage educational seminars for operating on an airfield.

Source: wiki.media.org, 2016
Potential Mitigation Construction

➔ Airfield Design Standards
  » Surface Painted Signs
  » Lighting Enhancements
  » Taxiway Nomenclature
  » Taxiway Geometry

➔ Master Plan Solutions
  » Taxiway E, D, and C

Source: 20/20 HeinSite, 2016
Master Plan Solutions for Taxiway E

Exhibits prepared by URS Corporation.

Alternative 1 – Do-Nothing

Alternative 2 – Realign and Remark Taxiway

Alternative 3 – Close Taxiway E
Master Plan Solutions for Taxiway D

Exhibits prepared by URS Corporation.

Alternative 1 – Do-Nothing

Alternative 2 – Reposition Taxiway D

Alternative 3 – Reposition Taxiway D-1

Alternative 4 – Close Taxiway D

Alternative 5 – Close Taxiway D-1
Master Plan Solutions for Taxiway C

Exhibits prepared by URS Corporation.

Alternative 1 – Do-Nothing

Alternative 2 – Realign Ramp Connection

Alternative 3 – Realign Runway Connection

Alternative 4 – Mark as Dual Taxiway

Alternative 5 – Close Taxiway
Apron is very congested during peak periods (queuing of departing aircraft).

Location of facilities (helicopters, hardstand, terminal) contribute to apron congestion.

Taxiway C is a high priority during snow events.

2-way traffic happens everyday.

Small aircraft exit Runway 8/26 and conduct intersection takeoffs at Taxiway C.
Considerations for Taxiway C

- Current geometry established though decades of airfield enhancements
- No such thing as perfectly safe
- Balancing safety, operational efficiency and capacity is essential
- Safety Risk Analyses is a key tool in striking that balance
- More than just the RIs, geometry and dimensional standards are vital to this solution
- Three options were developed as a potential solution for Taxiway C

Exhibit Produced By: RS&H, 2016
Option 3 – Preferred Solution

[Diagram of airport layout with annotations and measurements for TWY B1, TWY B2, TWY B3, TWY B4, TWY C1, TWY D, TWY A, TWY C WEST, and TWY C EAST.]
Option 3 – Preferred Solution

- Meets current airfield design standards.
- Optimizes the configuration based on the aircraft fleet.
- Improved ATCT flexibility and airfield efficiency.
- Increase situational awareness and aircraft performance
Stakeholder Involvement
Stakeholder Comments

“What is the new flow from Runway 8-26 to the apron with the change in airfield geometry?”

“What is the effect in exit taxiway utilization with the addition of a new taxiway?”

“From a snow removal standpoint, would Taxiway C East or Taxiway C West have priority?”

“With the change in airfield geometry, what does the queue line on the apron look like during peak times?”

“Is there a concern for the general public being impacted by jet blast walking to and from the helicopter stands?”
“What is the new flow from Runway 8-26 to the apron with the change in airfield geometry?”
“What is the new flow from Runway 8-26 to the apron with the change in airfield geometry?”
Runway 8 Potential Utilization

"What is the effect in exit taxiway utilization with the addition of a new taxiway?"

<table>
<thead>
<tr>
<th>Existing Runway 8 Taxiway Designator</th>
<th>Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWY C</td>
<td>60%</td>
</tr>
<tr>
<td>TWY D</td>
<td>20%</td>
</tr>
<tr>
<td>TWY E</td>
<td>10%</td>
</tr>
<tr>
<td>TWY F</td>
<td>2%</td>
</tr>
<tr>
<td>TWY G</td>
<td>8%</td>
</tr>
</tbody>
</table>

7% 53% 20% 10% 2% 8%
Runway 26 Potential Utilization

"What is the effect in exit taxiway utilization with the addition of a new taxiway?"

<table>
<thead>
<tr>
<th>Existing Runway 26</th>
<th>Taxiway Designator</th>
<th>Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWY F</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>TWY E</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>TWY D</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>TWY C</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>TWY B</td>
<td>10%</td>
<td></td>
</tr>
</tbody>
</table>
Proposed Snow Removal

“From a snow removal standpoint, would Taxiway C East or Taxiway C West have priority?”
"With the change in airfield geometry, what does the queue line on the apron look like during peak times?"
Potential Aircraft Queue Line

“With the change in airfield geometry, what does the queue line on the apron look like during peak times?”
Jet Blast – Scenario One

"Is there a concern for the general public being impacted by jet blast walking to and from the helicopter stands?"
Jet Blast – Scenario One

“Is there a concern for the general public being impacted by jet blast walking to and from the helicopter stands?”
Jet Blast – Scenario Two

“Is there a concern for the general public being impacted by jet blast walking to and from the helicopter stands?”
Taxiway C Maneuverability – Scenario One
Taxiway C Maneuverability – Scenario Two
Taxiway C Maneuverability – Scenario Three
Taxiway C Maneuverability – Scenario Four
Taxiway C Maneuverability – Separation
Option 3 – Preferred Solution
Next Steps

- SRM panel meets tomorrow
- Finish analysis and documentation in May
- Update on Twy A planning and permitting

Source: Airliners.net, 2016