FAA Efforts to Improve Airport Safety

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NTSB Forum on Runway Incursion Safety Issues

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Airport Safety & Standards Initiatives

• Focus on improved geometry by design
• Initiation of Runway Incursion Mitigation (RIM) program
• Hot Spot solutions
  – Geometry changes
  – Taxiway naming convention
  – Runway guard lights / Runway Status Lights
  – Approach/Departure hold signs
• Training
• Technology mitigations
Improved Geometry

Advisory Circular AC 150/5300-13; Airport Design:

• Three-Node Concept
  • Reduction in complex geometry /multiple intersecting taxiways
  • Increase pilot’s situational awareness (standard taxiway width)

• 90-degree Intersection angles
• Avoid wide expanse of pavement
• Limit runway crossings
• Avoid high-energy intersections
• Design indirect access from a ramp to a runway
Identification of Problematic Geometry

1. Taxiway intersection exceeds "3-node" concept
2. Taxiway intersecting a high-speed exit from runway.

(e) Aligned taxiway between two closely spaced runway ends
Hot Spots

(f) Two or more taxiway entrances lacking “No Taxi” islands

(c) Taxiway intersection exceeds “3-node” concept

(d) Taxiway intersecting two or more runways
Runway Incursion Mitigation Program

- The RIM program determines which runway/taxiway intersections have increased occurrences of Incursions.

- The RIM program uses:
  - Runway Incursion (RI) data
  - GIS geo-referencing, and
  - Risk-based Decision Making

- Locations Determined by:
  - 3 or more RIs in a Calendar Year
  - Average of 1+ RIs per year over study period
  - Field validation of locations, RIs, & geometry
  - Generates RIM Inventory
Runway Incursion Mitigation Program

• **Statistics at a glance:**
  - 518 towered airports
  - Almost 6300 runway/taxiway intersections analyzed
  - More than 8800 RIs analyzed since October 1, 2007
  - 90 airports of all sizes have at least 1 RIM location

• **December, 2016: CY 2015 RIM Points verified**
  - Inventory – 137 RIM locations
  - Available at: [http://www.faa.gov/airports/special_programs/rim/](http://www.faa.gov/airports/special_programs/rim/)
  - Updated annually – new inventory by end of FY17

• **Projects initiated at approximately 75 RIM locations**
Taxiway Naming Conventions

- Single alphabet letters
- Double-same alphabet letters (AA, BB, …, ZZ)
- Two-character alphanumeric designator (A1, B4, …, Z9)
- Double-different alphabet letters (such as AB, NM, etc.) are no longer allowed
Taxiway/runway visual aids include: (RGL)

- Elevated and sometimes in-pavement runway guard lights (RGL).
- Elevated and in-pavement RGLs serve the same purpose and are generally not both installed at the same runway holding position.
New Approach / Departure Signs

Current

Figure 3: Application Examples for Holding Position Signs.

NOT TO SCALE

1. Taxiway Location Sign - See Figure 8
2. Holding Position Sign - See Figure 2
3. ILS Critical Area/POFZ Boundary Sign - See Figure 9
4. ILS/POFZ Holding Position Sign - See Figure 2
5. Runway Safety/OFZ and Runway Approach Area Boundary Sign - See Figure 9

NOTE: Holding position signs are installed in-line with the holding position marking painted on the taxiway pavement.
New Approach / Departure Signs

Proposed
Training and Guidance – VPD Mitigation

- **FAR Part 139.329** requires airport operators to create a safe and orderly environment for ground vehicle and pedestrian operation in the airport movement and safety areas.
- Limit access to the movement area
- Train those with unaccompanied access every 12 calendar months.
- Advisory Circular (AC) 150/5210-20A *Ground Vehicle Operations to include Taxiing or Towing an Aircraft on Airports* provides guidance to airport operators to develop a training program for safe pedestrian and ground vehicle operations on an airport.
- FAA recommends that each airport operator evaluate their program on how it may apply to the size, complexity, and scope of operation.
- “Just Culture” – Don’t automatically fire people. Investigate why they made a mistake.
Runway Incursion Warning System

• Runway Incursion Warning System (RIWS) produces an alarm to vehicle drivers when the vehicle is near or is inside the protected area of a surface that is designated for the aircraft landing and takeoff operations.

• RIWS uses GPS data to provide the vehicle location information to generate alarms.

• The performance specification of RIWS is defined in FAA AC 150/5210-25.

• The updated AC will provide guidance on all AOA protection area alarm and App development requirements:
  o Runway Safety Area (RSA)
  o Holding Position markings on taxiways and runways
  o ILS Critical area/POFZ
Conclusion

• Improving safety through our Advisory Circulars
  o Airport Design AC 150/5300-13A
  o Standards for Airport Markings AC 150/5340-1M
  o Adoption of the taxiway nomenclature method by ICAO
  o Performance Specification for Airport Vehicle Runway Incursion Warning System AC 150/5210-25
  o Advisory Circular (AC) 150/5210-20A Ground Vehicle Operations
Questions?

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