The airport operator’s perspective on runway incursion hazards and mitigation options

Session 3
Presentation 2
Definition

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.
Hazards and Mitigation

• Communication
• Construction
• Visibility
• Signage
• Airfield Design
• Operational
• Wildlife
Communication Hazards

• Absence of radiotelephony equipment in vehicles
  • Lack of vehicle driver proficiency in:
    • ATC terminology and instructions
    • Communication techniques
    • English Language
    • Situational Awareness
    • Knowledge of aerodrome and aerodrome signs and markings
  • “Blindspot” on Airfield

• Multiple tower / ground frequencies
  • Delayed response from tower

• Proliferation of cell phone use versus radiotelephony
Communication Hazards

People Hazards

- Unpredictable
- Erratic
- Inquisitive
- Complacent
- Get tired
- Can’t be bothered
- Require constant supervision
- Unsafe acts (going against codes of practice)
Communication Mitigation

→ Establish airside communication policy (esp. manoeuvring area)
→ Establish minimum language standards
→ Use of standard phraseology
→ Read back all runway crossing and/or hold short instructions
→ Develop radio operating procedures
  → When in doubt seek clarification
→ Require regular communications training and testing
→ Use of separate tower / ground frequencies
→ Clearly define & publish radio frequencies (tower, ground, etc)
Construction Hazards

*Hazards that appear when part of the airport becomes non-operational*

- Unanticipated “hot spots”
- Potential need for vehicles or equipment to cross runways
  - The more crossings, the higher the incursion risk
- Potential impact on runway maintenance
Construction Hazards
Construction Mitigations

→ Conduct a hazard analysis whenever the airport configuration changes
→ Establish standard vehicle routes to avoid crossing movement areas
→ Briefing on airside operations for construction crew
→ Provide training for all drivers of vehicles that operate on the movement area
→ Signage and markings
Construction Mitigations cont’d

- Provide escort
- Schedule preventative m’tce outside of normal operating hours
- Current and timely publication of NOTAMs
- Clear demarcation of work site
- Ensure situation awareness is priority during construction (crew in general, supervisors in particular)
Visibility Hazards

Reduced visibility increases potential for ground crew disorientation and as a result incursions

- Not only due to fog, but also glare, rain, or reflection from water

Visibility Mitigation

→ Implement low visibility procedures for all ground vehicles
→ Establish low visibility routes
→ Establish AVOP
Signage Hazards

*Signage may be incorrect, complex, inadequate or not clearly visible*

- Complex signage
- Inappropriate positioning
Signage Hazards

- Inadequate signage for:
  - closed runway
  - taxiway
  - hot spots
  - Non-movement areas

Mitigation

- Install and maintain signs in accordance with regulatory requirements
- Establish a system to identify signage issues
- Establish a signage maintenance program
- Signage interpretation as part of AVOP & project preconstruction briefing
Airfield Design Hazards

- Complex or inadequate airfield design
- Runway and taxiway intersections
  - Intersections at various angles
  - Multiple runways and taxiways intersecting
- Runways in close proximity to terminals

Mitigation

→ Identify high risk locations
→ Use potential new and existing technologies that may reduce the possibility of a runway incursion
→ Enhance signage and ground markings
→ Develop a briefing package including aerodrome maps and charts
→ Aerodrome Familiarization Tours
→ Implement SOPs for operations
Airfield design mitigation cont’d

➔ Use airside modeling programs to simplify airfield layout

➔ Installation of switchable stop bar

➔ Enhanced Taxiway Centerline Markings
Operational Hazards

Hazards that result from operational factors including:

- Emergency vehicle operations
- Maintenance vehicles and equipment
- Unidentified hotspots

Mitigation

→ Identify hazards associated with each of the operations
→ Mitigate the hazards using appropriate training and technology and regulations
→ Establish supporting guidance material
→ Schedule RWY inspection & Topo Survey
→ Publish “Hot spots” on Aerodrome Charts
→ Conspicuous airside service vehicle
→ Mandate use of PPE (high visibility vest, etc)
→ Keep drivers authorized to operate & function to perform on manoeuvring area to min necessary
Wildlife Hazards

• Animals on the Runway
  • Animals on the runway are a particularly pervasive problem at many airports.
Wildlife Mitigation

• Develop Wildlife Hazard Management Program (inclusive of wildlife strike database)
• Establish preventative m’tce program for perimeter fence
• Perform community sensitization program – danger of wildlife to aviation
• Zoning
THANK YOU