

We are
Airports

ICAO



OACI

North American, Central American and Caribbean Office (NACC)
Oficina para Norteamérica, Centroamérica y Caribe (NACC)

Workshop on Runway Safety Team (RST)

Mexico City, Mexico, 23 to 26 May 2023

Kelvin K. Ampofo,
Manager, Airport Operations Branch



FAA
Office of Airports

AGENDA

- **FAA Order 7050.1- Runway Safety Program**
- **Runway Safety Action Team (RSAT)**
- **Runway Safety Action Plan (RSAP)**
- **Rethink/Review RWY/Safety**



FAA Order 7050.1

Runway Safety Program



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

ORDER
7050.1B

Effective Date:
11/07/13

SUBJ: Runway Safety Program

1. This order prescribes the Federal Aviation Administration (FAA) Runway Safety Program. This directive establishes policy, assigns responsibility, and delegates authority for ensuring compliance with this order within each organization.
2. The Air Traffic Organization (ATO) expanded the scope of the Runway Safety Program to include the prevention of runway excursions.
3. The ATO Vice President for Safety and Technical Training may periodically evaluate national and regional runway safety programs. Evaluations will focus on compliance with this order and the effectiveness of the programs in meeting objectives, strategies, and initiatives outlined in FAA's Strategic Plan and the National Runway Safety Plan.
4. Our long-term goal is to improve runway safety by decreasing the number and severity of runway incursions, excursions, and other surface incidents.


Michael P. Huerta
Administrator

This order prescribes the FAA Runway Safety Program. This directive establishes policy, assigns responsibility, and delegates authority for ensuring compliance with this order within each organization.

What does this mean for the Office of Airports?

Distribution: Electronic

Initiated By: AJI-0
ATO Safety & Technical Training



Federal Aviation
Administration

FAA Order 7050.1

ARP Roles & Responsibilities

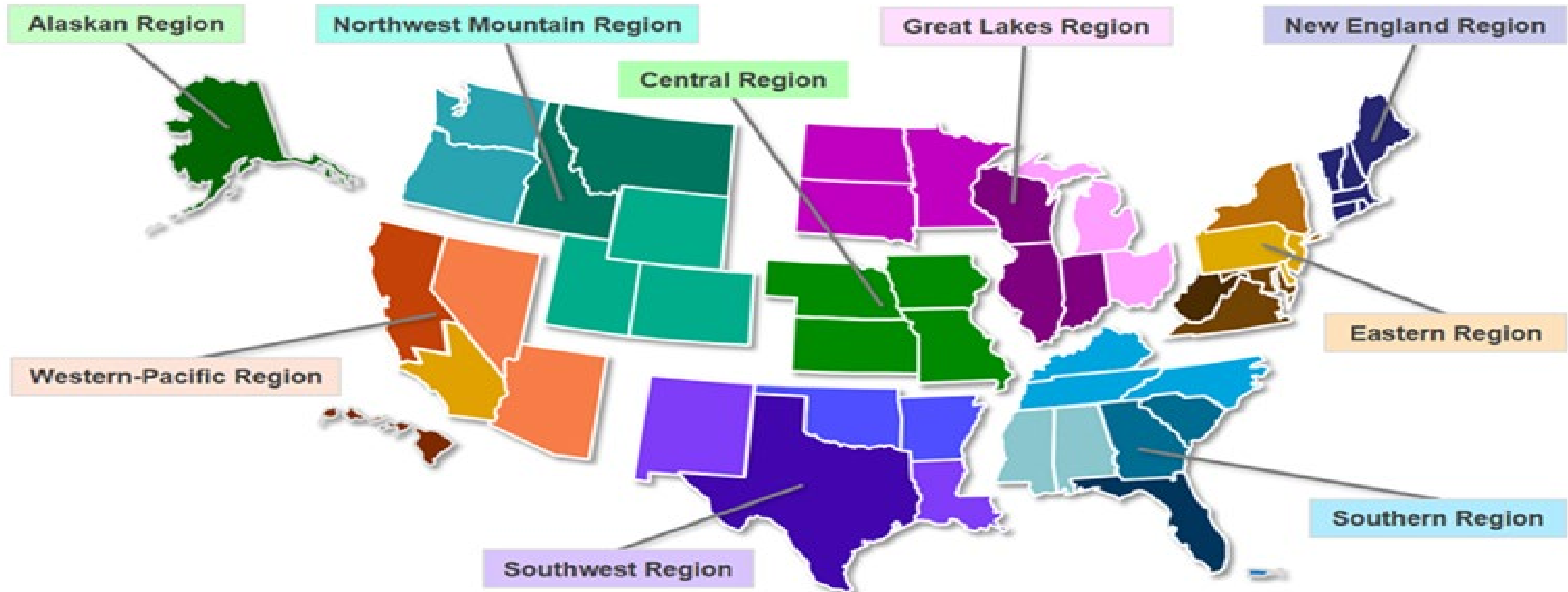
- **Support Runway Safety** in identifying and reducing safety event risks, strategies, and initiatives.
- **Support the Regional Runway Safety Program Managers (RRSPM).**
 - https://www.faa.gov/airports/runway_safety/contact
- **Designate staff** to be part of the **Regional Runway Safety Team (RRST).**
- **Participate in the Regional Runway Safety Governance Councils, as applicable.**





Federal Aviation
Administration

Regional Airports Offices



FAA Order 7050.1

ARP Roles & Responsibilities cont'd

- **Local Runway Safety Action Team (RSAT) meeting coordination or participation.**
- **Provide active representation for Special Focus Runway Safety Action Team (RSAT) meetings.**
 - Regional and/or HQ SMEs may need engagement
- **Oversee and facilitate completion of ARP action items during RSATs and identified in the Runway Safety Action Plan (RSAP).**



Runway Safety Action Team (RSAT)



You are cordially invited to the

Detroit Metro Runway Safety Action Team Meeting

**Thursday, May XX, 20XX
10:00 a.m. – 12:00 p.m.**



Runway incursions remain a serious concern nationally. One important component of our ongoing efforts to improve surface safety at DTW Airport, the **FAA**, in cooperation with the **Wayne County Airport Authority**, involves conducting a **Runway Safety Action Team (RSAT) meeting** at least once each year.

The purpose of this RSAT meeting is to unite those individuals and organizations that are actively involved in air traffic operations and movement of aircraft, vehicles and equipment on the Airport Operations Area (AOA). We look for participation from all major airport interests including tenants, fixed base operators, airport operations and maintenance personnel. Participants are asked to help develop recommendations and solutions to enhance surface safety. Those recommendations serve as the foundation for a site-specific Runway Safety Action Plan. You are cordially invited to join us.

Please **RSVP** to xxxxxx at xxxxxx@wcaa.us and xxxxxx@faa.gov. Include the name, organization, phone number and email address of those who will be attending. Meeting login information will be sent after RSVP is received.

For additional information, please contact xxxxxx at (xxx) xxx-xxxx.

xxxxxx
Director of Airfield Operations
Wayne County Airport Authority

xxxxxx
Air Traffic Manager
FAA Detroit Metro ATCT

- **Local RSAT**
- **Regional RSAT**
- **Special Focus RSAT**
 - RSO and ARP identified a specific issue
 - Wrong Surface Events
 - High Runway Incursion incidents
 - Other?
 - ARP role is similar as 'regular' RSATs
 - AAS-100 and/or AAS-300 engagement



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Administration**

Scheduling & Notification

- **Local RSAT meetings once per fiscal year.**
- **Regional & SFRSATs scheduled ad hoc.**
- **Meeting invites must be issued to ARP 30 days in advance of the scheduled RSAT.**
 - Regional & District office level
 - Other invites include:
 - Airport
 - Airport Tenants & stakeholders
 - Other FAA LOBs



What is covered during RSATs?

- (1) Runway incursions and excursions since the last RSAT meeting, including any mitigations implemented as a result.
- (2) Open action items from past RSAPs, and any actions completed since the last RSAT meeting.
- (3) Planned airport construction.
- (4) Best practices in use by the airport or tower.
- (5) Procedures and training for vehicle operator access to the movement area, including snow removal procedures (if applicable).
- (6) Any letters of agreement or published notices related to surface operations.
- (7) Surface safety issues reported to the ATCT or airport within the past year.
- (8) Any persistent weather conditions that could affect surface safety. This must include areas where lack of adequate drainage may cause markings to be obscured, and sun conditions that may compromise visibility by pilots.
- (9) Movement controls for vehicle drivers involved in wildlife mitigation.
- (10) The published airport hotspots, including whether additions or deletions of hotspots might be appropriate.
- (11) Any user concerns dealing with aircraft, pedestrian, or vehicle operations on the airport surface.
- (12) Air Shows, Civil Fly-Ins, Parachute Operations, and other special events.



RSAT Presentation Template

- A generic template created for use at RSATs.
- Template coordinated with AAS-100 and AAS-300
 - 2023 – first year for this
- The facility (Air Traffic) or local runway safety representatives are responsible for updating the template for local conditions.
- Specific information pertaining to ARP standards need coordination for accuracy.
 - RSA Dimensions
 - RIM Projects
 - Other Safety –related Construction (HIP?)



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- Each airport with ATCT (including FCTs) must develop & maintain a documented Runway Safety Action Plan (RSAP).
- The party responsible for conduct of the RSAT meeting develops the RSAP.
- RSAT must be convened to update the RSAP.

Runway Safety Action Plan (RSAP)

RUNWAY SAFETY ACTION PLAN – DCA

Regional Runway Safety Action Plan

**Ronald Reagan Washington National
Airport (DCA)**

Arlington, VA

July 14, 2022



Approved by: **RYAN I HEERALALL**
Digitally signed by RYAN I HEERALALL
Date: 2022.09.28 09:08:20 -04'00'

Ryan Heeralall (Chairperson)
Regional Runway Safety Program Manager

Concurred by: **SHAWN L CLARKE**
Digitally signed by SHAWN L CLARKE
Date: 2022.09.28 15:37:14 -04'00'

Shawn L. Clarke
Air Traffic Manager, DCA ATCT

Runway Safety Action Plan (RSAP)

- **RSAPs must include:**
 - List of Participants.
 - Runway safety concerns, issues, or problems at the airport (existing as well as prospective ones).
 - Best Practices
 - Special Action Items

RUNWAY SAFETY ACTION PLAN – DCA

Regional Runway Safety Action Plan

**Ronald Reagan Washington National
Airport (DCA)**

Arlington, VA

July 14, 2022



Approved by: RYAN I HEERALALL
Digitally signed by RYAN I HEERALALL
Date: 2022.09.28 09:08:20 -04'00'

**Ryan Heeralall (Chairperson)
Regional Runway Safety Program Manager**

Concurred by: SHAWN L CLARKE
Digitally signed by SHAWN L CLARKE
Date: 2022.09.28 15:37:14 -04'00'

**Shawn L. Clarke
Air Traffic Manager, DCA ATCT**

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Administration**

RSAP – Special Action Items

- **Action items are airport specific and linked to a runway safety concern, issue, or problem at the airport.**
- **Consensus is desirable for assignment of an action item**
 - At a minimum, the organization responsible for accomplishing the action must agree to accept the action.
- **Common ARP Action Items Address:**
 - Hot Spots
 - RIM Locations
 - Safety-related problematic geometry, signage/lighting/markings
 - Wildlife
 - Training/operational procedures



Action Items Examples

ACTION ITEM DESCRIPTION

Category: Airport-Geometry

Line of Airports
Business:

Office of For RIM
Interest:

Action Item: Conduct a meeting about the RIM Location and firmly establish milestones for implementation at (Taxiway A at Runway 4)

ACTION ITEM DESCRIPTION

Call-to-Action: No

Category: Procedures-Airport

Line of Airports
Business:

Office of FAA Airports Division, Runway Safety, ATC
Interest:

Action Item: Complete a single topic LOA detailing procedures within the TZR Runway Safety Area.

Action Item The current RSA LOA is in conjunction with the Control of Aircraft, Vehicles, and Pedestrians on the Airport Movement and Safety Areas LOA. The RSA LOA MBI dated 3/11/22 requires a standalone RSA LOA.
Rationale:



RSAP Coordination – From 7050.1

- The airport operator and FAA lines of business (ARP, Flight Standards, and Runway Safety) must be coordinated on RSAPs, at a minimum, and any organization assigned an action item.
- Any organization assigned an action item must agree to accept that item and provide a target completion date.
- **An absence of a response within the requested review timeframe (typically 30 days) is considered concurrence with the draft RSAP.**



RSAP Distribution

- **The RRSPM forwards accepted RSAPs to the RSAT, and the following:**
 - Manager, Runway Safety Group
 - Area Director, Terminal Operations
 - Regional Administrator
 - Flight Standards and **ARP Division Managers**
 - Airport Manager or Director
 - ATCT Manager & Terminal Operations District Manager
 - Members of the RRST



RSAP Tracking

- **From the Order, ARP and Flight Standards shall oversee and facilitate completion of action items accepted by organizations or entities under its regulatory authority.**
 - Must assist Runway Safety in securing action item status when requested by the RRSPM.



Wrap Up

- **ARP engagement *and relationship* with Runway Safety is critical.**
 - Ensures standards are correctly represented and safety enhancements, though standards adoption, are promoted.
- **ARP helps facilitate discussion at RSAT meetings on RSA standards, construction, Hot Spots, RIM Locations, and problematic geometry.**
- **ARP has a role in accepting, tracking, and completing actions identified during RSATs.**



Rethink/Review Runway Safety



Rethink/Review Runway Safety

- **Safety Culture & Runway Safety**
- **Safety Risk Management for Runway Safety**
- **Runway Safety Statistics in the United States**
- **Areas of Focus**
- **Airport Geometry & Runway Safety & RIM**
- **Runway Safety Action Team (RSAT)**
- **FAA FAAST Team**
- **FAA Safety Promotion & Publications**



Runway Safety Requires a Strong Safety Culture

- **Safety Culture is the shared values, attitudes, beliefs and behaviors of an organization.**
- **Safety culture requires open honest communication and exchange of information without fear of reprisals.**
- **Safety culture requires regular reviews of policies and procedures and implementation changes as required.**



Safety Risk Management

Objective: Continually monitor the level of surface risk in the National Airspace System (NAS) and assess the need for new and/or revised mitigations.

- **Surface Safety Group (SSG)**
- **Runway Safety Action Team (RSAT)**
- **Regional Runway Safety Plans (RRSP)**



CLASSIFICATIONS OF RUNWAY INCURSIONS

Runway Incursions are classified into various types, based on attributed actions:

- **Operational Incidents (OI)** are attributed to Air Traffic Control action or inaction
- **Pilot Deviations (PD)** are attributed to pilots operating an aircraft under its own power
- **Vehicle or Pedestrian Deviations (V/PD)** are attributed to a vehicle driver or non-pilot operating an aircraft under its own power, a vehicle driver towing an aircraft, or a pedestrian
- **Others (OTH)** are events not clearly attributed as determined above. This can include events caused by equipment failure or other factors



RUNWAY INCURSIONS

FY2022 | BY THE NUMBERS

52.5M take-offs & landings occurred in the NAS.
Of which:

1,713 were Runway Incursions

62% PD
(Pilot)

18% OI
(Controller)

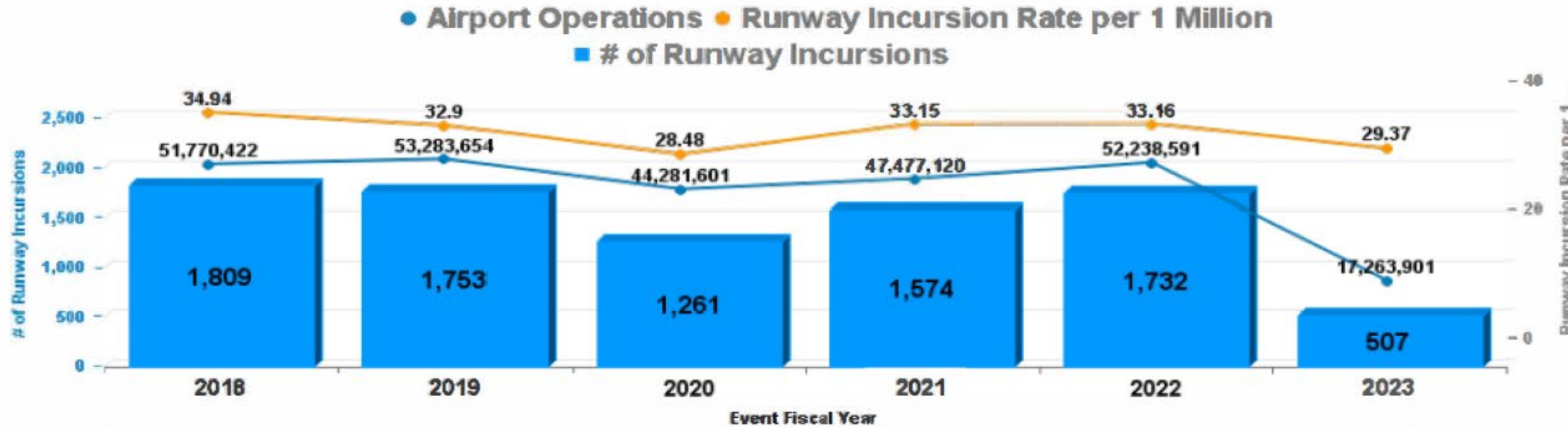
18% VPD
(Vehicle/pedestrian)

2% OTH
(Other)



AJI-14 Surface Events
Monthly Surface Safety Report

Runway Incursions



Fiscal Year	2018	2019	2020	2021	2022	2023
Airport Operations	51,770,422	53,283,654	44,281,601	47,477,120	52,238,591	17,263,901
AAL	51	49	48	69	40	12
ACE	57	53	50	61	63	15
AEA	159	141	99	152	161	42
AGL	275	243	184	191	242	89
ANE	67	61	35	44	83	15
ANM	176	200	138	194	184	53
ASO	337	309	231	270	322	93
ASW	252	249	189	202	226	74
AWP	435	448	287	391	411	114
Sum:	1,809	1,753	1,261	1,574	1,732	507



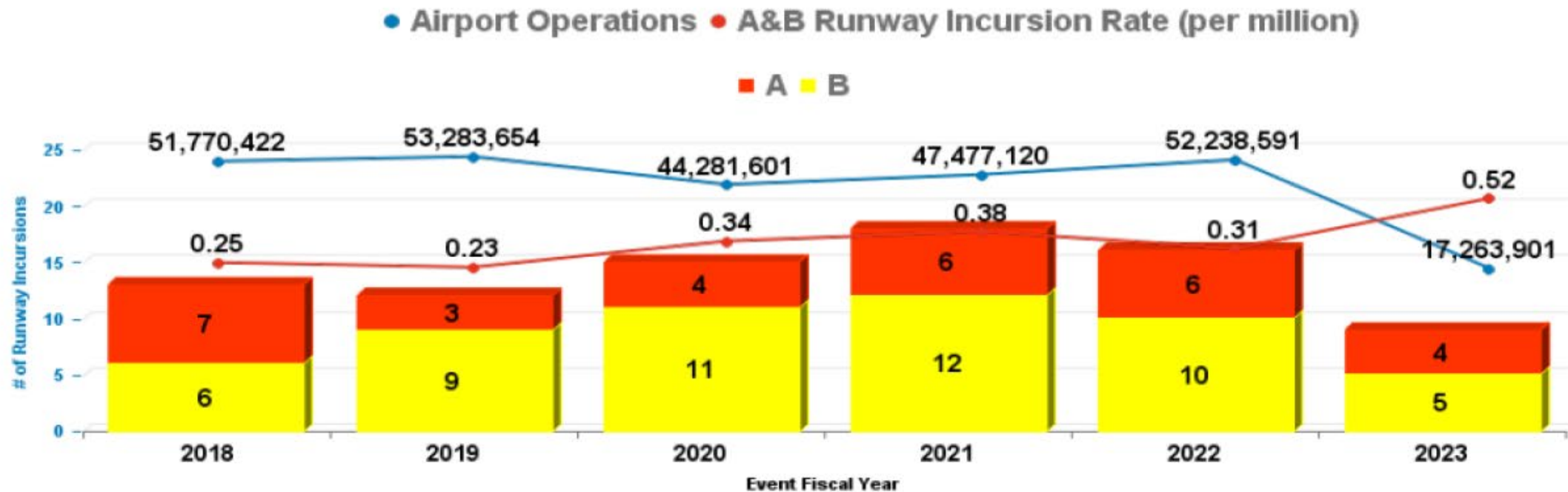
Current FAA Runway Incursion Severity Categories

Operational dimensions affecting runway incursion severity:



Category D	Category C	Category B	Category A
Little or no chance of collision, but meets the definition of a runway incursion.	Separation decreases, but there is ample time and distance to avoid a potential collision.	Separation decreases and there is a significant potential for collision.	Separation decreases and participants take extreme action to narrowly avoid a collision, or the event results in a collision.





Fiscal Year	2018	2019	2020	2021	2022	2023
Airport Operations	51,770,422	53,283,654	44,281,601	47,477,120	52,238,591	17,263,901
AAL	1	0	1	1	0	0
ACE	1	0	0	0	0	0
AEA	1	2	1	1	1	2
AGL	0	2	1	2	2	0
ANE	0	0	2	1	1	0
ANM	1	0	0	1	3	0
ASO	2	3	4	5	2	1
ASW	2	3	2	1	2	1
AWP	5	2	4	6	5	5



WSO

WRONG SURFACE OPERATIONS

WSOs involve landing on or taking off from a taxiway, wrong runway, or landing at a wrong airport. Risk factors include:

- Parallel runways, particular offset thresholds, or irregular spacing
- Closely aligned runway ends
- Parallel taxiways
- Close airports with similar configurations



WRONG SURFACE OPERATIONS

BY THE NUMBERS



RUNWAY EXCURSION (RE)



A veer off or overrun from the runway surface during take-off or landing

Contributing factors may include:

- Unstable Approaches
- Cross Wind Component
- Tailwind
- Mechanical
- Runway Conditions



AIRPORT

CONSTRUCTION



AIRPORT CONSTRUCTION AWARENESS (Cont.)



Best
practices &
Checklists



Airport
Construction
Diagrams



ACAC
Mailbox



AIRPORT CONSTRUCTION BEST PRACTICES


- **Coordinate** construction plans early among the Airport Operator, ATCT and ACAC.
- **Email ACAC** at: ConstructionCouncil@faa.gov.
- **Provide** briefings & training for controllers and tenants.
- **Meet** with your Local Safety Council (LSC) to discuss alternate procedures/taxi routes.
- **Use resources** & checklists found on Runway Safety Webpage under the Runway Construction Section.
- **Set up** an after-action review to determine what worked and what did not.
- **Use NOTAM Manager** when available at your airport for Automated CNDs.





AIRPORT CONSTRUCTION NEW AUTOMATED CNDs



FAA is transitioning to a new Automated CND process using NOTAM Manager to streamline coordination.

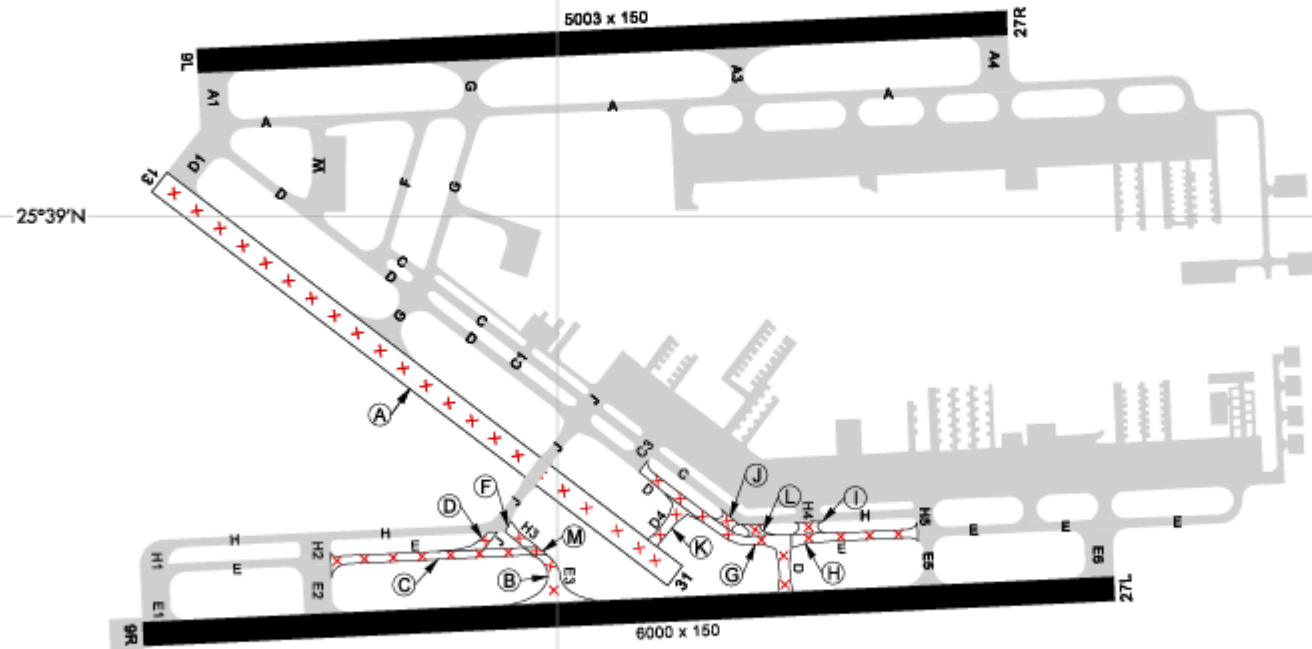
- This construction symbol , along with "ON AIRPORT – SEE CONSTRUCTION GRAPHIC" are found at the top of each NOTAM Search when applicable.
- Click here in the NOTAM Search to download all current CNDs.

	BNA	N/A		ON AIRPORT - SEE CONSTRUCTION GRAPHIC
	BNA	2/0570	WEST	IAP NASHVILLE INTL NASHVILLE



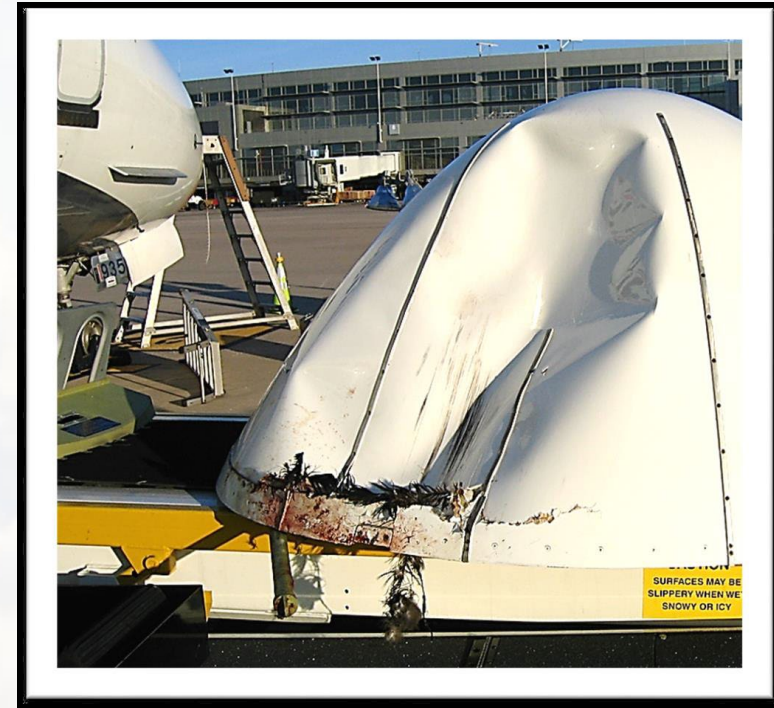
AIRPORT CONSTRUCTION NOTICE DIAGRAMS

CONSTRUCTION NOTICE Miami Exec (TMB) Miami, Florida



Wildlife Hazard Management

- Ensuring airport has a strong wildlife hazard management program.
- Immediate action to alleviate wildlife hazard on and in the vicinity of the airport.
- Review Plan regularly and after significant strike events.
- Encourage reporting and identification of wildlife.



COMPLEX GEOMETRY

From the Flight Deck: Complex Airfield Geometry

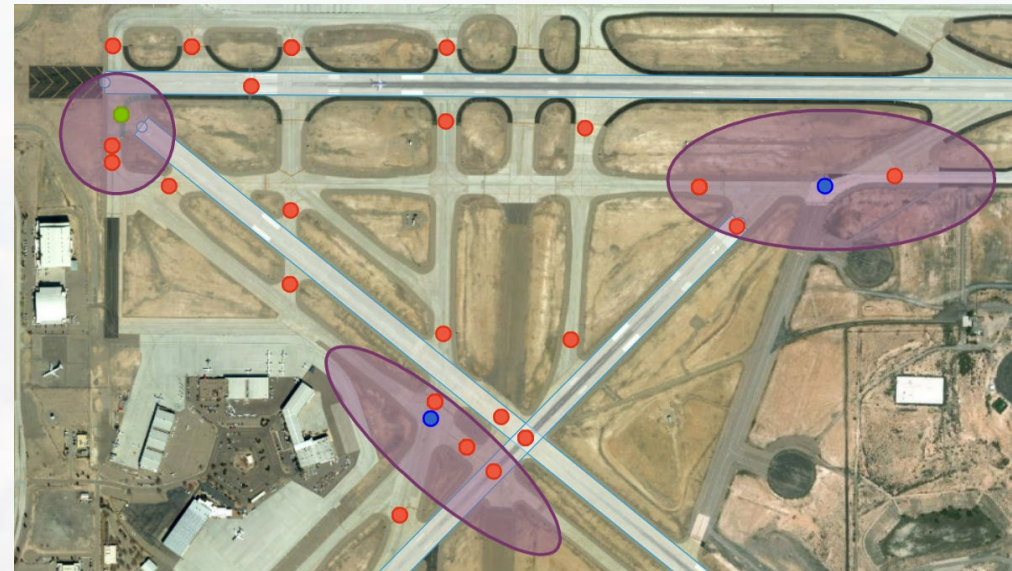
7 Videos on airfield geometry that frequently lead to runway incursions:

- Direct Access to Runways From Ramp Areas
- Taxiway Intersecting a Runway at Other Than Right Angle
- Short Distance from Ramp/ Apron to a Runway
- Wide Expanses of Taxiway Pavement Along Runway
- Short Distance Between Parallel Runways
- Runway Thresholds in Close Proximity
- Hold Short Lines in Unexpected Places



RUNWAY INCURSION MITIGATION (RIM) PROGRAM

- RIM is a data-driven program identifying runway/taxiway intersections with increased risks of Runway Incursions (RIs).
- The RIM program uses:
 - Runway Incursion data
 - GIS geo-referencing
 - Risk-based Decision Making
- Locations Determined by:
 - 3 or more RIs in a Calendar Year
 - Avg. of 1+ RIs/year over prev. 10 years
 - Validation of locations, RIs, & geometry



RUNWAY INCURSION MITIGATION (RIM) PROGRAM

- RIM focuses on airport improvement Mitigation Strategies
 - Airport Geometry Improvements – Airport Design Standards
 - Airport Visual Aids Improvements
 - Signing
 - Pavement Marking
 - Lighting
 - Procedure Revisions
 - Technology



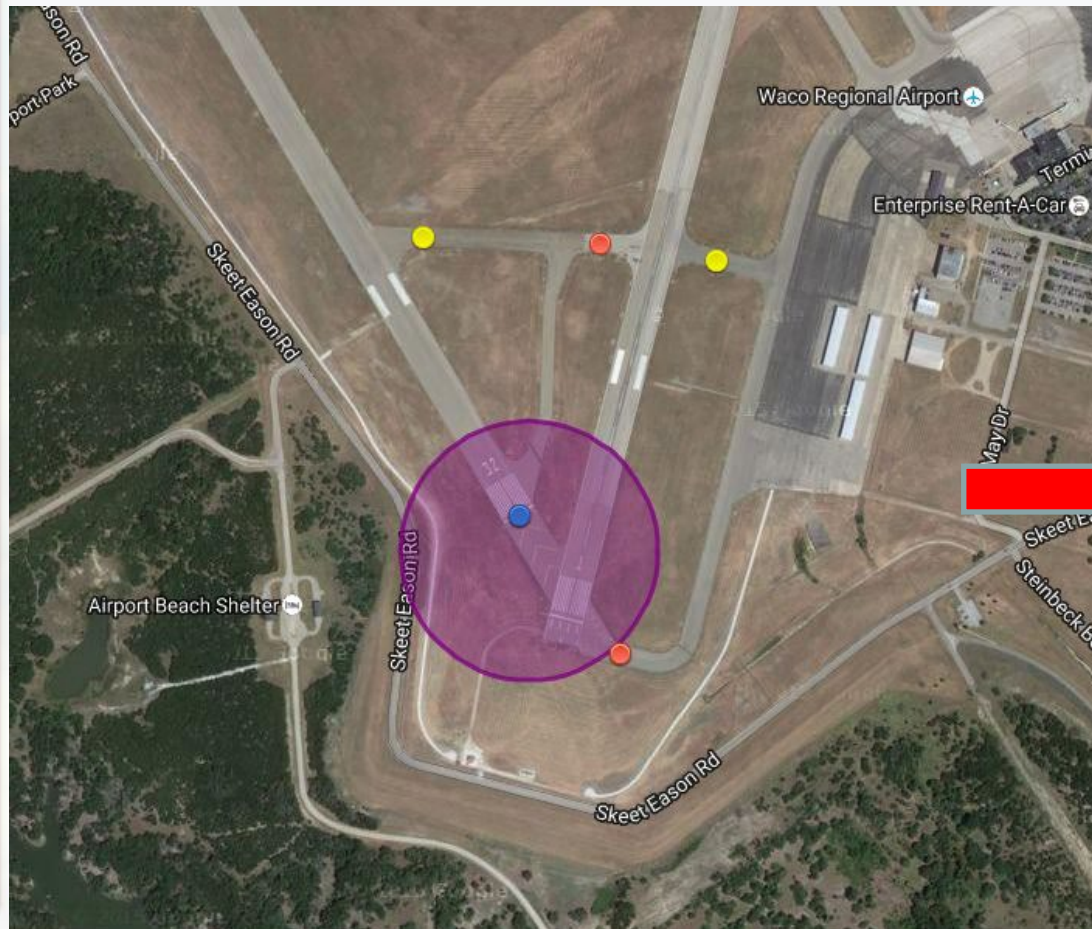
RUNWAY INCURSION MITIGATION (RIM) PROGRAM

RIM Statistics

- 522 towered airports
- 16000+ RIs analyzed
- 126 RIM locations - current inventory
- 80 airports w/ at least 1 RIM location
- 109 RIM locations associated w/ new project
 - 18 currently in construction
- FY23 – completed mitigations at 3 locations
- 91 RIM *mitigations complete*
 - Mitigations reduce RIs an **average of 78%**

RUNWAY INCURSION MITIGATION (RIM) PROGRAM

BEFORE AND AFTER



NATIONAL FAA SAFETY TEAM (FAASTeam)

Develops standardized safety interventions for General Aviation, and may support other safety initiatives such as:

UAS, NextGen, Runway Safety, The General Aviation Joint Steering Committee (GAJSC) Safety Enhancements

FAASTeam responds to localized safety issues through:

- Accident/incident reports involving airmen from the area
- Hazards identified by FAA Inspectors at local Flight Standards District Offices
- Information from the local aviation community
- Local Pilot Controller Forums



RSAT MEETING PURPOSE

- Open Discussion
- Surface risks
- Risk mitigations
- Best practices
- Safety resources

TAKEAWAYS

- Local safety trend awareness
- Safety resource availability
- Action Item identification
- Runway Safety Action Plan (RSAP) update



A background image showing a group of people in a meeting or training session. In the foreground, a person's hand is visible, holding a pen and writing on a notepad. Other people are seated in the background, looking towards the right side of the frame.

RUNWAY SAFETY ACTION PLAN

RSAP

- Action items are non-regulatory, voluntary, and flexible.
- The responsible parties for implementing and/or funding the Action Item must be in agreement with the Action Item.
- Your RSAP is due to your RSPM within 45 days for review and acceptance.
- Report Action Item updates & closures to your RSPM as completed.

PILOT SAFETY AWARENESS VIDEOS

From the Flight Deck: Hazards and Hot Spots



- Over 100 specific airport and single-topic safety videos are available.



- Also available on the FAA YouTube Channel.



ARRIVAL ALERT NOTICE (AAN)

AANs address Wrong Surface

Where Aircraft
lines up to or
lands on a:

- Taxiway or
- Incorrect
runway or
airport



ARRIVAL ALERT NOTICE (AAN) AAN VIDEO



FROM THE FLIGHT DECK

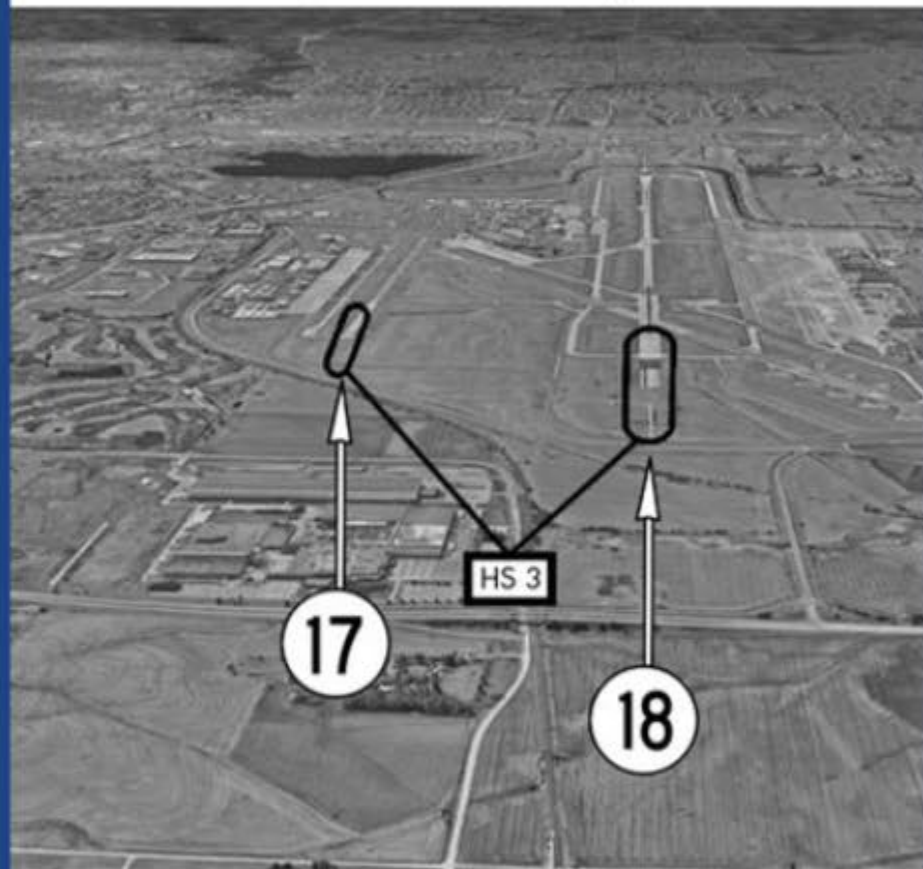
HAZARDS AND HOT SPOTS



Arrival Alert Notice

LINCOLN (LNK) ARRIVAL ALERT

Landing South
Rwy 17 and Rwy 18



Off-set Parallels.

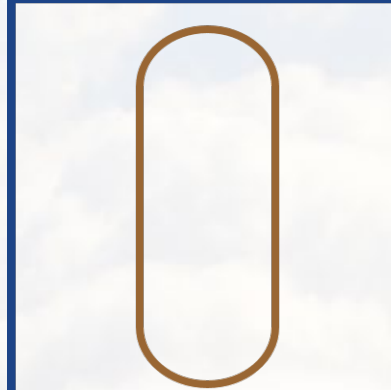
Pilots be aware that Rwy 17 is 550 feet farther down the approach than Rwy 18.

Depicting Hot Spots on Airport Diagrams

- **Current State:** Variety of shapes
- **Future State:** Circular shapes (Effective May 2022)



Wrong Surface



Ground Movement



Hot Spots



Definition: Location on an airport movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots and drivers is necessary

Common Causes: Airport layout, traffic flow, airport marking, signage and lighting, situational awareness, training



THANK YOU



Kelvin Ampofo

Branch Manager, Airport Safety & Ops

FAA Office of Airports

FAA National HQ – Washington DC

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