

# Runway Safety Teams



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# Runway Safety Programme Mandate

The establishment of **coordinated**, *collaborative and multidisciplinary efforts* within **ICAO** and between **ICAO** and **Runway Safety Programme Partners** to promote the implementation of *strategies* to *reduce* the number and severity of *runway safety-related accidents and incidents on an on-going basis*.

## Our Mandate





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# Runway Safety

- Runway Safety is multi layered
- Runway Safety is multi dimensional
- Runway Safety includes technical and human factors
- Runway Safety requires a holistic approach

# What is a Runway Safety Team?



# Safety through collaboration

- The RST assesses operational risks specific to the airport
- Proposes mitigations to prevent runway events (incursions, excursions and others)
- Measures and monitors the effectiveness of the mitigations
- Educates and promotes, raising awareness of operational risks among all stakeholders
- The RST is not a decision-making body, but provides recommendations to be implemented as appropriate by the participants



# Runway Safety Teams Risk Mitigation

- Runway Excursions
- Runway Incursions
- Runway Confusion
- Vehicle deviation
- Pedestrian deviation
- Construction ...





# Runway incursion

- Contributory factors
  - Breakdown in Communications
  - Pilot Factors
  - Air Traffic Control Factors
  - Airside Vehicle Driver Factors
  - Aerodrome Design Factors



# Visual Aids helps prevent RI

- Marking
  - Runway-holding position markings
  - Intermediate holding position marking
  - Road-holding position marking
  - Mandatory instruction marking
  - Information marking
- Lighting
  - Stop bars
  - Runway guard lights
  - Intermediate holding position lights
  - Road holding position lights
- Signs
  - Mandatory instruction signs
  - Information signs
  - Road-holding position sign



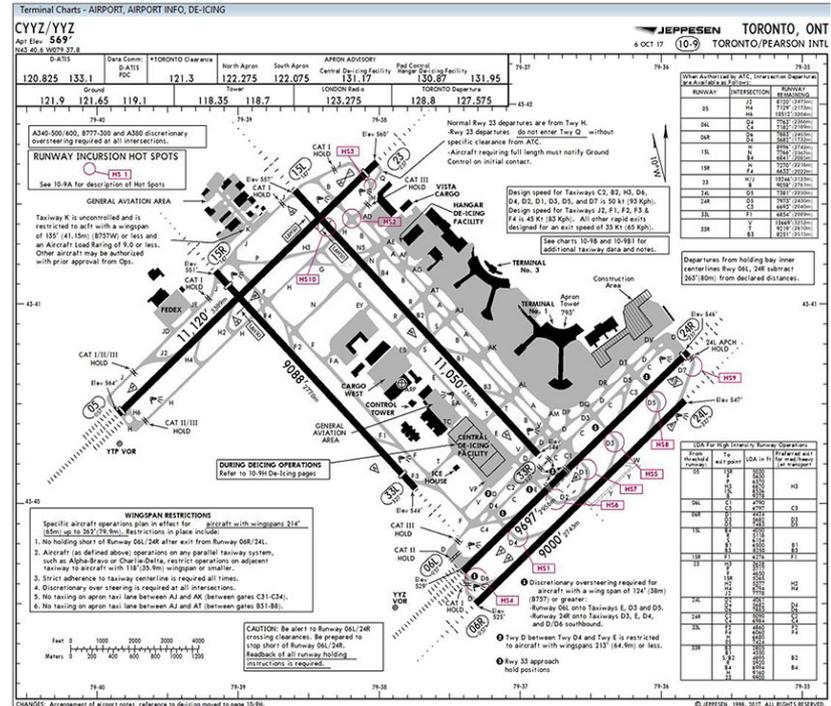
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# Benefits of Hot Spots

**Hot spot.** A location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.

- Identify risk factors and local issues at a particular locations where risk exist
- Initiate a comprehensive safety-awareness campaign to ensure that all stakeholders are aware of safety issues, work collaboratively to produce and distributing local hot spot maps or other guidance materials.





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## Importance of data sharing and record keeping

Proper and structured record keeping of observed and identified hazards, safety events and corrective actions allow for trend analysis. The RST should identify a gate keeper who is responsible for the maintenance of the data base and can present reports and analysis upon request of the RST members.

Data exchange and sharing amongst RST members enhances the effectiveness of the RST. RSTs from different airports are encouraged to set a protocol in place that could allow for data sharing across various locations and will support the teams in identifying proper mitigation strategies.

# Measuring Results

How will we know if our efforts are effective?

1. Monitor and measure the number, activities and maturity of RSTs globally. (RST survey & RS Go-Teams)
2. Monitor and measure the rate of runway-safety-related occurrences at the airport, State, regional and global levels
3. Monitor the implementation of runway safety related SARPS (e.g. GRF)

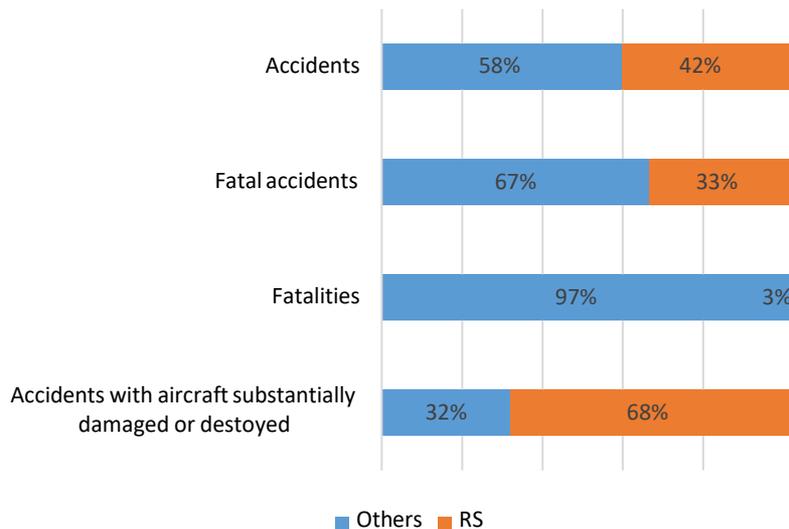


# Current ICAO Runway Safety Accident Category Definitions (As per CICTT Aviation Occurrence Categories)

Category	Description
Abnormal Runway Contact (ARC)	Any landing or take-off involving abnormal runway or landing surface contact.
Ground Collision (GCOL)	Collision while taxiing to or from a runway in use.
Runway Excursion (RE)	An event in which an aircraft veers off or overruns off the runway surface during either take-off or landing.
Runway Incursion (RI)	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.
Loss of Control on the Ground (LOC-G)	Loss of aircraft control while the aircraft is on the ground.
Collision with Obstacle(s) (CTOL)	Collision with obstacle(s), during take-off or landing whilst airborne.
Undershoot / Overshoot (USOS)	A touchdown off the runway surface.



# Runway Safety-related Accidents 2022



Source: ICAO ADREP Preliminary Data

# GRSAP

- Provides recommended actions for all runway safety stakeholders, with the aim of reducing the global rate of runway excursions and runway incursions.
- Stakeholders include ICAO, RSP partners, RSOOs and RASGs, CAAs, Aircraft Operators, ANSP, Aerodrome Operators, Aerospace Industry



# Stop bars



# Terminated taxiway centre line lights



# Runway guard lights





## Autonomous runway incursion warning system (ARIWS)

- Not mandatory
- If installed, it shall be compliant with the location and characteristics provisions in Annex 14, Volume I
- Standardized visual aids – runway status lights (RWSL)
- Procedures in PANS-ATM (Doc 4444) for flight crew and vehicle drivers in the event of an ARIWS warning

# RELS



# THLs



## Mandatory instruction marking and enhanced taxiway centre line marking





# Global reporting Format (GRF)

The ICAO Global Reporting Format for runway surface conditions (GRF) mitigates the risk of runway excursions by enabling a harmonized assessment and reporting of runway surface conditions and an improved flight crew assessment of take-off and landing performance.

For additional information, please use the following link  
<https://www.icao.int/safety/Pages/GRF.aspx>



# Construction Risk mitigation

We usually think about two colours when it comes to construction works and safety: yellow and orange. Since yellow is already used in airfield signage for communication of regular information such as direction signs and markings, the ACAC came up with the idea of using an orange background as it was already used for temporary roadway signage in the United States.



Figure 4 - Orange construction signs evaluated in the United States



Figure 5 - Orange construction signs evaluated at Paris-CDG



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# Stable approaches

Focusing on establishing and maintaining a stabilized approach and landing is a great way to avoid experiencing a loss of control Which may lead to a runway excursion. A stabilized approach is one in which the pilot establishes and maintains a constant angle glidepath towards a predetermined point on the landing runway.





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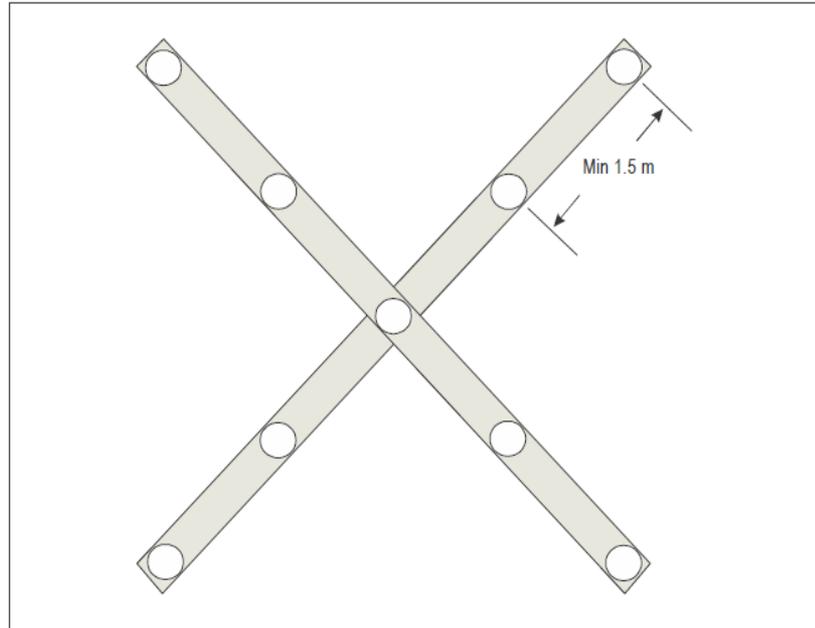
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# Current Runway Safety ICAO Updates

In order to prevent runway accidents/incidents ICAO is working on including provisions in Annex 14, Vol I related to

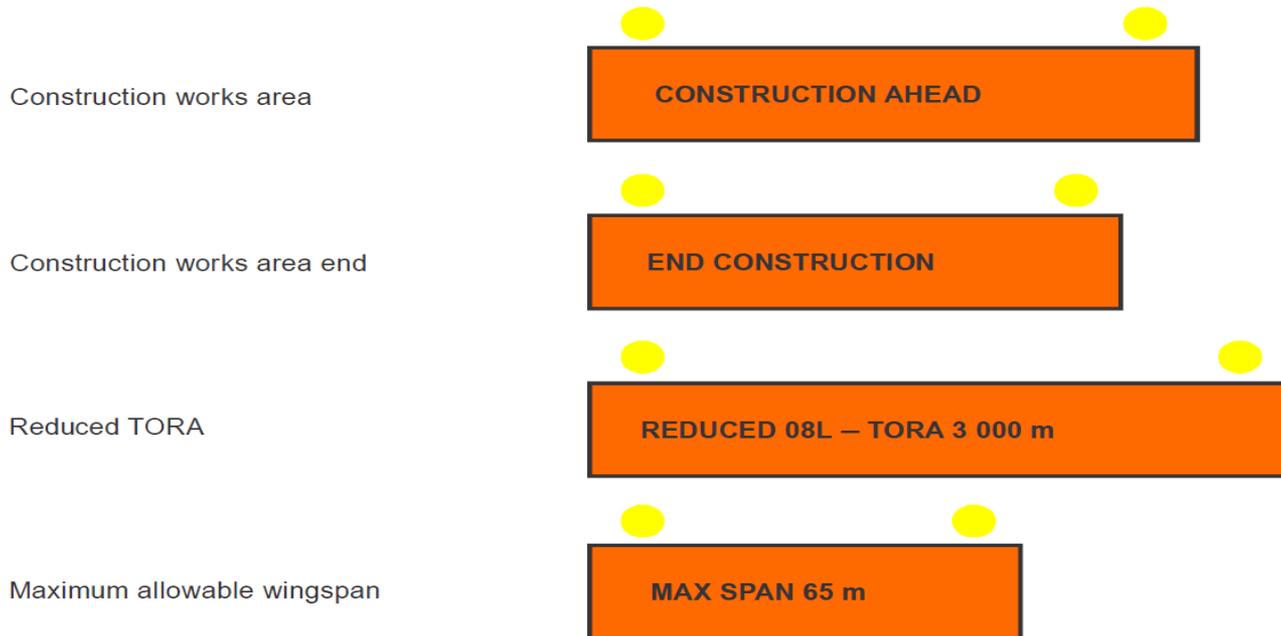
- Closed runway lighting
- Unserviceability Signs
- Runway distance remaining signs.

# Lighted X to indicated closed runway





# Current Runway Safety ICAO Updates



# Runway Distance remaining signage





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# References

PANS Aerodrome 9981 Chapter 8

GRSAP

FAA A/C 150/5300-13 B Airport Design

<https://www.icao.int/safety/RunwaySafety/Pages/default.aspx>



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