

OFFICIAL



Australian Government
Civil Aviation Safety Authority

ADVISORY CIRCULAR AC 139.C-22 v2.0

Runway safety teams

File ref: D26/184516

September 2026

OFFICIAL



Acknowledgement of Country

The Civil Aviation Safety Authority (CASA) respectfully acknowledges the Traditional Custodians of the lands on which our offices are located and their continuing connection to land, water and community, and pays respect to Elders past, present and emerging.

Artwork: James Baban.

Advisory circulars are intended to provide advice and guidance to illustrate a means, but not necessarily the only means, of complying with the Regulations, or to explain certain regulatory requirements by providing informative, interpretative and explanatory material.

Advisory circulars should always be read in conjunction with the relevant regulations.

Audience

This advisory circular (AC) applies to:

- Aerodrome operators
- Aircraft operators
- Aviation Rescue Fire Fighting Service
- Air Traffic Control services
- Local runway safety teams
- Organisations conducting any other airside operations.

Purpose

The purpose of this AC is to provide guidance to aerodrome operators on one means of establishing and maintaining runway safety programmes, including the use of Runway Safety Teams (RSTs), to manage risks associated with runway operations.

It is important to note that this guidance does not create or permit deviations from regulatory requirements.

For further information

For further information or to provide feedback on this AC, visit CASA's [contact us](#) page.

Unless specified otherwise, all subregulations, regulations, Divisions, Subparts and Parts referenced in this AC are references to the *Civil Aviation Safety Regulations 1998 (CASR)*.

Status

This version of the AC is approved by the National Manager, Flight Standards Branch.

Note: Changes made in the current version are not annotated. The document should be read in full.

Table 1: Status

Version	Date	Details
v2.0	September 2026	- Revised to align terminology and obligations with CASR Part 139, the Part 139 MOS. - Contents throughout the AC have been restructured. - Runway incursion, excursion and confusion sections were condensed - Appendix F - closure/suspension was restructured. - New Appendix G - runway safety risk factors and mitigation measures. - New Appendix H - AC cross-reference matrix table.
v1.0	June 2023	Initial AC.

Contents

1	Reference material	6
1.1	Acronyms	6
1.2	Definitions	7
1.3	References	8
2	Introduction	10
2.1	Background	10
2.2	Runway safety management	10
2.3	Runway safety programmes	11
2.4	Local runway safety teams (LRSTs)	11
2.5	National and international context	11
3	Local runway safety teams (LRSTs)	13
3.1	LRST purpose	13
3.2	Runway safety action plan	13
3.3	LRST composition and functions	13
3.4	Functions of the LRST	14
3.5	Integration with safety systems	14
3.6	National Runway Safety Group (NRSRG)	14
4	Runway safety events	15
4.1	Overview	15
4.2	Runway incursion	15
4.3	Runway excursion	15
4.4	Runway confusion	16
4.5	Runway closures and suspension	16
Appendix A	Utilising pre-existing teams at aerodromes for managing runway safety	17
Appendix B	Suggested agenda topics for LRST meetings	18
Appendix C	Local runway safety team checklist	19
Appendix D	ICAO occurrence categories	22
Appendix E	Best practices Guide for hot spots - Identification, removal and promulgation	23
Appendix F	Suspension of runway operations or closure of runways	25
Appendix G	Runway safety risk factors and mitigation measures	28
Appendix H	AC cross reference matrix	33

1 Reference material

1.1 Acronyms

The acronyms and abbreviations used in this AC are listed in the table below.

Table 2: Acronyms

Acronym	Description
AC	Advisory Circular
ARFFS	Aviation Rescue and Fire Fighting Service
ATC	Air Traffic Control
ATIS	Automatic Terminal Information Service
CAR	<i>Civil Aviation Regulations 1988</i>
CASA	Civil Aviation Safety Authority
CASR	<i>Civil Aviation Safety Regulations 1998</i>
FOD	foreign object debris
GASP	Global Aviation Safety Plan
GRSAP	Global Runway Safety Action Plan
HIRM	Hazard Identification and Risk Mitigation
ICAO	International Civil Aviation Organization
LRST	Local Runway Safety Team
MOS	Manual of Standards
MOWP	Method Of Working Plan
NASP	Australian National Aviation Safety Plan
NRSG	National Runway Safety Group
RCR	Runway Condition Report
RMP	Risk Management Plan
SMS	Safety Management System
SSP	State Safety Program
WIP	Work In Progress

1.2 Definitions

Terms that have specific meaning within this AC are defined in the table below. Where definitions from the civil aviation legislation have been reproduced for ease of reference, these are identified by 'grey shading'. Should there be a discrepancy between a definition given in this AC and the civil aviation legislation, the definition in the legislation prevails.

Table 3: Definitions

Term	Definition
aerodrome	means an area of land or water (including any buildings, installations and equipment), the use of which as an aerodrome is authorised under the regulations, being such an area intended for use wholly or partly for the arrival, departure or movement of aircraft.
aerodrome layout	the number of runways, taxiways and aprons at an aerodrome that are provided with lighting, in 1 of the following categories of aerodrome: - basic — an aerodrome with 1 runway, with 1 taxiway to 1 apron area - simple — an aerodrome with 1 runway, having more than 1 taxiway to 1 or more apron areas - complex — an aerodrome with more than 1 runway, having more than 1 taxiway to 1 or more apron areas.
aerodrome operator	means: - for a certified aerodrome—the person who holds the aerodrome certificate for the aerodrome; or - otherwise—the person who is responsible for the operation and maintenance of the aerodrome
air traffic control	means Air Traffic Services in its capacity as a provider of air traffic control services.
consequence	Outcome or impact of an event. Notes: - There can be more than one consequence from one event. - Consequences can range from positive to negative. - Consequences can be expressed qualitatively or quantitatively. - Consequences are considered in relation to the achievement of objectives
hazard	A condition or an object with the potential to cause or contribute to an aircraft incident or accident.
likelihood	Used as a general description of probability or frequency. Note: Can be expressed qualitatively or quantitatively.
manoeuvring area	means that part of the aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.
movement area	means that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the aprons.
stakeholders	Those people and organisations who may affect, be affected by, or perceive themselves to be affected by a decision, activity or risk.
runway excursion	A runway excursion is an event in which an aircraft veers off or overruns the runway surface either during take-off or landing.

Term	Definition
runway incursion	The Procedures for Air Navigation Services — Air Traffic Management (PANS-ATM, Doc 4444) defines a runway incursion as: <i>“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.”</i>
runway confusion	An unintentional use of the wrong runway, or use of a taxiway, for landing or take-off.
risk	The predicted probability and severity of the consequences or outcomes of a hazard. Notes: 1. A risk is often specified in terms of an event or circumstance and the consequence that may flow from it. 2. Risk is measured in terms of a combination of the consequences of an event and its likelihood. 3. Risk may have a positive or negative impact
runway safety	The state in which risks associated with the operation of aircraft on runways are reduced and controlled to an acceptable level.
safety	The state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.

1.3 References

Legislation

Legislation is available on the Federal Register of Legislation website <https://www.legislation.gov.au/>

Table 4: Legislation references

Document	Title
Part 139 of CASR 1998	Aerodromes
Part 139 (Aerodromes) Manual of Standards (MOS)	Aerodromes

Advisory material

CASA's advisory materials are available at <https://www.casa.gov.au/publications-and-resources/guidance-materials>

Table 5: Advisory material references

Document	Title
AC 139.C-01	Aerodrome manual
AC 139.C-02	Aerodrome personnel
AC 139.C-03	Serviceability inspections

Document	Title
AC 139.C-14	Airside vehicle control
AC 139.C-15	Safe planning and conduct of aerodrome works
AC 139.C-26	Safety management systems for aerodromes
AC 139.C-27	Risk management plans for aerodromes
Multi part AC 64.B-01, AC 139-14 & AC 172-04	Radiotelephony manual for ground operators

International Civil Aviation Organization documents

International Civil Aviation Organization (ICAO) documents are available for purchase from <http://store1.icao.int/>

Many ICAO documents are also available for reading, but not purchase or downloading, from the ICAO eLibrary (<https://elibrary.icao.int/home>).

Table 6: ICAO references

Document	Title
ICAO Annex 14 Volume I	Aerodrome Design and Operations
ICAO Doc 9981	PANS-Aerodromes
ICAO Doc 9859	Safety Management Manual
ICAO Doc 9870	Manual on the Prevention of Runway Incursions
ICAO Doc 10004	Global Aviation Safety Plan
ICAO Runway Safety Programme	Global Runway Safety Action Plan
ICAO Handbook	Runway Safety Team Handbook

2 Introduction

2.1 Background

- 2.1.1 Aircraft operations at an aerodrome involve the movement of aircraft, vehicles and personnel within a shared operating environment. This environment, known as the movement area, includes runways, taxiways, aprons and associated infrastructure.
- 2.1.2 The runway is the most critical part of this environment. It is where aircraft take off and land under demanding operational conditions. As a result, even small errors or misunderstandings can lead to serious safety consequences. For this reason, runway safety is a key focus of aviation safety both in Australia and internationally.
- 2.1.3 When arriving to and departing from an aerodrome, pilots have an expectation that the aerodrome operator has sufficient controls in place to ensure safe operations on the movement area.
- 2.1.4 Runway safety refers to the management of risks associated with aircraft operations on and around the runway. These risks can arise from a range of factors, including:
- physical interactions between aircraft, vehicles and personnel
 - aerodrome layout and infrastructure
 - communication between stakeholders
 - environmental conditions such as weather
 - human factors, including workload and situational awareness.
- 2.1.5 Common types of runway safety events include:
- runway incursion (unauthorised presence on a runway)
 - runway excursion (aircraft leaving the runway surface)
 - runway confusion (use of an incorrect runway or use of a taxiway)
 - suspension or closure of runway operations due to hazards or incidents.
- 2.1.6 Managing these risks requires a structured and coordinated approach that involves multiple stakeholders, including aerodrome operators, air traffic services, aircraft operators and ground service providers.

2.2 Runway safety management

- 2.2.1 Runway safety is not managed by a single organisation alone. It relies on collaboration between all parties involved in aerodrome operations.
- 2.2.2 Each stakeholder plays a role in maintaining runway safety, for example:
- aerodrome operators manage infrastructure, procedures and overall safety systems
 - air traffic services manage aircraft movements and traffic flows
 - aircraft operators and pilots conduct safe flight operations
 - ground personnel and vehicle operators conduct activities on the movement area.
- 2.2.3 Because of these interconnected roles, risks to runway safety often arise from a combination of factors rather than a single cause. To effectively manage these risks, aerodrome operators are expected to implement structured safety processes through:
- a Safety Management System (SMS)

or

- a Risk Management Plan (RMP).

2.2.4 These systems provide the framework for:

- identifying hazards
- assessing risks
- implementing mitigation measures
- monitoring safety performance.

2.3 Runway safety programmes

2.3.1 A runway safety programme is a coordinated approach to managing runway safety risks at an aerodrome.

2.3.2 The purpose of a runway safety programme is to:

- identify hazards related to runway operations
- understand the factors that contribute to those hazards
- develop and implement mitigation measures
- monitor the effectiveness of those measures over time.

2.3.3 Runway safety programmes should be integrated with the aerodrome's broader safety management processes (or the aerodrome SMS where there is one) and tailored to the size, complexity and nature of operations at the aerodrome.

2.4 Local runway safety teams (LRSTs)

2.4.1 A key component of an effective runway safety programme is the establishment of a Local Runway Safety Team (LRST). An LRST is a collaborative group of stakeholders who work together to identify and manage runway safety risks at a specific aerodrome.

2.4.2 The LRST provides a structured forum for:

- sharing safety information
- identifying hazards and emerging risks
- analysing safety events and trends
- developing practical mitigation measures.

2.4.3 The LRST enables stakeholders to:

- better understand each other's operational challenges
- coordinate safety actions
- improve overall safety outcomes.

2.4.4 Further guidance on LRSTs is provided in Chapter 3 of this AC.

2.5 National and international context

2.5.1 Runway safety is a priority at both national and international levels.

2.5.2 In Australia, runway safety initiatives are promoted through the National Aviation Safety Plan (NASP) and supported by the National Runway Safety Group (NRSG), which:

- facilitates the sharing of safety information across the aviation industry

- identifies national safety trends
- promotes the implementation of runway safety initiatives.

2.5.3 Internationally, runway safety is promoted through:

- the ICAO Global Aviation Safety Plan (GASP)
- the Global Runway Safety Action Plan (GRSAP)
- ICAO guidance material, including PANS-Aerodromes.

2.5.4 These frameworks emphasise the importance of:

- structured runway safety programmes
- collaborative safety management
- the use of local runway safety teams.

3 Local runway safety teams (LRSTs)

3.1 LRST purpose

- 3.1.1 The LRST is a collaborative group of stakeholders who work together to improve runway safety at the aerodrome. A LRST should be established where appropriate to the level of activity and risk.
- 3.1.2 The primary purpose of the LRST is to support:
- hazard identification
 - risk assessment
 - development of mitigation measures.
- 3.1.3 These activities are typically managed through a runway safety action plan (see section 3.2 of this document).
- 3.1.4 LRSTs also support safety assurance and promotion activities in the aerodrome's SMS or RMP.

3.2 Runway safety action plan

- 3.2.1 The runway safety action plan provides a structured framework for managing runway safety risks. The plan should:
- identify hazards
 - assess risks
 - define mitigation measures
 - assign responsibilities
 - include implementation timeframes.
- 3.2.2 The plan should be reviewed when:
- traffic or complexity changes
 - aerodrome infrastructure or layout changes
 - safety events occur
 - stakeholder feedback identifies risks.

3.3 LRST composition and functions

- 3.3.1 The LRST should include representatives from relevant organisations involved in runway operations. These may include:
- aerodrome operator
 - air traffic services (where available)
 - aircraft operators
 - general aviation representatives
 - ground handling organisations
 - refuelling organisations
 - other relevant stakeholders.

3.4 Functions of the LRST

3.4.1 The LRST supports runway safety by:

- analysing safety data and trends
- identifying hazards and safety concerns
- reviewing incident and investigation outcomes
- recommending mitigation measures
- supporting safety awareness
- facilitating information sharing.

3.4.2 The LRST should meet at intervals appropriate to the level of risk and operational complexity.

3.5 Integration with safety systems

3.5.1 The LRST should be included within the aerodrome's SMS or RMP framework.

3.5.2 Outputs from LRST activities should inform:

- hazard identification processes
- risk assessments
- mitigation implementation
- safety assurance and monitoring.

3.6 National Runway Safety Group (NRSRG)

3.6.1 The aerodrome operator, on behalf of the LRST, should provide relevant safety inputs to the NRSRG. These may include:

- trends
- systemic risks
- lessons learned
- this contributes to national-level runway safety improvements.

3.6.2 The NRSRG terms of reference and current membership can be found at <https://www.casa.gov.au/about-us/who-we-work/national-runway-safety-group>

3.6.3 LRST meeting minutes and matters requiring NRSRG attention or escalation can be submitted to CASA at RunwaySafety@casa.gov.au. See Appendix B for suggested agenda topics.

4 Runway safety events

4.1 Overview

- 4.1.1 The LRST should identify and manage hazards associated with runway operations using the processes outlined in Chapter 3 of this AC.
- 4.1.2 Runway safety risks typically include:
- runway incursions
 - runway excursions
 - runway confusion
 - runway closures or suspension of operations.
- 4.1.3 These risks may vary depending on:
- traffic levels
 - aerodrome layout
 - operational complexity.
- 4.1.4 Detailed guidance is provided in the appendices.

4.2 Runway incursion

- 4.2.1 A runway incursion is the incorrect presence of an aircraft, vehicle or person on a runway.
- 4.2.2 Contributory factors may include:
- traffic complexity
 - aerodrome layout
 - signage, markings or lighting
 - communication issues
 - human factors.
- 4.2.3 Mitigation measures may include:
- improved visual aids
 - clear procedures and taxi routes
 - vehicle control and training
 - communication improvements
 - safety awareness programmes.
- 4.2.4 Runway hot spots should be identified and managed (see Appendix F).

4.3 Runway excursion

- 4.3.1 A runway excursion occurs when an aircraft leaves the runway surface, typically by overrunning or exiting either side of the runway.
- 4.3.2 Contributory factors may include:
- weather conditions

- runway surface condition
- aircraft performance factors
- operational issues.

4.3.3 Mitigation measures may include:

- maintaining runway condition
- appropriate visual aids
- clear markings
- accurate operational information.

4.4 Runway confusion

4.4.1 Runway confusion occurs when an incorrect runway, or a taxiway, is used for landing or take off.

4.4.2 Contributory factors may include:

- complex layout
- visibility conditions
- inadequate signage
- communication issues.

4.4.3 Mitigation measures may include:

- improved markings and lighting
- simplified taxi routes
- hotspot awareness
- removal of confusing features.

4.5 Runway closures and suspension

4.5.1 Runway closures may be:

- planned
- unplanned.

4.5.2 Typical causes include:

- incidents
- weather
- FOD
- wildlife
- equipment failure.

4.5.3 The aerodrome operator should ensure procedures are in place to safely manage closures and return to service.

4.5.4 Detailed guidance is provided in Appendix F.

Appendix A

Utilising pre-existing teams at aerodromes for managing runway safety

Aerodrome operators may use different approaches to establish a LRST.

One such methodology is to delegate LRST responsibilities by rescoping an existing team that is already functioning within the aerodrome and whose functions are closely aligned with runway safety.

Working groups or safety teams may exist within an aerodrome operator's range of responsibilities. Runway safety can be included as additional responsibilities within existing working groups such as (the names could differ between airports):

- apron safety committees
- airside management committee
- airside safety committee, etc.

While the practicalities of formulating a team with runway safety responsibilities may vary, the team composition and terms of reference should satisfy the guidelines provided in Chapter 3 of this AC.

When such an arrangement is made to enable an existing team to perform the LRST functions within an aerodrome, the team should endeavour to meet regularly, and at least annually. Furthermore, they should provide inputs including minutes of the meetings (only sections relevant to runway safety) to the NRSG as mentioned in section 3.5 of this Advisory Circular.

Appendix B

Suggested agenda topics for LRST meetings

Listed below are suggested agenda topics for a typical LRST. The inclusion of these topics will vary between aerodromes and should be adapted to suit an aerodrome operator's location, unique operating conditions or intended aircraft operations:

- Review of open action items
- Review of runway safety performance indicators (leading and lagging)
- Data reports such as:
 - National Runway Safety Report
 - Location specific runway safety and hazard reports or occurrences
- Aerodrome works (Planned/Ongoing)
- Visual aids and signage
- Runway markings
- Low visibility operations (if applicable)
- Foreign Object Damage - maintenance and FOD management program
- Wildlife hazard management
- Special Data Reports - Emerging risks (if applicable)
- Communications – phraseology, language, and equipment
- Procedures and practices (ATC, ARFFS, Airlines etc) that relate to runway operations or runway safety
- Publications and procedures:
 - Departure and Approach Procedures (DAP)
 - AIP Supplements (SUP)
 - Aeronautical Information Circulars (AIC)
 - En Route Supplement Australia ERSA
 - Local Instructions
 - SOPs e. Aerodrome Charts
 - Runway Hot Spot Diagrams
 - Other
- Lessons learnt (local and external)
- Safety promotional and education programmes, safety alerts etc
- Technology, research, and development (if applicable)
- Periodic review of LRST risks and control effectiveness evaluations

Appendix C

Local runway safety team checklist

The following checklist can be used to both implement a LRST and to review existing LRSTs to determine if gaps exist or improvements can be made. Although not an exhaustive checklist the items included are designed to identify gaps that could hinder the effectiveness of LRSTs.

C.1 LRST checklists

Table 7: Component 1 – Terms of reference (ToR)

Item	Question	Response	Comments
1.1	Are there documented ToR in place?	Yes / No	
1.2	Do the ToR define the purpose and scope of the LRST?	Yes / No	
1.3	Do the ToR define the LRST members and their roles?	Yes / No	
1.4	Do the ToR define a process for handling data/reports received from members and other stakeholders?	Yes / No	
1.5	Do the ToR describe the decision-making processes to be used by the LRST?	Yes / No	
1.6	Do the ToR define a process for resolving any disagreements between LRST members?	Yes / No	
1.7	Do the ToR identify a process for raising issues, concerns and/or lessons learned to the NRSRG?	Yes / No	

Table 8: Component 2 – Hazard identification

Item	Question	Response	Comments
2.1	Does the LRST have a formal safety data collection and processing system (SDCPS) for documenting operational hazards?	Yes / No	
2.2	Do all LRST members contribute to sharing safety data and identified runway safety hazards?	Yes / No	
2.3	Does the LRST define and document specific consequences for operational hazards?	Yes / No	

Table 9: Component 3 – Safety risk management

Item	Question	Response	Comments
3.1	Does the LRST have a formally documented process to manage identified runway safety risks?	Yes / No	
3.2	Within the risk management process, are the consequences of operational hazards assessed in terms of probability and severity?	Yes / No	
3.3	Is there a formalised process to determine the level of risk the LRST is willing to accept?	Yes / No	
3.4	Does the LRST develop risk mitigation strategies to control the level of risk within the operational environment?	Yes / No	
3.5	Is there a formalised process for the LRST to make recommendations to applicable stakeholders relating to identified risks?	Yes / No	
3.6	Is there a formalised process to document the decisions made by the LRST during the risk management process?	Yes / No	
3.7	Are the LRST determined risk mitigations periodically reviewed to determine if the desired effect/outcome was achieved?	Yes / No	

Table 10: Component 4 – Communication

Item	Question	Response	Comments
4.1	Does the LRST have a formal process to communicate with applicable stakeholders?	Yes / No	
4.2	Does the LRST periodically provide runway safety material to key frontline/operational staff?	Yes / No	
4.3	Does the LRST participate in safety lessons learned and information sharing with other LRSTs and the NRSG?	Yes / No	
4.4	Does the LRST solicit safety-related information from all airport users?	Yes / No	

Table 11: Component 5 – Continuous Improvement

Item	Question	Response	Comments
5.1	Does the LRST have a formal process to continuously improve their processes and outputs?	Yes / No	
5.2	Does the LRST engage in formal, periodic reviews of the programme to ensure they are improving and maintaining runway safety?	Yes / No	
5.3	Are the results of the continuous improvement programme documented?	Yes / No	

Appendix D

ICAO occurrence categories

D.1 ICAO Runway Safety Accident and Incident Category Definitions

The ICAO Runway Safety Programme – Global Runway Safety Action Plan¹ provides recommended actions for all runway safety stakeholders, with the aim of reducing the global rate of runway excursions and runway incursions. Runway Safety Teams (RSTs) at airports are an effective means to help reduce runway related accidents and incidents.

Runway safety-related events include the following ICAO accident and incident occurrence categories. Wherever possible, accidents and incidents should be considered and reported using the categories below to ensure consistency and ease of data comparison across all LRSTs and aerodromes.

Table 12: ICAO accident and incident occurrence categories

Category	Description
Abnormal Runway Contact (ARC)	Any landing or take-off involving abnormal runway or landing surface contact
Bird Strike (Bird)	A collision / near collision with or ingestion of one or several birds
Ground Collision (GCOL)	Collision while taxiing to or from a runway in use
Ground Handling (RAMP)	Occurrences during (or as a result of) ground handling operations
Runway Excursion (RE)	An event in which an aircraft veers off or overruns 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
Aerodrome (ADRM)	Occurrences involving aerodrome design, service, or functionality issues.

¹ ICAO Runway Safety Programme – Global Runway Safety Action Plan First Edition, November 2017. Retrieved from: https://www.icao.int/safety/RunwaySafety/Documents%20and%20Toolkits/GRSAP_Final_Edition01_2017-11-27.pdf

Appendix E

Best practices Guide for hot spots - Identification, removal and promulgation

Aerodrome movement area 'hot spots' may be locations that, although fully compliant with applicable regulations, are potentially difficult to navigate due to awkward geometry, or are locations where additional awareness is required, such as at runway crossing locations, to ensure safe operations.

E.1 Hot spot identification

One responsibility for the aerodrome operator, with support from the LRST, is runway hot spot identification. Through HIRM processes, the LRST should assist in identifying prevailing hot spots within the aerodrome environment that could lead to runway safety occurrences.

Essentially, the LRST should assist the aerodrome operator with hazard identification and risk assessment processes considering factors like:

- a. aerodrome design
- b. availability of visual aids and their suitability to existing operations
- c. aerodrome/ATC procedures (including standard taxi routes, ATC clearances, and non-standard communication practices prevailing in the aerodrome)
- d. intended aerodrome operating conditions (including low-visibility operations)
- e. human factors, etc.

The HIRM process described above should be reviewed periodically or after any reported event to ensure its continuing validity and ensure the consideration of contemporary aerodrome operating and design practices.

E.2 Hot spot removal

Ideally, the aerodrome operator, with support from the LRST, should endeavour to eliminate hot spots in the airside environment.

However, for those that cannot be eliminated immediately or completely, it has been proven to be advantageous to highlight such locations and spread awareness among key stakeholders such as air traffic controllers, pilots, airside drivers, etc.

Some common strategies to manage hot spots include:

- a. construction of new taxiways
- b. additional visual aids (signage, markings, lights)
- c. use of alternative routings
- d. mitigating against blind spots in the aerodrome control tower
- e. awareness campaigns
- f. publishing the hot spot in the AIP (DAP and ERSA).

E.3 Promulgating hot spots among stakeholders

Some hot spot causal factors may be addressed swiftly but others may take much longer to address, or it may be impracticable to remove them altogether. A new hot spot may occur because of a change to the movement area or an operating procedure.

Aerodrome charts indicating identified hot spots may be developed by aerodrome operators, and if the risks are anticipated to exist for a longer timeline (for instance, beyond one aeronautical information regulation and control (AIRAC) cycle), the aerodrome operators should endeavour to publish the chart in AIP (DAP and ERSA), to ensure wide visibility amongst stakeholders.

Other modalities of disseminating hot spot information to stakeholders include bulletins, safety workshops, periodic safety publications (like safety brochures, journals, etc) and information sharing through multiple forums formulated among aerodrome stakeholders.

Appendix F

Suspension of runway operations or closure of runways

The information in this Appendix should be read in conjunction with the [NOTAM Data Quality Requirements for Aerodrome Operators published](#) by Airservices Australia.

Runway closures may be:

- Permanent:
 - The runway is no longer able to be used for the landing or take-off of aircraft; or
- Temporary:
 - The runway is not able to support the landing or take-off of aircraft for a defined period of time.
 - Reasons for the temporary closure of a runway may include:
 - » Planned aerodrome works – refer section 15.01 of the Part 139 MOS
 - » Emergency aerodrome works
 - » Disabled aircraft
 - » Aerodrome emergency response
 - » The presence of hazards, not otherwise promulgated, which affect air navigation
 - » The presence or removal of significant hazardous conditions due to snow, slush, ice, volcanic ash deposition or water on the movement area.
 - When determining a temporary closure, the aerodrome operator should advise whether the runway is not available for landing or take-off operations, and whether the taxiing of aircraft on or across portions of the closed runway is available for the period the runway is closed.
- Suspension:
 - The landing, take-off or taxiing of aircraft on a runway may be partially or fully suspended for the following reasons:
 - » Inclement Weather:
 - + severe weather conditions such as heavy rain, snow, fog, or strong crosswinds can make it unsafe for aircraft to take off or land.
 - » Aircraft Incidents or Accidents:
 - + the operations may be suspended to ensure the safety of personnel involved in response efforts and to investigate the incident.
 - » FOD on the Runway:
 - + if there is significant debris on the runway, the operations may be temporarily halted until the debris is cleared.
 - » Security Threats:
 - + in the event of a security threat or breach at an airport, runway operations may be suspended as a precautionary measure until the situation is resolved and deemed safe.
 - » ATC Issues:

- + unforeseen circumstances such as technical failures, staffing issues, or airspace congestion can result in the suspension of runway operations. These issues can disrupt the normal flow of air traffic and necessitate a temporary halt to runway activities.
- » Wildlife:
 - + wildlife (birds or animals) on the runway that could result in a safety hazard to aircraft operations are identified and may be in the process of dispersal.
- » Obstacles:
 - + obstacles and objects that may impact the safe operation of aircraft in navigable airspace is identified.

The aerodrome operator is responsible for ensuring the ongoing serviceability of the runway, including determining when the hazard or risk requires the closure of the runway, or suspension of aircraft operations, until the hazard has been removed or otherwise mitigated.

Runway closures or the suspension of runway operations may be implemented for different reasons at aerodromes. However, to ensure runway safety and prevent runway safety occurrences during runway closures or suspension of runway operations, standard operating procedures commensurate with the local environment should be implemented.

Procedures to ensure safe runway closure, should normally cover activities during pre-closure, post-closure and while the runway is closed for operations:

- Pre-closure of Runway(s): If this is a planned activity, a MOWP should be issued not less than 14 days prior to the commencement of work refer².
- A chronological sequence of actions that should be considered and applied when deciding whether or not to suspend operations:
 - where appropriate, notify ATC of a potential suspension of runway operations
 - grant authorised aerodrome personnel to gain access to the runway for assessment purposes following clearance by ATC, if available
 - direct authorised aerodrome personnel to make an initial assessment of the runway condition
 - have the appointed aerodrome representative to decide whether to suspend runway operations
 - communicate decision to ATC, where available
 - promulgate information to pilots, vehicle drivers and other stakeholders using existing communication modes, like Automatic Terminal Information Service (ATIS), radiotelephony, etc.
 - issue a NOTAM concerning the suspension of runway operations (considerations should be given if the aerodrome is not available for diversion flights). Where closure is expected for only a short duration, and when aircraft operations can safely be conducted on other available runways, or the equipment used can be removed, when necessary, a NOTAM may not need to be issued
 - report any reportable occurrences to the Australian Transport Safety Bureau (ATSB) in accordance with *Transport Safety Investigation Regulations 2021*
 - contact the relevant department, maintenance contractor and aircraft operator if relevant, to facilitate remedial works.
- When runway is closed for operations:
 - authority to access runway through ATC, or where ATC is unavailable or not operational, the aerodrome operator
 - any runway access should be restricted to only authorised personnel, or those under direct supervision of the aerodrome operator.

² See section 15.02(3) of Part 139 MOS.

- post-closure and before commencement of aircraft operations on runway(s):
 - A chronological sequence of actions to be considered prior to commencing aircraft operations on runway(s) following suspension or closure:
 - » Complete remedial works (e.g., clearance of FOD, wildlife remains, aeronautical ground lighting repair, removal of disabled aircraft).
 - » Inspect the runway under the authorisation of ATC (where available).
 - » Confirm all vehicles and personnel have vacated the runway and have reported vacated to the relevant authority.
 - » Confirm runway availability to ATC and, if applicable, positive control is returned to ATC.
 - » A cancel the NOTAM (if one published).
 - » Promulgate runway availability using existing communication modes, like ATIS and radiotelephony (if applicable).
 - » Resume normal operations.

Appendix G

Runway safety risk factors and mitigation measures

G.1 General

- G.1.1 This appendix provides detailed guidance on:
- factors that may contribute to runway safety events
 - measures that may assist in mitigating associated risks.
- G.1.2 The information in this appendix is intended to support Local Runway Safety Teams (LRSTs) and aerodrome operators in:
- identifying hazards
 - assessing risks
 - developing mitigation strategies.
- G.1.3 The applicability of specific factors and mitigation measures will depend on:
- aerodrome layout
 - traffic levels
 - operational complexity
 - environmental conditions.

G.2 Runway Incursion

G.2.1 Contributory factors

- G.2.1.1 Runway incursions may arise from one or more of the following factors:
- Operational factors:
 - increasing aircraft or vehicle traffic volume
 - introduction of new or expanded aviation activities
 - use of capacity-enhancing procedures
 - complex or changing runway configurations.
 - Aerodrome design factors:
 - complex aerodrome layout
 - intersecting runways and taxiways
 - inadequate separation between operational areas
 - limited visibility from air traffic control facilities.
 - Infrastructure and visual aids:
 - unclear or inadequate markings
 - insufficient or poorly positioned signage

- ineffective or non-standard lighting
- lack of clearly defined taxi routes.
- Human factors:
 - high workload for pilots or controllers
 - fatigue or distraction
 - reduced situational awareness
 - misunderstanding of clearances.
- Environmental factors:
 - low visibility conditions
 - night operations
 - weather reducing visibility or contrast.

G.2.2 Mitigation measures

G.2.2.1 Mitigation measures to reduce the risk of runway incursions may include:

- Aerodrome design and infrastructure:
 - improving or redesigning taxiway layouts to reduce complexity
 - eliminating or reducing runway crossing points where practicable
 - improving line-of-sight from air traffic control towers
 - installing stop bars or other advanced lighting systems.
- Markings, signage and lighting:
 - ensuring compliance with standards for markings, signage and lighting
 - improving clarity, visibility and consistency of visual aids
 - removing redundant or confusing markings.
- Operational procedures:
 - establishing standard taxi routes
 - implementing procedures for low visibility operations
 - ensuring changes to infrastructure or procedures are subject to safety assessment.
- Vehicle and personnel control:
 - implementing airside vehicle control systems
 - driver training and permit schemes
 - access control to movement areas.
- Monitoring and review:
 - regular review of runway safety performance
 - periodic reassessment of mitigation effectiveness
 - use of LRST to identify and address emerging issues.
- Hot spot management:
 - identifying and assessing runway hot spots
 - publishing hot spot information where appropriate

- conducting awareness activities for stakeholders.

G.3 Runway excursion

G.3.1 Contributory factors

G.3.1.1 Runway excursions may be influenced by:

- Aircraft and operational factors:
 - non-stabilised approaches
 - incorrect speed or configuration
 - aircraft performance limitations.
- Human factors:
 - pilot decision-making
 - workload and time pressure
 - situational awareness.
- Aerodrome infrastructure:
 - inadequate or unclear visual aids
 - insufficient runway length or safety areas
 - inappropriate runway markings.
- Runway surface conditions:
 - poor surface condition
 - low friction levels
 - contamination (water, rubber, debris).
- Environmental factors:
 - adverse weather (rain, wind, reduced visibility)
 - crosswinds or gusting winds.

G.3.2 Mitigation measures

G.3.2.1 Mitigation measures may include:

- Runway condition management:
 - maintaining runway surfaces to required friction levels
 - timely removal of rubber deposits and contaminants
 - monitoring runway condition and surface performance.
- Visual aids and markings:
 - ensuring suitable and clearly visible runway markings
 - maintaining lighting systems and approach aids
 - providing runway distance indicators where appropriate.
- Operational information:
 - ensuring accurate publication of runway data

- providing timely weather information to pilots
 - ensuring declared distances are correct.
- Aerodrome procedures:
 - managing intersection departures
 - implementing procedures during aerodrome works
 - ensuring safe operations under reduced declared distances.
- Planning and coordination:
 - scheduling works during low traffic periods
 - minimising distractions during runway operations
 - ensuring effective coordination between stakeholders.

G.4 Runway confusion

G.4.1 Contributory factors

G.4.1.1 Runway confusion may result from:

- Aerodrome layout:
 - parallel or closely spaced runways
 - taxiways that resemble runways
 - complex geometry.
- Environmental conditions:
 - night operations
 - low visibility
 - adverse weather.
- Visual aids:
 - inadequate signage or markings
 - poor lighting
 - confusing or overlapping visual cues.
- Operational factors:
 - intersection departures
 - use of runways as taxi routes
 - work in progress (WIP).
- Human factors:
 - communication errors
 - pilot workload
 - time pressure.

G.4.2 Mitigation measures

G.4.2.1 Mitigation measures may include:

- Visual improvements
 - installation or enhancement of signage, markings and lighting
 - use of stop bars or enhanced visual aids
 - removing redundant or misleading markings.
- Aerodrome layout adjustments:
 - modifying taxiway connections
 - simplifying routes where practicable
 - closing high-risk access points.
- Operational controls:
 - restricting or managing intersection departures
 - improving procedural clarity
 - controlling routing during complex operations.
- Hot spot identification:
 - identifying areas where confusion risk exists
 - highlighting these areas through charts and publications
 - conducting stakeholder awareness activities.
- Human factors considerations:
 - incorporating human factors into risk assessments
 - improving communication practices
 - considering pilot workload and operational pressures.

G.5 Use of this Appendix

G.5.1 This appendix should be used by aerodrome operators and LRSTs to:

- support hazard identification processes
- inform risk assessments
- develop mitigation measures appropriate to local conditions.

G.5.2 Not all factors or mitigation measures will apply to every aerodrome. Operators should apply this guidance in a manner that reflects their:

- operational environment
- level of complexity
- specific risk profile.

Appendix H

AC cross reference matrix

The AC cross reference matrix intends to provide readers with detail on the system function, the Part 139 MOS reference and the role the system function has in this AC. The matrix identifies which AC the reader should refer to, and the output or the evidence expected out of cross referencing.

The purpose of the cross reference matrix is to reduce content in this AC and provide advice on other guidance material that contains the same or similar information.

Table 13 - Advisory circular cross reference matrix

System function	MOS reference	AC 139.C-22 role	Supporting CASA AC	Evidence/output
Hazard Identification (Runway Operations)	MOS 25.01 MOS 26.01	Coordinate identification of runway hazards and operational risks	AC 139.C-10 AC 139.C-11	Hazard logs; risk registers; runway safety reports
Runway Incursion Prevention	MOS 139.255	Analyse and mitigate incursions and excursions	AC 139.C-14	Incursion trend analysis; mitigation action plans
Movement Area Vehicle Risk	MOS 139.360	Oversee vehicle/runway interface risks	AC 139.C-14	Driving breach data; hot spot mapping; compliance audits
Works Safety Integration	MOS 139.365	Assess safety impacts of works on or near runway	AC 139.C-15	Works risk assessments; method of works approval; RST review records
Runway Condition and Serviceability	MOS 139.235	Review runway condition reporting and degradation trends	AC 139.C-05 AC 139.C-04	NOTAM trend reports; inspection findings; defect closure records
Occurrence and Event Review	MOS 139.155	Analyse runway-related incidents and occurrences	AC 139.C-18	Incident investigation summaries; corrective actions
Wildlife Hazard Interface	MOS 139.200	Monitor wildlife hazards impacting runway safety	AC 139.C-16	Strike reports; wildlife hazard assessments
Aerodrome-ATC Coordination - DARP	MOS 139	Facilitate coordination between aerodrome operator and ATC	AC 139.C-20	Joint meeting records; action tracking; coordination procedures
Communication and Procedures	MOS 139.070	Ensure effective communication for runway operations	Multi-Part AC 64.B-1, 139-14, and 172-04	Radio phraseology audits; communication procedures
Human Factors and Competency	MOS 139.090	Identify human performance risks	AC 139.C-02	Training records; human factors analysis; competency assessments

System function	MOS reference	AC 139.C-22 role	Supporting CASA AC	Evidence/output
		contributing to runway safety events		
Apron–Taxiway Interface Risks	MOS 139.300	Address risks transitioning between apron and manoeuvring area	AC 139.C-13	Safety reports; interface risk controls; signage/marketing reviews
Data Analysis and Trend Monitoring	MOS 139 SMS	Conduct trend analysis across multiple safety data sources	AC 139.C-01 AC 139.C-18	Safety performance indicators (SPIs); dashboards; trend reports
Runway Safety Action Planning	MOS 139 SMS	Develop and monitor runway safety improvement plans	AC 139.C-01	Runway Safety Action Plan (RSAP); action tracking register
Change Management (Operational)	MOS 139 SMS	Review changes affecting runway operations	AC 139.C-06	Change risk assessments; RST review outcomes
Emergency Preparedness Interface	MOS 139.170	Ensure runway risks considered in emergency planning	AC 139.C-18	Exercise reports; lessons learned
Performance Reporting	MOS 139 SMS	Report runway safety performance to accountable manager	AC 139.C-01	Annual runway safety report; executive briefings