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ADVISORY CIRCULAR AC 139.C-13 v2.0

Apron safety management

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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 owners/operators
- aircraft owners/operators
- air traffic service providers
- persons involved in the design, construction, and operation of aerodrome aprons
- consultants engaged to act on behalf of the aerodrome owner/operator
- the Civil Aviation Safety Authority (CASA).

Purpose

The purpose of this AC is to provide guidance to aerodrome operators in effective apron safety management. Aerodrome operators should use the guidance offered in this circular to inform their decision-making process in meeting the requirements of the Part 139 of the *Civil Aviation Safety Regulations 1998*, and Part 139 Manual of Standards (MOS).

The AC identifies matters that operators could consider to achieve compliance and, on some topics, suggests solutions that operators may decide are suitable in particular cases. Operators should at all times consider the context of their own current and future operational environment, and the operational needs of pilots, aircraft operators and associated stakeholders, including but not limited to size and complexity of the aerodrome.

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	• Improved guidance on aerodrome operator responsibilities and apron governance arrangements. • Improved and expanded operational guidance for apron activities. • Strengthened guidance on hazard management and risk controls, including SMS/RMP integration. • Enhanced guidance for key apron systems, equipment, and procedures. • Improved clarity, structure, and consistency across the document. • New Appendix A - Marshalling services. • New Appendix B - Leader van (follow-me) services. • New Appendix C - Passenger boarding bridges. • New Appendix D - Aircraft pushback operations. • New Appendix E - AC cross referencing. • New CASA style template applied.
v1.0	June 2023	Initial AC.

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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
AIP	Aeronautical Information Publication
ATC	air traffic control
ATS	air traffic 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
GSE	ground service equipment
PBB	passenger boarding bridge
RMP	risk management plan
SMS	<i>Safety Management System</i>
SOP	standard operating procedures
VDGS	visual docking guidance system
(A)-VDGS	advanced visual docking guidance system
LVP	low visibility procedure

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.

Term	Definition
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 traffic density	the number of aircraft movements in the mean busy hour, in 1 of the following categories: - light — not greater than 15 movements per runway, or typically less than 20 total aerodrome movements - medium — 16 to 25 movements per runway, or typically between 20 to 35 total aerodrome movements - heavy — 26 or more movements per runway, or typically more than 35 aerodrome movements.
aircraft parking position	means an open-air designated area on an apron for parking an aircraft. Note 1 An aircraft parking position is also known as an aircraft stand. Note 2 An aircraft parking position does not include any area that is within a fully or partially enclosed aircraft hangar. Note 3 An area designated on an apron as being available for the parking of aircraft is considered to be an aircraft parking position.
apron	means a defined area on a land aerodrome to accommodate aircraft for the purposes of loading or unloading passengers, mail or cargo, fuelling, parking, or maintenance.
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.
air traffic service	means a service of a kind mentioned in Annex 11, Air Traffic Services, to the Chicago Convention, other than a certified air/ground radio service (within the meaning of regulation 139.390) at an aerodrome
apron management unit	The unit established by the aerodrome operator to provide an apron management service (or equivalent organisational arrangement) and which holds responsibility for managing and coordinating the apron activities, including the allocation of parking stands, the provision of ground support equipment and services, and ensuring the safe and efficient movement of aircraft on the apron. The apron management service liaises with air traffic control and other airport stakeholders to ensure the seamless operation of the apron. Note: ICAO documentation (Doc 9981) refers to an “apron management service”. The organisational structure implementing this function (e.g. unit, team or delegated provider) may vary.
FOD	means foreign object debris, which may result in foreign object damage to an aircraft.

Term	Definition
low-visibility procedure (LVP)	means a procedure applied at an aerodrome for protecting aircraft operations during conditions of reduced visibility or low cloud.
manoeuvring area	means that part of the aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.
marking	means a symbol or group of symbols displayed on the surface of the movement area of an aerodrome to convey surface movement, or aeronautical, information.
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.
scheduled air transport operation	means an air transport operation, other than a medical transport operation, that is conducted: - in accordance with fixed schedules to and from fixed terminals over specific routes with or without intermediate stopping places between terminals; and - in circumstances in which the accommodation in the aircraft is available for use by persons generally.
scheduled domestic air transport operation	means an air transport operation conducted in Australia in accordance with a published schedule.
scheduled international air transport operation	means an international air transport operation conducted in accordance with a published schedule.
sealed	for a surface, means that the surface is wholly, or preponderantly, sealed with a surface treatment which may include bitumen, asphalt, concrete or another suitable treatment.
SMS	means safety management system, and includes the statements and documents mentioned in Chapter 25 (of the Part 139 MOS) that describe and support the system.
taxiway (TWY)	means a defined path on an aerodrome on land, established for the taxiing of aircraft from 1 part of an aerodrome to another. A taxiway includes a taxilane, an apron taxiway and a rapid exit taxiway.

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 139-10	Guidelines for vertical flight facilities at aerodromes designed aeroplanes
AC 139.C-01	Aerodrome manual
AC 139.C-02	Aerodrome personnel
AC 139.C-03	Serviceability inspections
AC 139.C-04	Aerodrome technical inspections and aerodrome manual validations
AC 139.C-05	Aeronautical information reporting validation
AC 139.C-09	Visual aids, markings, signals and signs
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
AC 139.A-03	Application of aerodrome standards

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
International Civil Aviation Organization (ICAO) Annex 14	Aerodromes, Vol I (Aerodrome Design and Operations)
ICAO Doc 9157	Aerodrome Design Manual Part 2 — Taxiways, Aprons and Holding Bays
ICAO Doc 9981	PANS-Aerodromes

2 Introduction

2.1 Background

- 2.1.1 An aerodrome apron is an essential facility supporting aircraft parking and operational arrangements. Aprons are designed to support aircraft of varying sizes, weights and capacities, often accommodating multiple aircraft types in adjacent bays.
- 2.1.2 An apron surface may be a natural surface, grass, asphalt or concrete depending on the size and weight of the aircraft which the apron will serve. Apron surfaces vary according to the aircraft types and loading for which they are designed.
- 2.1.3 Apron incidents can affect safety, operational efficiency, aerodrome performance and organisational reputation. Incidents can impact the health and safety of personnel operating on the apron. Effective apron safety management promotes a positive working environment, reduces injuries and incidents, and contributes to commercial outcomes
- 2.1.4 The International Civil Aviation Organization (ICAO) defines apron types to include:

- Passenger terminal apron
- Cargo terminal apron
- Remote parking apron
- Service and hangar aprons
- General aviation aprons
- Itinerant aircraft aprons
- Base aircraft aprons or tiedowns.

An apron may be one of more of the above apron types.

2.1.5 Operational Complexity of Apron Operations

- 2.1.5.1 Apron operations may become increasingly complex when multiple aircraft, vehicles and personnel operate concurrently within the same area. Factors contributing to operational complexity may include:

- aircraft size and performance variations
- simultaneous passenger, cargo and international operations
- the use of specialised ground servicing equipment (GSE)
- aircraft turnaround activities occurring in adjacent bays
- aircraft towing and relocation activities
- declared emergency situations.

As operational complexity increases, the likelihood of aircraft, vehicle and personnel conflicts may also increase unless appropriate controls are implemented.

- 2.1.5.2 At aerodromes with air traffic services (ATS), peak traffic periods may increase workload and risk, requiring appropriate hazard identification and controls. Peak period traffic movement, even if just for short time spans, may place additional demands on airlines and ground handlers adding to the intensity and likelihood of accidents/incidents occurring. It is therefore critical for aerodrome operators to gauge the level of operational intensity each apron may experience and appropriately analyse potential sources of hazards and risks and how to safely manage them.

2.1.6 Responsibility for Apron Operations

2.1.6.1 Unless specifically designated, air traffic control services do not exercise control over apron operations.

2.1.6.2 Responsibility for apron activities, including aircraft parking and ground movements on aprons, remains with:

- the aerodrome operator
- or
- a designated apron management service.

2.1.7 Roles and responsibilities should be clearly defined within local procedures and communicated to all relevant stakeholders.

2.1.8 Managing Apron Risks

2.1.8.1 Effective apron safety management relies on the systematic identification and control of hazards. Aerodrome operators should:

- identify apron hazards
- assess the associated risks
- implement appropriate controls
- monitor control effectiveness
- review and update controls when operational changes occur.

2.1.8.2 Controls should be proportionate to the complexity of operations and should not introduce unintended safety consequences. Hazards and risks can impact both aviation safety and worker health and safety equally. This AC focuses on aviation safety.

2.1.9 Managing Apron Risks through SMS/RMP

2.1.9.1 Aerodrome operators should manage apron risks through their Safety Management System (SMS) or Risk Management Plan (RMP), ensuring controls are proportionate to operational complexity and do not introduce unintended consequences. Applying the SMS/RMP will assist in reducing risks, and ensure risk tolerance is carefully considered, mitigation responsibility is appropriately assigned and suitably implemented.

2.1.9.2 The extent and complexity of apron management arrangements should be proportionate to the size, traffic density and operational complexity of the aerodrome. Simpler aerodromes may implement minimal procedural controls, whereas larger or more complex aerodromes may require a structured apron management service integrating multiple functions.

2.1.10 Purpose of this Advisory Circular

2.1.10.1 Chapter 11 of Part 139 MOS provides baseline requirements, with this AC offering additional guidance for apron environments. For larger, more complex aerodrome apron environments, this AC intends to provide additional guidance and information for aerodrome operators to consider on how to set up apron management suitable for their site-specific operation.

2.1.11 Objectives of Apron Management Services

2.1.11.1 Apron management services and procedures should:

- prevent or reduce the risk of collisions between aircraft, vehicles, and/or obstacles

- facilitate safe and efficient entry and egress of aircraft on the apron as published in the Aeronautical Information Publication (AIP), or in accordance with local procedures
- ensure safe appropriate staging and usage of vehicles and equipment on aprons, apron edge taxiways, taxi lanes and apron service roads.

2.1.12 Shared Responsibility for Apron Safety

- 2.1.12.1 Aerodrome operators hold the primary responsibility for establishing, implementing and assuring compliance with apron safety management procedures however, apron safety is a shared operational responsibility of all parties present on the apron and, in the case of ATC, assisting safe operations through pushback and taxi clearances. All stakeholders should prepare and follow appropriate safety management processes.

2.1.13 Apron safety framework

- 2.1.13.1 An apron safety framework should be developed and maintained using input from apron users and stakeholders. Apron Operating Procedures (AOPs) and safety instructions/information should be provided by the aerodrome operator to all users.

3 Apron management

- 3.1 Effective apron management supports the safe and efficient movement of aircraft, vehicles, equipment and personnel within the apron environment. Depending on the size and complexity of the aerodrome, apron management arrangements may range from simple documented procedures through to a dedicated apron management service.
- 3.2 This chapter provides guidance on key apron management functions, including aircraft parking control, stand guidance systems, vehicle movements, cleanliness, operational discipline and information management. Aerodrome operators should implement arrangements that are proportionate to the risks and complexity of their operation.

3.3 Apron management responsibilities

- 3.3.1 The aerodrome operator should establish, document and oversee the arrangements necessary to support safe apron operations. These arrangements should clearly define permitted activities, responsibilities and communication pathways between organisations operating on the apron.
- 3.3.2 Aerodrome operators should:
- define activities permitted on each apron
 - establish procedures for apron operations
 - coordinate with ATC and other stakeholders where applicable
 - monitor compliance with established procedures
 - ensure delegated functions remain subject to oversight.
- 3.3.3 At controlled aerodromes, if air traffic control services do not engage in apron management services, processes should be established to ensure all aircraft and vehicles entering, exiting and operating on the apron are appropriately risk assessed.

3.4 Aircraft parking control

- 3.4.1 Aircraft parking control forms part of an apron management service or equivalent system. Parking control supports the safe allocation and use of aircraft parking positions and helps ensure appropriate separation between aircraft, vehicles, equipment and infrastructure.
- 3.4.2 Where established, aircraft parking control procedures must include procedures as prescribed in Section 11.15 (2) of the Part 139 MOS. This includes:
- liaison between ATC and the individuals or positions responsible for apron management
 - procedures for allocating aircraft parking positions
 - initiating engine start and ensuring clearances for aircraft pushback
 - identifying and using the aerodrome Visual Docking Guidance Systems (VDGSs), including any Advanced Visual Docking Guidance Systems (A-VDGSs)
 - marshalling services
 - leader (“van”) service or follow-me service
 - identifying:
 - the names and roles of the individuals responsible for planning and implementing aircraft parking control
 - the telephone numbers for contacting the relevant individuals during and after normal working hours.

- 3.4.3 The fundamental principles in aircraft parking control should be:
- ensuring sufficient clearance between an aircraft and objects such as other aircraft, buildings, equipment, vehicles and other structures
 - assigning aircraft parking positions that are appropriate for the size, weight and operation of the aircraft
 - providing staging areas and unobstructed access for GSE and operations to facilitate safe aircraft loading and unloading, including areas for refuelling vehicles and equipment.
- 3.4.4 Chapter 6 of the Part 139 MOS provides specifications for the minimum separation distances between aircraft and objects on the apron. To provide the required separation distance around an aircraft, the aerodrome operator needs to consider the aircraft code letter(s), and any unique aircraft parking position characteristic (i.e., multiple passenger door locations requiring multiple passenger boarding bridges to operate simultaneously, for example an A380, or alternative door arrangements) when allocating suitable or airline preferred parking positions.
- 3.4.5 Special consideration should be given by aerodrome and aircraft operators for aerodromes that will service aircraft with folding wings, such as the Boeing 777X. With its wingtips extended the aircraft is a Code F but with the wingtips folded it is a Code E consistent with other Boeing 777 models. Therefore, apron and taxiway separation distances need to be carefully considered for all operations on the movement area and the areas where wingtips will be extended or folded should be clearly identified on aerodrome and apron charts.
- 3.4.6 Aerodrome operators should ensure:
- parking positions are suitable for aircraft pavement loading characteristics
 - aircraft do not exceed the pavement load-bearing design characteristics of the apron
 - surfaces and pavement are maintained to avoid any risk of damage to aircraft or the apron surface.

3.4.7 Aircraft parking considerations

- 3.4.7.1 When allocating aircraft parking positions, the aerodrome operator should consider:
- aircraft dimensions and code letter
 - aircraft weight and pavement limitations
 - passenger boarding bridge requirements
 - jet blast and propeller wash impacts
 - adjacent aircraft operations
 - access requirements for GSE
 - non-routine or oversized aircraft operations.

3.4.8 Contingency planning

- 3.4.8.1 Aerodrome operators should establish procedures for aircraft that cannot be accommodated using normal stand allocation arrangements. This may include:
- alternate parking positions
 - power-in/power-out operations
 - aircraft diversions
 - oversized aircraft operations.

3.4.9 Special aircraft considerations

- 3.4.9.1 When an apron includes power-in, power-out parking positions, minimum separation distances may be increased to take account of wingtip clearance and jet blast or propeller wash. The apron plan should precisely identify parking positions that allow power-in/power-out operations. The types and variants of aircraft that power-in/power-out parking positions can accommodate should also be included.
- 3.4.9.2 Aircraft parking position classifications and designations should be included in an apron plan for the aerodrome. Information about aircraft parking position classification and designations should be accurately maintained to ensure the most current information is available and supplied to aircraft and ground service operators. This information should be made available by the aerodrome operator in a timely manner.
- 3.4.9.3 Apron configuration may be designed with flexibility to accommodate additional/various aircraft types like the MARS (multi-aircraft ramp system) parking positions. The apron plan should identify such positions distinctly and include the combination of aircraft types and variants permitted to operate safely within the apron configuration.
- 3.4.9.4 Access, egress and staging positions for GSE, refuelling equipment and other vehicles at aircraft parking positions should also be considered as part of aircraft parking position design and allocation process. This will ensure a faster turnaround for ground handling services and minimise the movement of vehicle traffic across the apron.
- 3.4.9.5 Where rotorcraft and other forms of vertical flight aircraft are permitted to use the same apron as fixed wing aircraft, the aerodrome operator should consider the impact and risks associated with downwash/ outwash, other than those rotor craft using wheels to traverse the apron.¹
- 3.4.9.6 Once a parking position has been allocated, the aircraft must be guided safely onto the stand. Depending on local arrangements, this may be achieved through a visual docking guidance system, marshalling service or follow-me service.

3.5 VDGS operations

- 3.5.1 A VDGS or an A-VDGS may be provided where required by the MOS, or as determined through safety and operational risk assessment at an apron aircraft parking position equipped with a PBB, which requires precise positioning of an aircraft:
- Section 9.117 of the Part 139 MOS - Visual docking guidance systems
 - Section 9.118 of the Part 139 MOS - Characteristics of visual docking guidance systems
 - Section 9.123 of the Part 139 MOS - Advanced visual docking guidance systems
 - Section 9.124 of the Part 139 MOS - Characteristics of advanced visual docking guidance systems.
- 3.5.2 Section 9.117 of the Part 139 MOS provides guidance on the use of A-VDGS with aircraft parking positions at international aerodromes used for air transport operations and which are equipped with passenger loading bridges.
- 3.5.3 Most VDGS or A-VDGS systems are owned and may be operated by the aerodrome operator, airline personnel or ground handling agents and provide the pilot in command with visual aids such as guidance and stopping position indicators.
- 3.5.4 A VDGS or A-VDGS system can be controlled from a PBB or other location based on the system design for a specific aerodrome.

¹ Refer to AC 139-10 Guidelines for vertical flight facilities at aerodromes designed for aeroplanes

3.5.5 Recommended practices

- 3.5.5.1 The responsible organisation should ensure:
- personnel are trained in system operation
 - aircraft type information is entered correctly
 - faults are reported promptly
 - inspections are conducted at appropriate intervals
 - inspection records are retained.

3.5.6 Contingency arrangements

- 3.5.6.1 Where a VDGS or A-VDGS becomes unserviceable:
- declare the system unavailable
 - notify affected stakeholders
 - implement alternative stand guidance arrangements
 - confirm serviceability before returning the system to service.
- 3.5.7 Information on VDGS/A-VDGS availability is to be published as required by Chapter 5 of the Part 139 MOS and Part 175 Data Quality Requirements - Aeronautical Data Originators as published by Airservices.
- 3.5.8 VDGS may be provided for primary, secondary or both primary and secondary aircraft parking positions. Guidance may be provided by a single VDGS unit, or multiple VDGS units. Where multiple units are used to guide aircraft on overlapping (primary/secondary) aircraft parking positions, controls should be introduced to interlock the operation of VDGS on those overlapping parking positions.
- 3.5.9 Where automated stand guidance systems are unavailable, unserviceable or unsuitable for a particular operation, alternative methods of aircraft guidance may be required. Where a VDGS/A-VDGS system is declared unserviceable, standard operating procedures (SOP) should be developed to provide contingency arrangements, such as the provision of marshalling services as per local arrangements.

3.6 Marshalling

3.6.1 Provision of marshalling services

- 3.6.1.1 Marshalling provides aircraft guidance where automated systems are unavailable or additional control is required and/or it is requested by the pilot.
- 3.6.1.2 Marshalling services should be provided where guidance is required to ensure safe parking or dispatch of aircraft, particularly when the aircraft moves under its own power into an aircraft parking position, to avoid apron obstacles.
- 3.6.1.3 For parking positions where a marshalling service is provided, marshaller stop lines need to be provided.²

3.6.2 Operational considerations

- 3.6.2.1 Arrangements to provide marshalling services can vary by aerodrome. An aircraft operator may:

² Refer Section 8.63(1) of the Part 139 MOS

- use their own personnel
 - contract with a ground service provider
- or
- engage with the aerodrome operator to provide marshalling services.

- 3.6.2.2 An aerodrome operator should recommend the organisation offering marshalling services demonstrate a comprehensive standard operating procedure (SOP) that ensures the services will be in accordance with international best practices (see ICAO Annex 2 - Rules of the Air (Appendix 1, Section 5)). Further information on SOP for marshalling is included in Appendix A to this AC.
- 3.6.2.3 An aerodrome operator may, in association with marshalling service providers, devise and promulgate a procedure to request and offer marshalling services or decline to offer marshalling arrangements. The aerodrome operator may publish aircraft marshalling arrangements in the AIP.

3.7 Follow-me service (leader vehicle)

3.7.1 Follow-me service arrangements

- 3.7.1.1 Follow-me services may be available to both aircraft and other vehicles, upon request and when various other circumstances occur. Generally, follow-me services are provided by the aerodrome operator.
- 3.7.1.2 The follow-me service provider should have SOPs for follow-me services at the aerodrome. Such procedures are required by Section 11.15 of the Part 139 MOS. Further information on SOPs for Leader van (follow-me) services is in Appendix B of this AC.
- 3.7.1.3 Consideration should be given to the importance of providing follow-me services' roles during emergency operations both on, and in the surrounding vicinity of an aerodrome. Vehicles, safety equipment and personnel should accordingly be made available and rostered to provide a follow-me service during aerodrome operating hours.

3.8 Operation of passenger boarding bridges (aerobridges)

3.8.1 Operational considerations

- 3.8.1.1 Passenger boarding bridges (PBB) also known as air bridges, passenger loading bridges, aerobridges, or Jetways facilitate safe, secure, and efficient transfer of passengers between an aircraft via the terminal building. Parking positions that have these facilities are sometimes referred as contact stands.
- 3.8.1.2 PBB operation requires controlled movement, awareness of aircraft proximity and adherence to SOPs. PBB operators should exercise caution during operation. The design, functions and limitations of PBBs may vary according to manufacturers, airport environment and the aircraft types they serve.
- 3.8.1.3 Due to the nature of PBB operations, their structure, proximity to aircraft and frequent usage during day-to-day operations, PBB operations require SOP to be established and followed, and continuously monitored to achieve best practice.

3.8.2 Responsibilities

- 3.8.2.1 Although a PBB facility is owned by the aerodrome operator, its day-to-day operation may be performed by in-house staff, airline staff or contracted to a third-party. However, the overall responsibility for PBB operations is with the aerodrome operator.

3.8.3 Standard operating procedures

- 3.8.3.1 A PBB SOP should be developed by the aerodrome operator in consultation with all stakeholders and factor in all identified and potential hazards. Further information on SOPs for the operation of PBB are in Appendix C of this AC.
- 3.8.3.2 After an aircraft has been parked, serviced and prepared for departure, apron management arrangements should also ensure aircraft can be repositioned and depart safely.

3.9 Aircraft pushbacks

3.9.1 Pushback arrangements

- 3.9.1.1 An aircraft pushback is the movement of an aircraft from a nose-in parking position using an external source such as a specialised ground vehicle typically attached to the aircraft nosewheel to push the aircraft in a backwards movement. Aircraft pushback is a required procedure at the commencement of the departure phase of a flight, unless the parking position is designed and approved for power-in, power-out operations or power-back operations.
- 3.9.1.2 As aircraft pushback operations involve complex manoeuvring on the apron, they may increase the risk of damage to aircraft, buildings and/or other structures or injuries to persons on the apron. To mitigate the risks of pushback operations, standardised procedures should be developed and promulgated among stakeholders based on the safety risk assessments conducted by the aerodrome operator, aircraft operator and ground handling organisations.

3.9.2 Development of procedures

- 3.9.2.1 Pushback procedures should address:
- aircraft and vehicle clearance distances
 - communication methods
 - conflict management, including ATC
 - monitoring of wingtip clearance
 - emergency stop arrangements
 - low-visibility operations where applicable.
- 3.9.2.2 An aerodrome operator may establish procedures for pushback operations at the aerodrome. However, this may also be developed by the aircraft operator or the ground handling organisation or in conjunction with all parties. Further information on SOP for aircraft pushback services in Appendix D of this AC.

3.9.3 Oversight responsibilities

- 3.9.3.1 When developed by the aircraft operator or ground handler, the aerodrome operator should ensure the procedures adequately address identified risks and take into account proposed mitigations at the aerodrome. The aerodrome operator should perform ongoing reviews to ensure continued compliance with such procedures.

- 3.9.3.2 Aircraft movements associated with arrival, parking, pushback and departure can generate propulsion effects that present hazards to personnel, vehicles, equipment and adjacent aircraft.

3.10 Aircraft propulsion blast and wash - safeguarding measures

3.10.1 Hazards of propulsion blast and wash

- 3.10.1.1 Jet blast, propeller wash and downwash from aircraft propulsion systems can cause damage to vehicles, buildings, equipment, other aircraft, and/or cause injury to persons. These considerations should be consistent with separation and safety requirements defined in MOS Chapter 6.
- 3.10.1.2 Aerodrome operators should design the movement area including the apron taking into consideration the jet blast or propeller wash velocities as prescribed in Sections 6.63 and 6.64 of the Part 139 MOS.
- 3.10.1.3 To ensure the safety of all apron users, aerodrome operators should ensure awareness among all users about the hazards arising from aircraft propulsion systems and the necessary precautions to be followed. This may be contained in procedures, provided during induction programs, included in role specific training and education programs, included in regular safety committee meetings, safety briefings and/or a mixture of all of these.

3.10.2 Recommended controls

- 3.10.2.1 Some of the precautions that can be implemented are:
- Ground vehicles and wheeled equipment should be secured (brakes applied) to minimise the risk of equipment movement when subjected to jet blast.
 - Aircraft on adjacent aircraft parking positions should be chocked to prevent jet blast impacts.
 - Ensure the apron is free from FOD, as debris moved by jet blast and propeller wash can potentially become more hazardous and cause additional and/or more significant damage.
 - Assigning and using dedicated parking positions that reduce the exposure of ground vehicles, equipment and airport infrastructure to jet blast or propeller wash.
 - Installation of blast fences where appropriate or identified necessary as per the local aerodrome hazard identification process.
 - Periodic awareness programs and workshops to emphasise risks and safety precautions around jet blast and propeller wash.
- 3.10.2.2 Where passengers are required to walk on the apron to embark or disembark an aircraft, care should be taken to prevent jet blast and propeller wash caused by adjacent aircraft operations impinging on persons. The responsibility for passenger safety rests with aircraft operator or its ground handling agent.
- 3.10.2.3 Where possible, scheduling of aircraft movements should include consideration of passenger movements on an apron or on adjacent aircraft parking positions when aircraft arrival or departure is concurrent.

3.10.3 Passenger considerations

- 3.10.3.1 Where helicopters and other vertical take-off and landing aircraft may operate near passengers and other people on an apron, the impact of downwash and outwash should be considered. Refer to AC 139-10 Guidelines for vertical flight facilities at aerodromes designed for aeroplanes for further information.

- 3.10.3.2 Procedures to ensure safe passenger movements should be established in line with aerodrome safety requirements and be monitored and reviewed.
- 3.10.3.3 Maximum permitted blast and wash velocity is outlined in Section 6.64 of the Part 139 MOS. Prevailing wind conditions, physical infrastructure and aircraft specific characteristics should be considered when designing aircraft parking position arrangements, developing apron arrival and departure schedules, and when changes to apron infrastructure are being proposed.

3.11 Ground vehicle movements

- 3.11.1 An aerodrome operator, when establishing procedures to control ground vehicle operations on or near the movement area, should include or link the procedures to the aerodrome manual as prescribed in Section 11.14 of the Part 139 MOS and as outlined in [AC 139.C-01 - Aerodrome manual](#).
- 3.11.2 The following aspects should be included in such procedures:
- traffic movement (including speed limits), driver/operator error and enforcing traffic rules
 - establishing a method of instructing and testing drivers in relation to traffic rules, including retesting every two years (or sooner).
- 3.11.3 [AC 139.C-14 - Airside vehicle control](#) provides more comprehensive guidance material that explains the steps involved in managing risks associated with ground vehicle operations in an airside environment, including aprons, airside roads and the movement area.
- 3.11.4 Aerodrome operators should ensure procedures are established, documented and communicated to ensure airside ground vehicles give way to emergency vehicles, taxiing aircraft, aircraft about to taxi, being pushed back or towed in accordance with ICAO Annex 14 Volume I – Aerodromes paragraph 9.5.6 a. These procedures should be documented in the aerodrome manual.

3.12 Apron cleanliness

3.12.1 Apron cleaning

- 3.12.1.1 Apron cleanliness and Foreign Object Debris (FOD) management should be integrated with aerodrome serviceability inspection requirements under Chapter 12 of the Part 139 MOS. Paved apron surfaces need to be maintained clean and free from FOD to prevent damage to aircraft, as prescribed in Chapter 18 of the Part 139 MOS.
- 3.12.1.2 Apron cleanliness arrangements should include processes for the identification, prompt removal, and appropriate escalation of foreign object debris hazards, particularly where debris presents an immediate risk to aircraft operations.
- 3.12.1.3 The aerodrome operator is responsible for ensuring apron cleanliness in accordance with the MOS, supported by all operators and personnel using the apron through established procedures. Every person working in an airside environment, irrespective of role, should comply with established procedures to report or remove FOD.
- 3.12.1.4 Apron cleaning considerations:
- scheduled and reactive cleaning plans, including consideration of high-risk areas
 - an apron cleaning plan that provides special consideration for areas adjacent to construction sites where the potential for waste generation is high and could create significant FOD hazards to apron operations
 - determining whether dedicated sweeping machines for large apron areas with multiple movements. Consideration may be given to installing magnetic bars to collect metallic objects, amongst other features

- specific procedures should be developed to handle fuel, oil and hydraulic spillages. Such procedures should include reporting spillage, spill kit availability, chemical agents/solutions available for cleaning (including how to use these safely), machinery to be deployed, and emergency services contact details etc.
- apron cleaning services may be provided by the aerodrome operator or through third-party contractors. Apron cleaning personnel should operate according to SOP for standard and exceptional (hazardous) operations
- information on apron drainage configuration should be available and intended to ensure spills and hazardous materials cannot leave the apron area or accumulate near the terminal building as described in Section 6.60 (6) and (7) of the Part 139 MOS.

3.12.2 Foreign object debris management

- 3.12.2.1 FOD presents multiple hazards to apron operations. It can be generated from various sources both on the apron and from the surrounding area. Due to the unpredictable nature of FOD contaminating an apron, monitoring and management is the responsibility of every person accessing an airside environment.
- 3.12.2.2 All personnel with access to the apron should be trained in FOD practices, educated on the risks posed by FOD, and made aware of local procedures as a first step in FOD management. Training material and documentation should be available from the aerodrome operator or organisation responsible for any person required to perform FOD management.
- 3.12.2.3 Other measures that substantially add value to FOD management are:
- placing FOD bins at strategic (visible) locations across the apron
 - communicating the presence and purpose of FOD bins
 - not allowing FOD bins to be filled beyond capacity
 - periodic emptying and cleaning of FOD bins.
- 3.12.2.4 Aerodrome operator, airline and ground service staff on the apron should examine aircraft parking positions and adjacent areas for FOD and remove all FOD items, prior to arrival, whilst the aircraft is parked and after departure of an aircraft.
- 3.12.2.5 Unattended tools and equipment may be a high-risk FOD source. Organisations operating on the apron should develop a tool management programme to reduce the risk of unattended tools becoming a FOD risk.
- 3.12.2.6 All tools and equipment should be clearly marked in a manner that makes them easy to see and identify the owner.
- 3.12.2.7 Aerodrome operators may also have in place the following for an effective FOD management process:
- regular joint FOD inspections involving all stakeholders to identify and raise awareness of FOD sources
 - locating traps or fencing in open areas or around construction sites to capture windblown debris
 - FOD campaigns, periodic briefings and sharing of safety statistics (FOD reports) to keep personnel aware of on-going FOD management
 - identifying regular causes of FOD and communicating to all relevant stakeholders through airside management briefings (Safety Committee meetings).

3.12.3 Reporting and assurance

- 3.12.3.1 Section 12.03 of the Part 139 MOS stipulates recording requirements for objects found during serviceability inspections. Significant objects that cannot be removed immediately may need to be reported to the NOTAM Office. Information to be reported to the NOTAM office is outlined in Section 12.04 of the Part 139 MOS.³
- 3.12.3.2 Details of any aircraft parts which may have fallen from an aircraft or the remains of wildlife which may have been struck by an aircraft may require additional reporting to the ATSB⁴.
- 3.12.3.3 In locations where FOD increases the risk of damage to an aircraft, additional serviceability inspections may be required to reduce the likelihood of FOD damage.

3.13 Apron discipline

3.13.1 Monitoring

- 3.13.1.1 Generally, aerodrome operators will monitor airport airside activities. However, this responsibility may be delegated to a different agency, who would inform the aerodrome operator about any observed issues with apron discipline.

3.13.2 Compliance

- 3.13.2.1 As part of the aerodrome's safety management system (safety assurance functions), or risk management plan, aerodrome operators or the delegated organisation should monitor airside activities and ensure compliance with established procedures.
- 3.13.2.2 Aerodrome operators may also develop enforcement procedures that enable them to manage non-compliance and enhance wider compliance with established standards.
- 3.13.2.3 Aerodromes that do not require a safety management system or risk management plan, may establish a system to monitor and manage airside operations and compliance. The procedures developed may be included or linked to the aerodrome manual.

3.13.3 Reporting processes

- 3.13.3.1 At aerodromes that are not subject to ongoing monitoring of apron activities, a reporting process may be considered to enable aerodrome users, fixed based operators, maintenance organisations and any other permanent presence at the aerodrome an opportunity to notify the aerodrome operator of observed issues with apron discipline.

3.14 Dissemination of information

3.14.1 Communication methods

- 3.14.1.1 Information about aerodrome infrastructure that is required to be published by the aerodrome operator in the integrated aeronautical information package (IAIP) is outlined in Chapter 5 of the Part 139 MOS and Part 175 Data Quality Requirements - [Aeronautical Data Originators as published by Airservices](#).

³ Refer to <https://www.airservicesaustralia.com/wp-content/uploads/NOTAM-Data-Quality-Requirements-for-Aerodrome-Operators.pdf> for further information

⁴ Refer to <https://www.atsb.gov.au/form/occurrence-notification-aviation>.

- 3.14.1.2 Activities that may impact an apron, or aircraft parking position are not normally provided through NOTAM. Refer to Airservices' [NOTAM Data Quality Requirements for Aerodrome Operators](#) for further information.
- 3.14.1.3 There are alternative and more expedient methods of disseminating information rather than waiting for a publication such as a NOTAM to be issued. Different communication methods and channels may be established at the aerodrome level, depending on the size and complexity of operational environment, to distribute information about movement area changes or limitations.
- 3.14.1.4 Information may be distributed using:
- NOTAMs
 - safety briefings
 - email notifications
 - operational meetings
 - communications networks
 - intranet systems.

3.14.2 Stakeholders

- 3.14.2.1 Apron and other interested groups may include:
- fixed based operators
 - ground handling agents
 - airline representatives
 - aviation rescue and firefighting services (where present)
 - air traffic services (where present)
 - refuelling organisations (where present)
 - any other organisation that has a business presence, operational impact to apron activities or could impact the aerodrome or aircraft operations.

3.14.3 Information to be communicated

- 3.14.3.1 Information that could be provided to apron users may include:
- the type of operational changes or limitations
 - the duration of the operational changes or limitations, if known
 - mitigation measures to be applied
 - availability of aircraft parking stands
 - restrictions on aircraft parking stands including unserviceable VDGS/A-VDGS
 - availability of fixed installations at aircraft parking stands
 - special parking procedures, if any
 - temporary change of driving routes
 - work in progress
 - any other information that has operational significance to the apron users.

3.14.4 Reporting and notification

- 3.14.4.1 When developing procedures to report changes or limitations, consideration should be given to those who will be affected and what actions should be followed at the aerodrome. Initial notification may be passed to ATC, where available, if the change was first observed by a pilot. Reporting channels may vary when ATC is not available but should be established via procedures.
- 3.14.4.2 The aerodrome operator should consider establishing a notification process that ensures matters are reported to the responsible AIP person or their delegate when issues are identified by ground personnel.

Appendix A

Marshalling services

The operator of a certified aerodrome must, where required, include the procedures for marshalling services documented in the aerodrome manual.⁵

A.1 SOP considerations

A.1.1 The standard operating procedure may include, as appropriate, the following criteria:

- Procedures for the use of marshalling signals for fixed-wing aircraft and helicopters.⁶
- Appropriate training requirements:
 - This may include nationally recognised competency frameworks such as unit of competency (UoC) AVIF3016 - Marshal aircraft, through <https://training.gov.au>. UoC AVIF3016 includes information on competency checks and refresher training at appropriate intervals.
 - Aerodrome operators should manage marshaller competency, including refresher training and currency, through their safety management system, or ensure each operator has a similar process, having regard to the complexity and risk profile of apron operations.
- Appropriate marshalling equipment and clothing to be worn while performing marshalling services, which is visually distinct from other service providers operating on the apron, is to be determined by the operator providing the service. Each service provider is responsible for ensuring persons are appropriately equipped to perform their functions on the apron in the range of operating conditions, including weather events when aircraft may need to be marshalled.
- Procedures to assess and identify circumstances where wing walkers may be required to monitor wingtip clearance and positioning during marshalling operations is a responsibility of the airline, aircraft operator, pilot, and ground handling agent. However, the marshaller is responsible for ensuring an obstruction-free environment while conducting marshalling services prior to an aircraft being guided to the parking position.
- Actions to be initiated when an aircraft:
 - is incorrectly marshalled, or
 - a pushback operation is interrupted, or is forced to change direction during operations, including notifying:
 - » ATC, the airline, aerodrome operator, and/or
 - » internally within the organisation, following established incident reporting processes.

Note: Incident notification or reporting should be carried out by the organisation responsible for performing the marshalling or pushback activities.

- Arrangements for the communication and the management of reportable incidents that occur during the provision of a marshalling service, and any reporting of identified hazards to the

⁵ Refer 11.15 of Part 139 MOS

⁶ Refer to Marshalling Signals, 5.1 From a signalman to an aircraft, as contained in Appendix 1 of ICAO Annex 2, Rules of the Air

responsible personnel should be through documented processes and procedures and applied by each organisation involved in the activity.

Appendix B

Leader van (follow-me) services

The operator of a certified aerodrome must, where required, include the procedures for leader van (follow-me) services documented in the aerodrome manual.⁷

B.1 Leader van (follow-me) SOP considerations

- B.1.1 Organisations that provide leader van services should have SOPs for their services at an aerodrome. Such procedures may include, where relevant to the operational context:
- B.1.2 Conditions when such services may be provided, including:
- low-visibility conditions
 - complex taxi-routing and when required by local operating procedures
 - unfamiliar operating crew
 - stranded aircraft or vehicles seeking assistance
 - temporary change to airside configuration
 - for vehicles that do not regularly operate in the aerodrome, or do not have authority to operate without an escort (e.g. ambulance)
 - VIP movements.
- B.1.3 Follow-me vehicle operating procedures should address, as applicable:
- speed limits on different airside locations (apron, TWY/RWY, service road, etc)
 - separation distances to be maintained from the aircraft and other vehicles following
 - suitability of surface when offering the services
 - following guidance lights, signboards, markings, and monitoring obstructions
 - priority and right of way for other aircraft and vehicle movements (e.g., taxiing aircraft)
 - consideration for the physical characteristics of the aircraft or vehicle being provided with the follow-me service
 - where ATC is present and as per local procedures, vehicle operators performing follow-me requirements to adhere to instructions from ATC
 - the procedures should ensure the aircrew are informed where follow-me services begin/end.
- B.1.4 Trained and qualified airside personnel⁸ performing follow-me services should:
- be sufficiently trained on follow-me procedures
 - be trained on low-visibility conditions and operating procedures
 - be well versed in aerodrome topography
 - be radio-telephony qualified and proficient in radio communication procedures including receipt and read-back of clearances

⁷ Refer to Section 11.15 of Part 139 MOS

⁸ Refer to AC 139.C-02 Aerodrome personnel

- be prepared for emergency responses
- have additional skills and knowledge as required by the prevailing operating environment within an aerodrome.

B.1.5

A Follow-me vehicle should:

- have distinct and clear identification markings along with lights/beacons in compliance with Section 14.05 of the Part 139 MOS and, where provided, illuminated message boards/ signage to be unambiguously recognised by the following aircraft or vehicle
- be equipped with two-way radio-telephony devices to communicate with ATC or the pilot
- be equipped with appropriate emergency and safety equipment
- contain a detailed airside map for the vehicle operator to refer to when needed.

Appendix C

Passenger boarding bridges

The operator of a certified aerodrome must, where required, include the procedures for operating passenger boarding bridges documented in the aerodrome manual⁹.

C.1 PBB operation - SOP considerations

- C.1.1 Aerodrome operators and organisations that use passenger boarding bridges (PBB), used to facilitate safe, secure, and efficient transfer of passengers between an aircraft via the terminal building, should have SOPs for those operating the PBB.
- C.1.2 The SOP may need to address, as appropriate:
- PBB operators should provide suitable training and supervision for PBB operation techniques, how to monitor the surrounding apron environment, positioning of the PBB near an aircraft, establishing and maintaining communication with ground services and any relevant emergency procedures.
 - Training should cover theoretical as well as practical knowledge that includes normal operations, abnormal conditions, and emergency situations.
 - The training should be followed by comprehensive assessments before authorising individuals to operate a PBB.
 - An authorisation card or PBB operator licence may be issued by the organisation responsible for PBB operations.
 - Periodic refresher training may be conducted highlighting potential hazards and mitigation measures and any changes to the PBB operations/programming.
 - Procedures for manning PBBs when docked with an aircraft, stopping and parking positions, and general operations techniques.
 - Regular maintenance checks, pre-use inspections and visual inspections to be conducted after each and every aircraft movement.

Note: The aerodrome operator should provide a checklist of items to be inspected prior to their use.

- Audible warnings and visual alerts to indicate PBB movements.
- Ground markings to identify the PBB manoeuvring zone and associated procedures to keep the zone free from obstructions.
- Information on safety equipment such as emergency stop buttons and instructions on how to use them.
- Emergency procedures to be followed during abnormal operations encountered within and around a PBB.
- Processes for communicating between the ground and the PBB.
- Procedures for reporting faults and/or maintenance issues.

⁹ Refer to Section 11.15 of Part 139 MOS

Appendix D

Aircraft pushback operations

The operator of a certified aerodrome must, where required, include the procedures for aircraft pushback services documented in the aerodrome manual¹⁰.

D.1 Aircraft pushback operations - SOP considerations

- D.1.1 An aerodrome operator may establish procedures for pushback operations at the aerodrome. However, this may also be developed by the aircraft operator or the ground handling organisation or in conjunction with all parties.
- D.1.2 The pushback procedures should at a minimum, consider the following aspects:
- Ensure ground vehicles or equipment attached to the aircraft are removed and that there are no obstacles around and behind the aircraft or aircraft engines.
 - Ensure no conflicts exist with other aircraft pushback in progress, aircraft ready to taxi, and other traffic on the apron. At controlled aerodromes this is a joint responsibility with ATC.
 - Ensure capability is available to maintain a continuous watch around the aircraft during pushback operations.
 - Ensure the aircraft is positioned in such a way as to avoid concentrating breakaway blast at buildings, parked or taxiing aircraft, vehicles and/or persons on the apron.
 - Guidance to determine when, as a precautionary measure, additional wing-walkers may be positioned to ensure wingtip clearance and prevent collisions.
- D.1.3 The aircraft operator and their ground handling agent should establish appropriate communication methods between the headset operator and the pushback equipment operator.
- D.1.4 Where arrangements are made, procedures may be established for pushback equipment operators to monitor the ATC frequency and execute the pushback instruction provided.
- D.1.5 The aerodrome operator designs and provides guidance markings that a pushback operator needs to follow. Pushback guidance markings include:
- aircraft pushback lines
 - towbar disconnect points.
- D.1.6 Pushback markings are primarily based on the nose wheel of the design aircraft, which may consist of dimensions of more than one aircraft. Where the aerodrome operator has determined a need for pushback markings to be based on main track wheels, the aerodrome operator should ensure:
- aircraft clearance to object requirements in Chapter 6 of Part 139 MOS are maintained
 - pushback arrangements using main track wheels present no hazard to aircraft operations
 - relevant aircraft operators are consulted.
- D.1.7 The pushback design methodology, and associated pushback safety procedures, are:

¹⁰ Refer to Section 11.15 of Part 139 MOS

- communicated to the relevant aircraft operators and associated ground handling organisations
 - documented in the aerodrome manual.
- D.1.8 Training and competence assurance of pushback equipment operators, headset operators and wing walkers on the procedures and their individual responsibilities is the responsibility of the aircraft operator or ground handling agent.
- D.1.9 In some instances, aerodrome operators may allow power-back operations from certain aircraft parking positions. Aerodrome operators should conduct safety risk assessments taking into consideration:
- the apron characteristics
 - aircraft characteristics
 - surrounding clearances
 - gradients on apron and adjacent taxiways or taxi lanes.
- D.1.10 The safety assessment should include the following factors, at a minimum:
- Jet blast, propeller wash or downwash from aircraft propulsion systems
 - surface conditions
 - noise levels
 - manoeuvring space (considering that the power-back operations may be less accurate than forward movement or even pushback operations)
 - the potential for conflict with other traffic
 - effect on the surrounding structures and buildings.
- D.1.11 Power-back operational SOPs may include:
- procedures to ensure clearance around the aircraft
 - procedures to continuously monitor the aircraft position during power-back operation
 - procedures to initiate corrective actions if the aircraft movement is inappropriate
 - positioning of ground staff such as marshals and wing-walkers
 - communication between the ground crew and use of internationally agreed hand signals to communicate with flight deck
 - ground crew training.
- D.1.12 The aerodrome operator should ensure the availability of SOPs and monitor their continued compliance.
- D.1.13 When pushback operations enter the manoeuvring area during periods of declared low visibility, the aerodrome operator's low visibility procedures may incorporate requirements for pushback operations.
- D.1.14 The allocation of responsibilities for SOP development, implementation and compliance should be clearly defined within the aerodrome's apron management framework.

Appendix E

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 [AC 139.C-13 - Apron safety management](#). The matrix identifies which AC the reader should refer to, and the output or the evidence expected out of cross referencing.

The purpose of Table 7 is to reduce content in this AC and provide advice on other guidance material that contains the same or similar information. Readers should consider cross application of ACs mentioned in Column 2 when using this AC.

Table 7: AC cross reference matrix

System function	MOS reference	Role of AC 139.C-13	Supporting CASA AC	Evidence / output
Policy and Documentation	MOS 11.08, 11.14 and 11.15	Defines apron procedures, responsibilities, AOPs	AC 139.C-01	Aerodrome Manual/AOP
Apron Operational Framework	MOS Ch 11	Establishes apron management structure and responsibilities	AC 139.C-26	Defined roles / SOPs
Hazard Identification (Apron)	MOS Ch 12 and Ch 25	Identifies hazards (GSE, aircraft movement, blast, congestion)	AC 139.C-03	Inspection records
Routine Monitoring and Oversight	MOS Ch 12	Monitoring apron activities, discipline, operations	AC 139.C-03	Inspection logs
Aircraft Parking Control	MOS 11.15	Allocation of stands, sequencing, separation	AC 139.C-01 AC 139.C-27	Parking control procedures
Vehicle Operations (Airsides)	MOS 11.14	Defines vehicle movement and control	AC 139.C-14	Driver procedures/permits
Marshalling / Follow-me / VDGS	MOS 11.15	Operational control of aircraft movement on apron	AC 139.C-03 AC 139.C-09	SOPs/training records
FOD and Apron Cleanliness	MOS Ch 12, 18	FOD management, cleaning processes	AC 139.C-03	FOD logs/cleaning records
Risk Assessment (Apron operations)	MOS Ch 25	Identifies apron risks (pushback, blast, congestion)	AC 139.C-27 AC 139.C-26	Risk register
Mitigation and Controls	MOS Ch 11, Ch 25	Defines operational controls (procedures, separation, safeguards)	AC 139.C-27	SOPs/mitigation actions

System function	MOS reference	Role of AC 139.C-13	Supporting CASA AC	Evidence / output
Reporting (Operational hazards)	MOS Ch 5, 12	Reporting hazards, dissemination of changes	AC 139.C-04 AC 139.C-05	NOTAM / AIP entries
Information Dissemination	MOS Ch 5	Communicating apron changes and limitations	AC 139.C-04	Safety notices / briefings
Incident Reporting	MOS + TSIR	Reporting collisions, damage, incidents	AC 139.C-04	Incident reports
Training and Competency	MOS Ch 11 / SMS	Training for marshalling, driving, apron ops	AC 139.C-01 AC 139.C-02 AC 139.C-14	Training records
Inspection and Assurance	MOS Ch 12 / SMS	Assurance of apron compliance and discipline	AC 139.C-03 AC 139.C-26	Audit reports
SMS Integration	MOS Ch 25	Integrates apron hazards into SMS	AC 139.C-26	SMS hazard logs
Performance Monitoring	MOS Ch 25	Tracks effectiveness of apron safety measures	AC 139.C-26	KPI dashboards
Review and Continuous Improvement	MOS Ch 25	Drives improvement of apron safety system	AC 139.C-26	Review reports