IRISH AVIATION AUTHORITY SAFETY REGULATION DIVISION

IRISH STATE PLAN FOR AVIATION SAFETY 2021-2024


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Foreword by Chief Executive

Welcome to the 12th edition of the State Plan for Aviation Safety (SPAS) in Ireland issued by the Irish Aviation Authority Safety Regulation Division (IAA) on behalf of the State. This SPAS is issued following a period of great disruption for the aviation community due to the COVID-19 pandemic, however, even in the face of the new challenges, aviation safety and security remains of paramount importance.

The purpose of the SPAS is to identify the actions taken at State level to address the main safety issues in civil aviation in Ireland. The IAA has implemented State level safety management processes, the purpose of which is to identify key safety issues and to drive continuing improvements in aviation safety performance in Ireland. These safety management processes meet the Standards of ICAO Annex 19 and align with safety management processes in ICAO/EASA, as well as with organisational Safety Management Systems.

The COVID-19 pandemic had an immediate and dramatic impact on passenger air transport that caused a huge reduction in flight operations and supporting services from March 2020, including complete cessation of operations for some operators. The IAA safety priorities were focused in two main areas:

- Risk assessment and mitigation of new safety risks introduced by COVID-19 on both the regulator and regulated entities, and on-going re-assessment of the risks as the pandemic persists longer than initially anticipated into 2021.
- The provision of regulatory support to the aviation industry as necessary to ensure continued operations for essential reasons based on acceptable safety case (eg exemptions, extensions and alternative means of compliance).

The COVID-19 pandemic provided one of the greatest tests thus far of safety management at global and national level, and the safety management processes employed by States and regulated organisations withstood the challenge, with no significant impact on aviation safety performance during the pandemic. Returning to normal operations post COVID-19 is a key challenge for civil aviation and this version of the SPAS identifies specific actions to address the main safety issues, including management systems, risk assessments of restarting complex systems, human factors/wellbeing etc.

The SPAS recognises that safety priorities must be agile and reactive to changing circumstances and whereas the overall strategic direction of the SPAS has not been affected by the COVID-19 pandemic, the changing priorities have impacted some of the individual timelines for actions in the Plan. This version of the SPAS also introduces a new section on integrated risk management whereby safety and security risk managements processes are integrated to ensure safety related risks arising from security issues (including cybersecurity) are managed.

The SPAS continues to evolve in a proactive manner to address the known operational risks and the risks emerging from new technologies and operating concepts. The IAA will continue to work with stakeholders in the civil aviation system to help identify and mitigate the risks and to strive for continuous improvement in aviation safety.

VOLUME 1

Safety Strategy

Introduction

This is the twelfth edition of the SPAS and like the last edition it contains two separate sections:

- **Volume 1** – addresses the size and scope of the civil aviation system in Ireland, the safety management at State level, strategic priorities for the SPAS, strategic enablers and how we monitor the success of the Plan.

- **Volume 2** – provides the detailed actions of the Plan including the stakeholder roles and safety objectives. This Volume is divided into four chapters to address State level safety management, systemic operational risk areas, and specific risks in Commercial Air Transport and General Aviation.

1. The Irish Civil Aviation System

1.1 Impact of COVID-19

The COVID-19 pandemic represents a major crisis on a global scale which has had a devastating impact on aviation with air traffic in Europe reduced by 56% compared to 2019 and recovery to 2019 levels not expected until 2024 at the earliest. The number of flight movements into and out of Ireland reduced by 57% in 2020 compared to 2019 in line with overall EU experience.

This downturn in air traffic due to the pandemic is unprecedented and continues to have a devastating impact on people working in the industry, with many aviation staff suffering job losses, short time working, pay cuts and other social impacts as many organisation struggle for survival during the crisis.

In commercial aviation, passenger air transport is hugely impacted as COVID-19 related public health measures limit passenger travel for essential purposes only, on the other hand the demands for cargo operations increased to support COVID-19 health measures and also to feed the increased demand for on-line shopping.

Nonetheless, passenger commercial air transport is the main driver for all aviation activity and the collapse in this sector has an immediate impact on airport operations, air navigation services, aircraft manufacturing, aircraft maintenance and training organisations.

The sudden fall of commercial activity in March 2020 very quickly created difficulties for air operators, even for those operations necessary to support COVID-19 emergency response. The IAA provided regulatory support to industry during this time by providing exemptions and alleviations based on acceptable safety cases, for personnel and equipment where strict adherence to regulations could not be accomplished due to time constraints or lack of support services (eg training facilities).

The aviation industry has shown strong resilience in the face of the pandemic with Irish industry continuing to survive albeit at greatly reduced operational capacity over previous years in some sectors.

1.2 Irish Civil Aviation System Overview

The following table summarises the main sectors of the Irish civil aviation system with comparison between end 2020 and end of 2019. The increase in commercial aircraft in storage is related to COVID-19, but other changes noted in the table are not specifically related to COVID-19 but may also reflect other industry priorities. The increasing trends in Personnel Licencing primarily relate to the impact of Brexit.

Sector	End 2019	End 2020	Difference
Aircraft Register			
Commercial Aircraft	800	625	-22%
Commercial Aircraft in Storage	32	78	+144%
General Aviation (incl Annex 1)	532	547	+3%
AOC Holders			
Aeroplane AOC	13	14	+7%
Rotorcraft AOC	3	4	+33%
Aeroplane NCC/SPO	9	9	0
Rotorcraft NCC/SPO	4	5	+25%
Airworthiness Organisations			
Maintenance	45	38	-15%
Maintenance Management	32	28	-12%
Production	2	2	0
Personnel Licencing			
Commercial Pilot	12,271	13,191	+7%
General Aviation Pilot	1,236	1,476	+19%
Maintenance Engineer	2,508	2,721	+8%
ATCO/Student ATCO Licences	229	246	+7%
Training			
Approved Training Organisations	10	12	+20%
Declared Training Organisations	30	30	0
Flight Simulators	15	15	0
Maintenance Training Organisation	9	5	-44%
Aerodromes			
EASA Certified	8	8	0
Nationally Licenced	14	14	0

1.3 IAA responsibilities

The IAA is responsible for the safety oversight the Irish civil aviation system which it does through:

- Establishing and implementing safety oversight policies and regulations, in conjunction with Department of Transport, as necessary
- Providing the safety oversight resources required, commensurate with the size and scope of the civil aviation system
- Conducting audits, inspections and tests to ensure stakeholders meet the regulatory requirements on an ongoing basis, including requirements for safety management systems
- Implementing safety management processes to identify the main risks to civil aviation and identifying mitigating actions at State level to address these risks
- Monitoring the performance of the civil aviation system
- Providing guidance to civil aviation stakeholders on the implementation of safety regulations and safety management
- Promoting safety awareness and the sharing and exchange of safety information with the aviation community to foster the maintenance and improvement of safety and to support the development of a positive safety culture

2. The State Plan for Aviation Safety (SPAS)

2.1 Context for SPAS

The Irish State Plan for Aviation Safety is built on a proactive approach to managing the safety of Irish civil aviation as required by ICAO Annex 19 (Safety Management) and Regulation (EC) 2018/1139 (EASA Basic Regulation). The SPAS is therefore contextualised in global and European safety management as depicted in the following figure:

Global Aviation Safety Plan (GASP)	**Current version GASP 2020-2022** **Contains Safety Enhancement Initiatives for States that are addressed in the Irish SPAS**
European Aviation Safety Programme	**Defines the aviation safety framework at European Level** **Provides framework at EU level for development of EPAS**
European Plan for Aviation Safety (EPAS)	**Five year plan updated annually** **Consulted with EASA Advisory Bodies and contains specific actions for EU Member States that are incorporated in SPAS**
State Safety Programme for Ireland	**Defines the aviation safety framework implemented in Ireland** **Current SSP document Jan 2015 - update planned 2021**
State Plan for Aviation Safety in Ireland (SPAS)	**Four year plan updated annually** **Consulted with State Departments/Agencies via SSP Committee and Irish industry through sector-based consultancy groups**

2.2 IAA Safety Management

Each State is responsible for developing its own SPAS, based on its own civil aviation system and associated risks and safety priorities and the IAA is the responsible authority for developing the SPAS for Ireland. The safety management system implemented by the IAA safety regulation division includes risk management processes to;

- Identify hazards in civil aviation
- Risk assess the associated safety issues to prioritise actions
- Plan actions to address the main safety issues (eg as published in SPAS)
- Implement the planned actions
- Monitor the results

Hazards are identified from analysis of safety information obtained from regulatory oversight activities, safety occurrence reporting and performance monitoring, and are subject to risk assessment to develop safety priorities. Actions are planned to mitigate the risks and the actions that address the key safety issues are included in this Plan (Volume 2). The IAA monitors performance (safety and security) at the regulatory and organisational levels to establish if the safety objectives to improve aviation safety are being met.

The IAA uses risk registers to track the main safety issues identified, to identify priorities using risk assessment and to record the associated mitigating actions. Stakeholder consultation is provided through a range of activities including safety oversight (eg SMS oversight), safety review meetings, and safety workshops.

2.3 SPAS safety objectives

Volume 2 of the SPAS identifies the key safety issues that have emerged from the IAA safety management processes, the actions planned by the IAA (State safety regulator) to mitigate the associated risks and the safety objectives that contribute to the overall goal of improving safety performance.

Safety objectives provide a tangible link between the State and regulated organisations in respect of safety management. ICAO Annex 19 and EU Regulations pertaining to Safety management require regulated organisations to implement safety management systems. Individual organisations must identify risks specific to their operations and implement risk mitigation strategies to reduce these risks. Organisations should equally identify their own safety objectives, however, organisations must also consider the safety objectives identified in this Plan for applicability within their own safety management system(s).

2.4 Link to GASP/EPAS

The Irish SPAS is consistent with the goals and objectives of the Global Aviation Safety Plan (GASP) and the European Plan for Aviation Safety (EPAS). The EPAS includes recommended actions for EU Member States and these recommendations are included in this Plan, as appropriate for Ireland. A cross-reference between the actions in this Plan and EPAS actions for Member states is provided in Appendix V.

The IAA contributes to the global safety management processes primarily through its active participation in the ICAO Safety Management Panel and the EASA Advisory Bodies, including the Member States Advisory Body (MAB), Technical Boards (TeB), Collaborative Analysis Groups (CAG), Network of Analysts and the EASA Safety Promotion Network. This international collaboration provides the opportunity for the IAA to influence the global and European safety management process based on its own risk assessments, as well as the opportunity to consider lessons learned through the safety management processes employed in ICAO, EASA and other States. The safety issues that impact the Irish civil aviation system are added to the IAA risk registers and mitigating actions identified and include in this Plan based on risk assessment.

3. Strategic Safety Priorities

Introduction

The strategic safety priorities derive from the IAA state level risk register and associated risk assessments. The risk register is subject to on-going review to update the risk assessments following completion of mitigating actions (including relevant SPAS actions), and to address significant changes in the civil aviation system and emerging risks.

The following safety priorities underpin the SPAS 2021-2024. A description of each of these safety priorities is provided in following chapters:

1. To support industry and provide regulatory assurance of continued safe operations during COVID-19 pandemic and safe ramping up of operations post COVID-19
2. To enable continued safety improvement in the civil aviation system in Ireland through effective risk management and performance monitoring processes
3. To implement integrated risk management to include security risks that impact safety
4. To enhance safety through the implementation of effective risk-based and performance-based safety oversight
5. To maintain sufficient qualified and competent staff in the IAA to fulfill all regulatory obligations
6. To implement innovative approaches in regulatory performance using ebusiness, digital technology and digital applications
7. To implement robust regulatory change management that ensures regulatory functions and processes are updated and regulated entities are supported.

The strategic priorities ensure consistency with the goals and the safety enhancement initiatives (SEI's) included in the GASP addressing the States safety oversight system, safety management, human resources, collaboration between stakeholders, as well as specific SEI's that address key operational risks. The Plan includes cross reference to individual GASP SEI's wherever relevant.

The safety priorities identified in Ireland are also consistent with the European strategic priorities for systemic and operational safety as identified in the European Plan for Aviation Safety. The Plan includes the relevant actions for EU Member States as required under Regulation (EU) "Basic Regulation" and specific cross reference is provided.

3.1 Strategic Safety Priority #1: To support industry and provide regulatory assurance of continued safe operations during COVID-19 pandemic and safe ramping up of operations post COVID-19

The COVID-19 pandemic had a significant impact on aviation regulatory functions during 2020. The severe disruption felt by all sectors of the aviation industry necessitated the agile implementation of risk management processes to assess the new safety risks introduced by COVID-19 on continued safe operations by regulated entities as well as on the IAA regulatory oversight functions. The risk management processes were subject to on-going review and update as the pandemic persisted longer than originally anticipated and safety oversight functions continued using remote oversight practices where necessary to overcome COVID-19 related public health measures.

The key safety issues emerging from the risk assessments are addressed in this Plan and the focus from the regulatory perspective will be on overseeing the readiness of industry management systems, human resources and equipment for ramping up of operations post COVID-19 and providing regulatory support where necessary. Please refer to Volume 2 Chapter 2.1 for details including actions and status update.

3.2 Strategic Priority #2: To enable continued safety improvement in the civil aviation system in Ireland through effective risk management and performance monitoring processes

The IAA continues to implement and evolve safety management processes. The IAA safety management processes include identification, modelling and assessment of risk, risk profiling at State, sector, and organisation level, action planning to address highest safety concerns and performance monitoring to ensure actions are having the desired result in improving safety. The IAA continues to support the EASA led initiatives in this regard and is represented at Steering Board and Technical Board level on the EASA Data4Safety Project.

Volume 2, Chapter 1.1 of the Plan includes actions to address improvements in the IAA safety management processes, including encouraging occurrence reporting and improved processes for sharing safety information at State level (including civil/military stakeholders) and between the IAA and regulated organisations.

Performance monitoring is a key pillar of the safety management processes implemented by the IAA. The IAA monitors the performance of the civil aviation system across all sectors. Further details are provided in Chapter 9 of Volume 1 of the Plan. Volume 2, Chapter 1.1 of the Plan includes actions to ensure ongoing development of safety performance indicators and safety performance targets that underpin the performance monitoring system and enable the IAA to establish if the safety objectives of the SPAS are being met. In addition, Appendix II of the Plan provides a summary of the current safety objectives of this Plan along with the related safety performance indicators and targets.

Operational risks are the risks of negative safety outcomes arising from aviation operational activities across all sectors of the civil aviation system (eg flight operations, air navigation services, aerodrome operations, aircraft production and maintenance, training etc). These risks are identified in the IAA sector risk registers. The key operational risks are addressed in Volume 2, Chapter 2 (systemic risks), Chapter 3 (Commercial Air Transport) and Chapter 4 (General Aviation).

Safety promotion has been a key tool for the regulator to assist commercial and private flying during the COVID-19 pandemic, especially during time of lock-down when key staff were working remotely. Safety promotion may include formal training programmes, safety briefing evenings, dedicated safety workshops, safety promotion campaigns etc. During the pandemic greater use was made of modern communications media (including social media), to provide greater outreach for safety information to individuals (ref also IAA website www.iaa.ie and twitter @IAApress). The current version of SPAS (ref Volume 2 Ch 1.1) includes actions to enhance the safety promotion function in IAA based on lessons learned during COVID-19 pandemic.

3.3 Strategic Safety Priority #3: To implement integrated risk management to include security risks that impact safety

The integration of risk management to address the interfaces between aviation safety and aviation security is a recently introduced safety priority for the Irish SPAS. This is in recognition of the emerging risks posed to all aviation sectors in respect of cybersecurity and the fact that the implementation of security measures in airports and on aircraft can directly impact aviation safety.

A new chapter 1.2 is introduced in Volume 2 of the SPAS to address the subject of integrated risk management of security and safety. A new action is introduced in respect of the preparatory work for forthcoming EU regulations on cybersecurity implementation, including implementation of information security management systems at the regulatory level. The Plan also addresses the need to provide greater sharing of safety information between security (including cybersecurity) and safety.

3.4 Strategic Priority #4: To enhance safety through the implementation of effective risk-based and performance-based safety oversight

The IAA has implemented, and maintains, a comprehensive regulatory oversight programme to oversee the activities of organisations and persons involved in the Irish civil aviation system. This regulatory oversight programme consists of a range of audits, inspections, tests and checks, using competent staff supported by regulations, policies, procedures, tools and training, to allow the IAA to fulfil its obligations.

The traditional compliance-based safety oversight process employed by the IAA is now adapted using a risk-based and performance-based approach to ensure that the IAA targets it resources in areas of greater demand. The process which depends on ongoing risk assessment, risk profiling and performance monitoring at all levels in the civil aviation system, proved its worth during 2020, when the COVID-19 pandemic significantly impacted the normal operational environment and regulatory oversight programme and the regulatory oversight focus had to quickly respond to identify and target the areas of greatest risk.

Risk-based and performance-based oversight should to the greatest extent possible be based on data-based decision making and the main focus of the actions in the Plan (Volume 2, Chapter 1.4) are focused on developing data collection and analysis methods and tools to support the risk assessment and risk profiling processes involved across all aviation domains. In addition, Volume 2 Chapter 1.5 addresses new competencies required for oversight inspectors in this regard.

3.5 Strategic Priority #5: To maintain sufficient qualified and competent staff in IAA to fulfil all regulatory obligations

The IAA in common with all stakeholders in civil aviation must ensure continued availability of competent human resources in the face of strong demand for resources from external organisations both within and outside of civil aviation. The IAA ensures it offers competitive terms and conditions to retain staff and attract new staff as and when needed.

The IAA continuously reviews existing human resources in the context of the new obligations arising from the regulatory changes and organisational change management (including significant regulatory changes) as well as meeting the strategic priorities outlined in this Plan.

The current version of the SPAS (ref Volume 2 Chapter 1.6) identifies actions to address development of inspector competencies in risk based oversight and safety analysis, as well as oversight of SMS, human factors and technical requirements such as fuel planning/management schemes and flight time limitations.

3.6 Strategic Priority #6: To implement innovative approaches in regulatory performance using ebusiness, digital technology and digital applications

The regulatory staff in IAA are provided with modern office accommodation and state of the art IT equipment with online access to accommodate remote working (eg by inspectors working in external locations).

The IAA Digitalisation project represents a large capital investment by the IAA to transform the current safety regulation service offering through maximising business activity within the digital environment. This project will see business processes, such as client management,

applications processes (approvals, registration, certification, licensing etc.) and oversight processes migrate to online platforms across all domains over the next few years.

Safety management is greatly improved through data-based decision making and the new platform will greatly improve the IAA Business Intelligence collection capability. In addition, the new platform creates the potential for digital communications portals to facilitate exchange of safety information between regulator and regulated entities.

The new IAA MySRS platform is currently live with applications for drone registration and drone pilot training and aviation security oversight. Actions in the Plan (ref Volume 2 Chapter 1.6) address the roll-out plans for other applications. In addition, the Plan addresses the upgrade of the occurrence reporting system from ECCAIRS I to ECCAIRS II as part of pan-European project.

3.7 Strategic Priority #7: To implement robust regulatory change management that ensures regulatory functions and processes are updated and regulated entities are supported

Although the competence for rulemaking in civil aviation is largely vested in EASA, the new EU regulatory framework includes requirements for both national competent authorities and regulated entities. Accordingly, the actions for the IAA in respect of regulatory changes, as competent authority for Ireland, are two-fold:

1. To implement the requirements for competent authorities and advise affected industry stakeholders of the necessary changes to published procedures in this regard
2. To provide guidance to industry stakeholders on the implementation of requirements for regulated entities, including interpretation of requirements and means of compliance, and review/acceptance of alternative means of compliance

The safety regulatory framework is constantly being updated to improve safety and efficiency in aviation and to support fair competition within EU. Regulators and regulated entities employ robust regulatory change management processes to ensure continued compliance with the regulations. Whereas many of the regulatory changes are minor and focused on specific topics, some regulatory changes present significant implementation challenges.

The current version of the SPAS (Volume 2 Chapter 2.2) addresses significant regulatory changes addressing drones/Uspace, alcohol testing of flight crews, ground handling. Forthcoming regulations affecting cybersecurity are also addressed in Volume 2 Chapter 1.2.

4. Strategic Enablers

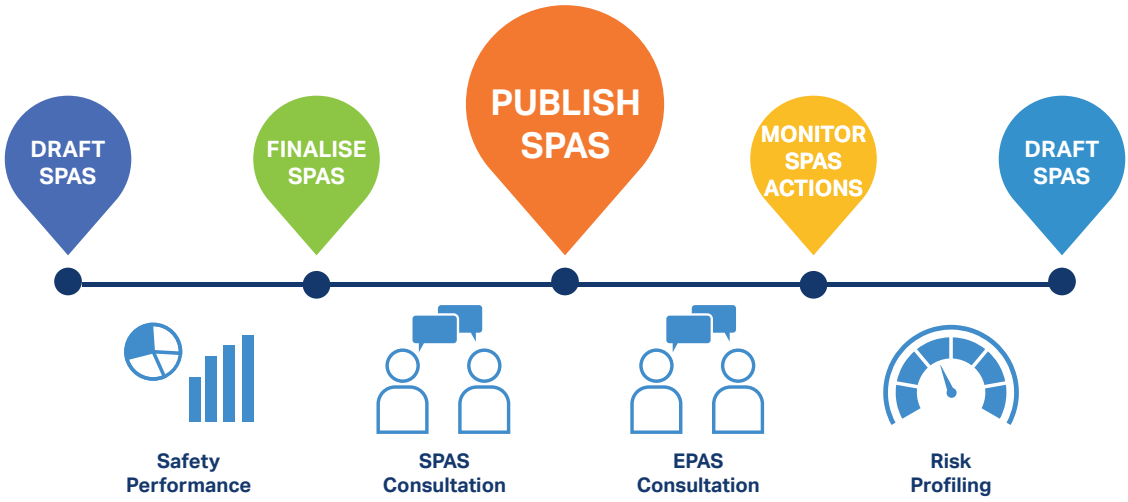
Many of the SPAS actions on behalf of the State are designed and implemented, using the tools available in the safety oversight system. This means that the actions in the Plan may include:

Safety Policy	**Actions to implement new or amended policy and regulations in the State**
Human Resources	**Actions that relate to the provision and maintenance of sufficient and competent regulatory staff**
Safety Oversight	**Actions that require specific areas of concern to be audited/ inspected, and that are planned and performed as part of the scheduled oversight plan**
Safety Analysis	**Actions that require detailed analysis, risk assessment or research into areas of safety concern**
Performance Monitoring	**Actions that relate to monitoring of safety performance to ensure that safety objectives are being achieved**
Safety Promotion	**Actions that target the delivery of latest safety information using specific content and delivery methods to suit the target audience.**

5. SPAS Development Cycle

The State Safety Plan is produced annually, and it addresses actions for the forthcoming period of four years. The annual development cycle is depicted in the following figure. The Plan is published in Q2 of each year following the review of the safety performance for the preceding years, as well as the review and assessment of the implementation programmes for the actions in the Plan.

After publication of the SPAS work begins in developing the next version of the Plan, including consultation with EASA on next version of EPAS, and review and update of the risk registers. The safety management processes of risk profiling and performance monitoring are conducted on an ongoing basis throughout the year. They are depicted in the schematic as seasonal activities (Q1 and Q4) for convenience only to represent the timeframe when heightened activity is each area is conducted to support SPAS development.



Industry and general aviation contribution to the State Plan for Aviation Safety is compiled on an on-going basis through safety oversight and safety review meetings on an individual organisation and sector basis. This includes sector-based operational and safety forums and meetings, cross-domain safety workshops and SMS oversight activities.

6. SPAS Statistics

Since its inception in 2010, there have been a total of 57 risk topics addressed in the Plan with 249 associated actions to address the safety issues. Each annual addition introduces new actions (highlighted by green sidebars) and removes previous actions that were closed with associated closing remarks provided in the narrative (Status). There were 10 new actions introduced in this version of SPAS and 5 actions were completed during 2020. Due to the impact of COVID-19 a further 13 actions due for completion in 2020 were deferred, 9 actions to 2021 and 4 actions to 2022.

The current edition of the Plan includes 69 actions, 47 of which have defined target dates and 13 of which are ongoing tasks. In this version of SPAS some tasks have been moved and/or amalgamated as part of the editorial process. The overall summary of the actions discussed in this version of the Plan is depicted in Figure 1

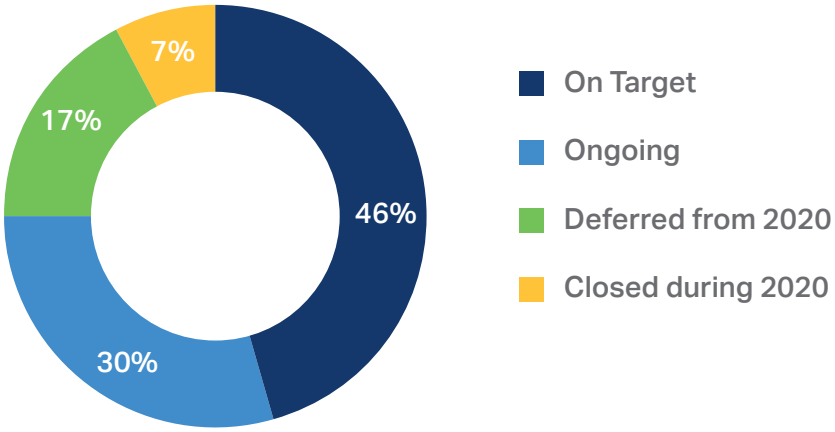


Figure 1 – Overall status of actions in current version of SPAS

The individual action items in the Plan are aligned with the four pillars of the State Safety Programme for Ireland as defined in Annex 19. These four pillars align with the IAA SSP strategic enablers discussed in Chapter 4 above and are highlighted in italics.

Safety Policy, includes policy for State level safety management including regulations and resources – strategic enablers safety policy and human resources

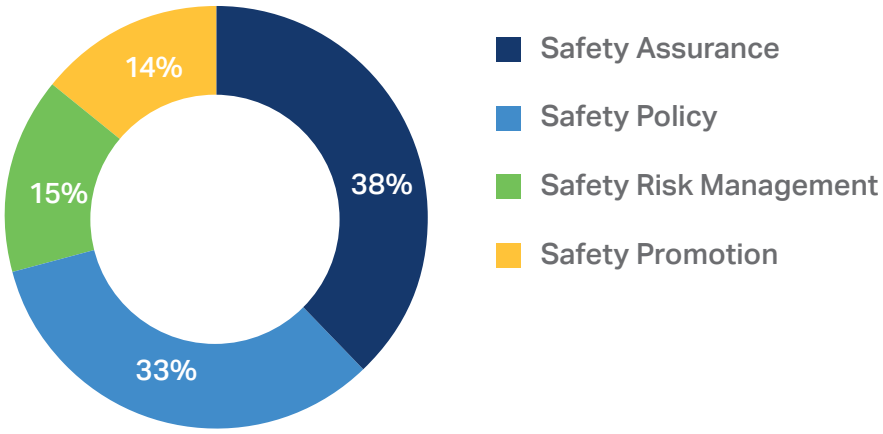
Safety Risk Management, includes tasks relating to hazard identification, risk assessment and risk mitigation – strategic enabler safety analysis

Safety Assurance, includes tasks related to targeted safety oversight, safety performance monitoring and change management – strategic enablers safety oversight and performance monitoring

Safety Promotion, includes tasks related to provision of training and guidance to aviation professionals as well as safety awareness to the public – strategic enabler safety promotion.

Figure 2 shows how the actions of the current version of the Plan break down between the different SSP Pillars.

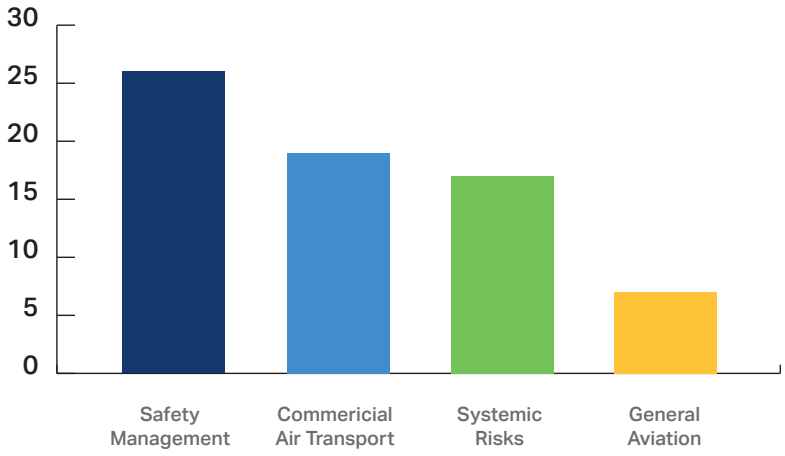
Figure 2 – Breakdown of current SPAS actions by SSP framework pillar



Over two thirds of the actions are in the safety policy and safety assurance pillars which highlights the fact that at this time the SPAS is primarily driven by actions to address implementation of policy, focused oversight tasks in key safety risk areas and performance monitoring.

The actions in the SPAS are broken into four chapters; safety management, systemic operational risks and specific operational risks in commercial air transport and general aviation. The breakdown of the actions by chapter is shown in Figure 3.

Figure 3 – Breakdown of SPAS actions by SPAS chapter



Volume 2 Chapter 1 Safety Management has a large number of individual actions which demonstrates the ongoing commitment by the IAA to continuously improve safety management at State level. Over 60% of the actions address the known operational risks at systemic level or specific risks for commercial and general aviation.

7. Performance Monitoring

7.1 Performance Monitoring in IAA

Performance monitoring is a key pillar of the safety management processes implemented by the IAA. The IAA monitors the performance of the civil aviation safety system across all sectors.

Performance monitoring in the IAA supports different activities in the IAA safety management system as depicted in the following figure:

ALoSP	Establish if safety objectives are being met through SPI's/SPT's
Oversight	Supports organisation risk profiling and SMS maturity assessment
Feedback	Provides feedback loop to support the hazard identification process

The development of safety performance indicators (SPI) and safety performance targets (SPT) across all sectors in Irish civil aviation remains a work in progress and is one of the ongoing actions in this Plan. This will always be an ongoing task as the risk picture is constantly changing requiring new safety objectives to be developed and consequently creating new performance monitoring needs.

The primary function of performance monitoring as envisaged in ICAO Annex 19 is to monitor SPI/SPT's to provide assurance that safety objectives are being met and an acceptable level of safety performance (ALoSP) has been achieved. The safety information derived from performance monitoring at individual organisation level can also support organisation risk profiling as part of oversight planning and the assessment of the effectiveness of an individual organisation. Safety information derived from performance monitoring may identify new hazards for a specific sector (eg indicators of poor performance across a sector) that may be added to the sector risk registers for appropriate risk treatment based on risk assessment.

7.2 Performance Reporting

The IAA publishes the Annual Safety Performance Review each year (https://www.iaa.ie/safety) that provides aggregated sector-based dis-identified safety information on the main outcome-based safety performance indicators (eg accidents, serious incidents, occurrences).

More granular sector-based performance reports are developed on a weekly and quarterly basis to support management overview of the process. In addition, sector-based or thematic performance reports or presentations, containing aggregated misidentified data, are developed to support safety meeting or workshops within the regulatory domain (eg at EASA or ICAO) or with industry stakeholders or general aviation.

Safety information derived from performance monitoring may also be developed at an individual organisation basis to support safety review meetings or safety oversight activities (eg SMS effectiveness).

VOLUME 2

Detailed Actions In The Irish SPAS

0. Introduction

0.1 Structure of Volume 2

This volume of the SPAS for Ireland provides the details of the safety actions that are currently in place to implement the strategic priorities discussed in Volume 1 above. This version of the SPAS is broken down into four chapters to address:

1. safety management,
2. systemic operational risks,
3. specific operational risks affecting commercial air transport, and,
4. specific operational risks affecting general aviation.

Each Chapter is further subdivided into sub-chapters to address different areas of safety concern. Each chapter header includes an IAA Reference Number which identifies which domain takes the lead role in addressing the safety issues (eg FOD.xxx – Flight Operations. ADR.yyy – aerodromes, M.zzz cross domain etc).

As the SPAS addresses several different risk areas, a consistent template is provided in each sub-chapter as follows:

- Header – Safety risk area headline, including an IAA assigned Reference Number
- Safety Issue – a brief statement about the safety issue
- Safety Objective – a statement of the objectives of the actions in this safety area
- Safety Performance Indicators – what we monitor to establish progress toward achieving safety objectives
- Stakeholders – a brief outline of the Stakeholders involved and their roles
- Actions – action statement with target dates (including on-going).
- Status – a high level summary of the status of the current actions in this area

Each safety issue identified in this volume has an associated safety objective and each safety objective has associated safety performance indicators and safety targets. Volume 2 should be read in conjunction with Appendix II of this Plan which provides the detailed list of safety objectives, safety performance indicators and safety performance targets.

0.2 Overview

Chapter 1 includes the actions to address risk management and regulatory oversight at the State level which falls largely under the responsibility of the IAA. The actions address all pillars of the State Safety Programme including, policy implementation, organisation (structure/resources), risk management, safety assurance (oversight and performance monitoring) and safety promotion.

Chapter 1 consists sub-chapters to address:

- Continuous improvement in safety management at State level
- Separation of IAA service provision and regulatory functions
- Integrated risk management (safety and security)
- Implementation of Risk-Based and Performance-Based oversight
- New competencies for IAA inspectors
- Digitalisation
- Oversight of complex organisations.

Chapter 1 is built around the overall objective of the IAA to transition from a compliance-based oversight (CBO) environment to a more effective oversight environment that target areas of greatest safety concern through risk-based and performance-based oversight (RBO/PBO) methods. The IAA is undergoing a fundamental structural change to separate service provision from safety regulation and merge with the economic regulator in the State. The new IAA will provide the structure, organisation and resources needed to enable the RBO/PBO oversight environment. The transition from CBO to RBO/PBO environment requires continuous improvement in the safety management system developed by the IAA to ensure that key decision-making in RBO/PBO is supported to the greatest extent possible by data-based safety intelligence. IAA system development projects (ECCAIRS 2, digitalisation) will have a key supporting role to play in this regard. The Chapter also focuses on improving the ability to share safety information at all levels in the civil aviation system to support risk management and safety promotion.

Chapters 2 through 4 of this Volume address the operational risks including systemic risk areas, and specific risks in commercial air transport and general aviation. Many of the specific risks addressed are well known and common to aircraft operations globally, and, even if the probability of an accident or serious incident due to these specific risks is low in many cases, the consequences of the occurrence could be catastrophic (multiple fatalities). The actions in the plan take account of safety information available from ICAO (global), EASA (EU) as well as the experience of Irish operators.

The main operational risk areas addressed in this plan include:

Systemic Risk Areas	Specific Risk Areas
• Covid-19 pandemic	• Loss of Control-Inflight
• Brexit	• Controlled Flight into terrain
• Regulatory Changes	• Mid-Air Collision
• Rotorcraft Operations	• Runway Safety
• Aircraft Maintenance	• Ground Operations
• Parallel Runways	• Bird/Wildlife Strikes
	• Aircraft Environment

The associated actions mainly address;

- safety policy driven tasks including; implementing procedural changes, encouraging and supporting infrastructural changes, and implementing SESAR Solutions that could help mitigate operational risks,
- safety analysis tasks; to learn more about specific operational risks,
- targeted oversight tasks; focusing on key risk areas as part of oversight planning (eg SMS oversight), and review of the level implementation by regulated entities of recommendations for improving aviation safety,
- safety promotion tasks; to provide guidance to regulated entities and aviation enthusiasts and to highlight specific areas of safety concern to targeted audiences, using modern social media platforms where relevant.

1: Safety Management

1.1 - M.002 Continuously improve safety management at State level

1.1.1 Safety Issue

ICAO Standards and Recommended Practices (SARPs) in Annex 19 requires the implementation of State Safety Programmes (SSP) and the IAA has been assigned responsibility for this Annex under primary Irish legislation. The State Safety Programme and associated State Plan for Aviation Safety (SPAS) is subject to continuous improvement and evolution to address emerging risks.

1.1.2 Safety Objective

To continuously improve the implementation of aviation safety management at State level in Ireland

1.1.3 Safety Performance Indicators (Ref Appendix II for details)

ICAO/EASA/National State level performance dashboards

1.1.4 Stakeholders and Roles

Department of Transport – aviation policy
Irish Aviation Authority – implementation of SSP/SPAS and identification of State safety objectives
Industry – awareness, consultation and consideration of State safety objectives

1.1.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will continuously improve safety management at State level by • Implementing and improving the safety management processes required in the State Safety Programme and ensuring ongoing updates of ICAO USOAP CMA online platforms **EPAS Reference MST.001** • Working with other States (eg EU, ICAO, ABIS) to help develop rules and implementing guidance for safety management • Actively supporting ICAO/EASA panels and advisory bodies to ensure SPAS aligns with GASP and EPAS. **EPAS Reference MST.028**	Ongoing

	• Targeting key risks as part of safety management and safety oversight activities **EPAS Reference MST.028** • Ensuring Human Factors principles are fully integrated into Safety Management processes • Improving safety culture through improved safety promotion and monitoring of occurrence reporting rates **EPAS Reference MST.023 and MST.027** • Ongoing development of safety performance indicators and targets that provide assurance that safety objectives of the SPAS are being met. • Include SMS promotional material developed by ESSI Teams, EASA and SMICG in SMS training delivered by the IAA for regulators and industry. **EPAS Reference: MST.002**	
b)	The IAA will implement EU requirements on improving occurrence reporting systems, including: • The new EU Event Risk Classification System for Authorities and encourage its use by industry • The new European ECCAIRS II occurrence reporting platform and provide associated guidance to reporting entities	Q4 2022
c)	The IAA will improve safety management by implementing best practices in the sharing of safety information, between: • IAA and EASA/other States aviation authorities • IAA and Irish military authorities • IAA and Irish regulated entities	Q2 2023
d)	The IAA will establish a national FDM forum for affected Irish aircraft operators to promote the benefits of FDM for safety management and promote best EU practices in this regard. **EPAS Reference MST.003**	Q4 2021

1.1.6 Status

1.1.6.1: Alignment with ICAO GASP and EPAS

The GASP 2020-2022 (latest edition) was published in 2019 and includes detailed organisational and operational safety enhancement initiatives (SEI's) for States and associated roadmap for their implementation. The actions in this Plan align with the GASP SEI's and are annotated accordingly at the end of each sub-chapter as relevant.

Similarly, the IAA works closely with the EASA SM TeB Advisory Body in the development of the European Plan for Aviation Safety as well as developing detailed implementing guidance

to support pan-EU safety management. The IAA implements the EPAS actions for Member States and provides progress updates to EASA as requested. Appendix I also refers.

The IAA is actively involved in the detailed preparatory work needed to support development on international standards and regulations and associated implementing guidance, through participating in ICAO safety management panel, safety management international collaboration group, EASA Advisory bodies (including MAB, TeB's, Network of Analysts, CAG's, and Data4Safety). Current activities in safety management include:

- Developing amendment text for the next update for Annex 19
- Developing global implementing guidance on sharing safety information
- Developing EU Implementing rules and associated guidance on occurrence reporting and performance monitoring

1.1.6.2: Occurrence Reporting updates

The IAA occurrence reporting website available on https://www.iaa.ie/safety/safety-reporting provides details and guidance on how to report safety concerns to IAA.

New regulatory requirements on implementing the EU Event Risk Classification Scheme for Authorities were postponed in 2020 due to COVID-19 and this scheme is expected to be implemented in 2021. The IAA is currently working on developing relevant guidance and training on the use of the ERCS as well as the necessary ICT changes to reporting platforms to facilitate the new scheme. In addition, the IAA continues to work on the major ICT project to transition the occurrence reporting platform to ECCAIRS II which is due to complete by end Q2 2021.

The IAA was assigned the role of "Just Culture" Body as required by Regulation (EU) 376/2014 and the related policies and procedures have been implemented.

Safety occurrence reporting is a pillar of safety management and the IAA monitors occurrence reporting rates as a key performance indicator of the safety culture of an organisation across different sectors. Whereas in the commercial sector, occurrence reporting rates have generally improved over the past few years (including during COVID-19 pandemic) the occurrence reporting rates in general aviation (including Part-SPO/aerial works) remain frustratingly low. The IAA continues to promote occurrence reporting for General Aviation, and in addition, the General Aviation Safety Council of Ireland (GASCI) uses every opportunity to highlight the benefits of sharing safety information to General Aviation. It is also expected that the implementation of the new "Just Culture" Body will provide greater confidence to GA pilots in the occurrence reporting system.

1.4.6.3: Safety Management System Oversight

Safety Performance Monitoring requires the development of safety performance indicators and targets (SPI/SPT's) that will be an ongoing task as long as aviation continues to change and evolve. The IAA has developed SPIs across all sectors in the State and at this time has established safety targets (SPT's) in the ATM domain as part of EU ATM Performance Scheme. IAA actively participates and assists in statistical analysis tasks as part of EASA Network of Analysis work programme to help develop standardised SPI's at EU level to facilitate common understanding on safety performance measures.

Appendix II provides a summary of the SPIs currently used by the IAA in order to measure progress toward achieving the safety objectives of this Plan.

1.1.6.4: Information Sharing

Lessons learned from analysis of safety occurrences can help identify safety issues that can impact all sectors in aviation. The IAA understands the needs for, and benefits of, sharing safety information across all levels of aviation. The IAA contributes to EU led safety management at EASA by sharing information on analysis of Irish occurrence reporting and also with individual States in cases where Irish aircraft operators are involved in occurrences of interest to other States (eg ATM/Airports).

The IAA is keen to promote the benefits of sharing safety information between the regulator and regulated entities (and vice versa), outside of the formal compliance audit environment, through safety occurrence review meetings, industry workshops etc. The impact of COVID-19 became the dominant safety issue during 2020 and is likely to continue to dominate safety management discussions in 2021, as operations ramp up in line with the anticipated easing of public health travel measures.. This interchange is particularly important as it provides the necessary link on safety management between the State SSP/SPAS and organisations SMS and facilitates common understanding and sharing of information on key risks across all entities.

The IAA also co-ordinates with the Irish military on safety occurrences of mutual interest such as airspace infringement in military restricted airspace and occurrences involving drones. Irish military aviation is also represented in the General Aviation Safety Council of Ireland.

All safety information shared by the IAA respects the requirements for confidentiality and appropriate use of data as laid down in the occurrence reporting regulations.

1.1.6.5: FDM operators forum

An FDM forum provides the opportunity for the IAA and aircraft operators required to implement FDM to share information and experience on the use of FDM data for safety risk management purposes. It also provides a forum to review proposed standardised indicators and triggering events promoted at EU level (eg via EAFDM). The IAA Plan was to establish a national FDM forum for Irish aircraft operators during 2020 however this was postponed due to COVID-19 and it is now planned to establish the forum in 2021. Relevant IAA inspectorate staff received training in 2019 in this regard.

The actions in this chapter also address GASP 2020-2022 Goal 3 'Implement effective State Safety Programmes' and GASP Safety Enhancement Initiatives including:

- *GASP SEI -13E & F (States) - Issue SMS regulations for service providers and verify SMS implementation, and, identify and share safety management best practices.*
- *GASP SEI-17/18 (States) — Establishment of safety risk management at the national level*
- *GASP SEI-20/21 (States) – advance safety risk management at national level through collaboration, support and information sharing with industry stakeholders*
- *GASP SEIs (multiple) (States) — Mitigate contributing factors to the risks of CFIT, LOC-I, MAC, RE, and RI*

1.2 - M.014 Separation of IAA safety regulation and service provision functions

1.2.1 Safety Issue

In accordance with Irish government policy, the safety regulation and air navigation services provision functions of the Irish Aviation Authority will be separated in 2021 and the IAA safety regulatory function will merge with the Civil Aviation Regulator (economic). This major organisational change impacts the State Safety Programme and robust change management procedures must be applied to ensure there is no disruption to regulatory or air navigation services functions, during or after the separation.

1.2.2 Safety Objective

To ensure there is no disruption to regulatory functions and provision of air navigation services during the transformational project to separate the functions of safety regulation and air navigation service provision (ANSP) of the Irish Aviation Authority.

1.2.3 Safety Performance Indicators (Ref Appendix II for details)

Regulatory compliance and safety performance indicators at IAA regulatory and organisational levels.

1.2.4 Stakeholders/Roles

Department of Transport – aviation policy
Irish Aviation Authority – project implementation at regulatory and organisational level
Civil Aviation Regulator – project implementation at regulatory level
Irish Air Navigation Services Provider – establishment of new organisation
Industry – stakeholder involvement

1.2.5 Actions

	ACTIONS	TARGET DATE
a)	• The IAA SRD will apply change management and risk management processes to ensure that there is no loss or reduction of regulatory function during the transformation project to separate from the IAA ANSP and merge with CAR.	Q4 2021
b)	• The IAA SRD will target ANSP change management and risk management processes as part of safety oversight planning, during the transformation project to separate the IAA ANSP from the regulator	Q4 2021
c)	• The IAA SRD will update the State Safety Programme document as necessary to reflect the organisational changes to the regulatory functions following separation.	Q4 2021

1.2.6 Status

1.2.6.1: Change management

The structural change to the IAA must be brought into effect by changing primary legislation and the legal process is well underway with the publication of the Air Navigation Transport Bill in December 2020. The Bill is expected to be considered by the Houses of the Oireachtas in 2021. It reached Second Stage in the Dail in February 2021.

An Aviation Regulator and Chief Executive Officer Designate for the new Irish Aviation Authority was appointed during 2020 and took up the role from 1st January 2021. Project Teams have been established to implement the project to separate IAA SRD/ANSP and to merge CAR into the newly formed Irish Aviation Authority, addressing issues such as human resources, corporate services, buildings, ICT, policies and procedures etc.

Whereas the overall project to deliver the transformation is outside the scope of this Plan, the SPAS actions focus on the continuity of regulatory functions and air navigation services during the transition period and beyond. One of the over-riding principles of the separation project, is that there should be minimal impact on the current staff in the IAA responsible for performing operational tasks in safety regulation or air navigation services provision.

1.2.6. 2: Update to State Safety Programme Document

The State Safety Programme for Ireland was last published in 2015 and reflects the current structure of the IAA. This document will be updated during the latter half of 2021 to reflect the new structure post-separation, and will be published after the enactment of the Air Navigation and Transport Bill.

1.3 - M.017 Integrated Risk Management (Safety and Security)

1.3.1 Safety Issue

Aviation risks to safety of flight due to acts of unlawful interference need to be considered at international, regional, national and operator level. The analysis of risk is performed independently in the technical domains of safety and security, however, an integrated view of cross-domain risks should also be considered. By having an integrated approach, it is possible to ensure that mitigation measures can be evaluated on the basis that they serve both safety and security objectives, thereby maximising the benefit of that mitigation to the organisation or State.

1.3.2 Safety Objectives

To continuously improve aviation safety through an integrated approach to risk management in the domains of safety and security.

1.3.3 Safety Performance Indicators (Ref Appendix II for details)

Safety and security performance indicators at IAA regulatory and organisational levels.

1.3.4 Stakeholders/Roles

Department of Transport – policy is respect of aviation safety and security, including aviation security policy in Ireland and its existing aviation security obligations under all national and international legislation (including ICAO Annex 17, EU Regulations and ECAC Doc 30).
Aviation Industry – responsible for establishing and maintaining safety and security management systems including reporting of safety and security related occurrences to the Irish Aviation Authority.
Other State Agencies:

- An Garda Síochána – conducts threat assessment and is the competent authority for the purposes of security risk assessments related to Drone operations
- National Civil Aviation Security Committee Threat and Risks Working Group - evaluating the risks to aviation from an aviation security perspective

1.3.5 Actions

	ACTIONS	TARGET DATE
a)	• The IAA will engage with the Department for Transport to establish the protocols, policies and mechanisms needed to facilitate an integrated risk management approach between aviation safety and security.	Q2 2022
b)	• The IAA will determine how an integrated approach to managing safety and security risks would impact current policies, procedures and services.	Q4 2021

c)	• The IAA will implement Authority Requirements in forthcoming EU regulations on cybersecurity and assist affected organisations with implementing the associated Organisation Requirements.	Q4 2023
d)	• The IAA will review synergies between cybersecurity requirements in the security domain and those proposed requirements in the safety domain to ensure efficient implementation.	Q4 2021

1.3.6 Status

1.3.6.1 Co-operation in risk management

Effective risk management processes ensure that all risks are considered, and mitigating actions are implemented. Risks arising from acts of unlawful interference present specific challenges to aviation organisations and the State, as by definition, the perpetrators of such acts are deliberately targeting aviation to achieve their political goals, and are acting maliciously to undermine the established policies and procedures. To achieve an integrated approach to risk management in respect of acts of unlawful interference, the relevant authorities for safety and security should co-operate, as much as possible, by sharing relevant safety information on risk assessments and mitigation actions in each domain with due regard to the sensitivity of the related information. The purpose of the integrated approach is:

1. To ensure that risks and mitigations identified in the aviation security domain are complementary to the aviation safety objectives
2. To ensure that the criticality of mitigations is identifiable where they exist for one or more risks, whether safety or security
3. To provide an appropriate framework for the ongoing review of safety and security performance to ensure that safety objectives are being met.

The goal is to ensure that all risks are identified, mitigation is efficient and effective and critical mitigations are monitored in a manner that ensures prompt action in case of immediate safety concern.

In Ireland aviation safety and aviation security are two separate State regulatory functions. The IAA Safety Regulation Division is the Competent Authority for aviation safety in respect of EU Basic Regulation. Additionally, in accordance with EC Regulation 300/2008, the IAA has been designated the Appropriate Authority in Ireland, responsible for monitoring the coordination and implementation of the National Civil Aviation Security Programme, including oversight of organisations and security occurrence reporting. Other agencies with responsibilities in this regard include An Garda Siochana with responsibilities for security aspects of Drone operations, and the National Civil Aviation Security Committee Threat and Risks Working Group with responsibility for evaluating the risks to aviation from a security perspective.

In recognition of the interdependencies and interactions between safety and security in the domains of air operations, aerodromes and secure supply chain in particular, the IAA proposes to adopt an integrated approach to management of safety and security risks in order to gain a complete overview of the risks across the spectrum for the benefit of both safety and security risk management. This means developing mechanisms for sharing safety-related security information between security and safety domains and vice versa. The enabling protocols and policies will need to be consulted and agreed with relevant government departments and agencies.

1.3.6.2 Cybersecurity

EASA Notice of proposed amendment NPA 2019-07 introduced the proposed requirements for cybersecurity including a new Part-AISS to address requirements for aircraft information security systems across all aviation safety domains. The regulation is scheduled to be published in Q1 2022. In the security domain, EU Regulation 2019/1593 lays down detailed measures for the implementation of the common basic standards on aviation security, including cybersecurity.

The IAA has established a cross-domain regulatory working group on cybersecurity to prepare for implementation of the new aviation safety regulations and providing associated guidance for industry. The working group will also review the synergies between requirements in the security and safety regulations to establish where implementation efficiency gains can be made.

1.4 - M.010 Implementation of Risk-based and Performance-based (RBO/PBO) Oversight

1.4.1 Safety Issue

The IAA is implementing risk-based and performance-based oversight as a key element of the State Safety programme in Ireland, to target regulatory resources in the more critical safety areas. The lack of, or ineffective implementation of, risk-based and performance-based oversight could result in the targeting of resources in the wrong areas.

1.4.2 Safety Objective

To implement effective risk-based and performance-based oversight methodologies across relevant sectors of the Irish civil aviation system.

1.4.3 Safety Performance Indicators (Ref Appendix II for details)

Availability and use of risk and performance assessment tools in all aviation domains
Use of EASA MS Assessment tool in relevant aviation domains

1.4.4 Stakeholders/Roles

Irish Aviation Authority – use of RBO/PBO methodologies in all critical elements of safety oversight
Industry – awareness of key safety issues targeted by regulatory oversight for inclusion in their own SMS.

1.4.5 Actions

ACTIONS		TARGET DATE
a)	• The IAA will develop the tools to support organisation risk profiling in airworthiness domain.	Q4 2021
b)	• The IAA will ensure adequate resources are available to support data-based decision making (including systems development, data management and risk modelling) and safety promotion.	Q4 2022
c)	• The IAA will transition to the use of EASA MS Assessment tool to measure the effectiveness of safety management by approved organisations in all domains and will provide feedback on the use of the tool to EASA via the SM TeB. **EPAS Reference MST.026**	Q4 2023
d)	• The IAA will review current methodologies employed in RBO/PBO to identify strengths and weaknesses in order to improve implementation	Q2 2022

e)	• The IAA will develop processes to measure the effectiveness of risk-based and performance-based methodologies across relevant sectors of the civil aviation system	Q4 2023

1.4.6 Status

1.4.6.1: RBO/PBO during COVID-19

The COVID-19 pandemic brought the issue of risk-based oversight to the forefront as organisations and regulators had to meet the challenges the pandemic presented. From the regulators perspective the IAA had to rely on risk modelling and risk assessment in a dynamic fashion in order to support industry operational needs (eg regulatory exemptions/derogations) and to manage the oversight programmes based on specific COVID-19 risk assessment and using remote inspections and audits to overcome COVID-19 travel restrictions. In addition, Safety Promotion became a key regulatory tool during the pandemic as the IAA ensured that key safety management messages were promulgated to suit the specific needs of each regulated entity.

The pandemic provided a significant test of the risk management processes of both regulators and regulated organisations in a way never experienced before and thankfully these processes withstood the challenge with no significant safety occurrences and no apparent degradation in safety performance due to the pandemic (see also IAA Annual Safety Performance Review).

1.4.6.2: Further developments in RBO/PBO

Chapter 1.1 above focuses on continuous improvement of the safety management processes implemented by the IAA and the lessons learned due to the COVID-19 provided an opportunity to identify areas for improvement in this regard. This includes the need for additional resources (ie human and technological) to address

- Improved data collection and analysis processes to provide greater ability to support RBO/PBO based on data-based decision-making
- Additional resources to manage Safety Promotion as a key regulatory tool with relevant marketing capability to reach diverse audiences with specific needs.

The resource issues are being addressed as part of IAA digitalisation project (technology) and the IAA separation project (human resources).

Oversight inspectors need new competencies for conducting oversight in an RBO/PBO environment and this issue is addressed in Chapter 1.5 Competency of personnel below.

Due to the delay at EU level in developing Implementing Rules for safety management systems in Airworthiness, there have been limited opportunities to develop RBO/PBO methodologies in this domain. The IAA will develop organisation risk profiles in this domain during 2021 to support future oversight planning.

1.4.6.3: Safety Management System Oversight

As part of SMS oversight, the IAA ensures that the key operational risk areas identified in this Plan (see Volume 2, Chapters 2 and 3) are considered by organisations in their own risk management processes as appropriate to their own operations. Similarly, an organisations safety objectives should align with the State level safety objectives as outlined in this Plan, and as appropriate to that organisation.

The IAA provides SMS training (week-long courses) for the benefit of both IAA staff and Irish industry, which uses the published guidance material (ie ICAO, SMICG, EASA) to promote SMS best practice.

The IAA is currently using the EASA MS Assessment Tool (MSAT) to evaluate SMS implementation in the Air Operations and Aerodromes domains. The use of the EoSM tool required as part of EU performance scheme RP3 will continue to be used in the ANS domain and this tool will be tailored for use at relevant service providers that are outside of the performance scheme. The extension of the use of the EASA MSAT tool in airworthiness is being planned in conjunction with the EASA rulemaking plan to require SMS in this domain. The IAA is also requested to provide feedback to EASA on the use of the SMS Assessment Tool which it does through the EASA Advisory Body SM TeB.

1.4.6.4: Review of RBO/PBO processes implemented in IAA

The IAA has established a cross domain working group to perform a review of the RBO/PBO processes currently implemented by IAA including:

- Cultural aspects of RBO/PBO (impacts on beliefs, values, behaviours)
- Transitional aspects (moving from compliance-based oversight to RBO/PBO)
- Procedural aspects (suitability, areas for improvement, additional training)
- Use of data (suitability, areas for improvement)

This review will include a gap analysis of current processes versus best practices employed in other States in this regard.

1.4.6.5: Effectiveness of RBO/PBO in IAA

The IAA is developing the process necessary to measure the effectiveness of the State Safety Programme which will provide assurance that the RBO/PBO methodologies contribute to the overall goal of improving safety management and/or safety outcomes. Specific tools for this assessment are under development based on international templates available (eg SMICG SSP maturity assessment tool).

1.5 – M.015 Competency of regulatory personnel

1.5.1 Safety Issue

The IAA must ensure it has sufficient and competent staff to fulfil its obligations under ICAO Annexes and EU and national regulations, and must continuously update the competency requirements to address the evolving civil aviation system, new regulatory functions and emerging risks.

1.5.2 Safety Objective

To ensure that the IAA recruits and retains sufficient and competent staff to oversee the continuously evolving civil aviation system.

1.5.3 Safety Performance Indicators (Ref Appendix II for details)

Human resource capacity and training completion rates per IAA regulatory functional areas

1.5.4 Stakeholders/Roles

EASA – Implementing rules to support competency requirements
Irish Aviation Authority – procurement and training of staff
Industry/persons – stakeholder awareness

1.5.5 Actions

ACTIONS		TARGET DATE
a)	The IAA will ensure that it has sufficient competent inspectorate staff to properly discharge its safety oversight responsibilities **EPAS Reference MST.032 a).**	Ongoing
b)	The IAA will ensure that inspectorate staff are fully trained to perform oversight activities in a risk based and performance-based environment in all domains.	Q4 2022
c)	The IAA will ensure that relevant inspectorate staff in all domains are fully trained in oversight of organisation management systems, including oversight of safety culture, governance structures, interaction between risk management and performance monitoring, and the use of inspection findings and safety information such as accidents and incidents **EPAS reference MST.032 c)**	Q4 2022
d)	The IAA will ensure that relevant regulatory staff meet the new EU competency requirements on Human Factors, including HF trainers **EPAS Reference MST.037.**	Q4 2024

e)	The IAA will ensure it has sufficient competent staff to oversee flight time specification schemes, in particular those relating to effective fatigue risk management by operators and advise EASA. **EPAS Reference MST.034.**	Q4 2021
f)	The IAA will ensure it has sufficient competent staff to perform alcohol testing of flight crews to meet EU regulations in this regard.	Q4 2021
g)	The IAA will provide feedback to EASA on how the Language Proficiency Requirements is implemented, to share best practices and identify areas for improvement and harmonisation **EPAS Reference MST.033.**	Q4 2021

1.5.6 Status

1.5.6.1: Oversight of safety management

The IAA has detailed procedures for resource planning and training of across all functional areas that ensure sufficient competent staff is available to fulfil regulatory responsibilities and respond to significant regulatory or organisational changes in this regard.

New competencies for regulatory staff are needed to address:

- the transition from compliance-based oversight to risk-based and performance-based regulatory oversight
- the oversight of an organisations SMS for both compliance with regulations and effectiveness of SMS processes.

Competency requirements in these areas are still being developed, in conjunction with Global/EU initiatives, and the IAA is currently targeting to have relevant staff trained in all domains by end 2022.

1.5.6.2 Oversight of specific regulatory functions

Chapter 2.2 below discusses the main regulatory changes that are currently being implemented in IAA to maintain compliance with evolving regulatory changes. These regulatory changes may introduce new competency requirements for regulatory staff (particularly oversight inspectors) to oversee the new regulations. At this time the Plan addresses the completion of training for relevant staff in the areas of oversight of human factors and flight time specification scheme and a new action is added to address alcohol testing of flight crews.

The IAA has provided relevant training for inspectorate staff on Human Factors, however, the action is updated in this version of the Plan to address additional requirements for IAA arising from latest EPAS recommendations to EU Member States (MST.037 refers) to ensure HF competencies are provided based on a common EU understanding to include:

- development of guidance and tools for the competency assessment of regulatory staff before and after training.
- guidance for the appropriate level of Human Factors competency for Human Factors trainers.

This task is dependent on the availability of relevant EU guidance in this respect which is currently been developed and due to be available in 2023.

The IAA completed training on oversight of new regulations on fuel schemes during 2020 despite COVID-19 restrictions however training on flight time specification schemes was deferred to 2021 due to COVID-19 priorities.

EASA has identified safety concerns on the implementation of language proficiency requirements in EU Member States and wishes to raise awareness on the LPR implementation (LPRI) and to promote a common understanding of LPRI as a safety issue, share lessons learned and develop best practices in this area. As part of this initiative EPAS action MST.033 requests EU Member States to provide feedback to EASA on how the LPRI takes place and confirm that training is delivered using the English language, for the purpose of harmonisation and uniform implementation. All Irish training organisations naturally deliver training in English but many Irish licenced pilots train with different ATO's across the EU and beyond, where the LRPI requirements may be applied differently. The IAA will provide feedback to EASA on any reported deficiencies in LRPI implementation as reported by Irish operators or licensed pilots.

The actions in this chapter support the GASP 2020-2022 safety enhancement initiatives for States:

SEI-5 — Qualified technical personnel to support effective safety oversight
SEI-19 — Acquisition of resources to increase the proactive use of risk modelling capabilities

1.6 - M.006 Digitalisation

1.6.1 Safety Issue

Failure to implement an integrated Information System to allow more effective and efficient management of compliance and safety related data could diminish the ability to perform effective safety management and risk-based and performance-based oversight (RBO/PBO).

1.6.2 Safety Objective

To implement digital processes to support oversight management and safety management across all oversight sections in IAA.

1.6.3 Safety Performance Indicators (Ref Appendix II for details)

All regulatory oversight processes migrated to new digitalisation platform.
Availability of business intelligence and 'big data' management tools from the digitisation project to support safety management and RBO/PBO in all sectors

1.6.4 Stakeholders/Roles

Irish Aviation Authority –digitalisation project delivery
Industry – stakeholder engagement to support project design, implementation and use.

1.6.5 Actions

ACTIONS		TARGET DATE
a)	The IAA will implement the audit management systems of each domain in the new IAA digital platform MySRS.	Q4 2022
b)	As part of the digitalisation project the IAA will provide enhanced business intelligence capability in the new MySRS platform and applications to facilitate the sharing of safety information, risk-based oversight and safety promotion.	Q4 2023

1.6.6 Status

1.6.6.1 Audit management

The IAA Digitalisation project began in late 2019 and continued during 2020 without any major impact due to the budget or delivery schedule due to COVID-19. The first module completed provides a new online drone operator registration solution and allows a person complete required drone pilot training. The next modules to be completed by Q2 2021 are for aviation security and aerodromes and this will be followed by modules for air navigation services and the migration of existing modules currently deployed on existing EMPIC system. The project is on track and all audit management in safety regulation should be in place by end 2022.

1.6.6.2 Safety intelligence

A key component of the new digitalisation platform is that in addition to establishing the audit management processes on one system, it provides enhanced capability to extract safety intelligence from a single information system, in a consistent manner, which will greatly assist the risk and performance based oversight processes discussed in Chapter 1.3 above. Also, the new MySRS digital platform provides new channels of communication between the IAA and regulated entities that will support enhanced applications for sharing safety information and for safety promotion.

1.7 - M.012 Oversight of complex operational models and novel work practices

1.7.1 Safety Issue

Due to the increased complexity of the aviation industry, the number of interfaces between organisations, their contracted services and regulators has increased, as has the geographic spread of the associated operational and management processes and the introduction of novel work practices. Failure to adequately address the safety risks arising from the introduction and on-going management of safety by organisations with complex business models, and/or novel work practices, could have a detrimental effect on safety.

1.7.2 Safety Objectives

To ensure appropriate processes are in place to oversee complex organisations and new business models or novel work practices.

1.7.3 Safety Performance Indicators (Ref Appendix II for details)

Effective SMS processes confirmed for all complex organisations
State/State cooperative oversight processes developed
Specific guidance for inspectorate on oversight of governance structure of complex organisations.

1.7.4 Stakeholders/Roles

Irish Aviation Authority – implementation of effective processes to oversee the SMS of complex organisations
Industry – complex organisation ensure SMS addresses risks associated with complex business and operating models and novel work practices

1.7.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will implement cooperative oversight and disseminate best practices on how NAAs can better work together and participate in the oversight of organisations/ persons certified by another Member State **EPAS Reference MST.032 b).**	Ongoing
b)	The IAA will ensure it has a thorough understanding of operators' governance structure, in particular, extent of outsourcing, influence of financial stakeholders and of the controlling management personnel, where such personnel are located outside the scope of approval. The IAA will also assist in the development of, and implement, best EU practices in this regard. **EPAS Reference MST.019**	Q4 2021

c)	The IAA will ensure that management systems of the operator capture new hazards that are introduced by different employment models within an individual operator, increased mobility of pilots, safety-critical services provided by non-certified service providers and (long-term) leasing as part of SMS oversight. **EPAS Reference MST.022**	Q4 2022

1.7.6 Status

1.7.6.1: Co-operative oversight

The IAA participated in EASA working group to develop European guidance and recommended practices on co-operative oversight of complex organisations. Complex organisational structures employed by many modern organisations must ensure that the management personnel have the relevant control of the business and resources to enable them to meet their obligations, including safety management.

This issue is being addressed at a pan-EU level in conjunction with EASA. The IAA participated in EASA Working group on this topic and the issue was also reviewed at EASA Air Ops TeB. EASA guidance on effective oversight of group operations due to be published in 2020 to assist this task was delayed due COVID-19, however, the IAA has begun practical implementation of co-operative oversight of group operations with specific States where Irish AOC Holders are part of a multinational Group Operation.

Notwithstanding the specific challenge of oversight of group operations, the IAA co-ordinates with relevant NAA's in other States in respect of any overseas audit/inspection visit and provides opportunities for participation and/or feedback on the visit as requested by the local NAA.

1.7.6.2: Complex Business Models

The IAA participated in EASA WG addressing risks associated with complex business and employment models in 2017 to develop EASA 'Practical Guide - Management of hazards related to new business models of commercial air transport operations'. The recommendations have been incorporated into the IAA SMS oversight programme as applicable and are subject to on-going surveillance. The IAA will confirm the effectiveness of Management Systems of effected organisations during current regulatory oversight cycle 2021-2022.

The actions in this chapter support the GASP 2020-2022 SEI-11 (States) — Strategic collaboration with key aviation stakeholders to enhance safety in a coordinated manner.

2: Systemic Operational Risks

2.1 – M.016 COVID-19 Pandemic

2.1.1 Safety Issue

The COVID-19 pandemic is a major global health crisis that has had a severe impact on all stakeholders of the Irish civil aviation system. The enduring nature of the pandemic meant that the consequent scaling down (or cessation) of aircraft operations lasted longer than originally anticipated. The IAA must provide regulatory support to industry in this time of crisis and ensure the robust risk management processes support the anticipated ramping up of operations during the latter half of 2021.

2.1.2 Safety Objective

To ensure that appropriate safety risk management processes are applied in civil aviation during ramping up of operations post COVID-19 pandemic.

2.1.3 Safety Performance Indicators (Ref Appendix II for details)

Serious non-compliances, accidents, serious incidents and incidents attributable to safety management of COVID-19 pandemic.

2.1.4 Stakeholders/Roles

Government Departments – policy decisions in respect of COVID-19.
EASA – common EU approach to regulatory activities during COVID-19 pandemic
Irish Aviation Authority – support industry with practical requirements (eg exemptions) and guidance; oversight of safety management systems, including risk assessments
Industry –management of contingency procedures during the crisis and risk assessment of ramping up of operations.

2.1.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will support industry by promoting latest COVID-19 related guidance material as applicable to individual domains (including general aviation) and will continue to work closely with EASA to develop EU standardised guidance in this area	Q4 2021
b)	The IAA risk-based safety oversight plans will target post-COVID-19 ramping up of operations in each domain, focusing on management systems, human performance, human factors and return to service of stored equipment.	Q2 2022

2.1.6 Status

2.1.6.1: Response to COVID-19 during 2020

The COVID-19 pandemic had a significant impact on aviation regulatory functions during 2020. The IAA regulatory focus during 2020 addressed two main areas:

- On-going assessment of the impact of new safety risks introduced by COVID-19 on the IAA regulatory oversight functions and the safety management functions of regulated entities
- The provision of regulatory support to the aviation industry as necessary to ensure continued operations for essential reasons.

Measures to identify and mitigate the safety risks included:

- Specific risk analysis to identify new COVID-19 risks in each aviation sector and appropriate mitigating actions by IAA SRD to ensure appropriate risk controls were in place
- Revised regulatory oversight programmes to include remote auditing where appropriate to overcome COVID-19 public health measures preventing on-site audits and inspections
- Actively supporting the EASA COVID-19 risk management processes to ensure EU standardised approach to risk management
- Safety Promotion of key COVID-19 related guidance to all affected organisations and general aviation
- Monitoring of the EASA/ECDC Aviation Health Safety Protocol at Irish airports and on flights into and out of Ireland

The impact of COVID-19 had an immediate and dramatic effect on passenger air transport that caused a huge reduction in flight operations, including complete cessation of operations for some operators. COVID-19 impacted some of the support services that enable air transport, such as crew training and aeromedical examinations. COVID-19 also created new demands for health-related aircraft operations in Ireland that had to be facilitated in the interest of the State.

- The IAA SRD issued temporary regulatory approvals to support industry, based on the satisfactory assessment of the related safety case. These measures included:
- Approval of alternate means of compliance to EASA regulations
- Approval of exemptions to specific licensing, operations and training requirements
- Extension of validity of medical certificates
- Processing of design changes to allow use of main cabin of passenger aircraft for cargo
- Transition and storage of aircraft on the Irish register.

The IAA SRD will continue to support Irish industry and to proactively identify and mitigate COVID-19 safety risks as the pandemic continues.

2.1.6.2 Ramping up of operations post COVID-19

The actions in the Plan last year envisaged a short-term impact due to COVID-19 however due to the enduring impact of COVID-19 these actions have now evolved to focus on the risks to civil aviation as it prepares for ramping up of operations post COVID-19 (or as near to normal as possible) in the next few years. The IAA risk assessment identified new risks that have emerged as the pandemic continues. The key common risk areas identified across multiple domains that will be part of targeted oversight of organisations by IAA during 2021 include:

- Management systems; including risk assessments for ramping up operations post COVID-19
- Human performance; including amended SOP's, skill degradation of front-line staff
- Human Factors; including "wellness" for return to work post-COVID-19
- Equipment; return to service of stored equipment.

The IAA will continue to support industry by promoting latest COVID-19 related guidance material as applicable to individual domains (including general aviation).

2.2 - M.013 Brexit

2.2.1 Safety Issue

The decision of Ireland's nearest neighbour and biggest trading partner, the UK, to leave the EU has ramifications for Ireland from a political, social and economic standpoint. The IAA continues to support the aviation industry and persons as required in the post-Brexit environment.

2.2.2 Safety Objective

To ensure that the changes required following the transition to the post-Brexit environment, are properly managed to help minimise the risks to Irish industry

2.2.3 Safety Performance Indicators

Activity indicators during preparation for Brexit – no longer monitored post-Brexit.

2.2.4 Stakeholders/Roles

Department of Transport – policy decisions affecting post-Brexit trade agreement in relation to aviation activities.
EU/UK – implementation of cooperation and mutual recognition in accordance with the Brexit trade agreement in relation to aviation activities
Irish Aviation Authority – support industry/general aviation with practical requirements in the post Brexit environment and supporting the development of cooperation and mutual recognition Annexes to the Brexit trade agreement
Industry – address impact post-Brexit to their operations

2.2.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will work with Department of Transport and Irish industry to address outstanding issues for the Irish civil aviation system in the post-Brexit environment.	Q4 2021

2.2.6 Status

2.2.6.1: Preparatory work pre-Brexit

The signing of the EU-UK Trade and Cooperation Agreement (TCA) and the withdrawal of the UK on the 31st December 2020 signalled an end to a long period of uncertainty related to air transport access and the acceptance of aviation licences and certificates issued by the UK CAA. A high-level working group had been established involving IAA, DoT and Industry Stakeholders to monitor ongoing developments regarding pre-Brexit hard/soft exit strategies and the implications of either scenario on international agreements and Irish industry. The IAA contingency planning ensured that there was no major disruption to Irish civil aviation throughout 2020 as the various stages and levels of uncertainty on the post-Brexit trade deal negotiations played out in Britain.

2.2.6.2: Post-Brexit regulatory support

The action in the Plan now focuses on the post-Brexit scenario. In anticipation of the final outcome EASA had processed and accepted applications for approving certified organisations with their 'principle place of business' in the UK and those organisations were issued with EASA certification on the 1st January 2021 allowing them to continue certifying to EASA standards.

There are ongoing requests from UK based operators to allow continued operation of some commercial flight services in Ireland and the IAA is assisting Department of Transport (DoT) with related policy development. The IAA has also been requested by EASA to conduct certification and oversight of service providers based in UK, and we continue to process UK based pilot and aircraft maintenance engineer applications for Irish issued (EU) licences.

The EU-UK TCA provides a mechanism to agree certain annexes to expand future cooperation and mutual recognition and one such annex has been established in respect of airworthiness and environment certification. Further areas where annexes may be established include continued airworthiness, design, organisation approvals, aircraft operations, personnel licensing and training. The IAA, in conjunction with DoT will support the EU in developing the relevant annexes as promptly as possible to maximise the co-operative arrangements between Ireland and the UK in the post-Brexit environment.

2.3 - M.004 Regulatory Changes

2.3.1 Safety Issue

Updates to ICAO standards and EU/National Regulations require robust change management processes to ensure that the impact of the changes to both the regulatory and organisational functions are fully assessed. Failure to properly assess the impact of regulatory changes could lead to gaps in regulatory oversight. This section of the plan addresses current significant regulatory changes affecting the Irish civil aviation system.

2.3.2 Safety Objective

To implement robust regulatory change management processes to ensure that the authority requirements are fully implemented, and related guidance provided to industry stakeholders.

2.3.3 Safety Performance Indicators (Ref Appendix II for details)

Rate of findings of non-compliance following implementation of significant regulatory changes

2.3.4 Stakeholders/Roles

EASA – Implementing rules for areas under the Basic Regulation
Department of Transport – development of national policy and assignment of regulatory functions
Irish Aviation Authority – Participating in EU regulation development programme; developing national regulation for areas outside EU competence; implementation of EU requirements for competent authorities, and providing related guidance to industry stakeholders
Industry – implementation of regulatory requirements for organisations

2.3.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will ensure that the regulatory framework for civil aviation in Ireland is current and commensurate with the size and scope of aviation activities in Ireland, by: • Working with EASA on the development of EU regulations and implementing rules and associated guidance material • Working with Department of Transport, as required, on State level policy decisions affecting the regulatory framework. • Working with Irish stakeholders to develop national regulations for activities outside of EU competence per Regulation (EU) 2018/1139 (Basic Regulation)	Ongoing
b)	The IAA will implement the requirements for Authorities contained in EU and National regulations and assist affected organisations and persons with implementing the associated requirements for them	Ongoing

2.3.6 Status

2.3.6.1: Implementation challenges

The regulatory framework is subject to continuous update to address changes in the civil aviation system and emerging risks. This means that regulators and regulated entities must have robust regulatory change management systems to address the changes that impact their functions and operations. Many of the regulatory changes are relatively minor in scope, specific to individual domains and present no significant difficulties for implementation. However, some regulatory changes are significant in scope with perhaps cross domain applicability and require significant engagement between the regulator and regulated entities to work through the implementation challenges.

The SPAS addresses some of the main regulatory changes that are currently being implemented with focus on those regulatory changes that have emerged to address known safety risks.

2.3.6.2: Drones

The current focus of IAA activity in this area is the implementation of new EU Regulations on Drones, namely Implementing Act Reg (EU) 2019/947 including requirements relating to operation and registration of drones and Delegated Act Reg (EU) 2019/945 including requirements related to CE marking, technical requirements and third country operations.

The IAA is also involved in the developing the U-Space concept and regulation, a future automated air traffic control system which can handle large volumes of drones in low altitude urban areas. Phase-1 EU regulation will be available in Q2 of 2021. The IAA will consult with the drone community, business interests and the public is respect of U-Space development UAS restrictions via the IAA website.

The IAA launched a cross domain implementation project team to address the multifaceted elements of drone regulations, including State policy, safety promotion, airspace, operations, airworthiness, equipment standards, licensing training, security and oversight. This includes the recruitment of a dedicated IAA Drones manager in 2021. The project Team will continue to function for the next few years to meet the various calendar milestones included in the regulations. The project team also consults with external stakeholders (eg Department of Transport, Irish accreditation bodies, ANSP's, professional drone users etc) as necessary to implement the new regulations.

The new digitalisation system has been used to provide an online 24/7 drone operator registration system and to provide basic pilot training. At the time of writing the IAA had over 2,500 registered Drone operators and over 3,500 Drone pilots trained using the IAA on-line system. In addition, the IAA received its first application for a Light UAS Operator Certificate which was approved in Q2 2021.

Since the majority of drone operators in Ireland, in either private or professional capacity, are members of the public, the communications strategy around Drone regulations has been a key focus during 2021. The IAA has a drone specific webpage https://www.iaa.ie/general-aviation/drones with all the latest information on the rules, procedures, safety guidance etc and

the IAA also ran several Drone safety promotion campaigns using social media (IAA twitter @ IAAPress), including highlighting EASA web events in this area.

2.3.6.3: Medical Fitness for Flight

EU Regulation 2018/1042 includes requirements for organisations to introduce crew support programmes, psychological assessment of flight crew, as well as systematic and random testing of psychoactive substances to ensure medical fitness of flight and cabin crew members.

One of the provisions in this regulation is to introduce the requirement for Authorities to perform Alcohol Testing of flight crews and cabin crews. Irish legislation Statutory Instrument No 22/2021 provides the necessary powers for IAA inspectors to perform alcohol testing on aircraft crews and the IAA intends to perform this function in conjunction with the existing ARO. RAMP inspection programme, beginning in April 2021 with due regard to COVID-19 public health guidance.

The regulation includes requirements for organisations to implement support programmes to assist and support crews in recognising, coping with, and overcoming any problem which might negatively affect their performance. The IAA is working with Irish psychology experts and Irish operators in addressing "wellness" as part of COVID-19 risk mitigation, and lessons learned in that regard will support the implementation of crew support programmes post-COVID-19.

2.3.6.4: Oversight of Ground Handling

The EU intends to develop regulations (IR's and GM) to address the risks due to ground handling (Ref EPAS RMT.0728), affecting ground handling organisations, aircraft operators and aerodrome operators. This risk area includes aircraft loading, de-icing, refuelling, ground damage and ground collision (aircraft with other aircraft, obstacles or vehicles) and although these risks are currently addressed in the SMS of aircraft and aerodrome operators the intent is to strengthen the provisions at the systemic level in accordance with the EASA Ground Handling Roadmap.

The IAA has been actively engaged in this regulatory change project by participating in the development of the ground handling roadmap and is represented on the EASA Rulemaking Task Force developing the regulatory text for the Notice of Proposed Amendment in this area due for public consultation in mid-2022.

2.3.6.5: National Regulations

The national regulatory framework addresses areas of the civil aviation system that are not governed by the EU regulatory framework. This includes

- International operations of nationally certified aircraft in compliance with ICAO Standards
- National operations (aerial works or leisure) of nationally certified or permitted aircraft within the State in compliance with national standards
- Use of civil registered aircraft to support State functions

The IAA works with the Department of Transport to develop national regulatory policy in these areas. In 2020 the IAA launched an independent review of the national regulatory framework and the implementation of national rules to ensure that ICAO standards are being met (where applicable) and that national operations within the State are performed and overseen in accordance with best practices in other States. The review will also address national obligations contained in the EU Regulatory framework (eg EU MS provisions on national policy and implementing legislation). The independent review will complete during Q2 2021.

2.4 – AWSD.007 Aircraft Maintenance

2.4.1 Safety Issue

The incorrect performance of aircraft maintenance or continuing airworthiness management could affect the airworthiness of an aircraft and lead to on-board technical problems that could impact safety of flight.

2.4.2 Safety Objective

To continuously improve safety by assessing and mitigating the risks relating to aircraft maintenance and maintenance management involving Irish organisations.

2.4.3 Safety Performance Indicators (Ref Appendix II for details)

Accident, Serious Incident and Incident rates and trends related to aircraft maintenance and maintenance management issues.

2.4.4 Stakeholders/Roles

Irish Aviation Authority – analysis of aircraft maintenance and maintenance management occurrences, rates and trends and identification of sector-based safety issues
Industry – managing aircraft maintenance related safety risks and reporting pre-cursor events that could result in an aircraft maintenance or maintenance management related occurrence.

2.4.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will work with airworthiness industry stakeholders to enhance the assessment of risk and associated risk mitigation actions, in conjunction with the roll-out of SMS regulations in this domain.	Q4 2023
b)	The IAA will focus on the risk of fraud in maintenance Part-147 examinations, by adding specific items in audit checklists and collecting data on the actual cases of fraud. **EPAS Reference MST.035**.	Q4 2021

2.4.6 Status

2.4.6.1: Safety Management in Airworthiness Domain

The lack of regulatory requirements for SMS in the regulations applicable in the airworthiness domain was discussed in Chapter 1.3 of this Volume in SPAS and SPAS action Ch 1.3(a) addresses the need to develop organisation risk profiling in airworthiness to facilitate risk-based oversight planning.

The IAA has also developed sectors risk registers in this domain to help identify key risks in airworthiness and these risk registers can support the oversight of implementation of the new regulatory requirements for safety management systems in airworthiness organisations. Conversely, the IAA airworthiness sector risk register will be greatly enhanced by learning

from the results of organisations processes for identifying key risks as part of their own safety management systems.

EASA Safety Information Bulletins are used to highlight safety concerns that do not meet the criteria for issuance of a more formal Airworthiness Directive. The IAA monitors SIB's and ensures recommendations contained therein are implemented by affected organisations as part of safety oversight activities and the relevant SIB's addressing key risk areas identified in this SPAS are highlighted. SIB 2020-14 addressing "Pitot-Static Issues After Storage due to the COVID-19 Pandemic" was highlighted to Irish CAMO/AMO's during 2020.

2.4.6.2: Fraud in Part-147 (Maintenance Training Organisations)

This issue derives from the EASA risk management processes and the related action for Member States (EPAS Reference MST.035) is to encourage EU Member States to focus on the risk of fraud in Part-147 maintenance training organisations.

The IAA is currently unaware of any cases of fraud in Irish Part-147 organisations from its previous audit activities, however, the issue is included in the Plan in order to highlight the risk and focus oversight activity in this area during audits of Irish Part-147 maintenance training and examinations.

2.5 – FOD.028 – Rotorcraft Operations

2.5.1 Safety Issue

Rotorcraft operators perform a wide range of highly specialised operations to meet different demands within the State, including passenger transport, medical emergencies, offshore operations, search and rescue, survey work and others. Although rotorcraft operators are exposed to similar risks as large commercial transport operators, the nature of rotorcraft operations brings specific risks to this sector.

2.5.2 Safety Objective

To continuously improve safety by assessing and mitigating the risks in helicopter operations in the State, involving Irish approved or declared helicopter operators.

2.5.3 Performance Indicators

Accident, Serious Incident and Incident rates and trends related to helicopter operations involving Irish helicopter approved or declared organisations.

2.5.4 Stakeholders/Roles

Department of Transport – policy in respect of oversight of civil helicopter operators in the conduct of State functions

Irish Aviation Authority – analysis of sector occurrences, rates and trends, and identification of sector-based safety issues; aviation safety oversight of civil helicopter operators in the conduct of State functions (eg search and rescue, aerial firefighting)

Industry (approved and declared helicopter operators) – managing helicopter operational safety risks and reporting pre-cursor events that could result in helicopter occurrences.

Industry (ANSP's) – implement SESAR solutions aiming to facilitate low level Helicopter IFR route network in the TMA, if feasible.

2.5.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will review the need for, and feasibility of, implementing SESAR solutions aiming to facilitate low level Helicopter IFR route network within and outside of the TMA. **EPAS Reference MST.031**	Q4 2022
b)	The IAA will work with industry to provide a helicopter flight operations consultation forum involving approved and declared helicopter operators, to focus on common operational and safety issues across this sector.	Q4 2021
c)	The IAA will promote safety messages addressing the key risks in rotorcraft operations, including helicopter safety workshops where relevant **EPAS Reference MST.015.**	Ongoing

2.5.6 Status

2.5.6.1: Rotorcraft operations in Ireland

Rotorcraft operations in Ireland includes the following types:

- Approved commercial CAT operations by holders of an EASA AOC (Part-OPS) issued by the IAA (eg carriage of passengers or helicopter emergency medical services)
- Declared non-commercial operations involving complex helicopters (Part NCC)
- Declared specialised helicopter operations (Part SPO)
- Non-commercial operations (Part NCO)
- Commercial Helicopter AOC holders performing State functions (eg search and rescue, firefighting).

2.5.6.2: Rotorcraft key risks

The IAA rotorcraft sector risk register identifies the key risks for this sector that includes helicopter inflight upset, terrain collision and obstacle collision. The main contributing factor for helicopter upset is systems failure and the EASA EPAS identifies a number of rulemaking tasks to improve helicopter systems reliability.

Terrain collision and obstacle collision in flight are higher level risks in rotorcraft operations due to the need for intentional low-level operations (eg Part SPO operations) and the need to take-off and land in different types of landing sites (eg for HEMS operations). EPAS MST.031 requests that EASA Member States together with their ANSPs, to evaluate the possibility to establish a network of low level IFR routes in their airspace to facilitate safe helicopter operations with reference to the SESAR Solutions Catalogue. The IAA is working with a HEMS helicopter operator to develop PinS (Point-in-Space) RNP approaches to the most used landing sites, some of which are in controlled airspace.

The IAA continues to engage with European initiatives to address rotorcraft safety and in particular the measures in the European Rotorcraft Safety roadmap that pertain to national authorities, such as continued aviation education and flight crew training. The IAA also participates in the EASA/NAAs Helicopter Offshore Coordination forum to address specific risks in this area.

2.5.6.3: Safety Promotion for rotorcraft operators

The rotorcraft operations in Ireland consists of a number of small organisations and private operators and the IAA is particularly focused on the importance of safety promotion in this domain. The IAA participates in the EASA Safety promotion network consisting EASA and EU Member States, where EU standardised safety promotion material is developed in accordance with EPAS tasks (SPT). The IAA distributes relevant rotorcraft safety promotion material directly to affected operators and highlights important safety information for private rotorcraft operators through the General Aviation Safety Council of Ireland.

2.5.6.4: Helicopter Operators Consultation Forum

Although the helicopter industry is relatively small in Ireland, the availability of declared Part NCC/Part SPO operations in the regulatory framework has seen a growth of activity in this area and prompts the need for a dedicated helicopter flight operations consultation forum, involving IAA and AOC/NCC/SPO approved and declared organisations to address common operational and safety issues, including for example the EASA Rotorcraft Safety Roadmap. Plans to implement this forum during 2020 were deferred to 2021 due to COVID-19 priorities. Currently, helicopter AOC holders continue to participate in the Flight Operations Consultancy Group for industry that includes both fixed and rotary wing operators.

2.6 – ASD.003 Implementation of parallel runway operations

2.6.1 Safety Issue

The growth of civil aviation has led to capacity issues for some aerodromes which may be alleviated by the introduction of parallel runway operations. Parallel runway operations introduce specific risks affecting aerodrome operations, flight operations, airspace planning and air traffic control.

2.6.2 Safety Objective

To continuously improve safety by assessing and mitigating the risks emerging due to implementing parallel runway operations.

2.6.3 Safety Performance Indicators (Ref Appendix II for details)

Accident, Serious Incident and Incident rates and trends related to parallel runway operations.

2.6.4 Stakeholders/Roles

Irish Aviation Authority – analysis of occurrences and identification of cross domain hazards in due to the introduction of parallel runway operations; integrated safety oversight of the change management projects affecting aerodromes, ANSP's and flight operations.
Industry (ANSP, Aerodromes, AOC Holders) – change management and risk assessment for parallel runway operations, including management of the interfaces. Reporting safety occurrences arising during the implementation of parallel runway operations.

2.6.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will develop the oversight planning process for introduction of parallel runway operations to take due account of the cross-domain implementation projects, their interconnections and dependencies.	Q4 2021
b)	The IAA will conduct dedicated safety analysis of events that occur as a result of the implementation of parallel runway operations.	Q4 2021

2.6.6 Status

2.6.6.1: Oversight of Parallel Runway Project - Dublin Airport

The first implementation of parallel runway operations in Ireland is currently underway in Dublin Airport. This project involves a number of different inter-connecting projects to address:

- Runway and taxiway design and development and associated aerodrome procedural changes
- air traffic services infrastructure design and development and associated procedural changes
- airspace changes including standard instrument arrival and departure development
- flight operations procedures development

The IAA safety oversight system ensures that all changes are properly implemented in accordance with associated regulations, including ensuring that the risks at the interfaces of the different sectors are appropriately managed. The construction project is subject to ongoing risk assessment and the implementation of local risk mitigation measures (including site access, re-designation of existing runways, temporary closure of runways at critical stages etc) ensures no adverse safety effect on existing aerodrome operations.

The project construction (including new control tower and runway) continued during 2020 despite COVID-19 restrictions and the related risk management processes have been found to be effective during this phase. Commissioning of works and operational trials will continue during 2021.

2.6.6.2 Risk Management and Occurrence Reporting

The IAA conducts on-going analysis of safety occurrences during the life of this project from project initiation through to the operational phase. The impact of COVID-19 was to vastly reduce the level of airport movements during 2020 which reduced the risk exposure due to construction works, however, an increase of aircraft operators (eg cargo operators) who were unfamiliar with the airport presented additional challenges.

Ongoing analysis of safety occurrences has shown an increasing rate of aircraft taxi deviations since 2017. Contributory factors to these occurrences are system wide but include temporary construction works at the airport and non-standard routing of aircraft.

No safety concerns regarding aerodrome operations specific to parallel runway construction were raised during 2020.


16-34
16-34

3: Specific Operational Risks - Commercial Air Transport

3.1 - FOD.001 Loss of Control in flight

3.1.1 Safety Issue

Although the loss of control of an aircraft in flight (LOC-I) is a relatively rare event, the highest proportion of fatal accidents globally were attributed to LOC-I events across many different sectors in aviation. Loss of control can arise following aircraft upset events including equipment failures, weather events, human factors, on-board fire, aircraft fuel management.

3.1.2 Safety Objective

To continuously improve safety by assessing and mitigating the risks relating to loss of control inflight involving Irish commercial aeroplane operators.

3.1.3 Safety Performance Indicators (Ref Appendix II for details)

Accident, Serious Incident and Incident rates and trends related to LOC-I category occurrences involving Irish commercial aeroplane operators.

3.1.4 Stakeholders/Roles

Irish Aviation Authority – analysis of LOC-I occurrences, rates and trends and identification of sector-based safety issues

Industry (Air Operators) – managing LOC-I related safety risks and reporting pre-cursor events that could result in a LOC-I occurrence.

3.1.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will focus on the management of the risk of LOC-I occurrences with Irish regulated organisations, as appropriate to their operations, as part of safety oversight activities **EPAS References MST.028.**	On-going
b)	The IAA will work with EASA to develop and promulgate guidance for operators on the risks associated with icing in flight	Q4 2021

3.1.6 Status

3.1.6.1 Safety Oversight Planning

The IAA safety oversight planning for safety management systems focuses on LOC-I, including occurrences that could directly or indirectly contribute to this risk area, as part of the audit programme for Irish regulated organisations. This includes review of the safety objectives, safety performance indicators and safety performance targets used by the regulated organisations to ensure they are appropriate for the organisation and that they consider the State level safety objectives, safety performance indicators and safety performance targets identified in this SPAS (ref Appendix II).

As part of this process the IAA will also highlight new or emerging hazards in the key risk area of LOC-I (eg the risk of entry of incorrect performance data in flight management systems or electronic flight bags), as well as LOC-I related safety recommendations arising from accident investigations, and LOC-I related recommendations arising from safety management activities (eg EASA SIB's)

3.1.6.2 Flight Crew training

Previous versions of this Plan have addressed mitigating actions in this area, such as competency requirements for IAA inspectors in assessing EBT/CBT training programmes, and updated policies, procedures and training for inspectors in respect of oversight of the integration of CRM into flight crew training and operations, including abnormal and emergency procedures and emphasising crew resilience, surprise and startle effect. The European regulatory framework includes recurrent and conversion training provisions related to Upset Prevention and Recovery Training (UPRT) and regulations pertaining to loss of control during go-around and climb, and FSTD fidelity. The IAA worked pro-actively with flight crew training organisations and flight simulator operators to assist in the implementation of the UPRT regulations and will continue to oversee these activities as part of safety oversight. There are no further actions in this version of SPAS in this regard.

3.1.6.3 Icing in flight

Icing in flight if not properly managed can result in a loss of control accident or serious incident. EASA EPAS 2020-2024 identifies the need to raise awareness of this safety issue through provision of information on the situations where icing in-flight may occur and how flight crew can recognise some of the factors that might lead to accidents and measures that operators and flight crew can take to mitigate the risk of an accident occurring. The IAA participates in the EASA Safety Promotion Network which is tasked with delivering safety promotion tasks (SPT) of the EPAS including SPT.109 to raise awareness of the risks posed by icing in-flight and potential mitigations. An article on "Icing in Flight" was published in the end of December 2020 at https://www.easa.europa.eu/community/topics/icing-flight has been promulgated to aircraft operators and training organisations.

The actions in this chapter support the GASP 2020-2022 Operational SEI "Mitigate contributing factors to LOC-I accidents and incidents"

3.2 – FOD.003 Controlled Flight into Terrain

3.2.1 Safety Issue

Controlled Flight Into Terrain describes an event where the aircraft is flown into terrain whilst under control of the flight crew, and is usually associated with loss of situational awareness in poor visibility conditions, or navigation errors. Controlled Flight Into Terrain (CFIT) is identified as one of the main contributory causes to fatal and non-fatal accidents across all sectors of civil aviation.

3.2.2 Safety Objective

To continuously improve safety by assessing and mitigating the risks of controlled flight into terrain involving Irish commercial aeroplane operators or operators flying in Irish controlled airspace.

3.2.3 Safety Performance Indicators (Ref Appendix II for details)

Accident, Serious Incident and Incident rates and trends related to CFIT category occurrences involving Irish commercial aeroplane operators.

3.2.4 Stakeholders/Roles

Irish Aviation Authority – analysis of CFIT occurrences, rates and trends and identification of sector-based safety issues
Industry (Air Operators) – managing CFIT related safety risks and reporting pre-cursor events that could result in a CFIT occurrence
Industry (ANSP's, airports) – developing approach procedures to minimise the risk of CFIT

3.2.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will focus on the management of the risk of CFIT occurrences with Irish regulated organisations, as appropriate to their operations, as part of safety oversight activities **EPAS References MST.028.**	On-going

3.2.6 Status

3.2.6.1: Safety Oversight Planning

The IAA safety oversight planning for safety management systems focuses on CFIT, including occurrences that could directly or indirectly contribute to this risk area, as part of the audit programme for Irish regulated organisations. This includes review of the safety objectives, safety performance indicators and safety performance targets used by the regulated organisations to ensure they are appropriate for the organisation and that they consider the State level safety objectives, safety performance indicators and safety performance targets identified in this SPAS (ref Appendix II).

3.2.6.2: PBN Implementation Plan

EU Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 lays down airspace usage requirements concerning Performance-based Navigation (PBN IR). The IAA has developed the PBN transition plan applicable to all airspace users as required under EU regulations and the latest version is found at https://www.iaa.ie/docs/default-source/default-document-library/airspace/pbn-transition-plan-for-ireland-v11-0.pdf?sfvrsn=390818f3_2 .

A key part of risk mitigation for CFIT accidents is to implement PBN approach procedures with vertical guidance (APV) that conform to the requirements of the RNP approach specification (RNP APCH) at instrument runway ends (IREs) which are not served by precision approach procedures (eg Non Precision Approaches). This part of the Transition Plan for Ireland was completed during 2020 and the corresponding SPAS action was closed.

3.2.6.3: Helicopter Operations and CFIT

EPAS MST.031 requests that EASA Member States together with their ANSPs, to evaluate the possibility to establish a network of low level IFR routes in their airspace to facilitate safe helicopter operations with reference to the SESAR Solutions Catalogue. This issue is addressed in chapter 2.6 Rotorcraft Operations above.

The actions in this chapter support the GASP 2020-2022 Operational SEI Mitigate contributing factors to CFIT accidents and incidents

3.3– ASD.001 Mid-Air Collisions

3.3.1 Safety Issue

Mid-Air Collisions (MAC) are accidents where two or more aircraft impact each other in the air. While the likelihood of an event is low the consequences of any event are extremely high (major loss of life).

3.3.2 Safety Objective

To continuously improve safety by assessing and mitigating the risks of mid-air collision involving Irish commercial aeroplane operators or operators flying in Irish controlled airspace.

3.3.3 Performance Indicators

Accident, Serious Incident and Incident rates and trends related to MAC category occurrences involving Irish commercial aeroplane operators or Irish ANSP's.

3.3.4 Stakeholders/Roles

Irish Aviation Authority – analysis of MAC occurrences, rates and trends and identification of sector-based safety issues
Industry (Air Operators, ANSPS) – managing MAC related safety risks and reporting pre-cursor events that could result in a MAC occurrence
Industry (ANSP's) – developing enhanced safety nets to minimise the risk of MAC

3.3.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will focus on the management of the risk of MAC occurrences with Irish regulated organisations, as appropriate to their operations, as part of safety oversight activities **EPAS References MST.028.**	On-going
b)	The IAA will review the need for, and feasibility of, implementing SESAR solutions (eg enhanced STCA/safety nets) aiming to reduce the risk of mid-air collision en-route and in TMA. **EPAS Reference MST.030**	Q4 2021

3.3.6 Status

3.3.6.1: Safety Oversight Planning

The IAA safety oversight planning for safety management systems focuses on MAC, including occurrences that could directly or indirectly contribute to this risk area, as part of the audit programme for Irish regulated organisations. This includes review of the safety objectives, safety performance indicators and safety performance targets used by the regulated organisations to ensure they are appropriate for the organisation and that they consider the State level safety objectives, safety performance indicators and safety performance targets identified in this SPAS (ref Appendix II).

EASA SIB 2013-11 on ACAS II "Manoeuvres based on visual acquisition of traffic" was revised and re-issued in January 2020 to update the recommendations for operators in respect of AFM instructions this regard. The IAA highlighted this updated information to Irish aircraft operators to ensure they were aware of the recommendations of this SIB and will review the actions taken by operators as part of oversight activities.

3.3.6.2: Airspace Infringement

One of the key risks to Mid-Air Collision is due to infringement of aircraft into controlled airspace thereby causing increased risk of collision with commercial air traffic. As part of previous SPAS actions, the IAA has reviewed the implementation of the European Action Plan for the Prevention of Airspace Infringement Risk Reduction (EAPAIRR) recommendations for both the IAA regulator and regulated air navigation services providers and found them to be substantially completed, as relevant. Chapter 4 of this volume of SPAS deals with the specific issue of airspace infringement by general aviation traffic and drones.

3.3.6.3: Enhanced Short-Term Conflict Alerts

EPAS MST.030 requests that EASA Member States, together with their ANSPs, should evaluate the needs for, and feasibility of, implementing SESAR solutions, such as those related to enhanced Short Term Conflict Alerts (STCA)/enhanced safety nets, with reference to SESAR Solutions Catalogue. The IAA ANSP, in conjunction with COOPANS Alliance partners, works closely with the SESAR initiative and ensures state of the art technologies are implemented. This particular review was not progressed to any great extent during 2020 as planned, due to COVID-19 priorities but is still on track for completion by end 2021.

The actions in this chapter support the GASP 2020-2022 Operational SEI Mitigate contributing factors to MAC accidents and incidents

3.4 - M.007 Runway Incursions

3.4.1 Safety Issue

A runway incursion (RI) involves the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the aircraft landing and take-off. Runway Incursions have been recognised for some time as a key risk in aviation safety and led to the publication of the European Action Plan for the Prevention of Runway Incursions, which was updated to Edition 3 in 2018.

3.4.2 Safety Objective

To continuously improve safety by assessing and mitigating the risks of runway incursion involving Irish commercial operators or at Irish certificated and nationally licensed aerodromes.

3.4.3 Safety Performance Indicators (Ref Appendix II for details)

Accident, Serious Incident and Incident rates and trends related to RI category occurrences involving Irish commercial air operators or at Irish aerodromes.

3.4.4 Stakeholders/Roles

Irish Aviation Authority – analysis of RI occurrences, rates and trends and identification of sector-based safety issues

Industry (Air Operators, ANSP's, Airports) – managing RI related safety risks and reporting pre-cursor events that could result in an RI occurrence

3.4.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will focus on the management of the risk of RI occurrences with Irish regulated organisations, as appropriate to their operations, as part of safety oversight activities **EPAS References MST.028.**	On-going
b)	The IAA will audit the effectiveness of the local runway safety teams (including effectiveness of SMS in reducing RI precursor events). **EPAS Reference: MST.011**	On-going
c)	The IAA will review the level of implementation of recommendations for service providers contained in the EAPRRI Version 3, as part of the oversight cycle **EPAS Reference MST.014**	On-going
d)	The IAA will work with ANSP's and aerodrome operators to review the need for, and feasibility of, implementing the runway safety related SESAR solutions such as those related to ground situational awareness, airport safety net vehicles and enhanced airport safety nets **EPAS Reference MST.029**	Q4 2022

e)	The IAA will assess the performance of organisational change management processes for procedural and/or infrastructural changes on the manoeuvring areas at Irish airports (EAPPRI V3).	Q4 2021
f)	The IAA will conduct risk modelling, risk assessment and safety analysis of runway safety in the ATM/ANS domain, including low visibility operations.	Q2 2022

3.4.6 Status

3.4.6.1: Safety Oversight Planning

The IAA safety oversight planning for safety management systems focuses on RI, including occurrences that could directly or indirectly contribute to this risk area, as part of the audit programme for Irish regulated organisations. This includes review of the safety objectives, safety performance indicators and safety performance targets used by the regulated organisations to ensure they are appropriate for the organisation and that they consider the State level safety objectives, safety performance indicators and safety performance targets identified in this SPAS (ref Appendix II).

3.4.6.2: Implementation of EAPPRI recommendations

Much work has been accomplished in this area in the past 10 years with the implementation of the recommendations contained in the European Action Plan for the Prevention of Runway Incursions (EAPPRI) at State and industry level, including the establishment of Runway Safety Teams at certificated aerodromes. The EAPPRI Ver 3, was issued in 2018, and the IAA review of the implementation of latest recommendations by organisations (eg aerodromes, aircraft operators, air navigations service providers) is ongoing, albeit, slightly hampered by the impact of COVID-19 on oversight activities during 2020. A new EAPPRI recommendation for regulators on performance assessment of manoeuvring area change management processes, including cross-domain risk assessment, has been implemented via Service Level Agreements between the aerodrome and the ANSP, as required.

3.4.6.3: Safety Analysis

The IAA performed an analysis of ATM related occurrences reported under mandatory reporting regulations in accordance with an action in previous versions of this Plan. Following review of this analysis an area for further investigation was identified relating to runway safety, including low visibility runway operations. The IAA 2020 plans to conduct detailed safety analysis in these areas were superseded by the need for detailed safety assessments in respect of COVID-19. This analysis will now begin during the latter half of 2021 and the target date for completion has been extended by six months.

3.4.6.4: SESAR Solutions – Aerodromes

EPAS MST.029 requests that EASA Member States, together with their ANSPs and aerodrome operators, to evaluate the needs for and feasibility of implementing SESAR solutions, such as those related to ground situational awareness, airport safety net vehicles and enhanced airport safety nets, with reference to SESAR Solutions Catalogue. This activity was de-prior-

itised during 2020 due to COVID-19 impacts however some SESAR solutions implemented, or being implemented, in Ireland include A-SMGCS and moving map related alerting systems.

The actions in this chapter support the GASP 2020-2022 Operational SEI (States) Mitigate contributing factors to RI accidents and incidents

3.5 – FOD.002 Runway Excursions

3.5.1 Safety Issue

A runway excursion (RE) is an event in which an aircraft veers off or overruns the runway surface during either take-off or landing. Runway Excursions (RE) have been identified as one of the most common causes of accidents reported annually, and this led to the publication of the European Action Plan for the Prevention of Runway Excursions (EAPPRE) in 2013 and the recently published Global Action Plan for the Prevention of Runway Excursions (GAPPRE) in 2021, co-ordinated by EUROCONTROL and the Flight Safety Foundation.

3.5.2 Safety Objective

To continuously improve safety by assessing and mitigating the risks of runway excursion involving Irish commercial operators, or, at Irish certificated and licensed aerodromes.

3.5.3 Safety Performance Indicators (Ref Appendix II for details)

Accident, Serious Incident and Incident rates and trends related to RE and Abnormal Runway Contact (ARC) category occurrences, involving Irish commercial air operators or at Irish airports.

3.5.4 Stakeholders/Roles

Irish Aviation Authority – analysis of RI/ARC occurrences, rates and trends and identification of sector-based safety issues

Industry (Air Operators, ANSP's, Aerodromes) – managing RE/ARC related safety risks and reporting pre-cursor events that could result in an RE occurrence

3.5.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will focus on the management of the risk of RE occurrences with Irish regulated organisations, as appropriate to their operations, as part of safety oversight activities **EPAS References MST.028.**	Ongoing
b)	The IAA will review the level of implementation of GAPPRE/ EAPPRE recommendations for service providers as part of safety oversight activities. **EPAS References MST.007**	Ongoing
c)	The IAA will promote the new ICAO format for runway surface condition reporting and provide guidance to industry during the implementation of related EU regulations in this regard.	Q4 2021

3.5.6 Status

3.5.6.1: Safety Oversight Planning

The IAA safety oversight planning for safety management systems focuses on RE, including occurrences that could directly or indirectly contribute to this risk area, as part of the audit programme for Irish regulated organisations. This includes review of the safety objectives, safety performance indicators and safety performance targets used by the regulated organisations to ensure they are appropriate for the organisation and that they consider the State level safety objectives, safety performance indicators and safety performance targets identified in this SPAS (ref Appendix II).

3.5.6.2: Implementation of GAPPRE/EAPPRE recommendations

The European Action Plan for the Prevention of Runway Excursions (EAPPRE) published in 2016 and the recently published Global Action Plan for the Prevention of Runway Excursions (GAPPRE) in 2021, contain recommended actions and associated guidance material intended for implementation by the relevant stakeholder organisations (including regulators, aircraft and aerodrome operators, ANSP's etc). The implementation of EAPPRE has been subject to ongoing review as part of safety oversight activities and this activity will be extended to address any updated recommendations included in the GAPPRE.

3.5.6.3: Global Runway Condition Reporting

One of the main precursors to RE related accidents and serious incident is the braking action not matching expectations due to technical issues with the assessment and reporting of runway surface condition regarding friction testing. ICAO has developed the global runway condition assessment and reporting format that includes a Runway Condition Assessment Matrix (RCAM) and a Runway Condition Report (RWC) and these inputs are then incorporated within a new NOTAM/SNOWTAM format. EU regulations including in ATM, air operations and Aerodromes references 2019/1387, 2020/469, 2020/1176, 2020/1177 address the implementation of a global runway condition reporting format in Europe. These regulations become effective on 12th August 2021.

The IAA actions in 2020 centred on stakeholder consultation via online workshops to ensure a common understanding of the requirements in this area. An Aeronautical Information Circular for Industry on this topic was developed following this consultation process at the end of 2020 and a further workshop is planned in the weeks prior to the applicability date to review any outstanding implementation issues.

The actions in this chapter support the GASP 2020-2022 Operational SEI (States) Mitigate contributing factors to RE accidents and incidents

3.6 - FOD.004 Safety of Ground Operations

3.6.1 Safety Issue

Ground operations involve all aspects of aircraft handling at the airport as well as aircraft movement around the aerodrome, except when on active runways. During this phase of flight, aircraft are normally travelling at low speed so accidents that occur are rarely fatal, but they can result in costly repairs for airlines and lengthy delays for passengers. There have been cases of fatalities of persons on the ramp area due to collision with aircraft or ground vehicles and fatal accidents have occurred due to incorrect loading of cargo

3.6.2 Safety Objective

To continuously improve safety by assessing and mitigating the risks due to ground operations by Irish commercial operators or at Irish certified aerodromes.

3.6.3 Safety Performance Indicators (Ref Appendix II for details)

Accident, Serious Incident and Incident rates and trends related to Ground Operations (eg RAMP, GCOL) category occurrences, involving Irish commercial air operators or at Irish airports.

3.6.4 Stakeholders/Roles

Irish Aviation Authority – analysis of Ground Operations related occurrences, rates and trends and identification of sector-based safety issues
Industry (Air Operators, ANSP's, Aerodromes) – managing ground operations related safety risks and reporting ground operations related occurrences

3.6.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will focus on the management of the risks during ground operations with Irish regulated organisations, as appropriate to their operations, as part of safety oversight activities.	Ongoing
b)	The IAA will focus on the specific risks for ground operations during ramping up of operations post COVID-19	Q2 2022

3.6.6 Status

3.6.6.1: Safety Oversight Planning

The IAA safety oversight planning for safety management systems focuses on ground operations, including occurrences that could directly or indirectly contribute to this risk area, as part of the audit programme for Irish regulated organisations. This includes review of the safety objectives, safety performance indicators and safety performance targets used by the regulated organisations to ensure they are appropriate for the organisation and that they

consider the State level safety objectives, safety performance indicators and safety performance targets identified in this SPAS (ref Appendix II).

EASA SIB 2019-02 addresses the risk of explosive door opening on parked aeroplanes that could impact anyone seeking to enter a parked aircraft including flight crews, ground handling staff, RFFS staff, maintenance staff and contain recommendations for associated organisations to address this risk. The IAA ensured that affected Irish regulated entities were aware of the recommendations of this SIB and will monitor the actions taken by industry in this regard.

New EU Basic Regulation 2018/1139 broadens the scope of the EU regulatory framework to include Ground Handling organisations and the IAA is actively involved in the EU rulemaking task force to establish forthcoming implementing rules for ground handling organisations (ref Chapter 2.3 of Volume 2 of this Plan for more details). In advance of new regulations in this area the IAA had already recruited a dedicated ground operations inspector in the flight operations departments who ensures continued focus on ground handling activities by Irish airlines (including subcontractors). The IAA conducts a Ground Operations Working Group with industry stakeholders where the key safety risks in this area are reviewed and addressed (eg aircraft mass and balance reporting errors, failure to properly adhere to dangerous goods procedures and failure to report damage to aircraft during ground operations).

3.6.6.2: Ramping up of operations post COVID-19

Chapter 2.1 of this Volume of SPAS addresses the systemic risks to the civil aviation system posed by the ramping up of operations following lengthy period of reduced activity due to the impact of COVID-19. The safety issue is addressed in this chapter also in recognition of the fact that a large portion of ground operation activities are performed by non-licenced staff many of whom may have been temporarily laid-off during the pandemic, or may have taken up alternative employment in other industries. Consequently, as the demand for aircraft operations increases, the IAA will focus on the need for proper planning by the regulated organisations to ensure new, and returning, ground operations staff are fully trained in the relevant procedures and aware of the risks to aviation safety due to ground operations.

COVID-19 related risks associated with aerodromes being closed or partially closed for long periods will need to be addressed, including equipment condition (eg ground support equipment following long periods of disuse) and standard operating procedures (ground handling, fuelling, aircraft servicing etc).

3.7– ADR.002 Bird and Wildlife Strikes

3.7.1 Safety Issue

Bird and Wildlife strikes may cause significant damage to an aircraft structure or flight controls, and aircraft engines (especially jet-engines) are vulnerable to the loss of thrust which can follow the ingestion of birds into engine air intakes which may lead to an accident

3.7.2 Safety Objective

To continuously improve safety by assessing and mitigating the risks due to bird and wildlife strikes at Irish certificated and licensed airports.

3.7.3 Safety Performance Indicators (Ref Appendix II for details)

Accident, Serious Incident and Incident rates and trends related to bird and wildlife strikes..

3.7.4 Stakeholders/Roles

Irish Aviation Authority – analysis of bird and wildlife related occurrences, rates and trends and identification of sector-based safety issues
Industry (Aerodromes) – control of birds and wildlife around aerodromes to minimise the risk of strike on aircraft
Industry (ANSP's, Aerodromes) – managing bird and wildlife related safety risks and reporting bird and wildlife related occurrences

3.7.5 Actions

	ACTIONS	TARGET DATE
a)	IAA will work with all stakeholders to ensure that the National Bird/Wildlife Hazard Committee enhances its capability in terms of analysis of data and identifying safety issues / best practices for wildlife strike hazard reduction.	Ongoing

3.7.6 Status

3.7.6.1 The National Bird/Wildlife Strike Hazard Committee

The National Bird/Wildlife Hazard Committee in Ireland is chaired by the IAA and reviews both birdstrike and wildlife strike analysis reports and assesses the effectiveness of mitigation measures in use in the State. The IAA provides annual statistical analysis of Bird strikes and Wildlife strikes at certificated aerodromes and will continue to work with all stakeholders to ensure that the National Bird/Wildlife Hazard Committee enhances its capability in terms of analysis of data and identifying safety issues / best practices for wildlife strike hazard reduction.

In March 2021 the IAA SRD published a detailed guidance document titled "Bird & Wildlife Strike Management at Aerodromes" prepared as a collaboration between the IAA-SRD and members of the State's National Bird and Wildlife Hazard Committee. The document can be found at https://www.iaa.ie/news/2021/03/24/irish-bird-wildlife-strike-management-at-aerodromes. The purpose of the document is to provide aerodrome operators and other aviation

stakeholders with information to assist them in managing wildlife hazards on or in the vicinity of aerodromes in Ireland, and may also benefit non-aviation stakeholders (eg land use activities, academics) with interest in this area.

The reduction of airport activity during 2020 due to the impact of COVID-19, had the effect of increasing wildlife encroachment in and around airports. Whereas this has not actually resulted in an increasing rate of reported aircraft strikes during 2020, this area will be monitored closely as aircraft traffic levels begin to rise when operations ramp up post COVID-19.

3.7.6.2: Safety Promotion

The IAA works with the EASA Safety Promotion Network to develop content to highlight the risks of wildlife strikes. Recent material addressing the specific risk of birdstrikes to helicopter operators (ref https://www.easa.europa.eu/community/topics/rotorcraft-bird-strikes) was highlighted to rotorcraft operators in Ireland. A related SIB (https://ad.easa.europa.eu/ad/2021-07) contains recommendations for helicopter operators that will be reviewed during oversight activities.

3.8 – M.009 Aircraft Environment

3.8.1 Safety Issue

The aircraft environment must be protected to ensure the safe transport of passengers and crew. The aircraft environment can be affected by sudden aircraft de-pressurisation, poor cabin air quality or airborne viruses, which could cause severe discomfort or illness for those on-board, but the greatest risk is on-board fire, which if uncontrolled, could cause loss of control of the aircraft. Emerging hazards in this area is the carriage of lithium batteries on board the aircraft and unruly passenger behaviour.

3.8.2 Safety Objective

To continuously improve safety by assessing and mitigating the risks relating to the aircraft environment involving Irish commercial aeroplane operators.

3.8.3 Safety Performance Indicators (Ref Appendix II for details)

Accident, Serious Incident and Incident rates and trends related to aircraft environmental issues involving Irish commercial aeroplane operators.

3.8.4 Stakeholders/Roles

Irish Aviation Authority – analysis of aircraft environmental occurrences, rates and trends and identification of sector-based safety issues
Industry (Air Operators) – managing aircraft environmental related safety risks and reporting pre-cursor events that could result in an aircraft environmental occurrence.

3.8.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will review industry (ie air operators and airports) actions to promote the hazards associated with the carriage of Lithium batteries in passenger baggage, during oversight activities	Ongoing
b)	The IAA will work with industry stakeholders to address the risks caused by unruly passenger behaviour on board aircraft operated by Irish AOC holders.	Q4 2021

3.8.6 Status

3.8.6.1: Carriage of Lithium Batteries

The main focus of the actions in the current version of the Plan is on the risk of on-board fire. In-flight fire can ultimately lead to loss of control, either as a result of structural or control system failure, or as a result of crew incapacitation. Fire on the ground can take hold rapidly and lead to significant casualties, notwithstanding evacuation and emergency response. Smoke or fumes, whether they are associated with fire or not, can also lead to passenger and crew incapacitation. Previous versions of this Plan addressed the safety issue of on-board fire on aircraft, including addressing updated guidance from the Royal Aeronautical Society (RaeS) on management of fire hazards on aircraft. The potential threat of fire due to lithium batteries is still a focus in the Plan. Work is ongoing to promote the hazards associated with the carriage of Lithium Batteries either in cargo or due to inappropriate storage of lithium batteries in passenger checked-in baggage. This activity will continue for the foreseeable future as passenger traffic begins to build back up post COVID-19.

3.8.6.2: Unruly passengers

The safety of flights, passengers and crew can be affected by the unruly behaviour of a small minority of passengers. Unruly behaviour can include intoxication, aggressive or inappropriate behaviour, as well as failure to follow the instructions of flight crew, who are there to protect passenger safety. The Irish Aviation Authority (IAA) joined the global partnership spearheaded by the EASA "#notonmyflight" campaign to remind passengers of their responsibilities to fellow travellers and flight crew and to encourage passengers to be mindful of the negative impacts of unruly behaviour and worked with Irish industry to develop a joint declaration to tackling this problem.

Although 2020 saw passenger numbers decrease substantially the IAA continued to monitor this issue during 2020 and noted that COVID-19 did not in itself contribute to increased rates of unruly passenger behaviour. The IAA has also launched a passenger COVID-19 related health survey which will continue to run during 2021, and results thus far suggest passenger experience in airports and on aircraft have been largely positive in respect of the way the operators are managing passenger health safety during the pandemic.

4: Specific Operational Risks – General Aviation

4.1 – FOD.014 Safety Promotion for General Aviation

4.1.1 Safety Issue

Good safety management depends on the sharing of safety information with GA pilots and instructors, including lessons learned from accidents or incidents. Safety promotion enhances awareness of hazards and provide best practices for mitigating these hazards to help reduce accidents in the general aviation sector.

4.1.2 Safety Objective

To share safety information within the general aviation community to help reduce the number of accidents and serious incidents involving general aviation operations in Ireland.

4.1.3 Safety Performance Indicators (Ref Appendix II for details)

Accident, Serious Incident and Incident rates and trends related to general aviation.

4.1.4 Stakeholders/Roles

Irish Aviation Authority – analysis of accidents, serious incidents and occurrences in general aviation and development of sector risk profile. Sharing safety information with general aviation operators.
Industry (General aviation clubs and associations) – analysis of risks within their own sector and sharing safety information with members
GA Pilots and engineers – reporting of safety occurrences to improve safety management.

4.1.5 Actions

	ACTIONS	TARGET DATE
a)	a) The IAA will work with GASCI to develop and promote Safety Information to general aviation community in Ireland. **EPAS Reference: MST.015, MST.025**	On-going

4.1.6 Status

4.1.6.1: General Aviation Safety Reporting Culture

Safety Promotion is assuming an ever-increasing importance as a safety management tool, particularly in the domain of general aviation. Whereas organisations can benefit from SMS

implementation to learn from safety occurrences, general aviation practitioners must rely on learning from each other. The IAA can greatly assist in this area, however to do this, it is necessary that persons involved in general aviation feel confident to share information on safety occurrences with the IAA. Traditionally, occurrence reporting in general aviation has not been well supported across Europe, however the increased personal protections for reporters in latest EU Occurrence Reporting regulations, will hopefully encourage more reporting in this area. The IAA uses the EU aviation occurrence reporting system and safety reports can be filed by GA pilots on https://e2.aviationreporting.eu/reporting

4.1.6.2: The General Aviation Safety Council

The IAA helped establish the General Aviation Safety Council of Ireland (GASCI) which seeks to identify flight safety risks and minimise them through education, training and shared experience amongst the general aviation community. GASCI has representatives from most sectors of general aviation in Ireland and includes representatives from the IAA and AAIU. GASCI provides safety information on its website www.GASCI.ie and twitter @gasci_ie. GASCI has provided a huge step-forward in safety promotion in general aviation in Ireland over the past seven years by helping to identify the main GA safety risks and by hosting safety evenings throughout Ireland with presentations and videos addressing these risks. Due to COVID-19 limitations GASCI had to host a safety evening on zoom in March 2021 however this event attracted over 300 attendees. The IAA provides financial and logistical support for GASCI activities.

4.1.6.3: Online Safety Promotion Resources

The IAA provides safety promotion and guidance material for general aviation on https://www.iaa.ie/general-aviation and this site is subject to going review and update to ensure that this material is accessible in the best way possible to suit the various intended audiences in general aviation. The IAA twitter account @IAApress is also used to great effect to highlight new safety promotion material or events for general aviation.

EASA has created a community website on https://www.easa.europa.eu/community/ga that focuses on sharing safety promotion material for general aviation developed across Europe and beyond. Visitors can freely review material on this site and can also login as a member to get additional benefits (eg notifications).

4.2 – FOD.017 Airspace Infringement by GA aircraft

4.2.1 Safety Issue

An airspace infringement (AI) occurs when an aircraft enters controlled airspace without receiving the appropriate ATC clearance. The problem of airspace infringement is a serious risk to aviation safety and the risk is particularly serious when the infringing aircraft involved is a GA light aircraft or a drone that does not carry transponder equipment used by air traffic controllers to help prevent mid-air conflict between aircraft.

4.2.2 Safety Objective

To continuously improve safety by assessing and mitigating the risks due to airspace infringements involving general aviation or drone operations in Ireland.

4.2.3 Safety Performance Indicators (Ref Appendix II for details)

Accident, Serious Incident and Incident rates and trends related to airspace infringement.

4.2.4 Stakeholders/Roles

Irish Aviation Authority – analysis of airspace infringement related accidents, serious incidents and occurrences. Sharing safety information with general aviation operators.
Industry (General aviation training organisations, clubs and associations) – assessment and management of the risk of airspace infringement within their own sector and sharing safety information with members
GA Pilots and engineers – reporting of airspace infringement safety occurrences.

4.2.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will work with the General Aviation Safety Council of Ireland to review airspace design issues at airspace infringement hotspots with a view to implementing measures to reduce airspace infringements by GA aircraft. **EPAS Reference MST.016**	Q4 2021
b)	The IAA will work with GASCI to highlight the risk of airspace infringement by general aviation aircraft and drone operators, and share best practices in its avoidance, during general aviation safety evenings	Ongoing

4.2.6 Status

4.2.6.1: Airspace Design

The design of airspace is relatively non-complex in Ireland in comparison to many European States. The Irish airspace consists Class C and Class G airspace only, and Class C airspace is concentrated on a small number of airports (State and regional airports) leaving large portions of Class G airspace available for GA activity. The IAA ANSP is working on an airspace

change project to address new approach procedures (eg continuous descent approaches) and worked with GA stakeholders and GASCI to identify opportunity for changes (eg at the margins of Class C airspace) to provide more Class G airspace for GA activities. The airspace change project was opened for consultation on the IAA website during first quarter of 2021. GASCI is also co-ordinating proposals for other airspace changes not addressed as part of the IAA ANSP project.

4.2.6.2: Safety Promotion

The subject of airspace infringement is frequently addressed during general aviation safety evenings (last event in March 2021) and the related safety messages, such as pre-flight planning, environmental issues, navigation skills, maintaining situational awareness, use of technology, are promoted on an on-going basis.

Chapter 2.3 of Volume 2 of the SPAS address the activities associated with the implementation of significant regulatory changes one of which relates to the new regulations concerning the operation of Drones. Representatives from the Drone operator community in Ireland have recently joined GASCI and this gives another avenue for safety promotion on the specific risks associated with flying drones in or close to controlled airspace, without specific permission of the local air traffic control organisation to do so.

The actions in this chapter support the GASP 2020-2022 Operational SEI Mitigate contributing factors to MAC accidents and incidents

4.3 – FOD.020 Key Risks for General Aviation aircraft

4.3.1 Safety Issue

Analysis of accidents and serious incidents in Ireland, Europe and globally identifies some key risks for general aviation, including:

- **Loss of Control – Inflight (LOC-I);** possibly caused by inadequate aircraft handling, loss of situational awareness or management of aircraft upset (eg induced by weather, technical failure, fuel shortage) possibly associated with an element of surprise.
- **Controlled Flight into Terrain or Obstacles (CFIT);** possibly caused by inadequate flight planning or navigation, or failure to properly manage changing meteorological conditions.
- **Mid-Air Collisions in GA (MAC);** most likely in areas of intensive general aviation activity, however the emerging risk from Drone operations is also a risk for general aviation operations
- **Occurrences during take-off and landing; heavy landings** (ARC), runway excursions (RE) or collision with obstacles (CTOL) are often associated with technical failure, aircraft handling or weather events affecting take-off and landing performance in general aviation. The use of grass strips by general aviation brings specific risks

4.3.2 Safety Objective

To continuously improve safety of general aviation by assessing and mitigating the key risks of loss of control inflight, controlled flight into terrain, mid-air collision, and occurrences during take-off and landing.

4.3.3 Safety Performance Indicators (Ref Appendix II for details)

Accident, Serious Incident and Incident rates and trends related to LOC-I, CFIT, MAC, ARC, RE, and CTOL in general aviation..

4.3.4 Stakeholders/Roles

Irish Aviation Authority – analysis of related accidents, serious incidents and occurrences. Sharing safety information with general aviation operators.
Industry (General aviation training organisations, clubs and associations) – assessment and management of the risks within their own sector and sharing safety information with members
GA Pilots and engineers – reporting of safety occurrences (eg near miss) for information sharing to the benefit of the general aviation community.

4.3.5 Actions

	ACTIONS	TARGET DATE
a)	The IAA will work with GASCI to highlight the key risks of loss of control inflight, controlled flight into terrain, mid-air collision, and occurrences during take-off and landings, and to share best practices in their avoidance by: • Developing and promulgating safety information to address the main causes of these occurrences • Organising safety evenings for general aviation to present safety information • Using website and social media platforms to target intended audience **EPAS Reference MST.028**	Ongoing
b)	The IAA will work with GASCI to encourage stakeholders to include the general aviation "areas of operation" identified in the Aeronautical Charts, in the States AIP and electronic databases. **EPAS Reference MST.038**	Q4 2021
c)	The IAA will ensure that learning objectives in the 'Meteorological Information' part of the PPL/LAPL syllabus used by Irish general aviation training organisations address: • practical interpretation of ground-based weather radar, strengths and weaknesses. • practical interpretation of meteorological satellite imagery, strengths and weaknesses. • forecasts from numerical weather prediction models, strengths and weaknesses. **EPAS Reference MST.036**	Q2 2022

4.3.6 Status

4.3.6.1: GA areas of operation in States AIP

The Plan has previously addressed some enabling actions that can help to reduce the risks in these areas, such as:

- Improvement to Aeronautical Charts to include new symbology to identify "Area of Operations" for elevated general aviation activities (eg training fields).
- Introduction of listening squawk function in Ireland
- Registration and licensing for powered paragliders

The plan to include new general aviation "areas of operations" in the States AIP was impacted by COVID-19 and should be completed during 2021. This will ensure that these areas of operations are included in electronic databases so that they can be retrieved by navigation equipment manufacturers for inclusion in navigation databases.

4.3.6.2: Safety Promotion on key risks

The focus in this area is on safety promotion to address the different precursor events that may be associated with the main categories of GA accidents and serious incidents, as shown in the following table:

OCCURRENCE	PRECURSOR EVENTS
COVID-19	Ramping up of operations post COVID-19 after extended lay-off • Condition of aircraft and systems • Lack of recent flying experience • Threat and error management • Human factors/Wellness
Loss of Control -Inflight	• Recognition and recovery from aircraft upset • Awareness of flight attitude • Control of aircraft, following engine failure • Recognition of, and response to carburetor icing • Operations of light aircraft within recommended mass and balance limits • Execution of forced landings • Awareness of performance differences between different GA aircraft types

Collision with terrain or obstacle	• Inadvertent flight into degraded visual environments • Flight below minimum safe altitude (eg for weather avoidance) • Pre-flight planning • Situational awareness during flight • Use of advanced technologies • Use of aeronautical charts and terrain and obstacle databases
Mid-Air Collision	• Use of see and avoid • Safety Management at Club Fly-ins and airshows • Conflict with Drones • Use of advanced technologies
Occurrence during take-off or landing	• Runway excursion or heavy landing following aircraft handling or environmental issues • Collision with obstacles (eg trees, buildings, electrical wires) during take-off and landing • Take-off and landing from hard/soft airstrips
Human Factors	• Threat and error management • Decision making • Wellness
Miscellaneous Risks	• Public safety at club fly-ins • Hand-propping engines • Taildragger aircraft • Carbon monoxide risk in small aeroplanes and helicopters (EASA SIB 2020-01)

The topics identified in this table have been the subject of safety evening presentations and safety leaflets produced by GASCI, IAA, EASA and others, however the key safety messages need to be continuously reinforced using multiple communication means, including social media. The COVID-19 restrictions have had the effect of pro-longing the winter break in Ireland and so the safety messages related to return to flying were re-emphasised to coincide with the easing of these restrictions.

Safety presentations addressed in the recent safety evenings addressed:

- Prevention of loss of control in flight (fixed and rotary wing)
- Mid-air collision
- Airspace infringements
- Human factors (recency, decision making, startle effect)
- Ramping up of operations post COVID-19.

4.3.6.3: Meteorological Information for GA

Most of general aviation activities take place in visual meteorological conditions and consequently one of the key risks in general aviation is inadvertent flight into instrument meteorological conditions where the aircraft may not have sufficient equipment and/or the pilot may not have sufficient training/experience to safely navigate. Pre-flight planning is key to ensuring that the pilot is fully aware of the meteorological conditions for the intended flight.

EASA EPAS action MST.036 requests EU Member States to develop proportionate learning objectives in the 'Meteorological Information' part of the PPL/LAPL syllabus. These learning objectives to be of a basic, non-academic nature and address key learning objectives in relation to:

- practical interpretation of ground-based weather radar, strengths and weaknesses;
- practical interpretation of meteorological satellite imagery, strengths and weaknesses;
- forecasts from numerical weather prediction models, strengths and weaknesses.

The IAA will ensure that PPL/LAPL training syllabii in use by Irish GA training organisations address these learning objectives.

The actions in this chapter support the GASP 2020-2022 Operational Safety Risks Roadmap safety enhancement initiatives in respect of general aviation.

Appendices


Willkommen
Witamy
Bienvenue
Welkom
Welcome
Bem-vindo
Välkommen
Velkommen
Laipni lūdzam

APPENDIX I – Link to EPAS

The following table provides a cross reference between the EPAS actions for Member States and the relevant actions in this Plan.

EPAS REFERENCE	SPAS VOLUME 2 - CHAPTER REFERENCE
MST.001 Member States to give priority to the work on SSPs	Ch 1.1
MST.002 Promotion of Safety Material	Ch 1.1
MST.003 Member States should maintain a regular dialogue with their national aircraft operators on flight data monitoring (FDM) programmes	Ch 1.1
MST.015 Helicopter safety events	Ch 2.5, 4.1
MST.019 Better understanding of operators' governance structure	Ch 1.7
MST.020 Loss of Radar Detection (over-interrogation)	N/A – no evidence of over-interrogation problems in Irish airspace.
MST.024 Loss of separation between civil and military aircraft	Addressed and closed in previous version of SPAS
MST.025 Improve the dissemination of safety messages in GA	Ch 4.1
MST.026 SMS Assessment	Ch 1.4
MST.027 Develop just culture in GA	Ch 1.1
MST.028 Member States to establish and maintain a State Plan for Aviation Safety	This Document is the SPAS. Specific actions to address key operational risks LOC-I, CFIT, MAC, RI, RE included in Ch 1.1 and Ch 3.1, 3.2, 3.3, 3.4, 3.5
MST.029 Implementation of SESAR runway safety solutions	Ch 3.4

MST.030 Implementation of SESAR solutions aiming to reduce the risk of mid-air collision en-route and TMA	Ch 3.3
MST.031 Implementation of SESAR solutions aiming to facilitate safe IFR operations (helicopters)	Ch 2.5
MST.032 Oversight capabilities focus areas	Ch 1.5, 1.7
MST.033 Feedback on implementation of language proficiency requirements	Ch 1.5
MST.034 Oversight focus on flight time specification schemes	Ch 1.5
MST.035 Oversight focus on fraud in Part-147	Ch 2.4
MST.036 PPL/LAPL learning objectives in the Meteorological Information part of the PPL/LAPL syllabus	Ch 4.3
MST.037 Foster a common understanding and oversight of Human Factors	Ch 1.5
MST.038 Airspace complexity and traffic congestion	Ch 4.3

APPENDIX II – Safety Objectives, SPI's and SPT's

The following four tables summarise the Safety Objectives (SO) for the State as outlined in the State Plan for Aviation Safety, the related Safety Performance Indicators (SPI) and Safety Performance Targets. In each case the table identifies the safety performance indicators the IAA has already developed and monitors from the regulator's perspective.

Individual organisations (regulated entities) are responsible for developing their own SO/SPI/SPT's as part of their Safety Management Systems, and this activity is subject to oversight by the IAA. The table clarifies the expectations of the IAA from the affected organisations in respect of each of the safety objectives contained in the SPAS. Regulated entities must develop their own SPI's as part of their own SMS processes, however the SPI's developed by the IAA at State level may be considered within the SMS of individual regulated entities, as appropriate to their own activities.

The IAA (regulator) will monitor the safety performance indicators on a sector basis within the limits of the data collected from the occurrence reporting system and IAA audit management systems. External data provided by ICAO (online platforms) and EASA (eg continuous monitoring reports) is also used as appropriate. Regulated entities are responsible for monitoring their own safety performance indicators using their own management systems, which may include the benefits of using operational data recording systems to help monitor some safety performance indicators.

Appendix II is divided in four tables to address:

- Table 1: Safety Management
- Table 2: Systemic Operational Risks
- Table 3: Specific Operational Risks - Commercial Air Transport
- Table 4: Specific Operational Risks – General Aviation

Table 1: Safety Management

SAFETY OBJECTIVE	SAFETY PERFORMANCE INDICATORS	SAFETY PERFORMANCE TARGETS
To continuously improve implementation of aviation safety management at State level in Ireland.	ICAO SSP Dashboards Indicators: • ICAO SSP GAP Analysis • ICAO SSPIA PQ Self-Assessment completion • ICAO Safety Oversight Index • ICAO USOAP EI Score • ICAO USOAP CC/EFOD Completion	ICAO SSP Dashboard Targets • Maintain SSP Gap Analysis > 90% • SSPIA PQ self-assessment completed by end 2021 • Maintain ICAO SOI > 1 • Maintain EI Score > 90% • Maintain Average CC/EFOD completion score > 90%
	EASA Dashboard Indicators: • EPAS MST tasks completion • EASA Standardisation Dashboards • Use of EASA MS Assessment Tool	EASA Dashboards Targets • MST actions included in SPAS as appropriate • Standardisation rating index above EU average • Used in SMS oversight in >90% of regulated organisations by end 2022
	Occurrence reporting rates of regulated organisations	Positive trends in occurrence reporting rates

To ensure there is no disruption to regulatory functions and provision of air navigation services during the IAA institutional reform project 2021	IAA SRD Internal compliance monitoring – findings of non-compliance. Regulatory Oversight - findings of non-compliance for IAA ANSP	No significant adverse findings attributed to inadequate change management and risk management processes, as part of the institutional reform project.
To continuously improve aviation safety through an integrated approach to risk management in the domains of safety and security.	**What IAA will monitor:** Tier 1 SPI's: Rate of security related aircraft accidents and serious incidents involving aviation security operations in Ireland. • Trend monitoring of security related occurrences reported to IAA **What IAA expects regulated organisations to do:** • Develop and monitor their own SPI's in respect of security related occurrences, to include the IAA SPI's as appropriate to them.	No security related accidents or serious incidents caused by inadequate security operations in Ireland. Positive trends in security related occurrences reported to IAA.
To implement effective risk-based and performance-based oversight methodologies across relevant sectors of the Irish civil aviation system.	Organisation risk profile completion rate Processes available to assess effectiveness of RBO/PBO methodologies	ORP's completed in >90% of regulated organisations in OPS, ADR, ANS by end 2021 and AWS by end 2023 Processes to assess the effectiveness of RBO/PBO methodologies in all domains by 2024

To ensure that the IAA procures and maintains sufficient and competent staff to oversee the continuously evolving civil aviation system	Resource capacity planning (availability/demand) in all regulatory domain Specific competencies: • Oversight of organisation management systems • EU competency requirements on Human Factors • Oversight of flight time specification schemes • Alcohol Testing of flight crews	Capacity maintained at <100% in all domains Specific competencies training targets: • Training for inspectorate staff on oversight requirements in a risk based and performance-based environment completed in all domains by end 2022 • Training on oversight of organisation management systems (compliance and effectiveness) completed in all domains by end 2022 • Training on EU competency requirements on Human Factors completed in all domains by end 2024 • Training for all relevant inspectors on oversight of flight time specification schemes completed by end 2021 • Training for all relevant inspectors on performance of alcohol testing of flight crews completed by end 2021

To implement digital processes to support oversight management and safety management across all oversight sections in IAA.	Audit management transferred to new digital platform	Audit management migrated to new digital platform by end 2022
	Availability of Business Intelligence tools and Big Data analysis capability to support safety management and RBO/PBO	Availability of BI Tools and Big Data capability to support safety management and RBO/PBO by end 2023
To ensure appropriate oversight processes are in place to oversee complex organisations and new business models or novel work practices.	Enhanced guidance available for inspectorate staff on overseeing governance structures in complex organisations	Enhanced guidance available for inspectorate staff on overseeing governance structures in complex organisations to be available by end 2021
	Effective SMS processes in place to address risks associated with complex business models and/or novel work practices.	Confirmed in all relevant organisations by end 2022 as part of SMS oversight
	Collaboration with other States on oversight of complex organisations	Maintain State/State collaborative oversight processes

Table 2: Systemic Operational Risks

SAFETY OBJECTIVE	SAFETY PERFORMANCE INDICATORS	SAFETY PERFORMANCE TARGETS
To ensure that appropriate safety risk management processes are applied in civil aviation during ramping up of operations following COVID-19 pandemic.	**What IAA will monitor:** Aircraft accidents, serious incidents and incidents attributable to inadequate management of the ramping up of operations post COVID-19 pandemic. **What the IAA expects regulated entities to do:** Develop and monitor their own SPI's in respect of COVID-19, to include the IAA SPI's as appropriate to them.	No aircraft accidents or serious incidents attributable to inadequate risk management of ramping up of operations following COVID-19 pandemic
To implement robust regulatory change management processes to ensure that the authority requirements are fully implemented, and related guidance provided to industry stakeholders.	**What IAA will monitor:** Rate of non-compliance findings related to significant regulatory changes **What the IAA expects regulated entities to do:** Monitor the rate of internal non-compliance findings related to significant regulatory changes	No adverse trends in rate of non-compliance findings following implementation of significant regulatory changes

To continuously improve safety by assessing and mitigating the risks relating to aircraft maintenance and maintenance management.	**What IAA will monitor:** Aircraft accident, serious incident and incident rates and trends related to aircraft maintenance and maintenance management issues. **What the IAA expects maintenance organisations to do:** Develop and monitor their own SPI's in respect of maintenance and maintenance management, to include the IAA SPI's as appropriate to them.	No aircraft accidents or serious incidents caused by inadequate aircraft maintenance and/or maintenance management. Positive trends in maintenance related incidents.
To continuously improve safety by assessing and mitigating the risks in helicopter operations in the State, involving Irish approved or declared helicopter operators.	**What IAA will monitor:** Aircraft accidents, serious incidents and incidents involving approved or declared helicopter operations. **What the IAA expects Helicopter Operators to do:** Develop and monitor their own SPI's in respect of their own helicopter operations, to include the IAA SPI's as appropriate to them. (see also Table 3 below)	No accidents in approved or declared helicopter operations Positive trends in incident rates involving approved or declared helicopter operation
To continuously improve safety by assessing and mitigating the risks emerging due to implementing parallel runway operations.	**What IAA will monitor:** Aircraft accidents, serious incidents and incidents related to implementation of parallel runways. **What the IAA expects the affected regulated organisations (air operators, airport, ANSP) to do:** Develop and monitor their own SPI's in respect of the parallel runway implementation, to include the IAA SPI's as appropriate to them.	No accidents or serious incidents during the implementation of parallel runways No adverse trends in incident rates at the affected airport.

Table 3: Specific Operational Risks - Commercial Air Transport

SAFETY OBJECTIVE	SAFETY PERFORMANCE INDICATORS	SAFETY PERFORMANCE TARGETS
To continuously improve safety by assessing and mitigating the risks relating to Loss of Control – Inflight (LOC-I) involving Irish commercial/ declared operators or operators departing from Irish airports.	LOC-I may arise from different precursor events that result in an aircraft upset, including weather, technical failures, inflight fire, fuel events, human performance. LOC-I accidents may also arise from inadequate operations at airports, such as aircraft loading, ground handling or wildlife hazard management. Aircraft are fitted with warning systems to alert crews of potential LOC-I events. **What IAA will monitor:** Tier 1 SPI's: Rate of aircraft accidents and serious incidents involving Irish commercial/declared air operators and/or involving Irish airports. Tier 2 SPI: Rate of occurrences involving "deviation from intended flight path". Trend monitoring of incidents categorised as LOC-I **What IAA expects regulated organisations to do:** Develop and monitor their own SPI's in respect of LOC-I, to include the IAA SPI's as appropriate to them. Use FDM data (air operators as applicable) to support monitoring and analysis of LOC-I occurrences	No accidents or serious incidents categorised as LOC-I, involving Irish commercial or declared operators and/or caused by inadequate operations at Irish airports. Positive trends in LOC-I related occurrences.

To continuously improve safety by assessing and mitigating the risks of Controlled Flight into Terrain (CFIT) involving Irish commercial/ declared operators or operators flying in Irish controlled airspace.

CFIT may arise from different precursor events, including loss of situational awareness by crews, unanticipated weather encounters, inadequate approach procedures. It is a particular risk for intentional low level operations (eg inspections, surveys, sight-seeing etc.). Large commercial aircraft are equipped with warning systems to alert crews of potential CFIT events.

What IAA will monitor:

- Tier 1 SPI's: Rate of aircraft accidents and serious incidents involving Irish commercial/ declared air operators and/ or occurring in Irish controlled airspace.
- Tier 2 SPI: Rate of CFIT related occurrences.
- Trend monitoring of incidents categorised as CFIT

What IAA expects regulated organisations to do:

- Develop and monitor their own SPI's in respect of CFIT, to include the IAA SPI's, as appropriate to them.
- Use FDM data (air operators, as applicable) to support monitoring and analysis of CFIT occurrences

No accidents or serious incidents categorised as CFIT, involving Irish commercial/declared operators and/or by any operator flying in Irish controlled airspace.

Positive trends in CFIT related occurrences.

To continuously improve safety by assessing and mitigating the risks of Mid-Air Collision (MAC) involving Irish commercial operators or operators flying in Irish controlled airspace.

MAC occurrences may arise from different precursor events such as loss of separation with other large aircraft, light aircraft or drones, loss of situational awareness by crews, inadequate or ineffective air traffic control, equipment failures. Aircraft equipped with ACAS systems and/or transponders provide enhanced alerting for crews of potential MAC events.

What IAA will monitor:

Tier 1 SPI's: Rate of aircraft accidents and serious incidents involving Irish commercial/declared air operators and/or occurring in Irish controlled airspace.

Tier 2 SPI (all airspace): Rate of MAC related occurrences involving Irish commercial/declared organisations.

Tier 2 SPI (Irish airspace): Rate of Deviation from ATC Clearances, Level Bust, Separation Minimum Infringement, Airspace Infringement

Trend monitoring of incidents categorised as MAC

Monitoring of incidents of potential conflict between aircraft and drones

What IAA expects regulated organisations (Air Operators and ANSP's) to do:

Develop and monitor their own SPI's in respect of MAC, to include the IAA SPI's, as appropriate to them.

Use FDM data (air operators, as applicable) and radar data (ANSP's) to support monitoring and analysis of MAC occurrences

No accidents categorised as MAC, involving Irish commercial/declared operators and/or in Irish controlled airspace.

Positive trends in MAC, and potential Drone conflict, related occurrences.

To continuously improve safety by assessing and mitigating the risks of Runway Incursion (RI) involving Irish commercial/declared air operators or at Irish certified aerodromes.

RI occurrences may arise from different precursor events such as failure to adhere to ATC clearances by Flight Crew or Ground Crew, Aircraft and vehicle ground movement errors in low visibility operations, Non-Adherence to standards in ATC communications

What IAA will monitor:

Tier 1 SPI's: Rate of aircraft accidents and serious incidents involving Irish commercial/declared air operators and/or occurring in Irish certified aerodromes.

Tier 2 SPI (all airspace): Rate of RI involving Irish commercial/declared air operators.

Tier 2 SPI (Irish certified aerodromes): Rate of RI at Irish airports.

Trend monitoring of incidents categorised as RI

The level of implementation of EAPPRI recommendations in the State aiming to reduce the risk of runway incursions.

What IAA expects regulated organisations (Air Operators, Aerodrome Operators and ANSP's) to do:

Develop and monitor their own SPI's in respect of RI, to include the IAA SPI's as appropriate to them.

Use FDM data (air operators, as applicable) and radar data (ANSP's) to support monitoring and analysis of RI occurrences

The level of implementation of EAPPRI recommendations applicable to their own organisation.

No accidents categorised as RI, involving Irish commercial/declared operators and/or in Irish certified aerodromes.

Positive trends in RI related occurrences.

To continuously improve safety by assessing and mitigating the risks of Runway Excursion involving Irish commercial/declared air operators or at Irish certified aerodromes.	RE occurrences may occur as a result of unstable approach, inadequate braking performance on runways, technical failures, weather impact, poor decision making/execution of the landing phase. These events may also lead to an Abnormal Runway Contact (ARC) event (eg heavy landing, long landing etc) **What IAA will monitor:** Tier 1 SPI's: Rate of aircraft accidents and serious incidents involving Irish commercial/declared air operators and/or occurring in Irish certified aerodromes. Tier 2 SPI: Rate of RE/ARC involving Irish commercial/declared air operators and/or at Irish certified aerodromes. Trend monitoring of incidents categorised as RE/ARC The level of implementation of EAPPRE/GAPPRE recommendations in the State aiming to reduce the risk of a runway excursion **What IAA expects regulated organisations (Air Operators, Aerodrome Operators and ANSP's) to do:** Develop and monitor their own SPI's in respect of RE/ARC, to include the IAA SPI's as applicable to them. Use FDM data (air operators, as applicable) and radar data (ANSP's) to support monitoring and analysis of RE/ARC occurrences The level of implementation of EAPPRE/GAPPRE recommendations as applicable to their own organisation.	No accidents categorised as RE/ARC, involving Irish commercial/declared operators and/or in Irish certified aerodromes. Positive trends in RE related occurrences.

To continuously improve safety by assessing and mitigating the risks due to Ground Operations by Irish commercial/declared air operators or at Irish certified aerodromes.	Ground Operations related occurrences include aircraft collision/damage, ground handling activities (aircraft ground movements, loading passengers/ cargo, servicing, fuelling, de-icing), ground equipment use, failure and stowing. **What IAA will monitor:** • Tier 1 SPI's: Rate of aircraft accidents and serious incidents involving Irish commercial/ declared air operators and/ or occurring in Irish certified aerodromes. • Tier 2 SPI: Rate of Ground Damage involving Irish commercial/declared air operators and/or at Irish certified aerodromes. • Trend monitoring of incidents categorised as RAMP • Monitoring of non-compliance findings in oversight of ground operations **What IAA expects regulated organisations (Air Operators, Aerodrome Operators and ANSP's) to do:** • Develop and monitor their own SPI's in respect of ground operations, to include the IAA SPI's as applicable to them. • Use FDM data (air operators, as applicable) and ASMGCS data (ANSP's, as applicable) to support monitoring and analysis of ground operations related occurrences • Monitoring of non-compliance findings during internal audit of ground operations	No fatal accidents during ground operations involving Irish commercial/declared operators and/or in Irish certified aerodromes. Positive trends in ground operations related accidents and incidents. Positive trends in non-compliance oversight findings in respect of ground operations.

Table 4: Specific Operational Risks - General Aviation

SAFETY OBJECTIVE	SAFETY PERFORMANCE INDICATORS	SAFETY PERFORMANCE TARGETS
To share safety information within the general aviation community to help reduce the number of accidents and serious incidents involving general aviation operations in Ireland.	Number of safety evenings organised	At least 2 general aviation safety events per year
	Number of safety occurrences reported by the general aviation community	Increasing trend in level of occurrence reporting by GA community
To continuously improve safety by assessing and mitigating the risks due to airspace infringements involving general aviation or drone operations in Ireland.	Tier 1 SPI's: Number of aircraft accidents and serious incidents involving GA aircraft in Irish controlled airspace.	No accidents or serious incidents due to Airspace Infringement (AI) by GA traffic or drones
	Tier 2 SPI: Number of Airspace Infringements by general aviation aircraft and drones	Positive trends in AI occurrences by GA traffic and drones
To continuously improve safety of general aviation by assessing and mitigating the key risks of loss of control inflight, controlled flight into terrain, mid-air collision and occurrences during take-off and landing.	Tier 1 SPI's: Number of fatalities, accidents and serious incidents involving GA aircraft.	No fatalities in general aviation.
		Positive trends in the number of accidents, serious incidents and incidents involving GA

APPENDIX III - Glossary of Terms

A

AAIU	Air Accident Investigation Unit
ANSD	Air Navigation Services Department
AOC	Air Operators Certificate
ARMS	Aviation Risk Management Solutions
ATC	Air Traffic Control
ATS	Air Traffic Service

C

CAST	Commercial Aviation Safety Team
CFIT	Controlled Flight Into Terrain

E

EASA	European Aviation Safety Agency
EASA	MS EASA Member States (28 EU Member States plus Iceland, Liechtenstein, Norway and Switzerland)
EPAS	European Plan for Aviation Safety
EC	European Commission
ECR	European Central Repository
EGAST	European General Aviation Safety Team
EHEST	European Helicopter Safety Team
ERC	Event Risk Classification
EU	European Union

F

FAB	Functional Airspace Block
FDM	Flight Data Monitoring

G

GA	General Aviation
GASCI	General Aviation Safety Council of Ireland

I

IAA	Irish Aviation Authority
ICAO	International Civil Aviation Organisation

K

KSI	Key Safety Indicators

L

LOC-I	Loss of control in flight

M

MAC	Mid air collision
MOR	Mandatory Occurrence Report
MTOM	Maximum Take-Off Mass

N

NoA	Network of Analysts

P

PBN	Performance Based Navigation

R

RI	Runway Incursion
RE	Runway Excursion
RIAG	Runway Incursion Action Group
RST	Runway Safety Team
RPAS	Remotely Piloted Aircraft System

S

SAR	Search and rescue
SMS	Safety Management system
SOTS	Safety Occurrence Tracking System
SUA	Small Unmanned Aircraft

U

UAS	Unmanned Aerial Systems
UN	United Nations

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