STATE SAFETY PLAN 2018-2021


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SECTION ONE: SAFETY STRATEGY

The National Aviation Policy for Ireland is published by the Department for Transport Tourism and Sport and outlines the strategy and policy for civil aviation in the State. The State Safety Programme outlines the total set of regulations, organisation and resources deployed by the State to help improve the safety of civil aviation. The State Safety Programme also describes the set of activities undertaken by relevant State Agencies to fulfil this objective, including safety oversight, safety risk management, safety assurance and safety promotion.

The safety management function at State level is performed by the IAA and it includes processes to identify and assess safety issues and to develop and program relevant safety actions to address the safety issues, using a risk based approach. The State Safety Plan is the documented outcome of this process. The Plan provides a strategic direction for safety management at State level and outlines to all stakeholders in civil aviation how the IAA will target it's resources in the next four years in this regard. The safety management function includes processes for monitoring the implementing the Plan and for assessing the effectiveness of the Plan through safety performance monitoring. Safety management is a continuously evolving process that responds to changes in the assessed risks as well as changes in the safety performance achieved.

The State must continuously monitor the safety performance of the civil aviation system and ensure that the actions taken at the State level contribute to the overall objective of improving safety. These actions enable Irish civil aviation stakeholders to operate safely, and to provide necessary assurances of this at a global level to facilitate international operations. These actions also support innovation by providing the basis for which both the State and the stakeholder are equipped to manage new or emerging safety risks.

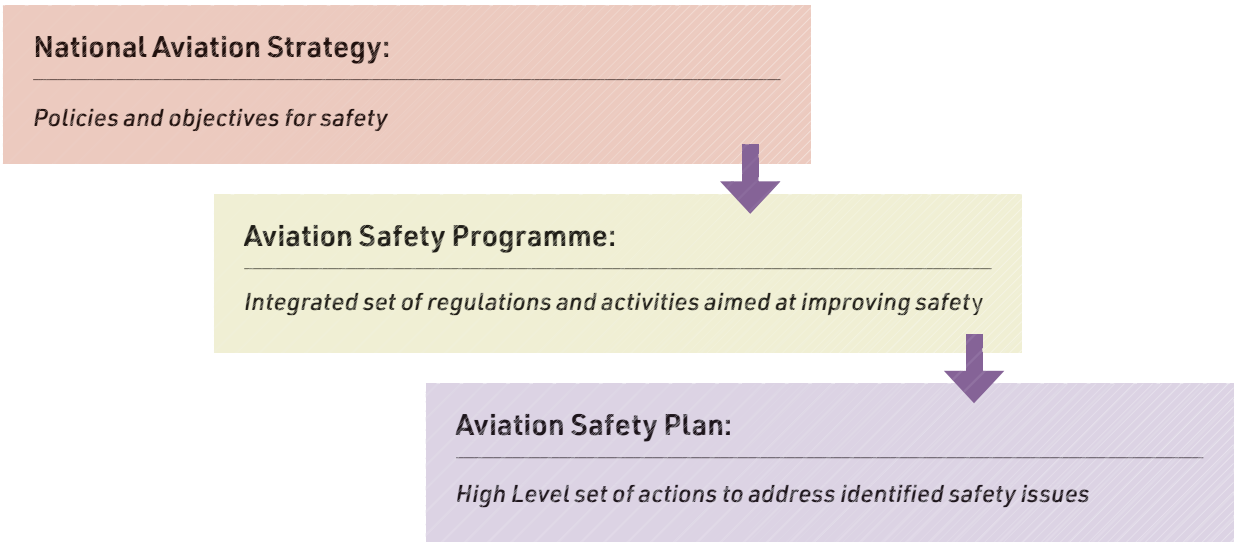
Many States, including Ireland, EASA and ICAO publish annual safety performance reports. The Irish, EASA and ICAO reports are available on;

https://www.iaa.ie/safety/safety-performance1

https://www.easa.europa.eu/document-library/general-publications

http://www.icao.int/safety/Pages/Safety-Report.aspx

The strategic hierarchy for safety management of civil aviation in the State is depicted in Fig 1 below.



Aviation Safety is a Global Business

As aviation is a global business that requires States to co-ordinate efforts to improve safety, the State Safety Plan for Ireland is developed with due regard for international safety priorities.

- Chicago Convention
- Annex 19/ICAO SMM
- Global Aviation Safety Plan

- European Aviation Safety Strategy
- European Aviation Safety Programme
- European Plan for Aviation Safety

- National Aviation Policy
- State Safety Programme
- State Safety Plan

The State level strategic hierarchy is mirrored not only at EU level but also globally through the ICAO convention itself. The State Safety Plan for Ireland is developed with due regard for the EASA European Plan for Aviation Safety and the ICAO Global Aviation Safety Plan and the recently issued 4th edition of the ICAO Safety Management Manual. Future amendments to the European Basic Regulation contains provisions to strengthen the link between the European Aviation Safety Programme and the European Plan for Aviation Safety with the EU Member States Safety Programs and Plans.

Strategic Priorities

The State Safety Plan is developed in the context of the IAA SRD strategic priorities, which include the following:

- To be acknowledged globally as a leading State in the effective implementation of risk-based safety management in regulation and oversight to the appropriate ICAO and EU standards, including effective safety promotion.
- To be efficient and innovative by continuously engaging with stakeholders and implementing lean processes, enabled by new digital technologies.
- To develop and implement 'the state of the art' in risk management practices and make them available for the benefit of the global community
- To facilitate competitiveness, innovation and emerging technologies to the benefit of Irish and global aviation.

Whereas these strategic priorities underpin the safety management enabling actions in the Plan, the prioritisation of specific safety actions to address operational safety issues are based on the assessed risk of the individual safety issue itself, as well as the urgency and efficiency of the actions identified in addressing these risks.

The actions in the Plan are derived using a risk-based approach. Risk profiles are used to identify the current areas of greatest concern. Risk profiles have been developed to address state level risks, sector level risks and organisational level risks, across a broad spectrum of activities, and the Plan itself includes actions for further risk profile development in outstanding areas.

Link to the Safety Oversight System

Ireland has implemented, and maintains, a comprehensive Safety Oversight System in compliance with ICAO and European Union requirements. The IAA SRD is the responsible authority in the State for safety oversight of almost all aspects of the civil aviation system.

The IAA SRD has implemented, and maintains, a comprehensive safety oversight programme to oversee the activities of organisations and persons involved in the Irish civil aviation system. This safety 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 SRD to fulfil it's obligations. The performance of the IAA SRD safety oversight programme is subject to oversight by ICAO, EASA and the DTTAS in accordance with the State Safety Programme for Ireland.

Many of the actions for the IAA SRD in the State Safety Plan are designed, and implemented, within the safety oversight programme. This means that the actions in the Plan may include:

- **Safety Policy:** actions that target new or amended regulations or policy in the State. Much of the rulemaking competence in Europe is now transferred to EASA, so national rulemaking is limited to areas of the civil aviation system that are excluded from the EU regulatory framework (Basic Regulation). National policy in respect of the development and implementation of the Safety Oversight System itself, and the State Safety Programme and Plan remains a national prerogative. This includes policies in respect of the implementation of EU regulations, including performance based regulations. Consequently many of the systemic actions addressed in the Plan are enablers for continuous improvement in the safety oversight system and the migration to risk-based and performance-based oversight.
- **Safety Oversight Functions:** actions that require the establishment of new functions, or amend existing functions, typically to address new or emerging safety issues ((eg integration of drones into civil aviation system)
- **Regulatory resources:** actions that relate to the provision of technical training, tools and guidance to regulatory staff to enable them to perform safety oversight and risk management functions in an effective manner.
- **Targeted oversight:** actions that require specific areas of concern to be audited, and that are planned and performed as part of the scheduled oversight plan. These actions are normally completed for all affected organisations within the current, or subsequent, audit cycle (eg 2 years).

In addition the safety oversight inspectorate are used to support the actions that relate to the safety risk management process including;

- **Safety analysis:** actions that require detailed analysis or research into areas of concern, carried out by the safety analysis group in conjunction with the SRD oversight inspectorate.
- **Safety Performance Monitoring:** actions that relate to monitoring the performance of regulated entities against agreed safety performance indicators.
- **Safety Promotion:** actions that target the delivery of latest guidance or training in respect of specific areas of concern. This material may be delivered during formal training programmes, safety evenings, dedicated workshops, or using safety promotion channels enabled by modern media. The delivery and effectiveness of specific safety promotion material to regulated entities may also be assessed as a targeted oversight task in the safety oversight programme.

Summary of the Plan

The Plan is broken down into three separate sections; systemic actions and actions to address operational risks in Commercial Air Transport and General Aviation.

The systemic section focuses on actions to address systemic risks in the civil aviation system and to improve safety management at State level. These actions also provide the strategic enablers that will underpin the IAA's ability to successfully migrate to a risk-based and performance-based oversight environment, as well as addressing specific issues that impact multiple domains. The objectives of the actions in this section are summarised in figure below.

Develop Safety Risk Management Capability

- ***Human Resources (new competencies for Inspectors)***
- ***Technology (big data management)***

Data-based Decision Making supporting performance monitoring, targeted oversight and safety promotion

- ***Enhanced data collection and analysis processes***
- ***Enhanced methods to derive safety intelligence***

Collaboration with Industry

- ***Build the bridge between State SSP and Industry SMS***
- ***Facilitate cross domain sharing of safety intelligence***

Cross domain specific issues

- ***Complex Business Models***
- ***Integration of drone operations into civil aviation system***
- ***Preparation for Brexit***

The plan includes actions that address safety improvements at the operational level, which are actions taken as a result of lessons learned from operational occurrences. These actions may include rulemaking, policy, targeted safety oversight, detailed safety analysis and safety promotion. Separate sections are provided to address Commercial and General Aviation in order to make the information more accessible to stakeholders.

Safety issues are managed through safety risk portfolios/ registers normally grouped together in specific aviation sectors (eg commercial air operations, general aviation, airport operations etc). These risk portfolios are derived from data based decision making processes and the bigger the pool of data the better the safety intelligence available to support the process. Accordingly, the IAA is a strong supporter off, and contributor to, the development of risk portfolios at European level, under the auspices of EASA. The IAA contributes to this process through its active participation in the EASA advisory bodies (ie MAB, CAG, NoA, TEB, SPN). The EASA risk portfolios are then adapted to suit the local environment.

The following provides an overview of the safety issues and actions in the Plan concerning Commercial Air Transport.

SAFETY ISSUES

Identified from sector based risk profiles developed from risk assessment and performance reviews

- Address main causes of fatalities eg Loss of control – Inflight, Mid-Air Collision, Controlled Flight into Terrain, Runway Safety
- Address main causes of non-fatal accidents eg ground operations, birdstrikes
- Address other hazards in commercial aviation eg helicopter offshore operations, laser attacks

ACTIONS

Available options include policy making, targeted oversight, risk management, safety promotion

- Majority of actions relate to targeted oversight (ie using the safety oversight function to monitor the implementation by organisations of safety initiatives identified in the State Safety Plan)
- Actions target specific safety analysis to learn more about identified safety issues
- Actions include safety promotion activities to ensure lessons learned on specific issues are fully promulgated to relevant stakeholders

In respect of general aviation, whereas the EASA risk portfolio addresses common risks much of this particular risk portfolio is specific to the local environment and developed nationally. The IAA works closely with the General Aviation Safety Council of Ireland in this regard.The following provides an overview of the safety issues and actions in the Plan concerning General Aviation

SAFETY ISSUES

Identified from sector based risk profiles developed from safety performance reviews and consultation with GA associations

- Addresses issues with potential impact to commercial operations eg Airspace infringements
- Addresses issues within the GA domain eg mid-air collision in uncontrolled airspace, flight planning, conduct of airshows, airworthiness, controlled flight into terrain, carburettor icing.
- Address issues related to specific activities eg paragliding, paramotoring.

ACTIONS

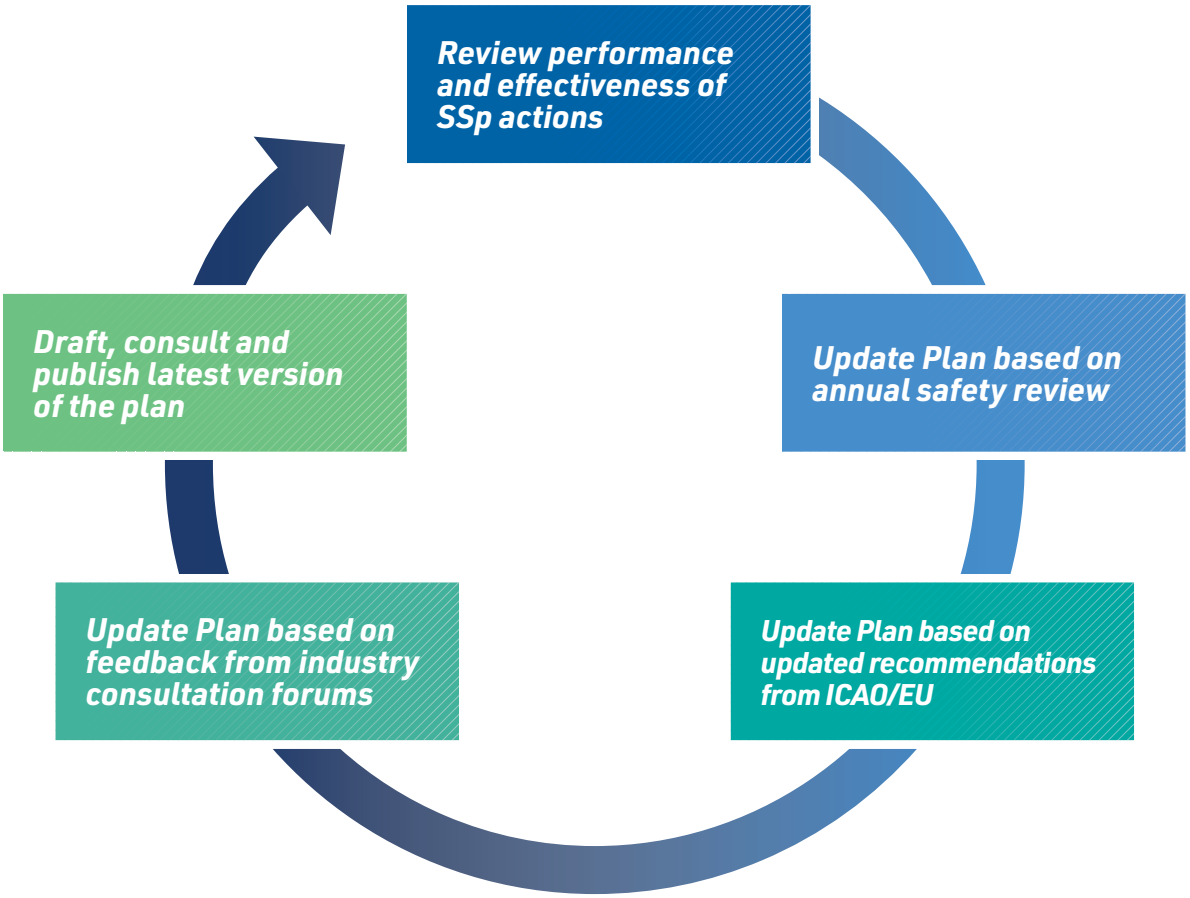
Available options include rulemaking, targeted inspection, safety promotion

- Majority of actions relate to safety promotion and the General Aviation Safety Council of Ireland (GASCI) provides enhanced ability to present and distribute safety information to GA pilots.
- Safety promotion through direct mailing/auto alerting will be greatly enhanced through the client management function proposed in the IAA SRD digitisation project.
- Non safety promotion actions include airspace design, aeronautical charting, rulemaking (eg paramotoring)

Developing the State Safety Plan

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 preceeding years, including published Annual Safety Performance Review, as well as the review and assessment of the implementation programmes for the actions in the Plan. The published Plan provides a narrative of the actions taken against individual safety issues including closing statements where relevant.

Industry contribution to the State Safety plan is gathered through the various sector specific safety forums held throughout the year and the newly constituted cross-domain safety workshop held once annually. In addition, one of the systemic actions in the Plan is to strengthen the link between the State Safety Programme and the Safety Management System, which will provide another avenue to improve the effectiveness of the Plan.



The Plan in numbers

Since its inception in 2010 there have been a total of 53 risk topics addressed in the Plan with 194 associated actions to address the safety issues. 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, as follows:

- **Safety Policy**, includes policy as promulgated through regulations or policy statements
- **Safety Risk Management**, includes tasks relating to the establishment of safety management requirements for service providers and agreement on the measurement of safety performance
- **Safety Assurance**, includes tasks related to targeted safety oversight and safety risk assessments
- **Safety Promotion**, includes tasks related to provision of training and guidance to aviation professionals as well as safety awareness to the general public.

Figure 2 shows how the 194 actions of the Plan since it's inception break down between the different SSP Pillars.

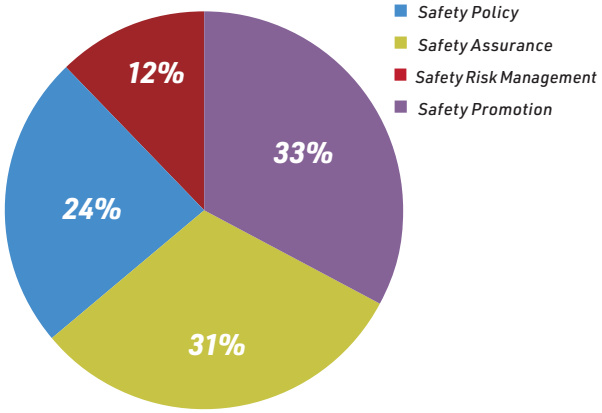


Figure 1: ***Breakdown of all SSp actions by SSP framework pillar***

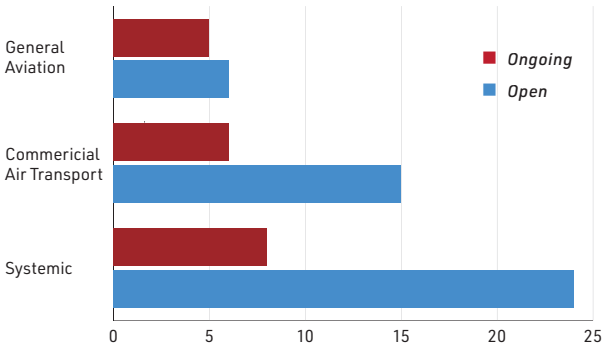


Figure 2: ***Breakdown of current State Safety Plan actions by section***

Almost three quarters of all actions included in the Plan since it's inception have been completed. The current version of the Plan has a total of 64 open or ongoing actions, broken down as shown in Figure 2.

The breakdown of the active actions in the current Plan by section and SSP Pillar is shown in Figure 3.

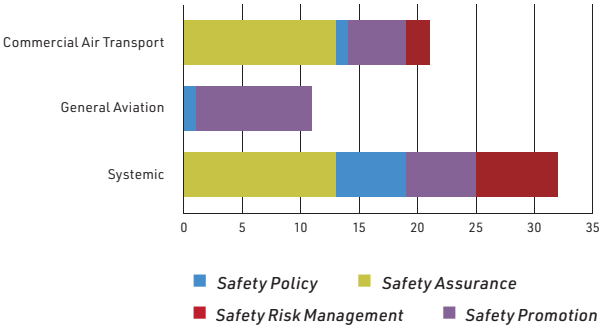


Figure 3: ***Breakdown of current actions by section and SSP pillar***

Measuring the success of the State Safety Plan

Whereas the summary data above gives an indication of the progress of the actions included in the State Safety Plan, measuring the effectiveness of the Plan is a highly complex process that requires the involvement of the industry stakeholders, in particular the Safety Management Systems. Processes are evolving at global and EU level and in Ireland to develop appropriate safety performance indicators and safety targets, including State level development of the concept of acceptable level of safety performance.

An **indicative measure** of the success of the Plan may be found in the ultimate safety outcomes, namely in the rate of accidents and serious incidents in the Irish civil aviation system. The trends analyses of intermediate outcomes, such as precursors to accidents, will also provide evidence of success.

The IAA publishes measures of these key safety indicators in the Annual Safety Review, as well as on the IAA website.

Owing to the fact that the rate of accidents and serious incidents is low in civil aviation, the IAA exercises great care in drawing inferences on the effectiveness of the Plan based on outcome based safety data. The attribution of any apparent trends to actions in this Plan, can only be established using a complex measurement system, coupled with forensic analysis of the influence of external factors or the influence of other actions that are not part of this Plan. Nevertheless the actions of the Plan seek to improve safety and the outcome based measures provide an indication of whether the totality of the actions taken are helping to improve safety.

The summary of accidents and serious incidents for Irish registered aircraft involved in commercial air transport and aircraft involved in general aviation is shown in below:

For further breakdown of these statistics including event categorisation details please refer to the IAA Annual Safety Review (https://www.iaa.ie/safety)

IRISH REGISTERED CAT AIRCRAFT			
Year	**Fatal Accident**	**Non-fatal Accident**	**Serious Incident**
2011-2016 (avg)	0.2	4.5	19.2
2017	1	5	10
AIRCRAFT INVOLVED IN GENERAL AVIATION			
2011-2016 (avg)	0.72	7.7	2.5
2016	1	7	6

SECTION TWO: SYSTEMIC ISSUES – SUMMARY

Summary of Objectives and Actions

The transition to a performance based regulatory environment and risk-based and performance-based oversight requires that State agencies develop new capabilities to enable effective safety management at State level. The actions in this section of the State Safety Plan address the development of safety risk management capabilities at State level and the development of data-based solutions to support performance monitoring and decision making in respect of regulatory oversight. The performance-based environment also affects the current relationship between the regulator and the regulated entity. Effective safety management across the civil aviation system requires greater collaboration between the State Safety Programme implemented by the State and the Safety Management System implemented by approved organisations.

The key issues addressed in this section of the Plan are:

STATE SAFETY PROGRAMME-	– Complete implementation of State Safety Programme – Align SSP with Annex 19 Amdt 1 and EU EASP/EPAS – Prepare for impact of Brexit
SAFETY MANAGEMENT SYSTEM	– Develop competencies and provide training and guidance for Industry – Develop methodology to measure effectiveness of SMS
OCCURRENCE REPORTING	– Implement EU Reg 376/2014 and provide training/guidance to IAA inspectorate and industry/reporters – Develop strong occurrence reporting culture
RISK AND PERFORMANCE BASED OVERSIGHT	– Improve audit management and data sharing through digitisation – Develop Safety Performance Indicators and Risk Profiling capability – Manage the integration of drone operations into the civil aviation system
ENHANCED COLLABORATION BETWEEN SSP/SMS	– Develop enhanced information sharing and data analytics – Develop safety management processes for Complex Business Models

Table 1: List of Systemic Actions in the Plan.

Items highlighted in green text are newly introduced in this version of the Plan

ACTIONS		TARGET DATE
Safety Policy	M.002 a): Implement elements of the EASA European Plan for Aviation Safety that apply to national authorities. ***EPAS Reference:*** App G	On-going
	M.002 c): Implement the SSP for Ireland in accordance with the ICAO GASP mid-term objectives ***EPAS Reference:*** RMT.0251	Q4 2020
	M.002 d): Update the State Safety Programme document to align with latest issue of European Aviation Safety Program and Amendment 1 to Annex 19. ***EPAS Reference:*** MST.001	Q4 2018
	FOD.009 c): Participate in the development of appropriate policy and guidance concerning the operation of drones through collaboration in the Joint Authorities for Rulemaking of Unmanned Systems Group (JARUS).	Ongoing
	FOD.009 h): Review the impact of the new EU regulatory framework (New BR and IR's) for Drones and update published policy and guidance accordingly	Q4 2020
Safety Assurance	M.004 h): Transition to the use of EASA SMS Assessment tool to measure the effectiveness of safety management by approved organisations in all domains	Q4 2019
	M.005 g): Use the results of oversight of occurrence reporting as a performance indicator of the safety culture of an organisation. ***EPAS Reference:*** MST.023	On-going
	M.010 c): Develop the tools to support risk and performance based oversight in air navigation services and aerodromes domains.	Q4 2018
	M.010 d): Develop the tools to support risk and performance based oversight in airworthiness domain.	Q4 2021
	M.010e): Develop sector level risk profiles which will be used to inform the IAA oversight planning at the strategic level.	Q4 2018
	M.006 b): Implement an integrated audit management system in the domains of Aerodromes and Air Navigation Services.	Q4 2019
	M.006 c): Develop applications to facilitate sharing of data to support risk and performance based oversight as part of the IAA digitisation project.	Q4 2018
	M.011 a): Target the key risks identified in this Plan, including RI, RE, LOC-I, MAC, CFIT and precursor events as part of SMS oversight..	Ongoing
	M.011 c): Establish the methodology, tools and processes to facilitate the data sharing between SSP and service providers SMS.	Q4 2019
	M.011 e): Enhance current safety analysis capabilities, including the development of Big Data analytics	Q4 2019

	M.012 a): Implement cooperative oversight with other States and disseminate best practices. ***EPAS Reference:*** MST.021	Q4 2018
	M.012 b): Ensure oversight of complex organisations includes assessment of the governance structure, in particular, influence of external financial stakeholders and/or corporate management. Assist in the development of, and implement, best EU practices in this regard. ***EPAS Reference:*** MST.019	Q4 2018
Safety Risk Management	M.004 g): Develop SMS requirements in airworthiness. ***EPAS Reference:*** RMT.0251	Q4 2020
	M.003 a): Development of standard safety performance indicators across Europe. ***EASA Reference:*** SPT.060	Ongoing
	M.005 k): Conduct occurrence reporting survey of EU Helicopter operators on behalf of EASA and provide analysis of the results	Q4 2018
	M.005 l): Implement the new EASA ERCS in IAA occurrence reporting system platforms	Q2 2019
	M.011 b): Promote the benefits of FDM and ensure that the standardised indicators (including RE, MAC, CFIT, LOC-I) and associated event triggers are implemented and monitored as part of the SMS. ***EPAS Reference:*** MST.003	Q4 2018
	M.011 d): Ensure that Human Factors principles are fully integrated into SMS processes.	Q4 2018
Safety Promotion	M.004 b): Include SMS promotional material developed by ESSI Teams, EASA and SMICG in Annual SMS training. ***EPAS Reference:*** MST.002	On-going
	M.005 c): Encourage the sharing of Safety information within the GA community.	Ongoing
	M.005 h): Provide training to inspectorate staff on the use of the new EU Event Risk Classification Scheme	Q2 2019
	M.005 i): Promote the use of EU Event Risk Classification Scheme by regulated entities	Q4 2019
	M.005 j): Update the IAA occurrence reporting website to provide easy to use instructions for reporters to guide them through the reporting process	Q4 2018
	M.010 f): Ensure that relevant staff in the safety regulation department are fully trained to properly discharge their safety oversight responsibilities in a risk and performance based regulatory environment.	Q4 2020
	FOD.009 f): Provide relevant public guidance to raise awareness of the regulatory requirements and safety hazards associated with operating drones.	On-going

Detailed summaries of the progress and actions for each of these actions are provided in Appendix 1.

SECTION THREE: COMMERCIAL AIR TRANSPORT – SUMMARY

Summary of Objectives and Actions

The key safety risks included in the Plan reflect the highest risk category for fatal accidents in Ireland, Europe and worldwide.

The overall objective in each case is to reduce the number of accidents and serious incidents attributed to the key risks addressed in this section for commercial air transport operations. The IAA will monitor the safety performance of approved Irish organisations, in order to measure the effectiveness of the actions in the Plan. Risk Registers are used to help identify the main safety issues addressed in the plan.

Most of the actions in this section of the Plan are implemented via targeted actions during the safety oversight programs for the affected organisations and through safety promotion. As the competent authority for rulemaking for commercial air transport is now EASA, the IAA role has changed from rulemaking to the provision of guidance to industry on the implementation of new rules EU rules (eg via training courses, workshops). The IAA contributes fully to the EU rulemaking process, through participation in the advisory bodies for Member States established by EASA for this purpose.

A summary of the actions affecting commercial air transport is provided below followed by a table with details of all the actions.

LOC-I — *Loss of control - Inflight*

- Training for upset recovery and competency based training
- Actions to address Birdstrikes and Laser attacks

CFIT — *Controlled Flight into Terrain*

- Provision of Approach with Vertical Guidance (APV) at Irish airports

MAC — *Mid-air Collision*

- Actions to address airspace infringements, military aircraft, operations in uncontrolled airspace and detailed analysis of ATM occurrences

RUNWAY SAFETY — *Runway Incursions/Excursions and Parallel Runway operations*

- Actions to address the implementation of EU guidance (eg EAPPRI, EAPPRE) to improve runway safety
- Actions to address oversight planning for implementation of parallel runways

GROUND OPERATIONS — *Operations on the ground movement area at airports*

- Detailed analysis of safety occurrences on the ramp and on taxiways

FIRE - NI — *Fire and Smoke events - non impact related*

- Actions to address the carriage of Lithium batteries and assessment of latest RAeS guidance

OFFSHORE OPERATIONS — *Helicopter offshore operations*

- Review of EASA detailed analysis of helicopter offshore accidents for potential risk mitigation actions

FUEL — *Fuel Planning and Fuel Management*

- Provide training and guidance to inspectorate staff and industry on new EASA regulations

Table 2: List of actions concerning Commercial Air Transport

Items highlighted in green text are newly introduced in this version of the Plan

ACTIONS		TARGET DATE
Safety Policy	FOD.003 c): Irish airports licensed for commercial air transport to provide non-precision instrumented approaches that contain vertical guidance. ***EPAS Reference:*** MST.006	Q4 2018
Safety Assurance	FOD.001 f): Ensure that IAA regulatory inspectors are trained in accordance with the relevant competency framework prior to assessing applications from training organisations implementing evidence/competency based training programmes.	Q4 2018
	FOD.001 g): Review latest EASA recommendations on Crew Resource Management oversight and training and update related policies and procedures accordingly	Q4 2019
	ASD.001 b): Monitor the level of implementation of recommendations for service providers contained in the EAPAIRR. ***EPAS Reference:*** MST.010	Ongoing
	ASD.001 g): Perform an analysis of ATM related occurrence reports and develop an ATM safety risk profile.	Q4 2018
	FOD.002 k): Monitor the implementation of recommendations in EASA SIB 2014-20 "Aeroplane Operations in Crosswind Conditions" with Irish AOC holders.	Q4 2018
	FOD.002 j): Monitor the implementation of EAPPRE recommendations for service providers. ***EPAS References:*** MST.007, SPT.075	Ongoing
	M.007 b): Audit the effectiveness of the local runway safety teams (including effectiveness of SMS in reducing RI precursor events). ***EPAS Reference:*** MST.011	Ongoing
	M.007 c): Review the level of implementation of recommendations for service providers contained in the EAPRRI as part of the oversight cycle ***EPAS Reference:*** MST.014	Ongoing
	M.007 d): Review Version 3.0 of the EAPPRI and identify actions required to address the updated document	Q4 2018
	M.009 c): Review the Irish Air Operators flight crew procedures for flight deck smoke ventilation, flight deck checklists, donning of oxygen masks and training for fire fighting to ensure they reflect the latest RAeS guidance in this area.	Q4 2019
	AED.002 c): Encourage ICAO to provide global statistics from the ICAO IBIS system and review recommendations arising from the ICAO Wildlife Strike Reduction Symposium 2017 for application in Ireland.	Q4 2018
	FOD.024 b): Review the EASA analysis of Offshore Helicopter Operations in detail, and will implement any actions necessary to address specific risks applicable to Irish offshore helicopter operations	Q4 2018
	ASD.003 a): Ensure that the oversight planning process for introduction of parallel runways takes due account of the different implementation projects, their interconnections and dependencies.	Q4 2019

Risk Management	ASD.001 f): Ensure that Irish operators fully address the risks associated with operations into uncontrolled airspace in their safety management systems	Q4 2018
	FOD.004 e): Analyse ramp and taxiway occurrence reports and develop associated risk mitigating measures. ***EPAS Reference:*** MST.018	Q4 2018
Safety Promotion	FOD.001 e): Promulgate latest EASA publications (policies/SIB's) concerning LOC-I and monitor the implementation.	On-going
	FOD.002 c): Share actions and measures in use at national level to address the safety risk of runway excursions and participate in EASA initiatives to share best practice and coordinate actions.	On-going
	FOD.004f): Promote the EASA recommendations on aircraft de-icing as promulgated in EASA SIB 2017-11, during pre-winter ground operations consultation workshops.	Q4 2018
	FOD.025a): Provide appropriate training and guidance to flight operations inspectors in the oversight of proposed new EASA regulations on fuel planning and fuel management	Q2 2019
	FOD.025b): Provide guidance to industry on the implementation of proposed new EU regulation on fuel planning and fuel management	Q4 2019

Detailed summaries of the progress and actions for each of these risks areas are provided in Appendix 2.

SECTION FOUR: GENERAL AVIATION – SUMMARY

Summary of Objectives and Actions

The General Aviation community includes wide ranging and diverse recreation and sporting activities across a wide spectrum of aircraft types and operations (including light fixed wing aeroplanes, light helicopters, microlights, gyroplanes, gliders, paragliders, balloons etc).

The key risks for general aviation are identified from the safety analysis of accidents and incidents in the State as well as from issues that emerge during regulatory oversight activities and engagement with general aviation associations. The IAA Annual Safety Review includes performance reports on the GA community and this review contributes to the identification of the key safety risks included in this Plan.

The relatively low level of safety data in this area means that it is not possible at this time to develop safety performance targets for General Aviation. Consequently the objectives of the actions in the Plan are aimed at providing better awareness and training to GA pilots in order to minimize the risks of having accidents or serious incidents due to the hazards identified in this Plan.

A Risk Register for General Aviation is used to help identify the main safety issues addressed in the Plan. Many of the actions in the Plan are devised and implemented via the General Aviation Safety Council of Ireland, which includes representatives of the various GA activities, as well as IAA (service provider and regulator) and the Air Accident Investigation Unit.

The actions in the Plan for General Aviation fall under the categories safety policy or safety promotion.

A summary of the actions affecting general aviation is provided below followed by a table with details of all the individual actions.

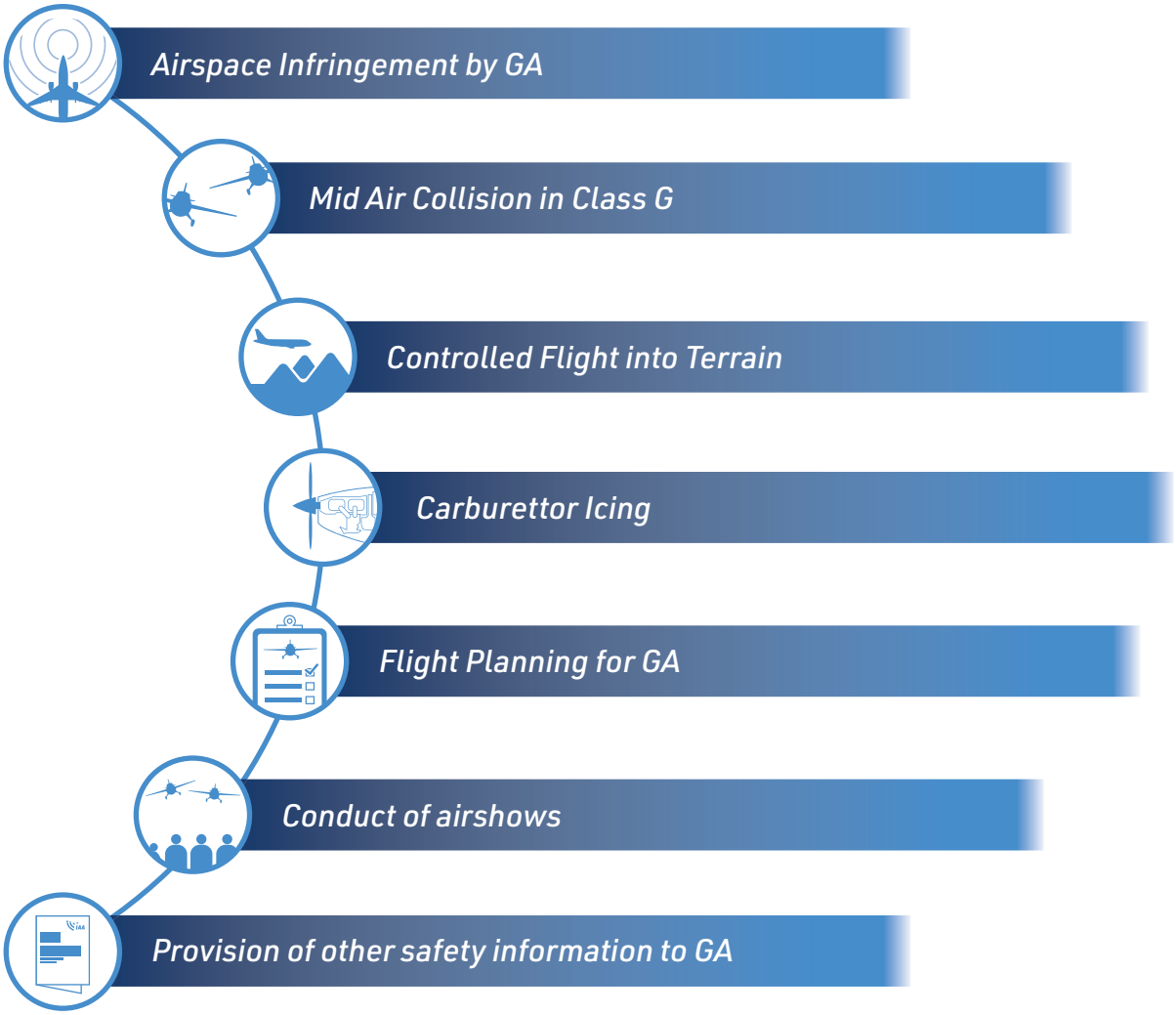


Table 3: List of actions concerning General Aviation

Items highlighted in green text are newly introduced in this version of the Plan

ACTIONS		TARGET DATE
Safety Policy	FOD.017 a): 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 2018
Safety Promotion	AWSD.006 a): Provide safety information concerning aircraft equipment failure and maintenance for dissemination to the Irish general aviation community.	On-going
	FOD.014 a): Promote EASA/EGAST Safety Material to general aviation community in Ireland. ***EASA Reference:*** MST.002	On-going
	FOD.014 b): Organise/facilitate regular general aviation safety events for fixed wing operators.	On-going
	FOD.015 a): Promote EASA/EHEST/IHST Safety Material to GA community in Ireland. ***EASA Reference:*** MST.002	On-going
	FOD.015 b): Organise/facilitate regular general aviation safety events for helicopter operators. ***EASA Reference:*** MST.015	On-going
	FOD.022 d): Work with GASCI to produce general safety guidance for the conduct of club fly-ins and promote this guidance during GASCI safety evenings	Q4 2018
	FOD.026 a): Work with GASCI to develop safety promotion material concerning the risk of controlled flight into terrain in general aviation for presentation at GASCI safety evenings and promulgation on website and facebook channels	Q4 2019
	FOD.027 a): Work with GASCI to develop safety promotion material concerning the recognition and response to carburettor icing to reduce the risk of engine stoppage during flight, for presentation at GASCI safety evenings and promulgation via website and facebook channels	Q4 2019
	FOD.028 a): Work with GASCI to develop safety promotion material concerning hand-propping operations for presentation at GASCI safety evenings and promulgation via via website and facebook channels	Q4 2019

Detailed summaries of the progress and actions for each of these risk areas are provided in Appendix 3.

APPENDIX ONE: SYSTEMIC ISSUES – DETAILS

M.002: Implementation of State Safety Programme

Safety Issue

ICAO Standards and Recommended Practices (SARPs) require the implementation of State Safety Programmes in Annex 19, effective since November 2013. The incomplete or ineffective implementation of the SSP represents a risk to effective safety management in the State.

The State Safety Programme (SSP) is an integrated set of regulations and activities aimed at improving safety in the State. The objective is to achieve an acceptable level of safety of aviation services and products delivered by aviation service providers. The actions in this plan are focused on ensuring that Ireland meets the targets established in the ICAO Global Aviation Safety Plan mid-term objectives for the implementation of SSP.

Current Status

The following table shows the objectives for States contained in the ICAO GASP 2017-2019 along with the status of Ireland against these objectives:

Safety Objective	Timeline	Status for Ireland
Effective Safety Oversight – EI Score > 60%	Near-term 2017	Completed – EI score 94.5%, 2nd Place in EU and 8th place in World per latest ICAO league table.
SSP Implementation	Mid-term 2022	Almost 90% completed. Outstanding issues part of Pan-European initiatives in conjunction with EASA.
Predictive risk management	Long-term 2028	Work beginning in conjunction with EASA

A new version of the GASP is planned for publication during 2018. This impact of the new GASP on the completion of the action c) below needs to be assessed. It is also noted that the completion of actions outlined in M.004 below must be completed before action c) can be closed. The target date for action c) is adjusted accordingly.

The documentation of the SSP for Ireland was last updated in January 2015. A further update of the SSP document is planned to align with Amendment 1 to Annex 19 and the forthcoming update to ICAO Safety Management Manual (Doc 9859), as well as the latest issue of the European Aviation Safety Program. Delays in the publications of the new edition of ICAO SMM has affected action d) below however it is still intended to publish the updated State Safety Programme document by end 2018 (Action d) refers).

In addition, the State Safety Plan for Ireland includes recommended actions for EU Member States contained in the European Plan for Aviation Safety (EPAS). The IAA provides regular updates to EASA on the status of the national State Safety Programme, as well as the status of action items for EU Member States identified in the EASA EPAS.

EXISTING ACTIONS		TARGET DATE
a)	The IAA will continue to implement the elements of the EASA European Plan for Aviation Safety that apply to national authorities. ***EPAS Reference:*** App 1	**On-going**
c)	The IAA will work, in conjunction with EASA as appropriate, to ensure that the full implementation of the SSP for Ireland is accomplished in accordance with the ICAO GASP 2017-2019 mid-term objectives. ***EPAS Reference:*** RMT.0251	**Q4 2020**
d)	The IAA will update the State Safety Programme document as necessary to align with Amendment 1 of Annex 19 and latest issue of European Aviation Safety Program. ***EPAS Reference:*** MST.001	**Q4 2018**

M.004: Implementation of SMS

Safety Issue

ICAO standards and EU Implementing rules require the implementation of Safety Management Systems (SMS) in aviation organisations. The lack of effective implementation of SMS could reduce the ability of organisations to improve safety performance.

An SMS provides aviation service providers with a systematic way to identify hazards and control risks while maintaining assurance that these risk controls are effective. This Plan targets the implementation of SMS across all domains in the Irish civil aviation system in line with the ICAO GASP mid-term objectives, and this has been achieved in all domains with the exception of airworthiness, which is dependant of the availability of implementing rules for SMS in the EASA rulemaking programme (RMT.0251) targeted for 2020.

Current Status

EU regulations have been amended to include provisions for the implementation of SMS standards in all organisations with the exception of airworthiness, which is scheduled for completion in 2020 (EASA RMT.0251).

Best practice guidance in the area of safety management for commercial air transport operations has been published by ICAO in Doc 9859 Safety Management Manual and additional guidance has been provided by the Safety Management International Collaboration Group (SMICG) available on Skybrary. In Europe ECAST and EHEST published guidance material on the implementation of SMS in the airborne domain. The IAA was an active participant in both ECAST and EHEST (recently disbanded) and is now an active participant in the new EASA Safety Management TEB as well as the SMICG. The IAA provides SMS training (week-long courses) for the benefit of both IAA staff and Irish industry, which uses the above referenced guidance material to promote SMS best practice.

The IAA and EU FAB partner (UKCAA) have endorsed interface arrangements established in order to harmonise the SMS activities of the main ANSP's involved in the Ireland/UK FAB.

The IAA developed a tool to monitor effectiveness of Safety Management in Air operations and ANS domain and actions were included in previous versions of this Plan to extend the use of this tool to other domains. In parallel with this activity the IAA supported the EASA initiative to develop a common EU SMS Assessment tool based on SMICG developed PSOE framework. The EASA tool is now published and the IAA will transition to the use of this tool in all domains over the next two years. Action h) is updated accordingly.

EXISTING ACTIONS		TARGET DATE
b)	The IAA will include SMS promotional material developed by ESSI Teams, EASA and SMICG in Annual SMS training delivered by the IAA. ***EPAS Reference:*** MST.002	**Ongoing**
g)	The IAA will work with EASA for the development of SMS requirements in airworthiness. ***EPAS Reference:*** RMT.0251	**Q4 2020**
h)	The IAA will transition to the use of EASA SMS Assessment tool to measure the effectiveness of safety management by approved organisations in all domains	**Q4 2019**

M.003: Publication of safety performance indicators (SPIs)

Safety Issue

Measurement of safety performance requires the identification of relevant indicators. As aviation is a global business, the lack of standardised approach to development of SPI's among States (both in EU and worldwide) could diminish the ability of States to harmonise safety data analysis and associated risk management strategies.

Safety Performance Indicators are metrics used to express the level of safety performance achieved in the aviation system and are usually linked to safety performance targets. The objective of the actions in this Plan are that a standardised list of SPI's will be developed for use in civil aviation in all EU Member States and implemented in Ireland.

Current Status

In 2011 EASA established a Network of Analysts (NoA) to help perform safety analysis and to help identify existing or emerging risks to be included in the European Plan for Aviation Safety. The NoA established a working group on SPIs with the primary aim of identifying common SPIs across Europe and to provide guidance material on the development of SPIs. The work of the SPI working group will continue through 2018 and will be informed also by the related guidance emerging from the Safety Management International Collaboration Group (SM ICG). The IAA plays an active part in the work of the NoA and SMICG.

In the ATM domain, specific SPIs have been agreed and published in European regulation. EASA is continuing to develop and populate safety (key) performance indicators to measure ATM safety performance and to provide continuous monitoring and verification of the ANSPs performance achieved safety levels and trends (Ref also EPAS SPT.063).

The IAA has established SPI's at national level and publishes high level safety outcome based safety performance indicators in the Annual Safety Performance Review and on the IAA website. More granular SPIs for various sectors of the industry and individual organisations are provided to the relevant stakeholders. The IAA recognises the benefits of developing a common standardised list of SPI's at EU level and will continue to develop SPIs in line with EASA standards as they emerge, including the assessment of the benefits of FDM-based indicators for addressing national safety priorities (see also Ch M.011 below)

The development of SPIs across all domains is likely to be an ongoing task for a number of years to come. Action a) below is retained in the Plan as an on-going task.

EXISTING ACTIONS		TARGET DATE
a)	Participate in the development of standard safety performance indicators across Europe through participation in the EASA Network of Analysts working group. ***EASA Reference:*** SPT.060	**Ongoing**

M.005: Safety Culture and Occurrence Reporting

Safety Issue

Effective safety management is contingent on the timely availability of safety data from organisations and persons involved in civil aviation, which in turn is heavily dependent on a positive safety culture. The lack of timely reporting or poor safety culture reduces the ability to analyse and mitigate safety risks and to share vital safety information.

The objectives of the actions in this section of the Plan are to:

- assist organisations and persons experiencing difficulties implementing the new Regulation (EU) 376/2014
- promote voluntary reporting for those not subject to mandatory reporting requirements
- develop improvements in safety culture through occurrence reporting.

Current Status

New Regulation (EU) 376/2014 became effective on 15th November 2015 and includes provisions for the implementation of mandatory and voluntary occurrence reporting in both organisations and States, including the requirement for mandatory reporting for those involved in general aviation for the first time. The IAA has a long established mandatory occurrence reporting system based on standard reporting templates and an online voluntary reporting system established in 2011. Full details of these occurrence reporting systems are available on www.iaa.ie

Regulation 376/2014 places new responsibilities on organisations to provide ADREP/ECCAIRS compatible reports. The IAA recognises that the new responsibilities may require systems/procedure development and training and will provide assistance to organisations and persons experiencing difficulties implementing the new requirements.

In view of the complexity of the new reporting requirements, the IAA intends to update the current IAA occurrence reporting website to provide easy to use instructions to reporters to guide them through the process. New action j) below.

The mandatory reporting requirements of the new Regulation (EU) 376/2014 applies to general aviation, however, those involved in operating aircraft types excluded under the Basic Regulation (eg light microlights, homebuilds etc) are not required to report. The General Aviation Safety Council of Ireland (GASCI) was established in 2012, with the objective to 'promote the safety of General Aviation in Ireland'. To achieve this, GASCI seeks to identify flight safety risks and minimise them through education, training and shared experience amongst the Aviation Community. GASCI has provided guidance to the GA community on the new mandatory requirements in the regulation and will continue to encourage voluntary reporting by those not subject to the mandatory provisions.

The European Plan for Aviation Safety (ref SPT.067) advises that the EASA Network of Analysts will provide a focal point for EU wide assessment of safety culture in which will include States survey of occurrence reporting as part of the process. The IAA conducted it's own EU wide occurrence reporting survey in 2013 and supported the EASA task by conducting a survey of EU CAT fixed wing occurrence reporting culture and providing associated analysis of the results. This work was completed during 2017 and action f) below is closed.

As a follow-up action EASA has requested the IAA to conduct a similar survey and analysis of occurrence reporting by EU helicopter operators. This work is planned to be completed during 2018. New action k) refers.

In addition the IAA has used, and will continue to use the results of the oversight of occurrence reporting as a performance indicator of the safety culture of an organisation.

The publication of the new European Event Risk Classification Scheme for use by EU Member States due in 2017 was delayed until 2018. The IAA will provide relevant training to appropriate inspectorate staff in the use of the new ERCS and will also promote it's use by regulated entities. Actions h) and i) below are updated with new target dates. In addition, the new ERCS will need to be implemented in the IAA occurrence reporting system platforms (New Action l) below).

NEW ACTIONS		TARGET DATE
j)	Update the IAA occurrence reporting website to provide easy to use instructions for reporters to guide them through the reporting process	**Q4 2018**
k)	The IAA will conduct occurrence reporting survey of EU Helicopter operators on behalf of EASA and provide analysis of the results	**Q4 2018**
l)	Implement the new EASA ERCS in IAA occurrence reporting system platforms	**Q2 2019**

EXISTING ACTIONS		TARGET DATE
c)	The IAA will work with GASCI to encourage the sharing of Safety information within the GA community, at GASCI safety evenings and Club Fly-in events and via GASCI website and facebook.	**Ongoing**
g)	The IAA will use the results of oversight of occurrence reporting as a performance indicator of the safety culture of an organisation. ***EPAS Reference:*** MST.023	**Ongoing**
h)	The IAA will provide relevant training to inspectorate staff on the use of the new EU Event Risk Classification Scheme	**Q2 2019**
i)	The IAA will promote the use of EU Event Risk Classification Scheme by regulated entities	**Q2 2019**

CLOSED ACTIONS	
f)	The IAA will participate in the EASA occurrence reporting survey of States and support the EASA NoA with the subsequent analysis. ***EPAS Reference:*** MST.023

M.010: Implementation of Risk-based and Performance-based Oversight

Safety Issue

The IAA plans to implement risk-based and performance-based oversight as a key element of safety management in Ireland in order to target 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 or failure to properly evaluate effectiveness of organisations safety management systems.

A key feature of safety management at the State level is the use of performance (objective) based regulations and risk and performance based oversight methodologies to compliment traditional prescriptive rulemaking and compliance based oversight activities. The IAA intends to implement risk-based and performance -based oversight in Ireland in all domains by end 2021.

Current Status

The concept of risk-based oversight provides greater flexibility for both the State and the service provider to target areas of greater concern. It is used to plan the compliance based oversight methods by targeting resources of both the State and the service provider towards areas of greatest risk to safety. In addition the introduction of safety management systems requires States to implement a performance-based approach to evaluate the effectiveness of these systems (ie the effectiveness of the service providers processes to manage their own risks)

The full implementation of risk-based and performance-based oversight in the IAA is a medium term project which requires:

- Risk and performance measurement systems and structures
- Data collection and analysis systems
- Data quality verification processes
- Personnel training
- Roll-out planning
- Change management

Some of the core data collection and analysis elements are already in place in Ireland (eg mandatory occurrence reporting collection and analysis schemes) and this data is currently used to inform compliance based oversight approach in some cases. However, a considerable amount of work is required to make the transformational changes (across people, process, systems, data and culture) to fully implement risk-based and performance-based oversight.

In 2014 the IAA established an organisation risk and performance assessment structure based on three pillars; organisation intrinsic risk profile, organisation compliance profile and organisation performance profile and uses these assessments as part of the oversight planning process. Whereas this structure was developed to support complex organisations and activities, it was envisaged that some tailoring would be needed to reflect the different level of risk exposure found in different sectors of civil aviation. Consequently, the IAA is currently developing sector level risk profiles which will be used to inform the IAA oversight planning at the strategic level (action e) below).

An effective risk-based and performance-based oversight approach is dependent on the implementation of Safety Management System in the organisation. The requirements for SMS in airworthiness domains is subject to EU rulemaking (ref also M.003 above) and due in 2020. Consequently the roll-out of the measurement structure in the airworthiness domain is extended to end 2021 (ref Action Item d) below).

The IAA has initiated an eBusiness and digitisation project, the intent of which is to provide an on-line services environment for regulated entities and will provide enhanced capabilities in the risk-based and performance-based oversight process. Refer to Chapter M.006 of this Plan for more details.

The implementation of risk-based and performance-based oversight as well as the oversight of performance based regulations require new competencies for staff in the IAA safety regulation department. The IAA will review and update current staff training programs to ensure relevant training is provided to staff that need it (Action Item f) below)).

No new actions are proposed in this version of the Plan.

EXISTING ACTIONS		TARGET DATE
c)	The IAA will develop the tools to support risk-based and performance-based oversight in air navigation services and aerodromes domains based on assessment of organisation risk profile, organisation compliance profile and organisation performance profile.	**Q4 2018**
d)	The IAA will develop the tools to support risk-based and performance-based oversight in airworthiness based on assessment of organisation risk profile, organisation compliance profile and organisation performance profile.	**Q4 2021**
e)	The IAA will develop sector level risk profiles, which will be used to inform the IAA oversight planning at the strategic level.	**Q4 2018**
f)	The IAA will ensure that relevant staff in the safety regulation department are fully trained to properly discharge their safety oversight responsibilities in a risk-based and performance-based regulatory environment.	**Q4 2020**

M.006: eBusiness and Digitisation

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 analysis to support risk-based and performance-based oversight.

The implementation of an integrated information system is a key enabler of the risk-based and performance-based safety oversight approach. One of the key aims of this system is to facilitate quick access to safety information, including safety data and oversight audit results and associated trends, which will be used, along with other measures, to develop the profiles of the relevant service provider. The target is to implement the ebusiness model across all domains in the IAA SRD by end 2019.

Current Status

The IAA SRD has launched a new eBusiness and Digitisation project to introduce eBusiness into all possible IAA SRD functions. Through innovation and active use of technology, the IAA SRD will build on its position as a world-leading aviation safety organisation to deliver dynamic, effective regulatory practices and maximise business activity within the digital environment.

Business processes such as the acceptance of applications for the approval, registration, certification or licensing of both individuals and organisations will be captured and tracked through digital means, with IAA inspectors and technical staff also equipped and trained to exercise oversight activity using digital platforms both at home and abroad.

Whilst the new business processes will greatly enhance the IAA SRD client relationships, the new eBusiness platform will also greatly enhance the access to, and availability of, safety information to support risk-based and performance-based oversight. It will include a state of the art business intelligence system, that will provide faster access to better quality data from the audit management process and greatly enhance the data collecting and data sharing mechanisms (eg for operational performance and activity data). The IAA is also exploring the possibility to use web based solutions to facilitate the sharing of safety risk management information (eg hazards and safety issues).

No new actions have been identified in this version of the Plan.

EXISTING ACTIONS		TARGET DATE
b)	The IAA will implement an integrated audit management system in the domains of Aerodromes and Air Navigation Services.	**Q4 2019**
c)	The IAA will work with stakeholders to develop applications to facilitate the sharing of data to support risk-based and performance-based oversight as part of the IAA digitisation project.	**Q4 2018**

M.011: Enhanced collaboration between SSP and SMS

Safety Issue

The State Safety Program is complimentary to the Safety Management Systems implemented by the civil aviation organisations and service providers (regulated entities). Closer collaboration between the safety management processes in the SSP and the safety management processes in the regulated entities SMS will greatly enhance the ability of the overall safety system to identify the key areas of safety concern. Failure to collaborate between SSP and SMS could lead to a divergence in approach between the State and individual organisations.

The objective of closer collaboration between SSP and SMS is to ensure that safety intelligence is mutually shared between organisations and the State in more effective manner. The target is to implement the relevant methodologies and processes by end 2019.

Current Status

The IAA wishes to ensure closer collaboration between the State SSP and organisations SMS for the purposes of enhancing the overall safety performance in the State. Whereas the occurrence reporting system is a key enabler of safety management, the IAA will encourage the use of other sources of safety data (eg air operators FDM) to enhance the risk management and safety assurance processes.

The actions are focused on developing the methodologies and processes for ensuring closer collaboration on a two way basis to ensure that:

- The high level risks identified at State level (eg in this Plan) are properly considered by the regulated entities as part of their safety management processes.
- The use of data available from existing recording equipment (eg FDM) is fully integrated into the safety management process.
- The risks identified in the safety management systems implemented by the organisations SMS are fed back to the State to ensure that lessons learned can be considered within the safety management processes at State level and appropriately shared with other affected stakeholders.
- The integration of Human Factors principles into the safety management processes.
- The enhancement of current safety analysis processes to include Big Data analytics.

EASA has launched the Data4Safety programme which will involve both State regulator and regulated entities in a collaborative project to implement Big Data analytics into aviation safety analysis. The IAA is actively involved in this project at both Steering Board and Technical Board level and will support the work of task teams as and hen required.

The IAA has held discussions on the use of FDM data with affected Air Operators and also participated in UKCAA FDM forum (also attended by main Irish operators into UK). EAFDM triggers were highlighted to Air Operators. EPAS action SPT.060 is due to report on assessment of use of FDM based indicators in 2018 and further actions may arise from this. An operator SMS in-depth audit has been incorporated into the comprehensive audit programme for the current two-year surveillance cycle, which commenced for all operators in January 2017 and is scheduled for completion in December 2018. Action b) target date is extended accordingly.

The IAA is working with EASA Data4Safety, ICAO SMICG and EASA Network of Analysts to define the level of analysis that should be conducted by the State, the RSOO (eg EASA) level and ICAO. The overall objective is to decrease the burden on regulated entities due to multiple requests for the same data from different State sources. The outcome of this activity will enable the development of detailed specification of the requirements related to action e) below.

No new actions are identified in this version of the Plan.

EXISTING ACTIONS		TARGET DATE
a)	The IAA will target the key risks identified in this Plan, including RE, LOC-I, MAC, CFIT and precursor events as part of AOC Holder SMS oversight.	**Ongoing**
b)	The IAA will establish regular dialogue with aircraft operators to promote the benefits of FDM and ensure that the standardised indicators (including RE, MAC, CFIT, LOC-I) and associated event triggers published by the European Authorities Co-ordination Group on Flight Data Monitoring (EAFDM) are implemented and monitored as part of the SMS. ***EPAS Reference:*** MST.003	**Q4 2018**
c)	The IAA, in conjunction with industry, will establish the methodology, tools and processes to facilitate the collection of relevant safety data from the regulated entities SMS, over and above the current data provided under the mandatory and voluntary occurrence reporting schemes.	**Q4 2019**
d)	The IAA will work with organisations to ensure that Human Factors principles are fully integrated into Safety Management processes.	**Q4 2018**
e)	The IAA will develop the processes and systems necessary to enhance the current safety analysis capabilities including the development of Big Data analytics	**Q4 2019**

M.012: Complex or Novel Operational Models

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. Failure to adequately address the safety risks arising from the introduction and on-going management of safety by organisations with complex business models, or novel work practices, could have a detrimental effect on the current high level of safety.

The objective is to ensure that organisations under the oversight of the IAA that have complex or novel business models address all the associated risks as part of their Safety Management Systems and to ensure that the IAA collaborates fully with other States where high levels activities are performed (eg outstations, extended workbench etc). The target is to implement, or oversee the implementation of, the relevant processes by end 2018.

Current Status

In the recent past, in parallel with trends in other non-aviation related industries, complex business models and novel work practices have emerged and the actions in this chapter of the Plan are designed to address the associated safety issues. The European Plan for Aviation Safety (EPAS) has also recognised the growth of these complex models in the European context and some of the actions in this chapter are designed to address actions for EU Member States arising from EPAS.

The IAA participated in EASA "complex models" working group to develop European guidance and recommended practices on this topic. Implementation of recommended practices is on-going. In respect of oversees activities (eg foreign operational or maintenance bases used by Irish AOC holders) the IAA co-ordinates with all affected NAA's during oversees audits and shares information as appropriate. The best practices employed thusfar by the IAA includes, advising other MS of audit activities in that State and inviting that State to participate in the audit as observers, provision of an IAA safety review of a particular organisation on request, provision of safety information concerning specific risks on request etc.

Another challenge to be addressed is the complex organisational structures employed by many modern organisations to ensure that the management personnel have the relevant control of the business and resources to enable them to meet their obligations. This issue is being addressed at a pan-EU level via EASA. The IAA participated in EASA Working group on this topic in 2017 and related issues concerning outsourcing and group operations as well as interoperability issues were further addressed at the EASA Air Ops TeB in late 2017 (also attended by IAA). An EASA/NAA workshop is planned for autumn 2018 to be followed by an EASA/NAA/Industry workshop. Action b) below is extended accordingly.

The Safety Management Systems required for approved organisations (ref also to Chapter M.004 for further details) include, inter alia, a risk management process to ensure all the risks applicable to that particular organisation are fully addressed under the SMS. The IAA participated in EASA WG on this issue in 2017. In August 2017 EASA published 'Practical Guide - Management of hazards related to new business models of commercial air transport operations', which has been incorporated into the IAA SMS oversight programme as applicable. Action C) below is closed.

EXISTING 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.021.	**Q4 2018**
b)	The IAA will ensure it has a thorough understanding of operators' governance structure, in particular, 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 2018**

CLOSED ACTIONS		
c)	Management systems of the operator should 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. The IAA will ensure this happens through SMS oversight activities and provide relevant updates to the Agency when requested. ***EPAS Reference:*** MST.022	

M.013: Preparation for Brexit

Safety Issue

The decision of Ireland's nearest neighbour and biggest trading partner, the UK, to leave the EU will have huge ramifications for Ireland from a political, social and economic standpoint. This decision has led to a period of uncertainty for all aspects of life in Ireland, and the civil aviation system in Ireland will not be untouched by this period of uncertainty.

The objective is to ensure that the changes required during the transition to the post-Brexit environment, are properly managed to help minimise the risk to Irish industry and to ensure that the Irish civil aviation system maintains it's strong safety performance.

Current Status

The full impact of Brexit on the civil aviation system is unlikely to emerge until the details of the terms of the UK withdrawal from the EU have been finally agreed in 2019, as well as any associated transition arrangements that may emerge.

Notwithstanding the fact that the terms for the UK withdrawal agreement are not yet available, the IAA SRD has begun to assess the potential impacts of Brexit, under a number of headings, including but not limited to:

- Potential knock-on effect on Irish civil aviation activity due to economic impact on Irish industry
- Potential for increased demand on regulatory support for UK based civil aviation organisations re-locating to Ireland
- Impact to formal arrangements between Ireland and the UK within the EU context (eg Functional Airspace Block)
- Impact of no withdrawal agreement between EU and UK on all EASA certificates/licences issued by UKCAA and UKCAA approved organisations

The IAA SRD will assess the potential impact of Brexit on the Irish civil aviation system and ensure that it is fully prepared to manage the changes that are required as a result of Brexit. It is anticipated that further specific actions may be developed in the next version of this Plan, once the final details of the Brexit arrangement have been agreed between the EU and the UK.

EXISTING ACTIONS		TARGET DATE
a)	The IAA will assess potential impact on Irish civil aviation system to ensure it is fully prepared to manage the changes required as a result of Brexit.	**Q4 2019**

FOD.009: Drones

Safety Issue

The popularity and application of drones continues to grow and we are now moving towards the integration of professional drone operations into the civil aviation system. The need to integrate professional drone operations into the civil aviation system and the increasing use of drones by members of the public represents a growing risk to aviation safety.

The proliferation of the use of drones represents an emerging risk to both commercial and general aviation. The objective of the actions in this Plan are that the operation of drones is properly integrated into the Irish Civil Aviation System, in order to minimise the risk of an accident as a result of conflict between a drone and an aircraft in Irish airspace.

Current Status

ICAO and EASA are addressing future Standards and Recommended Practices (SARPS) for the use of unmanned systems. An ICAO iKIT on unmanned systems contains latest regulatory and guidance material from a number of contracting States.

EASA has included actions in the European Plan for Aviation Safety to address unmanned aviation systems, addressing both the EU regulatory framework and safety promotion. The new EU Basic Regulation for aviation, to be published in 2018, provides the regulatory framework to address drones from large transport drones down to public use drones as light as 250 grammes. EU implementing rules will be developed over the next few years. The IAA will review the impact of the new EU regulatory framework for Drones and update published policy and guidance accordingly (new Action h) below).

The Joint Authorities for Rulemaking of Unmanned Systems Group (JARUS) was also established in Europe to recommend a single set of technical, safety and operational requirements in this area. The IAA is actively involved in three working groups of JARUS (CONOPS, Operations and Licencing). The JARUS plenary session was hosted by the IAA in 2015.

Significant progress was made in Ireland in this area in recent years, including updated regulations, guidance and safety promotion. New regulation SI 563 of 2015 specifies operational requirements and establishes registration requirements for drones. A dedicated website https://www.iaa.ie/general-aviation/drones provides all the latest guidance for those interested in operating drones for either business (aerial works) or leisure purposes.

The site includes relevant links and guidance for the on-line registration system. A full media campaign (TV and radio) was launched in the run-up to Christmas in the last three years to highlight the dangers of inappropriate use of drones and guidance was distributed to major drone suppliers.

The IAA has also been actively encouraging and supporting the establishment of drone users associations or clubs, including engagement with the Model Aircraft Council of Ireland in order to improve safety promotion opportunities. In recognition of the growing use of drones by various government agencies the IAA is also actively encouraging the creation of a government agency drone operators group.

This level of engagement with the public and drone sector is expected to continue into the future as further experience of the growth and operational use of these devices emerges and the new EU regulatory framework is developed. Accordingly action f) is changed to on-going task.

Specific safety events were held in 2017 including a drone safety workshop aimed at the air navigation services providers and drone safety education days aimed at secondary schools (high school) students.

NEW ACTIONS		TARGET DATE
h)	The IAA will review the impact of the new EU regulatory framework (New BR and IR's) for Drones and update published policy and guidance accordingly.	**Q4 2020**
EXISTING ACTIONS		**TARGET DATE**
d)	The IAA will continue to participate in the development of appropriate guidance concerning the operation of drones through its collaboration in the Joint Authorities for Rulemaking of Unmanned Systems Group (JARUS).	**Ongoing**
f)	The IAA will provide relevant public guidance to raise awareness of the regulatory requirements and safety hazards associated with operating drones.	**Ongoing**
CLOSED ACTIONS		
g)	The IAA will work with the main Irish airports in order to establish prohibited zones for drone flying in close proximity to an airport along with associated road-signage, promotional campaign etc	

APPENDIX TWO: COMMERCIAL AIR TRANSPORT – DETAILS

FOD.001: Loss of Control in flight

Safety Issue

Both ICAO and EASA have identified that although the loss of control of an aircraft in flight (LOC-I) is a relatively rare event, based on studies of accident data over the past 10 years, it has been found that the highest proportion of fatal accidents were attributed to LOC-I events across many different sectors in aviation.

Although LOC-I related accidents or serious incidents are thankfully rare in the Irish commercial aviation sector, LOC-I remains one of the key risks to fatal accidents in aviation and it is therefore included in this Plan. The safety objective is to ensure appropriate risk mitigating strategies are in place by affected organisations in order to further reduce the risk of an accident involving Irish commercial aircraft due to LOC-I events. The main focus of the current actions are to help prevent LOC-I events from occurring particularly following aircraft upset events.

Current Status

Numerous studies of LOC-I related accidents have shown that the problem of LOC-I is a complex one to address. Events such as deviation from flight path, abnormal air-speeds or aircraft stall can lead to fatal accidents if not handled correctly. Systems failure, ground handling errors or environmental conditions can also be contributing factors. A critical factor is the ability of the crew to anticipate the undesired behaviour of the aircraft, or once the undesirable state has commenced, to prevent it's deterioration.

The European regulatory framework includes recurrent and conversion training provisions related to Upset Prevention and Recovery Training (UPRT) which were applicable since 2016. On-going EASA rulemaking projects to address UPRT and loss of control during go-around and climb are due for delivery in 2018. The IAA has been pro-actively working with operators and training organisations to assist in the implementation of the UPRT regulations. The UPRT oversight during training modules were completed for all operators during the current oversight cycle and all operators were compliant as of May 2017. All UPRT training, subject to limitations within the Validated Training Envelope, were found to be in compliance with EASA requirements. (Action item d) is closed).

The implementation of Evidence Based Training (EBT) (competency based training) programmes can also assist in addressing this risk. The transition to EBT training is a complex issue for organisations to address and consequently applications for relevant approvals have been slow to emerge, however the IAA has now received a number of applications in respect of large aircraft operators. The assessment of EBT training programmes requires additional competencies for inspectorate staff and the original intent to use the EHFAG competency framework is now superseded by an EASA "Proposal for a Competency Framework for CA's Inspectors" published in 2017 in the context of Crew Resource Management (CRM). The competency framework to be applied by IAA is consistent with the EASA proposals and IAA Inspector training is planned for early 2018. Action f) below is amended and extended accordingly.

The IAA has implemented an operational oversight process with associated procedures and checklist to target LOC-I events for Irish AOC Holders, including review of the AOC holders SMS/FDM activities (ie SPI analysis/ trends, mitigation actions) to address the precursors to LOC-I occurrences (see action in Chapter M.011).

Lack of Crew Resource Management (CRM) is a major contributing factor to many LOC-I occurrences, therefore the relevant regulations have been significantly extended and modernised since 2016. In particular, AMC1 ORO. FC.115 refers to the integration of CRM principles into flight crew training and operations including abnormal and emergency procedures and emphasises crew resilience, surprise and startle effect. In support of this EASA has published a Safety Promotion document on "CRM training implementation". This document is available on the EASA website. It shares recommended practices and information on CRM and promotes the development of CRM training for both Air Operators having CRM training responsibilities, and Competent Authorities having oversight responsibilities. The IAA will review latest EASA recommendations on CRM oversight and training and update related policies and procedures accordingly (new action g) below)

The IAA continues to share information on LOC-I events with EASA. In addition the IAA monitors the implementation of guidance contained in related EASA SIB's on an on-going basis, albeit that some of this guidance has migrated into published AMC/GM.

Analysis of the LOC-I reports received by the IAA from all sources, finds the main causes of LOC-I events were triggering of speed warning systems, unstable approach or deviation from pitch or roll attitude. The vast majority of events were low risk, which means that the events were short-term exceedances (eg speed or attitude) due in many cases to turbulence or minor procedural errors. A small number of higher risk occurrences were reviewed in detail with the airline involved to address any deficiencies in procedures or training, where relevant.

NEW ACTIONS		TARGET DATE
g)	The IAA will review latest EASA recommendations on Crew Resource Management oversight and training and update related policies and procedures accordingly	**Q4 2019**

EXISTING ACTIONS		TARGET DATE
e)	The IAA will review and promulgate latest EASA publications (policies/SIB's) concerning LOC-I and monitor the implementation of recommendations applicable to the Irish civil aviation system.	**Ongoing**
f)	The IAA will ensure that IAA regulatory inspectors are trained in accordance with the relevant competency framework prior to assessing applications from training organisations implementing evidence/competency based training programmes.	**Q4 2018**

CLOSED ACTIONS	
d)	The IAA will promote the new EU regulations concerning Loss of Control Prevention and Recovery Training and will provide guidance to individual Irish operators and approved training organisations on the implementation of these requirements. ***EPAS Reference:*** SPT.012

FOD.003: Controlled Flight into Terrain

Safety Issue

Both ICAO and EASA have identified Controlled Flight Into Terrain (CFIT) as one of the main contributory causes to fatal and non-fatal accidents across all sectors of civil aviation.

CFIT is an event where an airworthy aircraft under the complete control of the flight crew is inadvertently flown into terrain, water or an obstacle. The safety objective is to ensure appropriate risk mitigating strategies are in place by affected organisations in order to further reduce the risk of a CFIT accident involving Irish commercial aircraft or a commercial aircraft flying at an Irish airport. The current actions in the Plan are focused on supporting and encouraging the implementation of APV approaches in Irish airports licensed for commercial operations.

Current Status

CFIT related accidents or serious incidents are thankfully rare in the Irish civil aviation system, nevertheless CFIT remains one of the common causes of fatal accidents in aviation and it is therefore included in this Plan. The majority of fatal CFIT accidents occur during the approach phase of flight (nearly 70% for global fatal CFIT accidents), and most of these involve the aircraft being lined up with the runway but incorrectly positioned in the vertical plane. Of the fatal CFIT accidents that occur during the approach phase of flight, more than half involve non-precision, visual/circling or user-defined approaches.

The majority of fatal CFIT accidents involve aircraft not equipped with functioning Terrain Awareness Warning Systems. In addition, TAWS effectiveness is dependent on use of accurate position information. EASA is currently focussed on introducing new regulation to mandate installation of TAWS on commercial transport aircraft currently not mandated (ie on aircraft less than 5700 kgs MTOM that are able to carry 6 to 9 passengers).

The IAA has implemented an operational oversight process with associated procedures and checklist to target CFIT for Irish AOC Holders, including review of the AOC holders SMS/FDM activities (ie SPI analysis/trends, mitigation actions) to address the precursors to CFIT occurrences (see chapter M.011 above). The IAA also continues to participate in EASA Survey's of Member States to share information on actions and measures in use in the State to address CFIT.

ICAO has recommended the implementation of area navigation and approach procedures with vertical guidance for all Instrument runway ends, either as the primary approach or as a back-up for a precision approach. EASA Opinion 10/2016 on PBN includes the objective that PBN approach procedures with vertical guidance (APV) that conform to the requirements of the RNP approach specification (RNP APCH) be implemented at all instrument runway ends (IREs) which are not served by precision approach procedures before 30 January 2020. The IAA has been actively assisting and encouraging the delivery of the Irish PBN implementation plan, which is currently scheduled to be completed by end of 2018, well in advance of the EU proposed targets.

The IAA receives a relatively low level of reports of CFIT events under the Mandatory Occurrence Reporting scheme and a declining trend is evident since 2012 which reflects the success of the TAWS system in large transport aircraft. Most of the events were low risk reflecting momentary TAWS alerts (eg during unstable or turbulent conditions) during which the flight crew remained fully aware of, and in control of the situation.

EXISTING ACTIONS		TARGET DATE
c)	The IAA will work with service providers to ensure that Irish airports licensed for commercial air transport provide non-precision instrumented approaches that contain vertical guidance. ***EPAS Reference:*** MST.006	**Q4 2018**

ASD.001: Mid-Air Collisions

Safety Issue

Mid-Air Collisions (MAC) are accidents where two or more aircraft come into contact with 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) and therefore the aim is to reduce the level of safety incidents that may be a contributory factor in a mid-air collision event.

The safety objective is to ensure appropriate risk mitigating strategies are in place by affected organisations in order to further reduce the risk of an mid-air collision accident involving Irish commercial aircraft, or an aircraft flying in Irish airspace. The current actions in the Plan are focused on implementation of related EU recommendations and specific risk management tasks.

Current Status

MAC events are a common reported occurrence category by Irish operators (including those related to TCAS RA activation). The vast majority of these reports do not have any potential accident outcome; however MAC is included in this plan based on the catastrophic consequences of an actual mid-air collision.

The European Action Plan for Airspace Infringement Risk Reduction (EAPAIRR) was developed in 2009 to reduce the number of airspace infringements which, in the worst-case scenario, could end in a mid-air collision. The plan contains action items for the main stakeholders – the airspace users, regulators, military, training organisations, Eurocontrol, the air navigation service providers and related services such as metrological data. The IAA has completed all of the thirteen recommended and proposed actions for regulators included in the plan. The IAA has reviewed the implementation of the EAPAIRR recommendations for service providers in the State and found it to be substantially complete, where relevant. In many cases, the EAPAIRR recommendations are now integrated into the regulatory oversight process so that on-going monitoring of EAPAIRR recommendations will be performed as part of standard surveillance activities. The IAA will continue to monitor the implementation of EAPAIRR recommendations as an on-going task in the Plan.

The IAA has implemented an operational oversight process with associated procedures and checklist to target MAC events for Irish AOC Holders, including review of the AOC holders SMS/FDM activities (ie SPI analysis/trends, mitigation actions) to address the precursors to MAC occurrences and will continue to do so (see also chapter M.011 above).

The number of MAC related events reported to the IAA under the Mandatory Occurrence Reporting scheme has been increasing in recent years but this may reflect growth in traffic levels in Europe. Over 75% of the events reported were due to triggering of ACAS RA and over 70% of these ACAS RA events were classified as low risk indicating minimal impact to flight operations. Less than 1% of all events reported were categorised as high risk and these events were reviewed with the airline involved in order to address any deficiencies in procedures or training, where relevant.

Several EU MS have reported an increase in loss of separation occurrences involving civil and military aircraft and more particularly an increase in non-cooperative military traffic over the high seas. Although not a regular occurrence in Irish airspace, the IAA has nonetheless received reports of airspace infringements by non-co-operative military aircraft in the Shannon FIR. An EASA technical analysis "Report on occurrences over the high seas involving military aircraft in 2014" contains a number of recommendations for the EU Member States. The IAA completed a detailed review of the recommendations and found them substantially implemented as appropriate to Ireland (Action e) below is closed accordingly). Discussions are on-going with Irish military, through the STaCMAN forum, regarding the implementation and publication of EUROCONTROL Specifications for harmonized Rules for Operatinal Air Traffic (OAT) under Instrument Flight Rules (IFR) inside controlled Airspace of the ECAC Area (EUROAT) targeted for end 2018. These activities are consistent and complementary with SESAR CONOPS.

The IAA SRD has established the Airborne Safety Oversight Group (AIRSOG), which has the objective of analysing national ATM related occurrences in order to help develop an ATM safety risk profile. The analysis will include airspace and separation minima infringements, in order to recognise adverse safety trends, identify common causal factors and propose corrective and mitigating actions. The group comprises of subject matter experts from the SRD Departments of ATM/ANS, Aerodromes,

Safety Analysis and Flight Operations. Data collection and analyse is under way and the group will to produce a report which identifies the key safety issues by end 2018.

The IAA SRD has included the risk of operations into uncontrolled airspace as part of it's comprehensive audit programme for an operators SMS. This programme is part of a two-year surveillance cycle that commenced for all operators in January 2017 and is scheduled for completion by end 2018. The target date for action f) below is extended accordingly.

EXISTING ACTIONS		TARGET DATE
b)	The IAA will review the level of implementation of recommendations for service providers contained in the EAPAIRR as part of the oversight cycle. ***EPAS Reference:*** MST.010	**Ongoing**
f)	The IAA will ensure that Irish operators fully address the risks associated with operations into uncontrolled airspace in their safety management system	**Q4 2018**
g)	The IAA will perform an analysis of ATM related occurrences reported to the IAA and develop an ATM safety risk profile in order to guide safety actions to address the key risks.	**Q4 2018**

CLOSED ACTIONS	
e)	The IAA will review the recommendations for EU Member States contained in EASA technical analysis "Report on occurrences over the high seas involving military aircraft in 2014" and implement these recommendations as appropriate, in conjunction with relevant State authorities. ***EPAS Reference:*** MST.024

M.007: Runway Incursions

Safety Issue

A runway incursion (RI) is any occurrence at an aerodrome involving the incorrect presence of an aircraft vehicle or person on the protected area of a surface designated for the 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.

The number of runway incursions that occur in Ireland are relatively low however the issue is addressed in this Plan because of the potential for catastrophic accident when they occur, especially in busy airports. The safety objective is to ensure appropriate risk mitigating strategies are in place by affected organisations in order to reduce the number of RI related events by Irish commercial aircraft, or at Irish runways, in order to further reduce the risk of an RI related accident. The current actions in the Plan are focused on implementation of related EU recommendations and effectiveness of runway safety teams.

Current Status

A great deal of work has been performed on runway incursions over the past 10 years and the focus on this key risk has contributed towards improvements in the global rate of Runway Incursion related safety events in recent years, as reported by ICAO and EASA. One of the key EU initiatives was the development of the European Action Plan for the prevention of Runway Incursions (EAPPRI) which contains several recommendations for all stakeholders (ie regulators and service providers) to help mitigate the risk of an RI event.

The focus of IAA actions in this Plan over the past few years has been on the implementation of the EAPPRI recommendations for national aviation authorities and also on monitoring the implementation of recommendations by affected regulated entities. The IAA found that the implementation of EAPPRI recommendations were substantially complete in the State and the Plan contains some on-going actions for continued monitoring in this regard.

In late 2017 a new version 3.0 of the EAPPRI was released. The IAA will review the new version 3.0 of the EAPPRI and identify any new actions required to address the updated document (New Action d) below)

NEW ACTION		TARGET DATE
d)	Review Version 3.0 of the EAPPRI and identify actions required to address the updated document	**Q4 2018**
EXISTING ACTIONS		**TARGET DATE**
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	**Ongoing**
c)	The IAA will review the level of implementation of recommendations for service providers contained in the EAPRRI as part of the oversight cycle ***EPAS Reference:*** MST.014	**Ongoing**

FOD.002: Runway Excursions

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 by both ICAO and EASA as one of the most common causes of accidents reported annually, in the European region and worldwide.

RE related accidents or serious incidents are thankfully rare in the Irish civil aviation system, nevertheless RE remains one of the common causes of accidents in aviation and it is therefore included in this Plan. The safety objective is to ensure appropriate risk mitigating strategies are in place by affected organisations in order to reduce the number of RE related events involving Irish commercial aircraft, or at Irish runways. The current actions in the Plan are focused on implementation of related EU recommendations.

Current Status

The European Action Plan for the Prevention of Runway Excursions (EAPPRE), was published on 1st January 2013. The EAPPRE contains detailed recommended actions and associated guidance material intended for implementation by the relevant stakeholder organisations (including regulators, aircraft and airport operators, ANSP's etc) with the aim of reducing the rate of runway excursions.

The IAA has implemented all the recommendations for regulators of the EAPPRE. The IAA has reviewed the implementation of EAPPRE recommendations for operators and other service providers during oversight audits. The IAA has found that the implementation of EAPPRE recommendations is substantially complete in many areas. The IAA continues to monitor this subject through the integration of relevant tasks into the regulatory oversight programme. With the passage of time many of the recommendations have been included as AMC/GM in the regulatory framework (eg Regulation (EU) 139/2014 (Aerodromes). In view of the foregoing action j) below is retained in the Plan as an ongoing task.

The IAA is monitoring EASA Rulemaking plans in this area (eg RMT.0570, RMT.0296) and has reviewed available EASA guidance. EASA SIB 2014-20 addresses aeroplane operations in crosswind conditions. Associated Air Operator procedures and Limitations were reviewed during oversight activities. In the meantime EASA published a new SIB 2018-02 early 2018 'Runway Surface Condition Reporting' which also impacts this item. The action scope is extended to take account of new EASA SIB and target date for action k) below extended to end 2018.

The subject of cross domain training exercises for Runway Safety was discussed at a Cross Domain Safety Workshop hosted by the IAA in 2017. It was found that the safety issues relating to Runway Excursions are regularly reviewed by Local Runway Safety Teams and joint training exercises have been conducted where appropriate. Action f) is closed accordingly.

EXISTING ACTIONS		TARGET DATE
c)	Share actions and measures in use at national level to address this safety risk and participate in EASA initiatives to share best practice and coordinate actions.	**Ongoing**
j)	The IAA will monitor the implementation of EAPPRE recommendations for service providers during oversight audits. ***EPAS References:*** MST.007, SPT.075	**Ongoing**
k)	Review the implementation of recommendations in EASA SIB 2014-20 "Aeroplane Operations in Crosswind Conditions" and new SIB "Runway Surface Condition Reporting" with Irish AOC holders during the current oversight cycle.	**Q4 2018**

CLOSED ACTIONS	
f)	Where practicable, the IAA will ensure that specific joint training and familiarisation in the prevention of runway excursions, is provided to Pilots, Air Traffic Controllers and Aerodrome Operator staff (EAPPRE 3.1.4).

FOD.004: Safety of Ground Operations

Safety Issue

Analysis of global accidents has shown that there has been a steady rise in accidents caused either during or as a result of ground operations. EASA has reported that this is the second highest category for CAT accidents between 2003 and 2012, albeit such accidents rarely result in fatalities. The IAA wishes to improve the safety of ground operations in Ireland.

Ground operations involve all aspects of aircraft handling at the airport as well as aircraft movement around the aerodrome, except when on active runways. The safety objective is to ensure appropriate risk mitigating strategies are in place by affected organisations in order to reduce the number of accidents involving Irish commercial aircraft, or at Irish aerodromes, due to a ground operations related event. The current actions in the Plan are focused on safety analysis of reported events and aircraft de-icing.

Current Status

Damage from ground-related occurrences results in both safety risk and economic cost for all organisations involved. The IAA has been targeting this area for specific focus for the past few years, including targeted oversight of the key risk areas, establishment of quarterly safety review meetings with ground operations post holders as well as hosting Ground Operations Safety Forum etc.

The level of reporting of ground operations related events has shown a steady trend in recent years. The main types of ground operations events reported to the IAA are ground handling, collision ground vehicles/aircraft and aircraft loading issues.

The IAA SRD Movement Area Safety Oversight Group (MASOG), including IAA inspectors from aerodromes, operations, ATC and safety analysis, has undertaken an analysis of movement area safety incidents. Both working and failed barriers were identified for individual occurrences and, where there was a high frequency or an adverse trend, statistical analysis was conducted. In December 2017, the MASOG has produced a report for Ground Operations which identified key safety issues. Following discussions at Cross Domain Workshop the IAA has decided to obtain greater industry participation is SSp action development where appropriate, and thus the development of risk mitigation strategies is delayed until 2018 to facilitate industry consultation.

Previous versions of this Plan have included actions to address the issue of de-icing of aircraft. The subject of aircraft de-icing is under constant review on a global basis and the guidance in respect of availability and use of de-icing fluids is subject to frequent update. EASA issued a Safety Information Bulletin SIB 2017 to provide latest recommendations on the use of global standards. The IAA will promote latest EASA guidance on aircraft de-icing to Irish airports and operators during pre-winter ground operations consultation workshops (New Action f) below)

NEW ACTIONS		TARGET DATE
f)	The IAA will promote the EASA recommendations on aircraft de-icing as promulgated in EASA SIB 2017-11, during pre-winter ground operations consultation workshops.	**Q4 2018**

EXISTING ACTIONS		TARGET DATE
e)	The IAA will review ramp and taxiway events (collisions and near collisions) and will consult with industry to develop and promote mitigating measures, including structural, technological, operational and training. ***EPAS Reference:*** MST.018	**Q4 2018**

M.009: Fire Smoke and Fumes

Safety Issue

Uncontrolled fire on board an aircraft, especially when it is in flight, represents one of the most severe hazards in aviation. This issue was added by EASA as a key risk area for commercial transport in the European Aviation Safety Plan 2014-2017.

Whereas much work has been done to mitigate against this hazard over the past two decades the issue has been brought back into focus in recent years due to increasing reports of fire and smoke related events (eg due to lithium battery fires). The safety objective is to ensure appropriate risk mitigating strategies are in place by affected organisations in order to further reduce the risk of an accident involving Irish commercial aircraft, due to fire, smoke or fumes. The current actions in the Plan are focused on implementation of latest guidance on flight crew procedures.

Current Status

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 if evacuation and emergency response is not swift enough. Smoke or fumes, whether they are associated with fire or not, can lead to passenger and crew incapacitation.

In 2013 the Royal Aeronautical Society paper "Smoke, Fire and Fumes in Transport Aircraft" was updated. The paper serves as a reference document on current risk and proposed mitigations for smoke and fire events on commercial transport aeroplanes. In the updated edition a new section on lithium batteries, composite materials and predictive technologies has been added together with new recommendations to reflect the current risks.

The recommendations to reduce the severity and effects of in-flight fires focus on:

- i. Equipment design and airworthiness;
- ii. Protective equipment;
- iii. Maintenance;
- iv. Pilot procedures;
- v. Flight and cabin crew training.

The review of the RAeS document for potential actions for this Plan was completed in 2017 and action b) below is closed. The RAeS document includes many recommendations affecting type design and the IAA will pursue these recommendations through the relevant EASA advisory bodies. The document has made a number of recommendations concerning the flight crew procedures for flight deck smoke ventilation, flight deck checklists, donning of oxygen masks and training for fire fighting. The IAA will review these procedures with Irish Air Operators during the current oversight cycle (new action d) below.

EASA published guidance material for operators and passengers concerning Lithium Battery Safety in 2016. The IAA has ensured this guidance material was promulgated fully and has ensured the EASA guidance was incorporated as appropriate during air operator oversight activities (action c) below is closed).

NEW ACTIONS		TARGET DATE
c)	The IAA will review the Irish Air Operators flight crew procedures for flight deck smoke ventilation, flight deck checklists, donning of oxygen masks and training for fire fighting to ensure they reflect the latest RAeS guidance in this area.	**Q4 2019**

CLOSED ACTIONS

a) The IAA will review the updated guidance in RAeS document "Smoke, Fire and Fumes in Transport Aircraft" and address any areas of concern for the civil aviation system in Ireland. ***EPAS Reference:*** MST.005

b) The IAA will promulgate EASA guidance for operators and passengers on Lithium Battery Safety and will follow up with Irish operators during oversight activities to ensure that this guidance is incorporated as appropriate. ***EPAS Reference:*** MST.005, SPT.069

AED.002: Bird Strike Hazard

Safety Issue

Bird 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.

This Plan addresses the hazards to aviation from bird strikes particularly during take-off, initial climb, approach and landing phase of flight, in and around the vicinity of airports. The safety objective is to ensure appropriate risk mitigating strategies are in place by affected organisations in order to further reduce the risk of a birdstrike related accident involving Irish commercial aircraft, or an aircraft flying in Irish airspace. The current actions in the Plan are focused on implementing latest recommendations from the ICAO global symposium on reducing birdstrikes.

Current Status

ICAO Annex 14 requires States to collect and collate reports of bird strikes on aircraft and to report the annual statistics to the ICAO bird strike information system (IBIS). The IAA chairs the National Bird Hazard Committee in Ireland which reviews bird strike analysis reports and assesses the effectiveness of mitigation measures in use in the State.

Analysis has shown that Bird strikes may occur during any phase of flight but are most likely during the take-off, initial climb, approach and landing phases because of the greater numbers of birds in flight at lower levels. Bird strikes can cause significant damage to aircraft. EASA NoA analysis of 10 year's worth of data in the ECR shows over 46,000 birdstrike occurrences, resulting in 50 accidents, 7 of which were fatal. The EASA NoA report also shows the top 50 airports involved, none of which were Irish airports.

In Ireland Bird Strikes is one of the top reported occurrences in the mandatory occurrence reporting system. Thankfully, the vast majority of these reports led to only minor or no damage to the aircraft involved.

Ireland's aerodromes are required to conduct risk assessments on the bird hazard in the airport's environs and mitigate any bird hazards through a wildlife management and control procedure. The IAA performs an annual analysis of bird strikes at Irish Aerodromes. One of the main findings of this analysis has shown that the number of confirmed bird strikes is significantly higher from June to October (inclusive), which coincides with the breeding season. There was no apparent increase in bird strike rate in line with increasing traffic levels.

One of the key issues the IAA addressed in 2013 is the threat caused by man-made hazards such as mass release of birds (eg racing pigeons).

The IAA has been actively seeking greater global action to address this problem. ICAO published the statistics from the IBIS system during 2017 (the last such report was published in 2008) and following encouragement from many States including Ireland has announced a Wildlife Strike Reduction Symposium, albeit this event is delayed until 2018. The target date from action c) is extended accordingly. EASA has also announced plans to host birdstrike workshops, albeit no specific dates have yet been set.

EXISTING ACTIONS		TARGET DATE
c)	The IAA will encourage ICAO (via ABIS representative at ICAO) to provide global statistics from the ICAO IBIS system and will review recommendations arising from the ICAO Wildlife Strike Reduction Symposium for application in Ireland.	Q4 2018

FOD.019: Laser attacks

Safety Issue

There have been several reported cases of malicious laser attacks on aircraft pilots both in Ireland and across Europe and the rest of the world. More serious laser attacks can cause eye injury to pilots or flash blindness in the cockpit thereby endangering the pilot's ability to properly operate an aircraft during critical flight phases.

The effects of laser strikes on aircraft pilots can range from low risk distractions to higher risk flash blindness in the cockpit and possibly temporary or permanent eye damage to crews. The safety objective is to ensure appropriate risk mitigating strategies are in place by affected organisations in order to further reduce the risk of an accident due to a laser attack on an Irish commercial aircraft, or an aircraft flying in Irish airspace. The current actions in the Plan are focused on implementation of related international guidance for pilots in this regard.

Current Status

Under certain conditions, laser lights directed at aircraft can be a hazard. The most likely scenario is when a bright visible laser light causes distraction or temporary flash blindness to a pilot, during a critical phase of flight such as landing or takeoff. It is far less likely, though still possible, that a visible or invisible beam could cause permanent harm to a pilot's eyes. The severity of the risk is also greater as the aircraft gets closer to the source of the attack on the ground.

Note that fixed lasers or temporary laser shows related to entertainment events can also be hazardous to aircraft in flight however this hazard is not included in the Plan because it is largely controlled through normal IAA approval and oversight activities.

The IAA received a little over 200 reports of laser attacks from all sources in 2017 which is almost half of the number reported in 2013 and the overall trend is downwards. Thankfully, the vast majority of these reports led to only minor distraction to the flight crews involved.

Aviation hazards from laser attacks can be minimized or eliminated in two primary ways. First, the deliberate pointing of lasers at aircraft by members of the public is now an offence under Irish law and offenders can be prosecuted. Second, pilots should have awareness of laser/aviation hazards and knowledge of basic recovery procedures in case of laser or bright light exposure.

The IAA also continues to address Pilot/aircrew hazard reduction measures such as education and training. The IAA has worked with Irish AOC Holders to ensure that their flight SOP's and associated crew training plans address the hazard of laser attacks and confirmed that these procedures are consistent with latest available guidance (action (c) is closed). This specific risk is now included in the appropriate oversight evaluation checklist.

No new actions are currently proposed in the State Safety Plan to address this hazard.

CLOSED ACTIONS

c) Review SAE ARP5598 "Laser Visual Interference - Pilot Operational Procedures" and provide any necessary updates to currently published IAA guidance on this subject.

FOD.024: Helicopter Offshore Operations

Safety Issue

This issue addresses Helicopter Operations in an Offshore environment, where flights are performed mostly over water, and takeoffs and/or landings may be performed on helipads located in remote coastal locations, or, on helidecks located on offshore platforms or on ships.

Offshore helicopter operations present specific hazards and associated risk profile that may require dedicated actions. The safety objective is to ensure appropriate risk mitigating strategies are in place by affected organisations in order to further reduce the risk of an accident involving an Irish commercial helicopter during offshore operations. The current actions in the Plan are focused on review of Helicopter SAR oversight and review of EASA NoA analysis.

Current Status

The European Plan for Aviation Safety (EPAS) has identified offshore helicopter operations as one of the key risks in European Civil Aviation. An EASA analysis of over thirty years of worldwide data has shown that there are on average over 5 accidents per year in this domain, almost half of which are fatal. The EPAS has identified actions for EASA to address some of the key risks in this area, including actions to address helicopter technical failures, crash survivability, helicopter ditching, terrain and obstacle avoidance, human factors etc.

The IAA has been an active participant in the European Helicopter Safety Team (EHEST) (refer also to Chapter FOD.015 of this Plan) which is a collaborative body that works to develop risk awareness and safety promotion material in respect of helicopter operations. Although the EHEST is now disbanded to be replaced by new dedicated EASA working groups, the EHEST safety material is still current and available on https://essi.easa.europa.eu/ehest/. EASA has also instigated a dedicated Offshore Helicopter Collaborative Analysis Group in order to identify further risks in offshore helicopter operations.

During 2017, the IAA undertook a review of the safety oversight system for helicopter operations in Ireland that involve both civil and State functions. The review found that the legal powers and legislation available to the IAA were sufficient to enable it to implement the IAA safety oversight system in respect of a civil AOC holder organisation and permit that organisation to operate SAR missions on behalf of the State. Action a) is now closed.

Separately, on foot of a recommendation by the AAIU, the Minister for Transport, Tourism and Sport ordered a review of SAR aviation operations in Ireland, which is being carried out by external consultants. The IAA is supporting this independent review and where there are recommendations arising from this process, the IAA will ensure that all necessary steps are taken as a matter of priority.

The EASA Network of Analysts has performed a detailed analysis of offshore helicopter accidents and serious incidents. The NoA report was reviewed in detail during 2017. Many of the risk mitigation strategies arising from the lessons learned are addressed in the latest draft of the EPAS. The IAA contributes to the development and assessment of these actions through the formal channels established in the EASA Safety Risk Management Process (eg NoA, TeB, MAB). The EASA NoA report identifies certain safety issues that will be considered by IAA for targeted oversight during the next oversight cycle of affected operators. The NoA report identifies a number of safety issues some of which have already been addressed in recent rulemaking tasks or existing European EHEST Safety leaflets and consequently the IAA has also forwarded the EASA NoA report to affected Irish helicopter operators for their own review (Action b) is closed).

CLOSED ACTIONS

a) The IAA, in conjunction with the DTTaS, will conduct a comprehensive review of the safety oversight structure for helicopter operations in Ireland that involve both civil and state functions, in order to ensure that there are no gaps in the oversight process

b) The IAA will review the EASA analysis of Offshore Helicopter Operations in detail, and will implement any actions necessary to address specific risks applicable to Irish offshore helicopter operations

FOD.025: Fuel planning and management

Safety Issue

The proper management of the fuel on board during the flight is one of the globally identified safety issues in the operation of commercial air transport aeroplanes. This issue is introduced in this version of the Plan in response to forthcoming changes in EU regulations (Ref EASA RMT.0573), including the provisions for a performance-based approach to fuel planning and management.

Fuel management includes pre-flight fuel planning, inflight fuel management and flight planning in respect of selection of aerodromes and alternates. The safety objective is to ensure appropriate risk mitigating strategies are in place by affected organisations in order to further reduce the risk of a fuel related accident involving an Irish AOC Holder. The current actions in the Plan are focused on provision of training/guidance to IAA inspectors and industry in respect of planned new EU regulations in this area.

Current Status

The European Plan for Aviation Safety (EPAS) includes rulemaking task RMT.0573 addressing fuel planning management with target dates of EASA Opinion in mid-2018 and final rule in mid-2019. The proposed new regulations were subject to EASA consultation (ref EASA NPA 2016-06). They contain a large number of amendments to existing regulations to address latest ICAO Standards and Recommended Practices in this area, to address latest recent safety recommendations, and to introduce a performance-based approach to increase efficiency and flexibility in respect of fuel planning and management.

The new regulations introduce the concept of the "fuel scheme" for the first time, which integrates the fuel planning policy, with the selection of aerodromes, and with the inflight fuel management policies. The fuel scheme implemented by Irish operators will require approval by the IAA.

Using a performance-based approach, the regulations will include implementing rules (IRs) with defined safety objectives and acceptable means of compliance (AMC) that provide both prescriptive based and performance based options for meeting the safety objectives. The performance-based option provides increased efficiency and flexibility for operators provided they have sufficiently mature systems in place to implement and maintain this option and provided the competent authority has appropriately skilled inspectors to oversee it.

In preparation for the introduction of the new regulations the IAA will provide appropriate training to inspectorate staff to ensure it is in position to oversee the new regulations on fuel planning and management, including the performance based elements (new action a) below). In addition the IAA will provide relevant guidance to affected operators on the implementation of the new regulations (new action b) below).

EXISTING ACTIONS		TARGET DATE
a)	The IAA will provide appropriate training and guidance to flight operations inspectors in the oversight of proposed new EASA regulations on fuel planning and fuel management	Q2 2019
b)	The IAA will provide guidance to industry on the implementation of proposed new EU regulation on fuel planning and fuel management	Q4 2019

ASD.003: Implementation of parallel runway operations

Safety Issue

The introduction of parallel runway operations introduces greater capacity and flexibility as well as mitigating a number of risks associated with operations in complex busy aerodromes. However parallel runway operations also introduce specific risks affecting aerodrome operations, flight operations, airspace planning and air traffic management.

The safety objective is to ensure appropriate risk mitigating strategies are in place by affected organisations in order to reduce the risk of an accident due to the introduction of parallel runway operations. The current actions in the Plan are focused on oversight planning for the introduction of parallel runway operations in the State.

Current Status

The main objective of implementing simultaneous operations on parallel runways is to increase runway capacity and aerodrome flexibility. The largest increase in overall capacity often includes the use of independent approaches to parallel runways.

The safety of parallel runway operations in controlled airspace is affected by several factors such as the accuracy and use of any associated radar monitoring system, the effectiveness of the process of controller intervention when an aircraft deviates from the intended flight path correct and the precision with which aircraft can and do fly the approach. In addition there are a number of different modes of operation for parallel runway operations (eg independent operations, dependant operations, arrivals only, departures only, both arrivals and departures) and each mode carries it's own specific risks.

The first implementation of parallel runway operations in Ireland is currently being planned for Dublin Airport.

The implementation of a parallel runway operation will involve several 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 oversight system must ensure 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.

NEW ACTIONS		TARGET DATE
a)	The IAA will ensure that the oversight planning process for introduction of parallel runways takes due account of the different implementation projects, their interconnections and dependencies.	Q4 2019

APPENDIX THREE: GENERAL AVIATION – DETAILS

FOD.017: Airspace Infringement by GA aircraft

Safety Issue

The general risk area of a mid-air collision (MAC) is addressed in the Commercial Air Transport section above in chapter ASD.001. The specific risk of airspace infringement by GA aircraft is addressed here. The IAA would like to see a reduction in the level of airspace infringements by GA aircraft in Irish airspace.

An airspace infringement occurs when an aircraft enters controlled airspace without receiving the appropriate ATC clearance. The safety objective is to reduce Airspace Infringement hotspots where possible and to improve risk awareness and airmanship of GA pilots in order to reduce the risk of an accident due to airspace infringement by GA aircraft. The current action in the Plan is to address AI hotspots through potential airspace design changes.

Current Status

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 as the majority of these aircraft are not required to carry appropriate transponder equipment. This means that major surveillance safety nets (eg ATC control, TCAS) that help prevent mid-air collisions are ineffective.

As discussed in ASD.001 (MAC) the IAA has implemented the recommendation of the European Action Plan for Airspace Infringement Risk Reduction (EAPAIRR) and some of these recommendations address this specific risk.

There is a steady trend evident in the rate of airspace infringements in Ireland over the past five years.

The IAA published an Airspace Infringement (hotspot) Map for Dublin CTA in early 2014 (www.iaa.ie).

The General Aviation Safety Council of Ireland (GASCI) is also considering measures to address this risk. The subject of airspace infringement is frequently addressed during GASCI safety evenings ie circa four evenings per year in various geographic locations in Ireland.

One particular action in the GASCI plan is to explore the opportunities to address specific airspace design issues (including opportunities for re-design or introduction of VFR corridors) at the margins of Class C airspace subject to increased levels of GA traffic. An airspace design review project has been launched by the IAA ANSP with full participation of GASCI to help address this issue. As this IAA ANSP project is also dependant of the completion of the PBN implementation plan for Ireland discussed in Chapter FOD.003 above, the target date for completion is duly extended

EXISTING 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 2018**

FOD.020: Mid-Air Collisions by GA aircraft in Class G Airspace

Safety Issue

Mid-Air Collisions (MAC) are accidents where two or more aircraft come into contact with each other in the air. Whereas thankfully a mid-air collision event in Ireland is quite rare, it is included in this Plan because the consequences of a mid-air collision between GA aircraft often lead to loss of life.

The safety objective is improve risk awareness and airmanship of GA pilots in order to reduce the risk of a mid-air collision between GA aircraft in Class G airspace. The current action in the Plan is to develope improved guidance for VFR traffic at unattended airfields.

Current Status

Although there have been no MAC accidents in Irish airspace between GA aircraft operating in Irish airspace in the recent past the issue is included in this Plan due to the broader European experience. Recent EASA Annual Safety Reviews show that mid-air collisions are among the main contributors to fatal accidents involving GA aircraft in Europe.

For historical reasons there is insufficient data on the numbers of serious incidents (eg near miss) involving GA aircraft for analysis purposes, due to the lack of voluntary reporting of these events throughout Europe. The new EU Regulation 376/2014 on occurrence reporting aims to address this deficiency by making it mandatory for those involved in GA to report such events since 15th November 2015.

The General Aviation Safety Council of Ireland has been discussing this hazard with a view to identifying possible mitigating actions for GA in Ireland. In 2017 new symbology was introduced in Aeronautical charts to address areas of high level of GA flying activity (action b) below is closed.

The issue of improved communications frequency management in uncontrolled airspace and unattended airfields was discussed at GASCI meetings in 2017. GASCI discussed potential unintended consequences due to increased pilot workload and also considered the positive impact of recently introduced listening squawk function in Ireland. GASCI did not recommend any changes be made to published AIP material at this time and the action a) below is closed.

CLOSED ACTIONS

a) The IAA will work with the General Aviation Safety Council of Ireland (GASCI) to introduce improved symbology in Aeronautical Charts (eg ATZ) for GA airfields and high density GA activity areas. ***EPAS Reference:*** SPT.044

b) The IAA will work with the General Aviation Safety Council of Ireland to assist in the development of improved AIP guidance for VFR traffic at unattended airfields

FOD.016: Paragliding Safety

Safety Issue

This chapter addresses a range of paragliding activities, including, self-regulated free-flying paragliding and State regulated powered paragliding.

Recent accidents causing serious injury involving paragliding activities in Ireland have brought this leisure activity into focus. The safety objective is to improve risk awareness and airmanship of GA pilots in order to reduce the number of paragliding accidents in the State. The current actions in the Plan address the development of policy and provision of guidance in this area.

Current Status

The IAA strongly recommends that no person should fly or attempt to fly paragliding aircraft without receiving an appropriate course of training, provided or approved by the relevant sport aviation association covering this activity. The IAA is keen to stress that nobody is entitled to carry passengers on any aircraft type (including paragliders) for hire or reward without the necessary commercial air transport approvals being in place.

The IAA has recently published updated policy and guidance in respect of the powered paragliding activities. IAA Aeronautical Notice A.112 addresses the aircraft registration requirements and provides eligibility criteria relating to the permission to fly these aircraft in the State. Aeronautical Notice P.21 has been updated to provide criteria for the acceptance of flight crew licences/authorisations obtained in foreign jurisdictions.

In 2017 the IAA published an Advisory Memorandum OAM 11 with guidance for operators of non-powered free flying hang-gliders/paragliders. Non-powered free flying paragliding is not subject to safety oversight by the IAA, however, paraglider operations are still subject to rules of the air and paraglider associations are encouraged to develop procedures in conjunction with international best practices, including a pilot rating system. One such paraglider association in Ireland has already accomplished considerable work in this area.

The following guidance has also been jointly promoted by GASCI and IAA:

"Hang Gliding and Paragliding in Ireland are subject to the Rules of the Air; in addition, local environmental regulations may also apply. Anyone who wishes to partake in hang gliding or paragliding in Ireland should contact the Irish Hang Gliding and Paragliding Association through their website www.ihpa.ie for the latest up-to-date information."

A recent Air Accident Investigation Report highlighted the risk to paraglider operations in operating their aircraft over the manufacturers recommended weight limits. GASCI safety leaflet "WATCH YOUR WEIGHT" aimed at paragliding community has been published on both GASCI and IAA website.

GASCI safety evenings in early 2018 included a safety presentation from representatives of the paragliding/paramotoring community.

All actions in this area are now closed and no new actions are currently planned.

CLOSED ACTIONS

a) The IAA will issue updated guidance material in respect of paraglider flying in Ireland.

b) The IAA and GASCI will develop methods to improve safety awareness to those involved in paragliding activities in Ireland, including foreign visitors.

c) The IAA will develop and publish criteria for the licencing of pilots involved in powered paragliding in Ireland.

d) The IAA will update published policy and highlight the dangers of operating single seat non-type certified GA aircraft outside manufacturer recommended weight limits.

AWSD.006: Safety Information for GA Maintenance

Safety Issue

Analysis of accidents in general aviation shows that system component failures, including power plant and non-power plant components, feature very highly in the accident category list. The IAA intends to provide safety information to those involved in flying and maintaining general aviation aircraft to address technical issues.

One of the top causal factors for both fatal and non-fatal accidents involving GA aircraft is system component failures (SCF), whether it be the engine itself or other system component failures critical to safety of flight (eg fuel, oil, landing gear etc). The objectives of this particular section of the Plan is to ensure that lessons learned (eg following investigation of accidents and serious incidents) are promulgated to persons involved in maintaining and repairing aircraft, in order to reduce the rate of occurrence.

Current Status

In many cases the problem of system component failure is exacerbated by poor decision making by either pilots or maintenance personnel in reaction to the failure. Sadly, the circumstances of some component failure related aircraft accidents are remarkably similar to previous accidents so it seems that lessons are not being learned as a result of accident reports to help prevent similar tragedies.

The IAA airworthiness department reviews accident reports received from the Air Accident Investigation Unit in Ireland and acts on any safety recommendations and lessons learned from these. The airworthiness department also reviews safety information provided by other States air accident investigation authorities (eg US NTSB and UK AAIB) for issues affecting aircraft equipment or maintenance. The IAA has promulgated Safety Alerts issued by the US NTSB concerning risk management in maintenance and decision making and awareness in respect of mechanical problems via the IAA website and provides links on the IAA website to safety data and leaflets published by other States (visit https://www.iaa.ie/general-aviation/safety-information).

IAA Safety Leaflet IGA3 was updated in 2017 to provide latest guidance on the maintenance of GA aircraft, engines and components with low utilisation.

EXISTING ACTIONS		TARGET DATE
a)	The IAA will review accident reports and safety information provided by air accident investigation authorities and develop safety information (based on effective communication of key messages) concerning aircraft equipment failure and maintenance for dissemination to the Irish general aviation community.	**Ongoing**

FOD.014: Safety Information for General Aviation

Safety Issue

Good safety management depends on the sharing of safety information, including lessons learned from accidents or incidents, with GA pilots and instructors.

The aim of safety promotion is to enhance awareness of hazards and provide best practices for mitigating these hazards in order to help reduce accidents in the general aviation sector. The objectives of the actions in this Plan are to ensure that safety information relevant to GA pilots or instructors are developed/obtained and promulgated to the widest audience in the most suitable and expeditious way possible.

Current Status

By it's very nature, although many general aviation pilots are members of groups or clubs, the sharing of safety information between the many diverse practitioners involved is challenging. In Europe, the European General Aviation Safety Team (EGAST) was established in 2006 and this group provided safety material in the form of Safety Leaflets, Safety Presentations and Safety Videos, based on lessons learned from accidents and incidents that occurred throughout Europe affecting general aviation. This safety information can be used as training aids by Approved Training Organisations and Registered Training Facilities or can be distributed directly to those involved in private flying for their own personal use. The EASA EPAS recognises that Safety Promotion is especially effective as an alternative to prescriptive rulemaking to address safety issues affecting GA.

The EGAST is discontinued and it's functions are now distributed in the new EASA Safety Management groups (eg Collaborative Analysis Groups, Technical Evaluation Boards, Safety Promotion Network) – see https://www.easa.europa.eu/easa-and-you/safety-management. Although the group is discontinued the EGAST repository remains in use as a valuable source of current safety information for those involved in general aviation. New safety information derived from the EASA Safety Management process is promoted via the EASA Safety Promotion Network.

The IAA was an active participant in EGAST and continues to be actively involved in the EASA Safety Management groups and the EASA Safety Promotion Network. The IAA has published EGAST Leaflets on the IAA website in the past; however, more recently the IAA has been working closely with the General Aviation Safety Council of Ireland (GASCI) in order to ensure more effective promulgation of this information. The review of latest EASA Safety Promotion material is a standing agenda item for each GASCI meeting.

Feedback from GA community is that the promulgation of safety information via electronic media (website/facebook) is far more effective than printed material.

EXISTING ACTIONS		TARGET DATE
a)	The IAA will work with GASCI to develop and promote EASA/EGAST Safety Material to general aviation community in Ireland. ***EASA Reference:*** MST.002	**On-going**
b)	The IAA will work with GASCI to organise/facilitate regular general aviation safety events, during which EGAST and other safety material will be promoted. ***EPAS Reference:*** MST.025	**On-going**

FOD.015: Safety Information for Helicopter Operators

Safety Issue

Analysis of accident and occurrences involving helicopters over the past decade has shown that helicopter operations are exposed to specific risks. Safety promotion in this area is a key risk mitigation strategy.

The aim of safety promotion is to enhance awareness of hazards and provide best practices for mitigating these hazards in order to help reduce helicopter accidents. The objectives of the actions in this Plan are to ensure that safety information relevant to helicopter pilots or instructors are developed/obtained and promulgated to the widest audience in the most suitable and expeditious way possible.

Current Status

The European Helicopter Safety Team (EHEST) was launched in November 2006 and brought together manufacturers, operators, research organisations, regulators, accident investigators and a few military operators from across Europe. EHEST is the helicopter branch of the ESSI, and also the European component of the International Helicopter Safety Team (IHST). The EHEST/IHST worked in collaboration to develop risk awareness, safety promotion and training material.

The EHEST is discontinued and it's functions are now distributed in the new EASA Safety Management groups (eg Collaborative Analysis Groups, Technical Evaluation Boards, Safety Promotion Network) – see https://www.easa.europa.eu/easa-and-you/safety-management. Although the group is discontinued the EHEST repository remains in use as a valuable source of current safety information for those involved in helicopter flying. New safety information derived from the EASA Safety Management process is promoted via the EASA Safety Promotion Network.

The IAA was an active participant in EHEST and continues to be actively involved in the EASA Safety Management groups. The IAA has promulgated EHEST Leaflets on the IAA website in the past but more recently has been trying to find a more effective means of promulgating this information via the General Aviation Safety Council of Ireland (GASCI). In view of the relatively low activity levels of helicopter activity in the State, specific helicopter safety events are not held, however, helicopter operator representative groups are represented in GASCI and safety information in respect of helicopters are included in GASCI safety evenings. In some cases EHEST Safety Material has been directly distributed by the IAA to licenced helicopter pilots in Ireland.

EXISTING ACTIONS		TARGET DATE
a)	The IAA will work with GASCI to develop and promote EASA/EHEST/IHST Safety Material to Helicopter community in Ireland. ***EASA Reference:*** MST.002	**On-going**
b)	The IAA will work with GASCI to organise/facilitate regular general aviation safety events, during which EHEST/IHST and other safety material will be promoted. ***EASA Reference:*** MST.015, MST.025	**On-going**

FOD.021: Planning for GA flights in uncontrolled airspace.

Safety Issue

The vast majority of GA light aircraft flying occurs in uncontrolled Class G airspace from/to private licensed airfields. This flying takes place in conditions where there is no requirement to file a flight plan, which exposes many GA such pilots to higher levels of risk.

Inadequate planning for the conduct of a GA flight exposes the GA pilot to additional risk of death or serious injury following a survivable accident or emergency landing. The objectives of the actions of this Plan are to enhance GA pilot awareness of the need to consider all risks and fully prepare for a GA flight in uncontrolled airspace, including the carriage of appropriate clothing and equipment, and the need to ensure that another person is aware of the intended flight.

Current Status

The General Aviation Council of Ireland has been considering this subject for some time and has already published a safety leaflet to help improve the chances of an aircraft being located quickly after an accident or after it has been forced to execute an emergency landing in a remote location. The Safety Leaflet entitled "Tell someone who cares" is available on the GASCI website http://gasci.weebly.com/tell-someone-who-cares.html and GASCI facebook. It promotes the concept of a "buddy system" between GA pilots to ensure that "missing" aircraft are identified as quickly as possible, so that emergency services can be alerted and the location of the accident site can be quickly established. This Safety Leaflet has been widely promoted to the GA community.

GASCI also produced further guidance to address the need for GA pilots to consider issues in the pre-flight planning stage, such as appropriate clothing, carriage of appropriate equipment particular for winter operations. GASCI safety leaflet targeting GA winter operations was completed and available on GASCI website. Action b) is closed. Both safety leaflets have been, and will continue to be, promoted at GASCI safety evenings.

No new actions are currently planned for this safety issue in the State safety plan.

CLOSED ACTIONS

a) The IAA will work with GASCI to raise awareness of the need for appropriate pre-planning for GA flights in uncontrolled airspace to consider the risk of a survivable accident or emergency landing.

b) The IAA will work with GASCI to develop and promulgate guidance information to GA pilots to ensure they are properly prepared for flight in uncontrolled airspace by carrying appropriate equipment and clothing in case of a survivable accident

FOD.022: Conduct of Air Displays

Safety Issue

The fatal accident in 2015 during an air display aircraft in Shoreham, UK, has highlighted the risks posed to participants, spectators and the non-involved public, during the conduct of air displays.

Whereas there have been no accidents or serious incidents in Ireland during air displays, the Shoreham accident in 2015 in the UK provides a stark reminder of the need to remain vigilant to ensure that those managing and participating in air displays properly assess all the risks involved. The safety objective is to improve risk awareness and airmanship of GA pilots in order to reduce the risk of an accident during air displays or club fly-in. The current action in the Plan focuses on safety promotion for conducting club fly-ins.

Current Status

Air displays are both a necessary and exciting component of civil aviation and are enjoyed by many thousands of spectators in Ireland each year. Following the tragic fatal accident in Shoreham, UK, in 2015, the IAA conducted a review of the policies and procedures in place in Ireland in relation to air displays, to ensure that the lessons learned from this accident were fully incorporated.

The IAA published updated policies and procedures relating to:

- The acceptance of personnel responsible for organising and managing air displays
- The acceptance of personnel participating in air displays
- The issue/validation of permissions for display aircraft
- The acceptance of individual display plans/ schedules and associated risk assessments.

As part of it's review the IAA also provided specialist training to inspectorate staff involved in the investigation of requests to conduct an airshow (Action b) below is closed)

The EGAST (refer also to Chapter FOD.014 of this Plan) produced a safety leaflet GA11 "Safety at Flying Displays and events: A guide for pilots". GASCI has promoted this safety leaflet on it's website and facebook. Action c) below is closed.

Whereas EASA leaflet GA11 provides very useful guidance for the conduct of air displays GASCI also discussed the need for more general safety guidance for general aviation club fly-ins. Whereas air displays are performed in a controlled manner (including nominated responsible parties with formal permission and associated conditions) fly-ins are not subject to formal procedures. Even though club fly-ins are not public events, they are often attended by general aviation enthusiasts and their families. The IAA will work with GASCI to produce general safety guidance for the conduct of club fly-ins and promote this guidance during GASCI safety evenings (new action d) below).

NEW ACTION		TARGET DATE
d)	The IAA will work with GASCI to produce general safety guidance for the conduct of club fly-ins and promote this guidance during GASCI safety evenings.	**Q4 2018**

CLOSED ACTIONS

a) The IAA will review the policies and procedures in place for the conduct of air displays in Ireland to ensure that they incorporate latest recommendations arising from recent UK AAIB accident investigations.

b) The IAA will provide specialist training to inspectorate staff involved in investigating requests for permit to conduct an airshow.

c) The IAA will work with GASCI to ensure the EGAST Safety Leaflet GA 11 "Safety at Flying Displays and events: A guide for pilots" is promulgated to GA pilots in Ireland

FOD.023: Carriage of Dangerous Goods in GA

Safety Issue

Dangerous Goods are articles or substances which are capable of posing a risk to health, safety, property or the environment.

The carriage of dangerous goods on aircraft not only presents safety risks due to handling by persons, but could also lead to catastrophic accidents in flight, due to damage to aircraft or aircraft critical flight systems, following the leakage of hazardous material. The safety objective is to improve risk awareness of GA pilots in order to reduce the risk of an accident due to carriage of dangerous goods. The current action in the Plan is to review existing guidance for opportunity to improve for GA audience.

Current Status

The carriage of Dangerous Goods is permitted on board commercial aircraft in accordance with robust organisational safety management processes. The IAA has published detailed guidance on the subject on the IAA website at https://www.iaa.ie/commercial-aviation/dangerous-goods . Nobody should attempt to carry dangerous goods on any aircraft without adhering to the strict rules and guidance that relate to this activity as detailed in this link.

EASA has noted a growing trend for the carriage of dangerous goods on general aviation aircraft. Without the back-up of organisational safety management systems general aviation pilots may unwittingly carry dangerous goods on their aircraft without adequate knowledge and experience of the risks involved to themselves or their aircraft and occupants.

The IAA reviewed the issue at GASCI and the conclusion was that that this was not a safety concern for Irish GA community and the IAA advised EASA of this conclusion. It is also noted that almost all general aviation in Ireland is currently conducted using non-complex aircraft. A similar response was provided to EASA from other EU Member States and the EPAS recommendation was dropped from the latest version of EPAS. Action a) is closed.

No further action is planned in regard to this safety issue in the State Safety Plan.

CLOSED ACTIONS

a) The IAA will work with GASCI to review the existing guidance provided on the carriage of dangerous goods on aircraft and determine if specific guidance for GA pilots is required

FOD.026: Controlled Flight into Terrain in GA

Safety Issue

Both ICAO and EASA have identified Controlled Flight Into Terrain (CFIT) as one of the main contributory causes to fatal and non-fatal accidents across all sectors of civil aviation. Chapter FOD.003 addresses CFIT for commercial air transport. This Chapter addresses the same subject for General Aviation.

CFIT is an event where an airworthy aircraft under the complete control of the pilot is inadvertently flown into terrain, water or an obstacle. CFIT remains one of the common causes of fatal accidents in aviation and it is therefore included in this Plan. The safety objective is to improve risk awareness and airmanship of GA pilots in order to reduce the risk of a CFIT accident by GA aircraft. The current action in the Plan focuses on safety promotion in this area.

Current Status

CFIT accidents in general aviation are still a rare occurrence, however, when they do occur they almost always result in fatalities. Since most of the general aviation operations occur in uncontrolled airspace without the benefit of air traffic control and designated routes, GA pilots are exposed to entirely different risks in this area from those involved in commercial aviation. In addition large transport aircraft are required to be fitted with Terrain Awareness Warning Systems help prevent CFIT accidents, but such equipment is not required, and generally not fitted in general aviation aircraft.

The main causes of CFIT accidents in GA are inadvertent flight into clouds or poor decision making to attempt to fly through worsening weather. Pilots may also elect to, or need to, descend below their Minimum VFR Flying Altitude, in an attempt to get below the weather, or to confirm their position due to loss of visual navigation references in the worsening weather conditions. These risks can be mitigated via thorough flight planning, flight management, use of technology etc. Refer also to European General Aviation Safety Team (EGAST) Safety Leaflets GA2 "Decision Making" and GA3 "Weather Anticipation" for additional guidance in this area.

The subject was also discussed at recent meeting of the General Aviation Safety Council of Ireland and the Council decided to develop safety promotion material concerning CFIT for presentation at GASCI safety evenings and promulgation through website/facebook channels. New action a) below.

NEW ACTION		TARGET DATE
a)	The IAA will work with GASCI to develop safety promotion material concerning the risk of controlled flight into terrain in general aviation for presentation at GASCI safety evenings and promulgation on website and facebook channels.	Q4 2019

FOD.027: Carburettor Icing

Safety Issue

One of the main causes of accidents in general aviation is engine stoppage during flight and one of the main causes of engine stoppage during flight is carburettor icing.

Carburettor icing occurs more often in humid conditions when the temperature and dewpoint are close together, and this means that countries like Ireland are more susceptible to this problem than drier climates. The safety objective is to improve risk awareness and airmanship of GA pilots in order to reduce the risk of an accident in involving a GA aircraft following carburettor icing. The current action in the Plan focuses on safety promotion in this area.

Current Status

Induction system icing in piston engines is commonly referred to as 'carburettor icing'. Although that is only one form, such icing can occur at any time, even on warm days, particularly humid ones. If correct action is not taken, the engine may stop, especially at low power settings during descent, approach or during helicopter autorotation. Carburettor icing can occur in clear air as well as in clouds.

Carburettor icing can affect different aircraft/engine type combinations differently so the aircraft Flight Manual or Pilot's Operating Handbook is the primary source of information for individual aircraft. EGAST Safety Leaflet GA5 "Piston Engine Icing" provides detailed guidance on this subject. Carburettor icing is more likely when MOGAS is used because of its volatility and water content. Refer also to IAA safety leaflet IGA 9 "Using unleaded petrol (MOGAS) in Aircraft". Both safety leaflets are available on IAA website www.iaa.ie .

The subject has been discussed at the General Aviation Safety Council of Ireland and although this is a well-known safety issue in general aviation the Council decided that it was timely to highlight the issue again during GASCI safety evenings and through website/facebook channels. New action a) below.

NEW ACTIONS

a)	The IAA will work with GASCI to develop safety promotion material concerning the recognition and response to carburettor icing to reduce the risk of engine stoppage during flight. This material to be presented at GASCI safety evenings and promulgated via website and facebook channels.	**Q4 2019**

FOD.028: Hand-propping piston engine aircraft

Safety Issue

One of the oldest methods of starting piston engines is by hand-propping. This is a specialist skill requiring great care to ensure it does not lead to harm to persons involved or damage to aircraft.

Hand-propping aircraft can cause death or serious injury to persons or serious damage to aircraft if not executed properly. The safety objective is to improve risk awareness of GA pilots in order to reduce the risk of an accident while hand-propping a GA aircraft. The current action in the Plan focuses on safety promotion in this area.

Current Status

One of the oldest methods of starting piston engines is by hand-propping. This is where the pilot physically swings the propeller by hand in order to start the engine. It is a technique that is rarely needed as most aircraft are fitted with electrical engine starting systems. It's use today is limited to aircraft without electrical starting systems (eg older vintage aircraft) or it may be possible to use hand-propping in some aircraft when the aircraft battery has discharged and a replacement is not available.

In any event it is a specialist skill that needs both proper training and good technique. It presents a hazard to both the person performing the technique and indeed to the aircraft itself if not properly performed. Recent AAIU report 2017-011 concerns the complete loss of an aircraft following an accident during hand-propping, although thankfully no persons were hurt in the accident. The pilot concerned has kindly allowed the occurrence to be highlighted for safety purposes.

The subject has been discussed at a recent meeting of General Aviation Safety Council of Ireland and the meeting was informed that the UK Light Aircraft Association had issued new guidance on this subject. The Council decided to develop safety promotion material concerning hand-propping aircraft for presentation at GA safety evenings and for promulgation through website/facebook channels. New action a) below.

NEW ACTION		TARGET DATE
a)	The IAA will work with GASCI to develop safety promotion material concerning hand-propping operations for presentation at GASCI safety evenings and promulgation via via website and facebook channels.	Q4 2019

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

Disclaimer

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Acknowledgments

The author wishes to acknowledge the contribution made by EASA, the AAIU, DTTAS and IAA personnel in the preparation of this plan.


IAA