



# Aviation Services Division

## SES Five-Year Business Plan 2020-2024\_REV April 2021

The purpose of this document is to review and update the SES 5 Year Plan as requested by the Commission for Aviation Regulation. It will outline the strategic business objectives of the Aviation Services Division for the period 2020-24. The main driver for this review is the severe impact of the COVID 19 pandemic on the aviation industry and the resulting challenging economic environment. The Plan will specifically address the impact of COVID 19 and provide information to show how Met Éireann's Aviation Service Division has invested and managed to ensure service resilience and ongoing support to the aviation sector. The plan will also refer to progress in some key areas.

This Plan will feed into Ireland's revised Performance Plan for RP3 under the SES Performance and Charging emergency regulation. It makes due consideration of the draft cost efficiency targets as published by the Performance Review Body. The Plan outlines cost projections and rationale for operational and capital activities.

Submitted to the National Supervisory Authority

29<sup>th</sup> April 2021

**AVIATION SERVICES DIVISION**

**MET ÉIREANN**

**BUSINESS PLAN**

**2020 – 2024 (Revised April 2021)**

# MISSION STATEMENT

The Aviation Services Division (ASD) of Met Éireann will provide safe, high-quality and cost-efficient meteorological services to aviation, in compliance with the Regulations and in consultation with its customers. ASD will maintain its authoritative voice as Ireland's Meteorological Authority through strong and effective relationships with the National Supervisory Authority, fellow air navigation service providers, the Department of Transport, Tourism and Sport and the network of international aviation meteorological service providers.

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## Acronyms and Abbreviations

AMAP	Aviation Modernisation and Automation Project
ASD	Aviation Services Division, Met Éireann
ATC	Air Traffic Control
ATM	Air Traffic Management
ATS	Air Traffic Services
BSD	Business Services Division, Met Éireann
CAeM	Commission for Aeronautical Meteorology (WMO)
CAR	Commission for Aviation Regulation
CAS	Competency Assessment System
DPER	Department of Public Expenditure and Reform
DPHCLG	Department of Housing, Planning, Community and Local Government
DTTS	Department of Transport, Tourism and Sport.
EANP	European Air Navigation Plan.
EANPG	European Air Navigation Planning Group (ICAO Regional Subgroup)
EC	European Commission
EPRC	Eurocontrol Performance Review Commission
EU	European Union
FAB	Functional Airspace Block
FIR	Flight Information Region
H/BSD	Head, Business Services Division
H/AS	Head, Aviation Services Division
H/FD	Head, Forecasting Division
ICAO	International Civil Aviation Organisation
iSWIM	
iWXXM	
KPI	Key Performance Indicator
KPT	Key Performance Target
ManCom	Management Committee of Met Éireann
METAR	Routine Meteorological Aviation Report
METSP	Aviation Meteorological Service Provider.
MG-ASD	Management Group – Aviation Services Division
NSA	National Supervisory Authority (IAA SRD)
OPW	Office of Public Works
PMDS	Performance Management and Development System

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QMS	Quality Management System
SARPs	Standards and Recommended Practices (ICAO)
SES	Single European Sky
SESAR	Single European Sky Air Traffic Management Research Programme
SLA	Service Level Agreement
SMS	Safety Management System
SyMS	Security Management System
TAF	Terminal Area Forecast
UKMO	United Kingdom Meteorological Office
WMO	World Meteorological Organisation

## Executive Summary

Aviation Services Division (ASD) is a business unit of Met Éireann, Ireland’s National Meteorological Service maintained by the State under the UN Convention of the World Meteorological Organisation (WMO). The ASD is designated as Ireland’s Meteorological Authority under the ICAO Chicago Convention on International Civil Aviation and further designated as MET Air Navigation Service Provider by the Minister for Transport under the EU Single European Skies legislation with the responsibility for provision of regulated meteorological services to aviation.

This plan outlines the Aviation Services Division (ASD) strategic objectives in the period 2020-2024 and how they will be achieved. The Plan highlights environmental actors and developments that will impact on service provision and show how ASD intends to succeed in its role during RP3. The onset of the global COVID 19 pandemic brought an immediate challenge to air navigation services providers (ANSP), including ASD, that provide critical data and operational support. Throughout the pandemic the foremost priority for ASD is to ensure provision of continuous resilient high quality aeronautical meteorological services that are compliant with governing standards and Regulations. To achieve this Met Éireann has, in the past year, invested in and developed innovative technical and process management solutions to ensure resilience of service.

The operational activities that operate on a year round 24/7 basis represent the “outward-facing” element of the organisation, producing weather services and products on which the aviation sector relies. These operations will continue to provide high-quality services to meet regulatory standards and specific customer needs, supported by efficiently-deployed technical, administrative and managerial resources. These services are provided and further developed in line with regulatory requirements and advances in technology. ASD will continue to strengthen its relationships with its customers through enhanced user consultation processes and the development and implementation of the quality, safety and security managements systems.

In the period 2020-2024 the International Civil Aviation Organisation (ICAO) will continue with its Annex 3 (Meteorological Service for International Air Navigation) amendment cycles. The associated changes will be implemented by ASD as will any modifications to the European Air Navigation Plan (EANP) impacting on meteorological Service Provision (METSP). This will further ensure that the ASD remains compliant with CIR (EU) 2017/373 which transposes Annex 3 Standards and Recommended Practices (SARPs) into European law. The growing competence of the EU in terms of regulation of METSP will be a significant driver for process and technology change over the RP3 period.

The utilisation and implementation of new technologies emanating from the European Union Single European Sky Air Traffic Management Research Programme (SESAR) and ensuring compliance with the Pilot Common Project (CIR EU N° 716/2014) will ensure future provision of safe and cost efficient services to aviation. ASD will innovate and invest in order to maintain regulatory compliance for meteorological services and to apply best practice in the

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implementation of SESAR solutions that encompass MET. The adoption of new technologies will further position ASD to meet challenges arising from evolving customer requirements. Meeting these requirements is dependent on making capital investments in new and upgraded infrastructure.

The development of staff is crucial to the efficient provision of service. Training programmes will be implemented within the context of the Performance Management and Development System (PMDS). The mandatory Competence Assessment System (CAS) will continue to be implemented for all Aeronautical Meteorological Personnel. Plans are underway to extend the competence assessment process to include technical and systems support staff. Staffing levels will remain under continuous review through analytical workforce planning to ensure that the requirements of safety, continuity of service and efficiency are met.

ASD will continue its involvement in international cooperative activities with other European MET Services to seek efficiencies in service provision. We will also work within the European ICAO MET Group in order to contribute to the international development of aviation meteorology. The exit of the UK from the EU is now complete but ASD and the UK Met Office will continue to collaborate operationally to ensure the consistency of meteorological information being provided to airspace users operating at the FIR boundary.

The COVID 19 pandemic has impacted on the aviation sector resulting in an unprecedented and extended fall off in activity with very damaging economic impacts. However, and as stated in the Performance and Charging Regulation, meteorological service to aviation is not sensitive to traffic levels. Despite this, the determined MET costs for the RP3 period will be significantly reduced relative to RP2 and the draft cost efficiency target of -10% on 2019 actual costs will be achieved - and surpassed. Cost containment and maximising efficiency is a priority for ASD and this commitment is reflected in the sustained reductions in determined costs over RP3. Further, ASD will ensure that Met Éireann's accounts system provides accurate and transparent information about aviation costs and that the determination of costs will continue to comply with the relevant ICAO and WMO charging principles and guidelines.

## 1. Introduction

Aviation Services Division (ASD) is a business unit of Met Éireann, Ireland's National Meteorological Service maintained by the State under the UN Convention of the World Meteorological Organisation (WMO).

Ireland is a signatory to the 1944 Chicago Convention on International Civil Aviation which established an international framework for the safe and efficient management of global aviation. Under the convention Met Éireann's ASD is designated as Ireland's Meteorological Authority. In that role the ASD holds the responsibility to 'provide or arrange for the provision' of meteorological services to support aviation in the Shannon Flight Information Region (Ireland's Airspace). Currently ASD assumes responsibilities as both Meteorological Authority and meteorological service provider (METSP) to the aviation sector

ASD is committed to being a customer focused and quality driven organisation in the provision of meteorological services that support safety, regularity and efficiency of international air navigation within Ireland and beyond, for both civil and military customers.

The primary goals of the ASD are to:

- a) provide meteorological services that support safety and economy in aviation within Ireland and beyond for both civil and military customers
- b) fulfil customer requirements by complying with International Civil Aviation Authority (ICAO) standards and recommended practices and relevant EU Single European Skies legislation and Regulations and, also, as determined through assessments of the requirements of national aviation
- c) comply with the policies and regulations as laid down by Government

ASD has been involved in the safe, efficient and effective provision of meteorological services to aviation without break for over 80 years. As the aviation industry evolved so has the manner in which ASD provides weather services by responding to requirements of both customers and the governing standards and regulations. Services provided by ASD to aviation are of central importance to the efficiency, safety and continuity of aviation operations in Ireland. The robustness of ASD business processes is evidenced by the fact that there has never been a break in service provision that has impacted on airport or FIR operations.

ASD staff actively participate in the international bodies charged with the organisation, regulation and development of meteorological services to international civil aviation such as ICAO and the Services Commission for Aeronautical Meteorology of the World Meteorological Organisation (WMO). At the European level the Single European Skies (SES) legislation has

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extended EU competence further into the service provision aspect of ASD business activities. Application of these requirements by ASD will lead to continually improving and more secure services which are cost effective and efficient.

The Regulatory compliance requirement will require significant changes over the period of this plan. The ASD, supported by the wider Met Éireann organisation, will develop appropriate projects and processes to ensure these requirements are met.

The Plan describes the environment within which ASD operates and how it will respond to the challenges and opportunities which are expected during the 2020-24 period. It will do this in close consultation with its customers, the Competent Authorities, ICAO and WMO. It will map the current organisational structure of ASD and its place within the broader management structure of Met Éireann and the Department of Housing, Local Government and Heritage of which it is a Business Unit; it will provide a brief description of the main business of ASD; it will identify the main strategies to be implemented to support the aviation service processes and finally it will summarise these developments in its financial projections for the period.

## 2. Aviation Services Division Organisational Structure

The ASD is a multi-site Division of Met Éireann with a geographical footprint as follows.



The Central Aviation Office is located at Shannon Airport from where the ICAO Meteorological Watch Office and Aeronautical Meteorological Office functions are also provided. There are Aeronautical Meteorological Stations located at Dublin Airport, Cork Airport, Ireland West Airport Knock and the Headquarters of the Irish Air Corps at Casement Aerodrome. This plan does not comprehend the costs of services to the Department of Defence which fall outside of the Regulated services under consideration.

## 3. Description of Business

Since 2006 Met Éireann is defined as a meteorological air navigation service provider (MET ANSP) under the SES Service Provision Regulation (**CIR EU 550/2004**). Regulatory compliance and oversight of ASD is maintained by Ireland’s National Supervisory Authority (NSA) which resides within the Safety Regulation Division of the Irish Aviation Authority (IAA). ASD is granted a service provision certificate by the NSA and is further designated as the provider of ICAO specified meteorological services by the Department of Transport, Tourism and Sport (DTTas) in Ireland as specified in Annex 3, 11 and 14 to the Convention on International Civil Aviation and further detailed in GEN 3.5 Meteorological Services of the Aeronautical Information Publication (AIP) Ireland.

Since January 2020 an institutional change was implemented separating out the financial and economic oversight responsibilities under the EU Regulations from the service provision aspects with the mandate for supervision of implementation of the Performance and Charging Regulation (**CIR EU 2019/317**) now held by the Commission for Aviation Regulation.

The core business of ASD is the operational production and dissemination of timely, accurate and actionable aviation-related weather information. These operational activities rely on technical, administrative and management support services provided by the ASDs internal resources and further supported by the wider Met Éireann organisation.

Regulated aeronautical weather services produced by the ASD's operational offices are specified by ICAO in ANNEX 3 to the Convention on International Civil Aviation. ANNEX 3 defines the roles and responsibilities for ASD as both Meteorological Authority and in its role as METSP of regulated services. On January 2<sup>nd</sup> 2020 the EASA Regulation (CIR EU 2017/373) entered into force and effectively transposed ICAO Standards into EU law. While some minor disparity exists between ICAO ANNEX 3 standards and the EU Regulations, work is ongoing by EASA to ensure the further synchronisation of the two frameworks.

The aeronautical meteorological services provided by ASD are categorised as:

- Maintenance of the Meteorological Watch Office for the Shannon Flight Information Region (FIR)
- Provision of aeronautical forecast and warnings services and maintenance of 5 Aeronautical Meteorological Stations
- Consultation and collaboration with adjacent MWO
- Search and Rescue support services
- Training provision to service users
- Provision of weather observing training including to external organisations
- Support of NSA during audits of Regional Airports as subject matter expert

The regulated services are supplemented by non-Annex 3 services, such as verbal briefings, bespoke services to support airport infrastructure projects, graphical and tabular TMA support weather services. Provision of meteorological services to the Irish Air Corps (IAC) is a key function of ASD but costs incurred by providing this service fall outside the scope of this Plan.

ASD ensures the non-discriminatory availability of weather data for *bona fide* aviation users in Ireland, including the provision of access to the UK World Area Forecast Centre products.

## 4. External Environment

### 4.1 Economic

Cost recovery for provision of meteorological service to aviation by ASD is aligned with ICAO and WMO charging principles and is also restricted by EU Regulations which impose constraints such as cost efficiency targets, as established by the Performance Review Board. ASD determines its aviation costs transparently through its accounting system which is based on the referred charging principles and guidelines. The methodology used by ASD in establishing the determined costs is outlined in the financial section of this Plan and based on the cost allocation algorithm agreed with the IAA and the DTTaS.

ASD must achieve the ambitious objectives set out by in this plan at a time of general forced cost containment. Significant capital expenditure is required to modernise the aviation observing and other core systems and make them best in class for high traffic volume airspace and airports and also to meet the requirements of EU Regulations – as set out in *CIR EU 2017/373* and Pilot Common Project (*CIR EU 716/2014*).

The provision of regulated MET services and the associated costs of service provision are not linked to aviation traffic volumes and are exempt from the traffic risk sharing mechanism as specified in *CIR (EU) 2019/317 Art. 25 para 6 (b)*. As traffic increases or decreases the MET service provision requirement is constant. There are not the same possibilities to achieve cost reductions on foot of decreased aviation activity. Equally, there are not opportunities to enhance revenue based on future increasing air traffic volumes.

### 4.2 Regulatory Developments

Service provision to international civil aviation requires ASD to obtain a certificate of service provision from the NSA (IAA SRD). The decision by the NSA to grant a certificate is based on the ability of ASD to provide robust evidence to show that it meets common requirements as laid down in *EU CIR (EU) 2017/373*. The compliance of ASD is assessed and verified via periodic audit conducted by the NSA with support of MET subject matter experts contracted for the duration of the audit.

In the context of the revised RP3 cost efficiency targets it should be noted that there are other regulations by which ASD is also bound. In particular, *CIR (EU) No 716/2014* on the establishment of the Pilot Common Project to support the implementation of the European Air Traffic Management Master Plan. Achieving compliance with the regulations requires investment in infrastructure, training and support. Met Éireann is currently making these investments through the Aviation Modernisation and Automation Project (AMAP) and through ICT projects (METCOM) to develop iWXXM and iSWIM compliant systems. Completion of these

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projects will provide enhanced meteorological services and support improved performance for the aviation industry across all 4 KPAs comprehended by the Performance Regulation.

### 4.3 Civil Service Developments

ASD implements an additional business planning process under the Civil Service Modernization Programme. Management support and control systems supervised by the Department of Public Expenditure and Reform (DPER) will continue to be implemented. This broader framework will provide additional support to ASD and ensure excellent governance of all activities and support strategic capital and operational investment decisions.

### 4.4 Scientific and Technological Advances

Weather is one of the main causes of air traffic delays. The ability to match actual airspace capacity, which is variable, to airspace demand is critical to efficient ATM. A key input to the determination of airspace capacity is the ability to accurately forecast weather - especially adverse weather which has the potential to disrupt aviation operations.

National and international research efforts continue to provide the means for improving computer-based forecasts and observations. During RP3 ASD is investing in modernising the aviation meteorological infrastructure to meet the challenges faced by modern airports and traffic through congested airspace and to provide fully integrated automatically generated aviation observations. Other projects being implemented over the course of RP3 include the expansion and improvement of the national weather RADAR network and increasing High Performance Computing (HPC) resources in collaboration with Met Éireann's international partners. Significant investment has already been made in the early part of RP3 to support business continuity management, technical and communications resilience in order to ensure resilience of systems and services based on their criticality to the aviation system. These projects are being executed according to value for money and scientific excellence principles and are fully compliant with all Governmental spending and procurement policies.

ASD is driving focussed scientific research in areas concentrated on meteorological parameters critical to aviation and ATM. These areas include machine learning research, nowcasting, boundary layer research and exploiting technologies such as LIDAR to investigate identification of hazardous phenomena.

Combined, all of the activities highlighted will lead to more accurate and actionable weather information delivered to the aviation user in a way that helps to better inform planning and operational decision making.

#### 4.5 Requirements for New Services and New Delivery Methods.

Meeting requests for new services and delivery methods will continue to be a main business feature of ASD. The service enhancements are driven from multiple sources including developments at ICAO, user consultation processes and through the deployment of Single European Projects ATM Research (SESAR) projects. Continually enhancing the quality and nature of MET services provided is necessary as the basket of traditional regulated meteorological services do not fully meet all of the planning and operational requirements of busy airspace and airports.

ASD is experiencing greater number of requests for bespoke weather forecasts to supplement the regulated services provided in order to support projects such as airside infrastructural works or in support of Air Traffic Control (ATC) activities. The delivery of more representative data to Air Traffic Services (ATS) units and other airport users with greater temporal resolution is a key user requirement. ATS plans to implement initiatives such as time based separation of aircraft arrivals will require new and different types of meteorological data to allow them to be successfully realised. In achieving the technical and scientific objectives detailed in this plan ASD will ensure that the capacity to deliver on these service requests exists and excellent MET support is delivered.

Aligned with the implementation of state of the art weather observing and forecast guidance systems there are requirements for improvements to communications and delivery systems to optimise the use of MET information. The METCOM project will upgrade aviation messaging systems to ensure regulatory compliance while also enhancing the user experience through the upgrade of the online Met Self Briefing System.

#### 4.6 Collaboration with other MET Service Providers and the International Organisations

Aviation meteorology is a global activity and requires collaboration at both the global and regional scale to ensure consistency and effectiveness of basic services. At the global level ICAO specifies services to international civil aviation and issues standards on meteorological service provision which are implemented fully by ASD. The ASD participates in the MET Group of the European Air Navigation Planning Group (EANPG) of ICAO and its working subgroups. The World Meteorological Organisation (WMO), through the Commission on Aeronautical Meteorology, works closely with ICAO to detail requirements, standards and guidance material. ASD staff attend and contribute to the work of these organisations in the development of aeronautical meteorological standards. Furthermore, ASD will continue to liaise with Department of Transport to ensure that the perspective of Ireland's Meteorological Authority is fully comprehended with regard to legislative developments at EU level that might impact on meteorological service provision to aviation in Ireland.

Through broad international collaboration Met Éireann strives to ensure that it's scientific, technical, knowledge and expertise resources are optimised. Membership of a number of international groups and projects provides Met Éireann with the opportunity to leverage its own resources and benefit from partnering with other global leaders in meteorology. Examples of

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such collaborations include participation in United Weather Centres (UWC) which is implementing a global leading High Performance Computing Infrastructure for 10 leading National Meteorological Services, European Centre for Medium Range Weather Forecasting (ECMWF), MET Alliance, ICAO METG and the European Meteorological Network. These collaborations ensure that maximum cost efficiency is achieved for essential projects and provides ASD with best in class tools and supports for it's own service delivery.

Ireland's flight information region is bounded on all sides by airspace under the jurisdiction of the UK. The UK Met Office (UKMO) holds the designated MWO responsibility for these airspaces. ASD engages operationally with the United Kingdom Met Office (UKMO) to enhance co-operation and service harmonisation of meteorological information impacting operators at the FIR boundaries. Such cross border collaboration is strongly promoted by ICAO, EC and EASA and is essential to ensure efficiency and consistency of messaging to the aviation user. The Ireland/UK SIGMET co-ordination activity ensures harmonisation of hazardous weather warnings at the FIR boundaries. An additional collaborative activity is being implemented in Q2 2021 to deliver a network view of key airports forecast low visibility status.

### 4.7 The COVID 19 Pandemic

The first draft of the ASD RP3 Plan did not foresee the development of the COVID 19 pandemic and the resultant catastrophic impact on the aviation industry. In March 2020, in the midst of much uncertainty, ASD took steps to develop and implement plans to mitigate the potential impacts of COVID 19 across its range of activities to ensure resilience of systems, services. Initiatives taken included:

- immediate focussed work force analysis and planning
- development of interoperability of staff to support aviation service processes
- implementation of remote based training to ensure competence of AMP
- development and deployment of new technology to allow remote on the job training for AMP
- provision of MET training to staff of external organisations to allow support of the weather observing process should circumstances threaten service provision
- technical enabling of aviation forecaster team to allow remote working
- multiple remote working simulations for all aviation forecast functions
- development and implementation of a COVID response plans aligned with Government and departmental policies and guidelines
- implementation of appropriate training for managers
- implementation of safe hot-desking environments for 24/7 working AMP
- consultation with NSA to determine priority service areas
- implementation of flexible and agile operational arrangements to meet new airport operation requirements
- continuity of the international responsibilities was maintained through use of virtual meeting room technology and increased frequency of meetings

The implementation of these initiatives required significant investment by Met Éireann. To facilitate the remote working of the aviation forecaster team procurement and configuration of laptops, additional screens, office furniture, software licences, mobile telephones, remote access licences were required for all team members. Further upgrading of back end ICT infrastructure, and externally provided ICT supports resulted in significant additional costs not foreseen prior to the pandemic.

In addition to the financial costs incurred there were also high opportunity costs through the redeployment of technical and ICT resources to develop organisational resilience. This redirection of activity and finances led to delays to other technical projects which were planned or already underway. Particular projects which have experienced delays are AMAP and METCOM which will upgrade the communications infrastructure and systems for aviation meteorological data transmission. Aligned with the need to build systems and operational resilience enormous effort was placed on the progression of projects relating to business continuity and disaster recovery.

The reduction in aviation traffic resulting from COVID 19 did not result in a decreased meteorological service requirement and did not present any opportunity to reduce the operational costs of service provision. It is noted within the Performance Regulation, that meteorological service provision is independent of traffic levels. Increasing traffic does not positively impact on the MET contribution to the unit rate through a cost reduction. Equally, reduced traffic does not present an opportunity to reduce assets assigned to maintenance and support of operations. The net financial impact of COVID was in fact to increase the costs due to necessary spending in order to secure service resilience.

## **5. Internal Environment**

### **5.1 Operational Activities**

ASD produces and disseminates a range of high quality meteorological services and products in order to support safety and efficiency of aviation in Ireland on a 24/7/365 basis. These services, delivered from 5 aerodrome sites, are core inputs to all aviation operations within Ireland's airspace and include the full regulatory suite of services as detailed in ICAO Annex 3. These activities are controlled by an accredited quality management system (ISO 9001:2015) with ASD process and service performance measured and monitored on an ongoing basis against a comprehensive set of key performance targets.

Opportunities to improve efficiency and enhance service quality are identified and pursued on a continuous basis. Services are developed based on a combination of regulatory compliance requirements, customer consultation processes and the implementation of activities to support continual improvement based on evaluation and verification of service quality. ASD engages in development work and projects to contribute data services to key aviation users who choose to implement additional third party planning and decision making software tools.

## 5.2 Relationship with other Met Éireann Divisions

ASD is one of 8 Divisions of Met Éireann and many support and service requirements are provided to ASD by these Divisions. This structure is required in the interest of organisational efficiency and to optimize capacity to achieve the ASD strategic objectives in a cost effective way. Services provided include, forecast services, technical and ICT infrastructure and some HRM functions. The levels of service received is managed within the QMS framework via a SLA process which assures service levels and quality of data that enters the aviation system. Agreed service levels are based on risk based thinking and the criticality of the data to ATM and airport operations.

## 5.3 Funding and Accounting Arrangements

ASD is funded from Met Éireann's administrative budget which itself is part of the administrative budget of the Department of Housing, Local Government and Heritage. Costs recouped for provision of meteorological services to aviation are returned to central funds.

Met Éireann's accounts system calculates charges to aviation in a fair and transparent way. The cost allocation methodology used is closely aligned with WMO and ICAO charging guidelines. Prior to the calculation of enroute and terminal costs, the system strips out the costs of service to general aviation, the military and other non-applicable costs. Following a recommendation by the Commission for Aviation Regulation (CAR) in 2002 these charges are split 80:20 to enroute and terminal. Met Éireann's parent Department conducts audits of financial activities via its Internal Audit Unit and the recommendations it makes are implemented as appropriate.

## 5.4 Human Resources

5.4.1 ASD staff are highly qualified and trained specialist personnel and with skills maintained through a process of induction training followed by continuous professional development implemented under the PMDS. This process ensures that skills of the technical, operational and scientific teams are standardized and maintained at the competent level to support ASD business requirements. Competence of all aeronautical meteorological personnel is assured via the application of a Competence Assessment Scheme (CAS), which was established and implemented under ICAO and WMO rules. The CAS is continually reviewed and developed in line with process and regulatory changes.

A Departmental wide workforce planning activity ensures that current and future ASD staffing needs are met. A Met Éireann Staff Mobility Policy is in place to develop interoperability and to spread expertise amongst staff to maintain organizational capacity and resilience in specialized ASD processes.

ASD has a total staffing complement of 44 FTE which includes a full 24/7 staff presence at 5 airport sites providing aeronautical weather observations. The ASD staffing profile

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is very lean and compares favourably in the international context in terms of its efficiency and output per FTE. ASD aims to further improve efficiency in this area by exploiting the capability of new technologies and restructuring operational service processes.

**5.4.2 Aeronautical Forecast Process Staffing:** Alongside the ASD staff complement a dedicated cohort of 8 FTE assigned to Met Éireann's Forecast Division comprise the aeronautical forecast team (AMF). These staff work from 2 fully enabled operational offices – one based at Shannon Airport, the other at Met Éireann HQ, Glasnevin. The AMF team maintain a continuous 24 hour aeronautical weather watch and are responsible for provision of all regulated and value added forecast and warnings services. Generally, the AMF work in a single person operations environment. All regulated forecast services detailed in section 3.1 are provided by this cohort.

**5.4.3 Observations Process Staffing:** The aeronautical observation team (AMO) are positioned at the 3 State airports and Ireland West Airport Knock. ASD supports the work of the Irish Air Corps, Garda Air Support Unit and Government air transport at Casement Aerodrome, Baldonnell. Each Airport has an assigned complement of 6 FTE per operational position and this staffing factor represents the minimum requirement to facilitate full 24/7 operations. IWAK has a reduced complement of 4 FTE due to its reduced operational hours.

**5.4.4 Contingency Staffing:** In view of the very efficient staffing factors currently assigned to aviation service provision it is considered essential that additional contingency staff be available from other teams within Met Éireann. Significant interoperability is maintained across the Forecast Division forecasting team to ensure capacity exists to provide cover for aviation forecast staff shortages. These contingency AMF are competence assessed and certified to perform aviation forecast functions if required. This cohort also has its currency maintained through scheduled engagement with the aviation forecasting function.

The observations process is also supported by a team of aviation contingency observers who are generally assigned to other non-aviation tasks within the wider organisation but who can be called on to provide operational support if required. The same competence, certification and currency arrangements apply to this cohort as to the aviation forecaster cohort.

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**Table 1: RP3 Annual Staffing Projections**

Activity	2020	2021	2022	2023	2024
Management	6	6	6	6	6
Operations supervisors	7	7	6	6	6
Technical/ICT support	6	6	6	6	6
Aviation forecasters	8	8	8	8	8
Development	2	2	2	2	2
Aviation weather observers	22	22	22	22	19
Clerical support	1	1	1	1	1
<b>Total</b>	<b>52</b>	<b>52</b>	<b>51</b>	<b>51</b>	<b>48</b>



## 6 Key Strategic Objectives

Key Performance Area A: Regulatory Compliance	
<p><b>Description of KPA</b> To ensure ASD processes and the aeronautical meteorological services and products provided by it are compliant with the ICAO SaRPs and regulations of the EU.</p>	
<p><b>Key Performance Indicators</b></p> <ul style="list-style-type: none"> <li>- Current certificate for service provision pursuant to Implementing Regulation (EU) 2017/373 is retained.</li> <li>- Designation of ASD as Met Service Provider by Minister for Transport.</li> <li>- Accreditation to ISO 9001:2015 QMS standard</li> </ul>	<p><b>Key Performance Targets</b></p> <ul style="list-style-type: none"> <li>- Success in external audits by NSA (IAA SRD) and EASA against CIR (EU) 2017/373</li> <li>- Success in audits conducted by NSAI against ISO 9001:2015</li> <li>- Completion of essential technical projects (AMAP/METCOM/iWXXM)</li> <li>- Current letter of designation issued by DoT as METSP</li> </ul>
<p><b>Key strategies to achieve targets during RP3</b></p> <ul style="list-style-type: none"> <li>- Ongoing monitoring and analysis of international developments in regulations by members of the international unit of ASD with action items as appropriate</li> <li>- Continue participation in international expert groups concerning the interpretation of aeronautical meteorological regulations</li> <li>- Participate in ICAO METG workgroups to ensure regional developments of standards, recommended practices and guidance material reflect Irelands particular circumstances in relation to METSP</li> <li>- Continued consultation with the NSA to ensure ongoing compliance with SES regulations and ongoing assessment of ICAO State Letters transmitted to Met Éireann under the State Letter Procedure of the IAA with consequent actions as required.</li> <li>- Ensure projects and processes are developed in a timely way to ensure identified gaps are closed in line with Regulations and NSA guidance/advices</li> <li>- Particular focus on the performance regime of the EC to ensure that ASD meets the requirements of this process; timely production and ongoing assessment of the 5-Year Business and Annual Plans of ASD and the timely production of the SES Annual Performance Report.</li> </ul>	



<b>Key Performance Area B: Operations and Customer Service</b>	
<p><b>Description of KPA</b> To provide high-quality warnings, forecasts, observations and ancillary services to support aviation and other users to the highest standards compliant with ICAO SaRPs, EU Regulations and further established based on customer consultation.</p>	
<p><b>Key Performance Indicators</b></p> <ul style="list-style-type: none"> <li>- Timeliness of observations and forecasts</li> <li>- Accuracy and verification of service statistics</li> <li>- Effective service users consultation processes</li> </ul>	<p><b>Key Performance Targets</b></p> <ul style="list-style-type: none"> <li>- Targets for timeliness as specified in ASD's QMS reached or exceeded</li> <li>- Targets for accuracy and product conformity as specified in ICAO Annex 3 reached or exceeded</li> <li>- Application of consultation procedures specified in ASD's QMS</li> <li>- Implementation of value added services and service criteria based on user feedback</li> </ul>
<p><b>Key strategies to achieve targets during RP3</b></p> <ul style="list-style-type: none"> <li>- Continue to implement and further develop monitoring and measuring systems to ensure that deficiencies are minimised and address any non-conformities that arise under the aegis of the QMS.</li> <li>- Maintain regular and effective consultation with service users, the NSA and the DTTaS under the auspices of the ASD Customer Liaison Group and the application of the QMS Communications Policy</li> <li>- Manage operational relationships with the IAA and other external organisation through application of the relevant Service Level Agreement (SLA)</li> </ul>	
<b>Key Performance Area C: Efficient use of new Technologies, Scientific Advances and New Services</b>	
<p><b>Description of KPA</b> To monitor developments in technology and meteorological science to assess suitability for deployment to Met Éireann's aviation system to ensure efficiency and safety. To identify and implement new and relevant services and delivery platforms.</p>	
<p><b>Key Performance Indicators</b></p> <ul style="list-style-type: none"> <li>- Continued participation and engagement with international meteorological organisations in areas of science, collaboration and regulation</li> <li>- Continuous assessment of operational systems to ensure that they remain fit-for-purpose and compliant with regulatory requirements</li> <li>- Implementation plans and projects in place to support the deployment of new technologies</li> <li>- Assessment by service users and fellow-providers of new systems and against the QMS standards</li> </ul>	<p><b>Key Performance Targets</b></p> <ul style="list-style-type: none"> <li>- Nominated participants to all relevant internal bodies and collaborations</li> <li>- Technical projects required to ensure availability of state of the art ICT and communications systems completed by end 2022 (AMAP, iWXXM, METCOM, Met Self Briefing upgrade)</li> <li>- Assessment of new systems by the NSA throughout the lifecycle of technical projects via the development and submission of comprehensive change documentation built according to NSA templates</li> <li>- Implementation of state of the art nowcasting systems</li> <li>- Implementation of machine learning guidance tool to enhance meteorological support for low visibility procedures</li> <li>- Development of automated observational services to improve airport and TMA operations</li> </ul>

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### Key strategies to achieve targets during RP3

- Management Group of the Aviation Services Division (MG-ASD) continue assessments of current systems and their suitability. Replace systems in order of criticality to the aviation system prior to obsolescence.
- Develop business case submissions and business impact analyses to secure project approval at the required level internally and within the wider department to allow essential projects be progressed in accordance with public spending code and appropriate governance criteria .
- Progress experimental work on the development of an AUTOTAF system and procedures to support the TAF production process under the auspices of the Met Alliance
- Expand use of research fellowships to undertake focussed research aimed at enhancing aviation service provision
- Expand international collaborative activities to leverage ASD and Met Éireann expertise and resources in terms of service and process enhancement
- Met Éireann to implement a new RADAR network and to adopt leadership role in the UWC project to implement enhanced High Performance Computing capacity to allow greater resolution modelling and increase the capacity for probabilistic weather forecasting.

### Key Performance Area D: Human and Financial Resources and Cost Containment

#### Description of KPA

Ensure that MET Éireann’s recruitment processes and work force planning activities provide sufficient staff deployed to maintain continuity of service in aviation operations and technical support areas; that the ASD continues to maximise efficiency in the context of the cost efficiency KPA of the Performance Regulation.

#### Key Performance Indicators

- Quality and relevance of recruitment and training programmes
- Competence Assessment Scheme
- Continuity of operational services
- Strategic plans in place to deal with staffing and revenue constraints
- Cost efficiency requirement as set as target metric as established within the Performance and Charging Schemes

#### Key Performance Targets

- Induction training programmes for aeronautical meteorological personnel (AMP) meet WMO BIP-MT and BIP-M requirements
- All AMP hold current certificates of competence for their role
- Continuity of service maintained
- Achieve (revised) cost efficiency targets set for RP3

### Key strategies to achieve targets during RP3

- ASD will assess all training programmes for AMP for relevance, quality and compliance with the WMO standards.
- Ensure that staffing resources are sufficient to maintain continuity of service but that operational arrangements are in place to Notice to Airmen (NOTAM) out services in the exceptional circumstances where breaks might occur.
- Maintain contingency plans and procedures to deal with reduced staffing and other resources
- To ensure that costs assigned to civil aviation are fair and transparent and aligned with the ICAO and WMO Charging guidelines and principles. Costs, nor portions of costs, related to activities that do not contribute to supporting this sector (such as military, SYNOP, climatology and suchlike) will not be allocated to aviation.

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<p>The accounts system remains fit-for-purpose in achieving this. that the cost allocation system is reviewed and revised periodically.</p> <ul style="list-style-type: none"> <li>- Introduction of a lower factor for determining the contribution of aviation to some operating costs, core costs and infrastructural project costs as a result of the formation of a new Division within Met Éireann – the impact of which will dilute the proportion of a range of activities that can be assigned in cost terms to aviation.</li> </ul>
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## 7. Capital investment Programme

A number of essential capital investment projects are planned to further the success of ASD as a MET ANSP in the context of the SES and ICAO regulatory frameworks and also in terms of developing scientific capacity and improved quality of services. This plan comprehends the fact that compliance with the SES regulations necessitates investment. The RP3 consultation process recognised the interdependencies of the 4 KPA’s of cost efficiency, safety, capacity and the environment and this is a welcome development.

While some of the capital projects are focussed specifically on supporting the aeronautical meteorological function others are cross cutting with planned investments intended to also support other Met Éireann activities along with the aviation function. The allocation of capital costs to aviation on foot of these projects is via the application of the agreed cost allocation methodology. The following brief project descriptors detail full project costs – with the portion of these costs allocated to aviation detailed in the financial projections section later in the plan. Capital investments are recovered through the depreciation costs. Some of the projects are new to RP3 timeframe while others continue from RP2.

### 7.1 Aviation Modernisation and Modernisation Project (AMAP)

Project name	Aviation Modernisation and Modernisation Project (AMAP)
Date of implementation	AMAP is a carryover project from RP2. Procurement concluded in 2017 with design and implementation ongoing since.
Expected completion date	AMAP systems will be operational at all sites by end 2021.  <b>Note:</b> final decision on operationalising the AMAP output is dependent on securing regulatory approval by the NSA following completion of comprehensive safety cases and implementation of appropriate change management procedures
Reason for investment and expected benefits	<ol style="list-style-type: none"> <li>1. Regulatory compliance with ICAO Annex 3 and CIR (EU) 2017/373</li> <li>2. modernising the aviation observing infrastructure and upgrading to fully automated and integrated systems is necessary to provide increasingly representative aerodrome meteorological data which will input to enhanced ATM and operator efficiency by increasing the</li> </ol>

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	<p>temporal and spatial resolution of weather observations</p> <p>3. support other key aviation infrastructural projects (e.g. DAA North Runway, IAA New Dublin Tower)</p> <p>4. Provide capacity to implement operational and cost efficiency through reduction in staffing complements</p>
Total cost estimate (over 10 years)	€ <b>12,995,269.02</b>
Asset life assumption	8 years (typical ATM hardened systems)
Approvals	Department Management Board.
Note	<p>AMAP costs exclude non-aviation costs such as those associated with services to the military and in the generation and transmission of SYNOP, climatology etc.</p> <p>Every effort was made to ensure best value-for-money in the implementation of AMAP. The project comes under evaluation audit under the Public Spending Code of DPER (<a href="http://www.per.gov.ie">www.per.gov.ie</a>) which ensures that proper appraisals and cost benefit analyses have been carried out and that procurement processes meet national and EU procurement rules.</p>

### 7.2 Building High Performance Computing (HPC) capacity

Project name	High Performance Computing
Project commencement date	Procurement commenced September 2020
Expected completion date	Q4 2022
Reason for investment and expected benefits	<p>The science of meteorology is on a continuous upward trajectory in terms of its appetite for high performance computing (HPC) and ICT resources. The implementation of resilient HPC by Met Éireann is required in order to develop capacity to enable developments in forecast services such as nowcasting and the use of high resolution ensemble forecasts for the TMA. The improved forecasting capability will also support improvements to forecast services relating to high impact and extreme weather and support safety and efficiency in airport management and ATM. Met Éireann will develop this HPC capacity in collaboration with other modern European Meteorological Services to ensure value for money and to optimise the investment potential.</p>
Total cost estimate	<p>€6,686,000</p> <p>An agreed fixed budget was developed based on market research and experience of project collaborators for HPC lifetime costs.</p>

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	The procurement is designed within this fixed cost constraint.
Asset life assumption	5 years Based on general useful life of HPC assets and foreseen future requirement for further capacity
Governance/approvals	Departmental Management Board approved. Supported by Memo for Government.

### 7.3 RADAR network upgrade

Project name	RADAR network upgrade
Date of implementation	January 2021
Expected completion date	Staggered commissioning of new radar as follows: Shannon RADAR upgrade: Q4 2021 Dublin RADAR upgrade: Q2 2024 Remaining 5 sites:RP4
Reason for investment and expected benefits	Met Éireann's current RADAR network is nearing the end of its useful life and is under specified for a modern meteorological service. The data produced by the network is high quality but is not sufficient to fully support ATM, effective nowcasting algorithms or the development of automated aviation observations. The Met Éireann RADAR network will be upgraded from its current 2 sites to 5 sites which will significantly increase the domain covered within the Shannon FIR and provide ATS with the capability, through implementation of aviation specific software modules, to overlay RADAR data onto ATM workstations hence improving both situational awareness and decision making by ATCO.
Total cost estimate	€17,000,000
Asset life assumption	25 years Based on experience with current RADAR network and consultation process.
Approvals	Department Management Board approved (October 2018)

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### 7.4 Expansion of the Automated Climate Observations Network

Project name	Expansion of the Automated Climate Observations Network
Date of implementation	Pre RP3
Expected completion date	2022
Reason for investment and expected benefits	<p>Support for aviation and the NWP that models the atmosphere is dependent on sourcing surface observational data for locations outside of the normal airport environment.</p> <p>It should be noted that the data acquired from the surface climate observations network also provides essential data to support activities such as pilot briefings, search and rescue services, preparation of reports for the Air Accident Investigation Unit.</p> <p>ASD have decided that no proportion of the cost for upgrading the climate observations network will be apportioned to the aviation determined costs for RP3.</p>
Total RP3 cost estimate	n/a
Asset life assumption	n/a
Approvals	Met Éireann Approvals granted RP2

### 7.5 Research and Development

Project name	Research and Development
Date of implementation	Met Éireann engages with continuous research and development
Expected completion date	Met Éireann engages with continuous research and development
Reason for investment and expected benefits	<p>Met Éireann is Ireland's National Meteorological Service and, as such, engages with research and development as part of its remit to provide the highest quality weather services to the State and key users such as Aviation.</p> <p>Normal R&amp;D activities require a capital spend. The total expected capital spend on R&amp;D activities spend over the course of the RP3 period will amount to 1.7 million euro. 10% of this cost will be assigned to aviation based on a regulatory guidance materials (WMO Doc 904).</p> <p>Specific investments in research that are planned and/or underway for the RP3 period that will directly contribute to aviation support include:</p> <ul style="list-style-type: none"> <li>• Numerical Weather Prediction model upgrades with focus on aeronautical relevant MET parameters</li> <li>• Planned recruitment of research fellow to work on machine</li> </ul>

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	<p>learning tools for fog and visibility forecasting at Dublin Airport;</p> <ul style="list-style-type: none"> <li>• Recruitment of nowcasting, impact based and boundary layer meteorologists is completed in early RP3 with research now underway</li> <li>• Enhancements to Ireland ensemble prediction system implemented (leading to better probabilistic forecast guidance for aviation forecast team)</li> <li>• LIDAR data being assessed for use as wind shear observing/forecasting tool</li> </ul>
Total cost estimate	€170, 000 over RP3 Based on WMO Doc 904 recommendation for R&D costs assignment to aviation
Asset life assumption	Continually evolving capability in the provision of METSP to aviation
Approvals	Projects approved through Met Éireann management processes

### 7.6 METCOM

Project name	METCOM
Date of initiation	Procurement process underway since Q4 2020.
Expected completion date	Q4 2021
Reason for investment and expected benefits	<p>Develop compliance with ICAO Annex 3, CIR (EU) 2017/373, the Pilot Common Project Regulation (EU No 716/2014).</p> <p>Completion of METCOM will ensure regulated meteorological data will be produced, disseminated and stored in compliance with the ICAO Annex 3 and CIR (EU) 2017/373 Regulations according to appropriate technical standards and will enable ASD deliver future SWIM compliant services.</p> <p>Further, the upgrade to the online aviation MET Self-Briefing Unit which is part of the METCOM project will allow the users more easily access bespoke regulated data in a more user friendly configurable environment. The specifications of the upgraded MSB being based on the analysis of the best in class systems and feedback from existing users through a broad consultation process.</p>
Total cost estimate	€1,233,000 Based on market research.
Asset life assumption	5 years Based on Warranty terms and Met Éireann 5 year ICT refresh policy
Approvals	Department ICT Governance Board approval (November 2019)

### 7.7 AUTO-METAR

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<b>Project name</b>	<b>Infrastructure Investments to support AUTO-METAR</b>
Date of initiation	2024
Expected completion date	RP4
Reason for investment and expected benefits	<p>Investment in additional visibility observing sites in the vicinity of the major airports will provide the aviation observers and forecast teams of early warning of degenerating visibility and cloud ceiling conditions through the deployment of visometer and ceilometer sensors. These will be further supported through the deployment of camera technology to support remote weather observations. The benefit of these deployments will be to</p> <ol style="list-style-type: none"> <li>1. Provide real time observational data from remote but operationally significant areas in the vicinity of Dublin Airport</li> <li>2. Support the TAF/TREND production and amendment process</li> </ol>
Total cost estimate	€500,000 Basis: Estimated costs
Approvals	TBC

### 7.8 Business Continuity and Disaster Recovery

<b>Project name</b>	<b>Business Continuity and Disaster Recovery (ICT Migration and Managed Services Project (IMaMS))</b>
Date of initiation	Procurement process underway since Q4 2020.
Expected completion	November 2021
Reason for investment and expected benefits	<p>Met Éireann's ICT infrastructure exists mainly in a single site location in Glasnevin HQ. While there is considerable redundancy built into the server infrastructure in Met Éireann HQ, with key operational servers configured for diversification, there is no geographical resilience or redundancy available. Therefore the loss of the Glasnevin HQ building would have serious impacts on Met Éireann's and ASDs ability to develop and deliver its services. In order to strengthen Business Continuity in Met Éireann, there is a requirement for ICT Geo-resilience in conjunction with a Business Continuity Management (BCM) operational office. This will require an ICT solution that enables diversification and replication across two ICT sites in order to facilitate DR and meet our Recovery Time Objectives and Recovery Point Objectives for our products and services.</p>
Total cost estimate	€5,442,000 Based results of tender process (concluded June 2021)
Approvals	Department Management Board approved January 2021

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## 8. Financial plan

### 8.1 Allocation of MET costs methodology

MET costs to aviation are charged based on the determined operational and capital costs forecast over the RP3 period. The costs are established through the application of a cost allocation methodology developed and agreed by a Working Group, chaired by Air Navigation Services Division, DoT. The methodology was developed and is closely aligned with the principles for allocation of MET costs to aviation detailed in the following documents:

- *ICAO Policies on Charges for Airports and Air Navigation Services (Doc 9082)*
- *ICAO Doc 9161: Manual on Air Navigation Services Economics*
- *WMO No. 904: Guide to Aeronautical Meteorological Services Cost Recovery*

Management of costs is controlled via the application of the Performance and Charging Regulation (and its amendments) the oversight of which is undertaken by the Commission for Aviation Regulation. The history of this process is governed through the implementation of the following:

- *Regulation EU No 550/2004 on the provision of air navigation services in the single European Sky*
- *Regulation EU No 391/2013 laying down a common charging scheme for air navigation services*
- *Regulation EU No 390/2013 laying down a performance scheme for air navigation services and network functions*
- *Regulation EU No 2019/317 of 11 February 2019 laying down a performance and charging scheme in the single European sky*



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The total costs assigned to aviation comprise 2 main categories:

1. **Direct Costs:** These are costs incurred by aviation specific activities and services which are not cross cutting across other Met Éireann activities. The Direct Costs are attributed in full to the total cost.

The direct cost component of the total cost relate to production of the following aviation specific services:

Service	Service description
METAR reports	METAR reports (excluding TREND) as specified in ICAO Annex 3
Reports for ATS	Instrument display systems for ATS; also plain-language reports for ATS (excluding TREND)
Automated Flight Briefing material	Online Met Self Briefing system
Verbal briefing	Briefing and consultation (excluding General Aviation and Military)
TAFs (FT and FC)	Terminal Area Forecasts as specified in ICAO Annex 3
SIGMET	SIGMET as specified in ICAO Annex 3
TREND	TREND forecasts in METARs and plain-language reports as specified in ICAO Annex 3
Aerodrome warnings.	Aerodrome warnings; wind-shear warnings as specified in ICAO Annex 3
Airport/ATC enquiries	Enquiries from airport agencies (airport authorities, IAA, etc.) and local Air Traffic Control
Graphical Charts	Low level significant weather charts; upper level tabular wind charts as specified in ICAO Annex 3
Additional forecast data	5 day tabular forecast for DAA to support ATC and DAA planning and operations and to elaborate detail
Consultation with adjacent MWO	Regarding SIGMET issuance and network weather in line with ICAO Annex 3 recommendations

The services listed represent the requirement specified under ICAO ANNEX 3 Standards and transposed into EU law via CIR (EU) 2017/373 Part MET. The ASD is certified under CIR (EU) 2017/373 by the NSA (IAA SRD) for provision of the above table of services and designated to do so by the Minister for Transport. On that basis the total costs associated with provision of the listed services are allocated in full for the RP3.

All of the above services are provided from a minimum staffing operational cohort of staff. 8 FTE of aeronautical forecasters are costed for – the international base level of staffing for 1 full 24/7 shift. This cohort provide the entire suite of MWO and AMO services and engage in



additional aviation service provision activities while on shift. Further, to better support the aviation users, this same cohort provides MET information interpretation training to users (such as IAA ANSP, Airport Authorities and SAR services) as operational rostering requirements allow.

- 2. Core Costs:** These are the costs associated with the basic meteorological infrastructure upon which services to aviation depend. For example, in producing a Terminal Area Forecast, which is a direct service to aviation, the forecaster makes use of several Core products, such as surface observations, satellite images, NWP output, etc. Because of this dependence it is appropriate to allocate a proportion of Core costs to aviation, the proportion depending of the use made of Core products for aviation purposes as compared with their use for other purposes.

*The algorithm used to apportion Core Costs to the RP3 determined costs:*

There are 9 identified categories of Core Costs associated with Met Éireann service activities used to support, amongst other activities, the aviation service. These are surface synoptic observations; upper air observations, RADAR data, Satellite data, NWP, Climatological data, ICT, Internal Forecasting Guidance and Library/Laboratory and Environment activities. While all of the foregoing make a contribution to aviation services the contribution of some Core activities is so small or too complex to apportion fairly – and so these are discounted. Therefore aviation is not charged any portion of costs associated with Internal Forecasting Guidance, Library/Laboratory and Environment activities. Also, despite the regulatory requirement for aerodrome climatological summaries and tables to be developed and maintained, no part of the Climatological Data Core Cost is apportioned.

In relation to the Core costs that are applied the coefficients used are developed to be equal to the direct cost of aviation forecasting divided by the direct cost of all forecasting activity, as determined by the accounts system. Further the part of Core costs appropriate to aviation are allocated to the individual forecast products and services in proportion to the direct costs of those products.

**Reduction in Core Cost allocation coefficients during RP3:**

The proportion of Core Costs (operating and capital) assigned to aviation will be reduced during the RP3 period. This opportunity reflects the expansion in remit of Met Éireann due to the implementation of the Flood Forecasting Centre (FFC) – which will become operational from 2022. Because of this new activity it is considered reasonable that the coefficients apportioning Core to aviation be reduced as the FFC will also be required to pay its ‘share’ of the Core infrastructure and services.

The net effect of this dilution will be to reduce the Core costs allocated to aviation by **18%** from 2022 onwards.

## 8.2 Determined MET costs for RP3

The costs that are presented in this plan reflect updates to the original RP3 Business Plan presented in May 2019 and consulted on in September of that year. ASD will continue to revise the determined costs throughout the RP3 consultation period as required and/or request by the NSA.

The financial projections provided below are based on:

- Planned reduction in staffing assigned to operational areas beginning midway through 2022
- Full application of Direct Costs to aviation
- Application of a decreased proportion of Core Costs from 2022 onwards
- Capital and staff support costs required to implement necessary infrastructural investments.
- Revision of depreciation schedules in line with capital project timelines

**Table 2: Summary Determined Costs for RP3**

Cost Activity	2019A	2020F	2021F	2022F	2023F	2024F
Staff Salaries	4,773,000 (inc. pensions)	3,492,575	3,492,575	3,431,329	3,453,442	3,261,122
Staff pensions costs		343,010	343,010	337,230	315,117	315,117
Other operating costs	5,607,000	2,343,280	2,380,770	2,356,560	2,403,690	2,451,760
Depreciation		536,055	536,055	851,956	1,213,000	785,210
Cost of Capital		-	-	-	-	-
Exceptional items						
EUMETSAT	914,000	1,500,000	1,227,600	1,227,600	1,227,600	1,227,600
<b>TOTAL</b>	<b>11,294,000</b>	<b>8,214,920</b>	<b>7,980,010</b>	<b>8,204,675</b>	<b>8,612,849</b>	<b>8,040,809</b>



**Comments**

- All amounts are at real values with base year 2018
- The costs projections represent the total costs to international civil aviation, combining enroute and terminal, and include all direct and allocated proportions of core costs required to develop and deliver aeronautical meteorological services. The split between costs across enroute and terminal is implemented using the CAR recommended 80(ENR) :20(TNC) ratio
- Potential for recurring savings to be developed from 2024 onwards due to automation of weather observations at some sites
- R&D capital investment costs are included under the other operating costs category

**Staff costs by activity (including pension costs)**

Staff costs are assigned in line with the Public Spending Code and are updated to align with 2020 public sector pay adjustments

**Table 3: Staff costs by activity**

Activity	2020	2021	2022	2023	2024
Corporate support staff cost	531,024	531,024	531,024	531,024	531,024
Operational MET provision staff cost	2,711,364	2,711,364	2,644,337	2,644,337	2,452,018
Technical/ICT staff support cost	448,215	448,214	448,214	448,214	448,214
Development staff cost	144,982	144,982	144,982	144,982	144,982
<b>Total</b>	<b>3,835,585</b>	<b>3,835,585</b>	<b>3,768,559</b>	<b>3,768,558</b>	<b>3,576,239</b>

### Inflation

ASD previously assumed a flat rate 5% inflation rate which was accepted in all previous RPs. Implementing Regulation 2019/317 states that inflation forecasts ought to be based on the latest available inflation forecast of average Consumer Price Index percentage change published by the International Monetary Fund. The changed approach represents a significant financial saving to the aviation sector over RP3. The following RP3 inflation table was, therefore, applied to the RP3 determined costs.

**Table 4: Inflation profile**

RP3 year	2020	2021	2022	2023	2024
IMF derived forecast inflation rate	5%*	1.6%	1.9%	2.0%	2.0%

*\*rate applied pre-review*

### Other operating costs

Other operating costs are either allocated entirely (direct costs) or as a proportion (core costs) to aviation and comprise the following: Regulated Service Production; Surface Synoptic Observations; Upper Air Observations; RADAR data; Satellite data; NWP data and systems support; ICT and its support; Communications (telephones etc); Accommodation and related items (contract services/heat/light/utility services); Training; Travel; Subsistence; HR services; Technical instruments and their consumables; Transport (e.g. airport vehicles);



**Table 5: Depreciation of capital projects**

Project	Total project cost	Proportion assigned to aviation for depreciation purposes*	Depreciation term based on asset life (yrs)	Date depreciation begins	Total Depreciation allocated to ASD over RP3
AMAP	€12,995,269	Core infrastructure basis	8	2016	€1,949,290
RADAR	€17,500,000	Core infrastructure basis	25	- Shannon depreciating €1.5m from 2022 - Dublin depreciating €1m from 2024 - Remaining 5 RADAR depreciating €15m from 2027 (RP4)	€60,048
AUTO Climate Network	-	Nil assigned	n/a	n/a	Nil assigned
R&D	- n/a	n/a	n/a	n/a	n/a
METCOM	€1,233,000	€250,000 fully allocated as aviation specific Remainder is core infrastructure basis	5	2022	€309,246
AUTOMETAR	€500,000	100%	8	2025	-
ImaMS	€5,442,000	Core support basis	5	2022	€881,604
HPC	€6,686,000	Core infrastructure basis	5	2023	€722,088
<b>Total RP3 depreciation costs</b>					<b>€3,922,276</b>

\*Core cost co-efficients: For 2020/21 = 33% ; for 2022,2023,2024 = 27%

Table 6: Annual Depreciation of capital project allocated to aviation

Project	Depreciation term (yrs)	2020 Dep. Cost	2021 Dep. Cost	2022 Dep. Cost	2023 Dep. Cost	2024 Dep. Cost
AMAP	8	536,054	536,054	438,590	438,590	-
RADAR Upgrade	25	-	-	16,416	16,416	27,216
AUTO Climate Network	n/a	Nil assigned	Nil assigned	Nil assigned	Nil assigned	Nil assigned
METCOM	5	-	-	103,082	103,082	103,082
AUTOMETAR	8	(RP4)	(RP4)	(RP4)	(RP4)	(RP4)
IMaMS	5	-	-	293,868	293,868	293,868
HPC	5	-	-	-	361,044	361,044
<b>Total annual depreciation cost</b>		<b>536,054.85</b>	<b>536,054.85</b>	<b>851,956</b>	<b>1,213,000</b>	<b>785,210</b>

1. Capital investment costs are depreciated according to the individual project asset lifetime using a straight line depreciation approach. This marks a shift away from the generic 8 year straight line depreciation algorithm used previously and allows for a more realistic depreciation schedule to be implemented.
2. R&D capital depreciation is assigned to other operating costs



### 8.3 Draft Cost efficiency Target and Comparison with RP3 Determined MET Costs

At the onset of RP3 the determined MET cost was reduced very significantly relative to the 2019 actual costs. The draft PRB cost efficiency target is set at a reduction of 10% of determined cost relative to the 2019 actual costs - with this reduction to be maintained over the duration of each subsequent year of RP3. The Summary Determined Costs for RP3 as detailed in Table 2 shows the very significant annual reduction in MET cost relative to 2019 actual costs. In percentage terms the annual cost efficiency achieved is:

**Table 7: MET RP3 Determined Cost efficiency profile**

<b>Year</b>	<b>% MET cost decrease relative to 2019A</b>
2020	27
2021	29
2022	27
2023	24
2024	29