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UK Civil Aviation Authority
Aviation House
Beehive Ring Road
Crawley
West Sussex
RH6 0YR

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Enquiries regarding the content of this publication should be addressed to:
airspace.modernisation@caa.co.uk

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Introduction

Purpose of the document

1. The purpose of the Airspace Modernisation Strategy (AMS) Part 3 Deployment Plan is:
 - to translate, as far as practicable, the strategic intentions for modernising UK airspace into deliverable tasks, objectives and milestones set over the near term, and
 - to indicate future change to operational, technological and information concepts.
2. Airspace modernisation is a portfolio of programmes. It is an evolving and dynamic process focused on delivering a modernised UK airspace but linked to global and regional programmes of change. As such, the airspace modernisation programme will change and mature over time. The AMS Part 3 will continue to frame this work and indicate the direction of travel for delivery of the programme portfolio.
3. The AMS Part 3 describes the current airspace modernisation programme in terms of progress, next steps and overall objectives. Additionally, the AMS Part 3 provides an indication of future areas of work in the next International Civil Aviation Organization (ICAO) Global Air Navigation Plan (GANP) Aviation System Block Upgrades (ASBU) Block timeframe that will evolve from ICAO concepts through to Standards and Recommended Practices (SARPs) and, where applicable, into the airspace modernisation programme.
4. The AMS Part 3 therefore sets out the intended delivery of airspace modernisation in the UK over the next six years. This will assist aviation stakeholders with their planning and allow them to better understand the opportunities for them to engage on topics of particular interest.
5. Because of the size, complexity and duration of the airspace modernisation programme, **the scope of AMS Part 3 is currently focused primarily on CAA enabling activities**. This document is therefore not a complete picture. It does not describe in detail the delivery plans led by the multiple stakeholders in support of the AMS, although it takes account of them and may reference them where relevant. The CAA intends to include a fuller description of non-CAA activities in future versions of the AMS Part 3.

6. The plans in the AMS Part 3 capture work already underway through the original 2018 AMS (first edition) as well as activity commissioned or completed since the CAA published the refreshed AMS (second edition, as Parts 1 and 2) in 2023.
7. As well as the content, the method of presentation is likely to evolve as the AMS develops over the coming years. To optimise accessibility and information sharing, the CAA will consider the feasibility of presenting the plans online in a form that is easier for users to interact with and interrogate than the current AMS Part 3 document.

Interim strategy statement

8. The current 2023 AMS remains the strategic vision for UK airspace modernisation and will continue to guide delivery activity through to 2028. Since its introduction, the AMS has established a coordinated, system-wide approach to airspace change, supporting the delivery of airspace modernisation programmes across the UK. The strategy continues to provide a logical basis for progressing airspace change proposals, improving operational performance, supporting environmental objectives, and enabling the safe integration of new and emerging airspace users. During this period, stakeholders should continue to align delivery activities with the objectives and priorities set out in the current 2023 AMS.
9. Recognising the evolving aviation, technological, environmental and policy landscape, we commenced work in 2026 to develop the next iteration of the AMS. This review will consider lessons learned from implementation of the current strategy, emerging operational concepts and technologies, updated environmental and government policy objectives, and the future needs of all airspace users. Engagement with government, industry and other stakeholders will be central to this process, ensuring that the updated, third edition of the AMS provides a clear, credible and deliverable framework to guide airspace modernisation beyond 2028.

Strategic environment

10. The strategic environment sets the context for airspace modernisation in the UK: how the UK fits into a much wider system, and what that means for the AMS. The modernisation of the national air navigation system is dependent on close cooperation at both global and regional levels to ensure that concepts, equipment, systems and procedures are standardised and interoperable. Because of complex geographical boundaries, and multiple flight information regions, air navigation service providers (ANSPs) and air traffic management (ATM) systems, interoperability is particularly critical at the European regional level to ensure the safety and efficiency of the network.

Global

International Civil Aviation Organization (ICAO)

11. The UK is a signatory to the Chicago Convention as an ICAO member state. The CAA provides expertise to numerous ICAO technical panels and supports various ICAO meetings and events as part of the UK contribution to ICAO's work. The ICAO GANP, and associated strategic documentation, is one product of this international collaboration.
12. The ICAO GANP was updated towards the end of 2025 following submission to the triennial Assembly for endorsement. This submission follows extensive development work and reviews by the Air Navigation Commission, States and international organisations through the Air Navigation Conference, and by the ICAO Council. The CAA has been involved in the continuous development of the updated GANP materials. Since the plan is a major driver for the UK AMS, there remains an expectation that the AMS will be reviewed and updated accordingly following the release of the 8th Edition of the GANP, and periodically in line with other future updates.

Regional

EUROCONTROL

13. The UK remains a committed member of the European Organisation for the Safety of Air Navigation (EUROCONTROL) and actively participates in various strategic and technical groups. EUROCONTROL has 42 member states including the UK and the 27 EU member states; however, EUROCONTROL is not an agency of the EU.
14. The UK's participation in EUROCONTROL technical and planning groups ensures that the Department for Transport (DfT), CAA and NERL (NATS (En Route) plc) maintain the requisite cooperation with neighbouring states to deliver an interoperable air navigation system through the delivery of the AMS.

Single European Sky ATM Research and the European ATM Master Plan

15. Single European Sky ATM Research (SESAR) is the technological arm of the EU Single European Sky (SES) initiative and is key to delivering a high-performance, digital European sky. The SESAR Joint Undertaking (SJU) produces the European ATM Master Plan which is the roadmap for the digitalisation and modernisation of the European air navigation system. Additionally, the SJU manages the ATM innovation cycle whereby technological solutions move from concept to deployment in support of the European ATM Master Plan.
16. As of January 2024, the UK joined Horizon Europe, the parent EU programme to SESAR, as an associate member, allowing UK entities to participate in SESAR projects.

17. The UK is not subject to the European ATM Master Plan; however, the CAA maintains a working relationship with the SJU and monitors Master Plan developments to ensure continued alignment and to reduce the risk of regulatory divergence.

ICAO EUR Region Air Navigation Plan (EUR ANP)

18. The EUR ANP is a product of the ICAO EUR/NAT (European/North Atlantic) Regional Office where the ICAO GANP is translated into the plans specifically applicable to the European regional environment. It contains the specific ASBU Modules and Threads which are important and relevant to the ICAO EUR/NAT region operational environment. The EUR ANP is the plan to deliver the outcomes of the Air Navigation Assembly and Conferences resolutions relating to air navigation in the EUR region.

National

19. During the lifespan of the AMS, both the strategy and subsequent delivery of airspace modernisation will need to respond to key changes in the external environment and changing priorities. Directed by the DfT and CAA as co-sponsors of airspace modernisation, the UK AMS remains how the global, regional and national aspects of modernising the air navigation system are cohered, planned and monitored for the UK.
20. The UK government recognises that modernising national airspace is key to enabling aviation growth and sustainability improvements for existing operations in the aerospace sector, as well as safely allowing new innovative operations in the sector.
21. In early 2025, in response to the challenge set by the government to support growth, and alongside the DfT, the CAA committed to several initiatives related to airspace modernisation:
 - establishing the UK Airspace Design Service (UKADS) to accelerate and enhance the airspace changes that are vital to achieving modernisation
 - enabling two trials using remotely piloted drones beyond visual line of sight (BVLOS) to demonstrate scalable operations
 - consulting on improvements to the effectiveness and proportionality of our process for changing airspace.
22. Furthermore, in January 2025 the government announced its support for the expansion of Heathrow airport through the construction of a third runway. To progress this objective, the government launched a consultation in June 2026 on the planning framework that would govern future decisions and published the draft Heathrow Expansion National Policy Statement (HENPS). The government intends the HENPS to update the 2018 Airports National Policy Statement

(ANPS) and to establish the planning policy framework against which any future application for a new north-west runway will be assessed. The consultation represents a key step towards the aim of a final planning decision by 2029. The government's objective remains to deliver an operational third runway by 2035. Any plans and timetable for a third runway may influence airspace modernisation activities, because a third runway will likely require redesigned airspace.

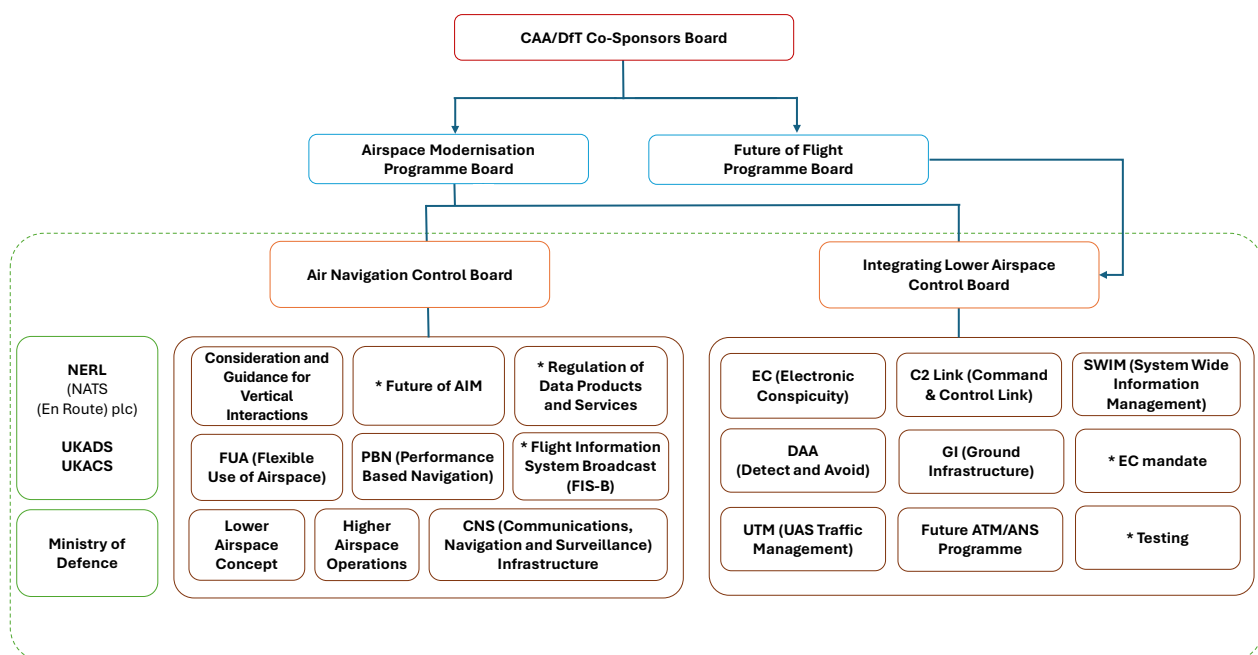
Chapter 1

Deployment overview

- 1.1 This chapter delivers an overview of the deployment and delivery activity that is underway and that is required in the coming years to support delivery of the AMS. It reflects the numerous deliverable activities that are required across the large portfolio of projects.
- 1.2 As with the previous editions, this third edition of the AMS Part 3 is primarily focused on the enabling activity that is led and delivered by the CAA. However, we reference relevant industry support to the AMS and expect this to be a larger part of the Deployment Plan in future years.

Delivery programmes

- 1.3 Figure 1 below presents the current delivery components of the AMS.

**Notes:**

An asterisk signifies that this is a new or emerging activity for this third edition of the AMS Part 3.

A detailed text description of Figure 1 is at Appendix C.

Figure 1: AMS delivery components

Airspace Modernisation Programme Board

- 1.4 The Airspace Modernisation Programme Board comprises different teams and areas of expertise focusing on airspace and associated infrastructure developments to support delivering airspace modernisation where the CAA has the lead.
- 1.5 The Board has representation from the delivery teams who are accountable for some delivery areas of the AMS, and from the Defence Airspace and Air Traffic Management (DAATM) who attend as a key interface between the CAA and the Ministry of Defence (MoD) to ensure alignment and a cooperative approach to airspace.
- 1.6 Within the airspace modernisation portfolio are currently two key programmes of work:
 - 1. Integrating Lower Airspace
 - 2. Air Navigation.

1. Integrating Lower Airspace programme

- 1.7 The Integrating Lower Airspace programme focuses on AMS Delivery Element UK-ABN/4 Integration, with some aspects of Element UK-AM/6 Data Services and Element UK-AM/7 Future Surveillance and Spectrum. The Integrating Lower Airspace programme focuses on delivering aspects of the Future of Flight programme in the short term while also delivering the long-term goals of the AMS.
- 1.8 The Integrating Lower Airspace programme brings together various airspace-related workstreams primarily supporting the CAA Future of Flight programme (see Figure 1 and further detailed at paragraph 1.17). Policies developed provide a level of risk mitigation to enable safe integration of BVLOS Unmanned Aircraft Systems (UAS)¹ in UK lower airspace through a cohesive programme which ensures that they will work effectively both independently and collectively. Delivery of these enabling activities will be iterative, with Concept of Operations (ConOps) and policy concepts developed and then tested through trials and industry engagement to validate them before being updated. To ensure the workstreams are properly aligned, an overarching technical airspace architecture has been developed to set out the constituent components and how they will interact across the complex programme of work.

¹ Remotely piloted aircraft systems (RPAS) may be referred to as unmanned aircraft systems (UAS), unmanned aerial vehicles (UAV), uncrewed aircraft, drones, model aircraft or radio-controlled aircraft. This terminology may change as aircraft capability evolves through technological development such as autonomy. For more information see <https://www.caa.co.uk/drones/>.

2. Air Navigation programme

- 1.9 The Air Navigation programme is focused on delivering the regulatory requirements for the following projects in scope of the AMS: Performance-Based Navigation (PBN), Trajectory-Based Operations (TBO), Communications, Navigation, Surveillance and Spectrum (CNSS), Lower Airspace Concept (LAC), Higher Airspace Operations (HAO), Flexible Use of Airspace (FUA), Consideration and Guidance for Vertical Interactions, future of Aeronautical Information Management (AIM), regulation of data products and services, and Flight Information Service–Broadcast (FIS–B). Some of these elements also sit within the ICAO GANP Information and Operational Threads. To facilitate this work, the Air Navigation Control Board has been established. The Control Board manages the oversight resource allocation, technical direction and delivery approach. The Board acts as a sponsor of project initiation and closure, regularly monitoring the collective progress by means of reporting throughout the project lifecycle. Intended project outcomes include policy updates, guidance material, procedures and publication of concepts.
- 1.10 The Navigation Minimum/Resilient Operational Network (NAV MON/RON) working group, the Future of AIM working group and Regulation of Data Products and Services project have also been formed to help in progressing the AMS. More information on milestones within these programmes is in Chapter 2.

Principal stakeholder delivery plans

UK Future of Flight programme

- 1.11 The CAA, in partnership with the DfT, delivers the UK Future of Flight programme to enable the safe integration of new aviation users into UK airspace. The programme supports innovation in UAS and Advanced Air Mobility (AAM), while maintaining high standards of safety, security and environmental performance.
- 1.12 **Strategic objectives and coordination:** The Future of Flight programme coordinates delivery in partnership with the DfT, UK Research and Innovation's Future Flight Challenge, and industry stakeholders. Since the AMS Part 3 second edition, programme objectives have been refined to reflect updated policy priorities, the evolving BVLOS roadmap, and wider changes in government direction. The programme now focuses on:
- enabling routine BVLOS drone operations for key priority use cases (including NHS, emergency services, infrastructure inspection and commercial delivery), with capability delivered iteratively through to 2027/28
 - establishing by end-2028 the regulatory framework and operational systems required to enable initial commercial passenger AAM (eVTOL) operations in the UK.

- 1.13 **Role within airspace modernisation:** The Future of Flight programme supports development of the policy, regulation and legislative framework required to enable new users to operate in UK airspace. The AMS delivery elements include planning modernised traffic management systems and airspace structures to enable safe integration of new and existing users.
- 1.14 **Integrating Lower Airspace delivery:** The deliverables set out under the Integrating Lower Airspace programme support delivery of routine BVLOS supporting the Future of Flight programme. These represent building blocks that will begin to enable the longer-term ambitions of airspace modernisation.
- 1.15 **Programme integration and governance:** The Integrating Lower Airspace programme within Future of Flight is captured within the AMS Integrating Lower Airspace Control Board. It delivers activities associated with some of the key AMS elements. Bringing these activities together ensures consistent delivery and clear management of dependencies. Funding and resource allocation are managed at portfolio level through Future of Flight. Given the close relationship between the programmes, internal governance structures enable tracking and management of cross-programme dependencies and risks, ensuring alignment with long-term AMS outcomes.
- 1.16 **Delivery initiatives:** The Future of Flight programme was formally established and scaled during 2024. It is delivering iteratively towards routine BVLOS operations and a regulatory framework for commercial AAM through the following initiatives:
- **Specific Operations Risk Assessment (SORA):** The UK launched the world's first digital SORA approval system in April 2025, aligned with international Joint Authorities for Rulemaking on Unmanned Systems (JARUS) standards. Ongoing improvements include training, policy updates, system enhancements and a planned UAS support hub.
 - **RPAS (Remotely Piloted Aircraft System) regulatory framework:** Regulatory changes to the Open and Specific categories came into force on 1 January 2026, including Remote ID standards, UK Class Markings, establishment of Market Surveillance Authority arrangements and Conformity Assessment Bodies.
 - Direct Remote ID enables identification and location broadcasting without internet connectivity.
 - The CAA is designated as Market Surveillance Authority and is on track for full operation by December 2026.
 - **Testing, evaluation and evidence:** The Future of Flight programme is actively working with operators and industry to gather evidence to validate or

amend policy positions, with a dedicated Test and Evaluate function capturing data and informing policy development.

- Four recognised UAS test sites are established in the UK.
- Integration with SORA enables streamlined operational approvals.
- Evidence is fed into the ILA Testing workstream to support iterative policy development.
- **eVTOL / AAM:** Work continues to develop policy, regulation, safety, infrastructure, operations, training, licensing and certification frameworks.
 - A [delivery model](#) was published in September 2025, with a further refresh planned for 2027.
 - A programme of consultations is underway during 2026.
- **Digital Airspace Resilience:** A new programme is being established to enhance the resilience of digital and data-driven airspace-related systems.
 - The **Digital Airspace Resilience (DAR) Programme** is a Future of Flight initiative designed to provide the CAA and its partners with a comprehensive, reliable picture of drone activity across UK airspace. It has been developed in response to the rapid growth in drone operations, increasing numbers of safety and security incidents, fragmented reporting processes and limited visibility of who is operating drones and where they are flying. The programme aims to address these shortcomings by creating a more data-driven approach to understanding risk, improving oversight of uncrewed aviation and supporting the safe integration of drones into the airspace system.
 - To achieve this, DAR will deliver several key capabilities, including identity verification for drone operators, Hybrid Remote ID technology that enables drones to transmit identification and location information, a new process for managing and analysing drone airspace infringements, and a framework for assessing the effectiveness of safety barriers across the drone ecosystem. Together, these measures will provide regulators, law enforcement agencies and industry with more accurate information on drone operators, aircraft and operations, enabling proportionate enforcement, improved safety management and stronger security oversight. DAR is therefore a critical enabler of the wider Future of Flight vision, supporting the transition to routine BVLOS drone operations and more integrated use of UK airspace.
- **Legal and regulatory framework:** The UK Law Commission published its final report on aviation autonomy in May 2026, examining legislative gaps across UAS, AAM and ATM. The work supports development of a robust

regulatory environment that enables innovation while maintaining safety and positions the UK as a global leader in Future of Flight.

1.17 **Enabling activities under Integrating Lower Airspace:** The following activities are delivered under Future of Flight within the Integrating Lower Airspace programme by the programme team, providing critical building blocks for long-term AMS delivery:

- **Electronic Conspicuity (EC):** Standards for how airspace users broadcast their position and receive information about other traffic.
- **EC mandate:** A legislative initiative to require carriage and use of EC equipment meeting defined performance standards, improving visibility, safety and equity across airspace users.
- **Future ATM/ANS:** Encompassing UAS Traffic Management (UTM), Detect and Avoid (DAA), Ground Infrastructure (GI) and Command and Control Link (C2 link), supporting routine BVLOS operations.
- **A Technical Airspace Architecture Concept of Operations** for unmanned operations in UK lower airspace has been developed and [published](#).
- **Testing workstream:** Defines and captures data required to support evidence-based policy iteration, working closely with progressive live testing.
- **System Wide Information Management (SWIM):** Continues to define data requirements for integrated and scalable operations.

1.18 **Portfolio management and governance:** The Future of Flight Portfolio Office provides governance, reporting and planning standards across the programme:

- Projects and programmes report into the Future of Flight Portfolio Board, which in turn reports to the DfT.
- A benefits management workstream, established in March 2026, supports consistent definition, tracking and reporting of programme benefits.

NATS (En Route) plc (NERL)

1.19 **A new approach to modernising airspace design – the UK Airspace Design Service (UKADS):** In 2025 the government [announced](#) that it would reform the UK's approach to modernising airspace by introducing a [UK Airspace Design Service](#) (UKADS), a single guiding mind to deliver the holistic, modernised airspace design envisaged by the AMS. The historic delivery model for airspace change created significant risks to the delivery of airspace modernisation, because no single party was responsible for ensuring that an effective and efficient UK airspace design worked as a holistic system. Instead, individual airports and ANSPs were responsible for taking forward and funding changes to airspace design.

- 1.20 The task of providing the UKADS has been given to NERL through modifications to its [air traffic services licence](#) which took effect in May 2026. UKADS is initially focusing on modernising the complex airspace around London, including any airspace change required for a Heathrow third runway. This involves 11 airports: Biggin Hill, Bournemouth, Farnborough, Gatwick, Heathrow, London City, Luton, RAF Northolt, Southampton, Southend and Stansted.
- 1.21 Subject to the capability and capacity of the UKADS, the DfT and CAA may expand its geographical scope in the future.
- 1.22 **UK Airspace Coordination Service (UKACS):** Where the UKADS is not being provided, NERL is also required by these licence changes to provide a [UK Airspace Coordination Service](#) (UKACS) in respect of airspace change proposals that are strategically important and interdependent (i.e. where the airspace used by neighbouring airports overlaps). This coordination role succeeds that carried out by ACOG, an impartial unit within NERL.² There are currently three geographic 'clusters' totalling seven airports that require coordination: Bristol; Edinburgh and Glasgow; and East Midlands, Leeds Bradford, Liverpool and Manchester.
- 1.23 **NERL's delivery of UKADS and UKACS:** The DfT has published [strategic objectives](#) to which NERL must have due regard in its provision of the UKADS and UKACS. These specify the priorities for the UKADS in the form of delivery focus area(s), currently the London Terminal Control Area (LTMA) region airspace changes, implementing the relevant deployments by 2035. The scope of the UKADS may be expanded in the future, subject to its capability and capacity, through a change to the delivery focus area(s) in the strategic objectives.
- 1.24 The CAA has published [guidance](#) and [requirements](#) to support NERL in meeting its licence obligations to provide the UKADS and UKACS.³
- 1.25 As of summer 2026, residual ACOG functions are being transitioned within NERL to the UKACS, and NERL is finalising the new infrastructure, personnel and organisational structures required to deliver the UKADS function. The UKADS airspace team has been established. An airspace design hub has been built at the NATS Swanwick centre providing rapid prototyping and assessment capabilities. This is in regular use, focusing on Heathrow third-runway concepts development work.

² The obligation on NERL to maintain ACOG as a separate unit and to develop an airspace change masterplan was removed effective May 2026.

³ [CAP 3156 Modernising the way we do airspace design](#) (third edition) explains the full suite of documents that the DfT and CAA have published in support of the changed approach to airspace design, why they are needed, and how they interrelate.

- 1.26 In its role as UKADS provider, NERL commenced engagement with partner airports in the LTMA region in spring 2026. As the first step towards formal agreements with the partner airports, NERL has begun data collection from the previous multiple individual airspace change proposals required to modernise the airspace used by those airports. These proposals will be replaced by a single, new proposal for a network design for the London TMA region. The UKADS, acting collaboratively, is taking on all aspects of the airspace change proposal, except that airports will be responsible for the safety case, implementation of the change (or associated provisions of air traffic services) and potentially some elements of stakeholder consultation and engagement (with the UKADS having overall responsibility).
- 1.27 The remaining terminal airspace redesign programme has made some progress against the continued backdrop of complex challenges. The Scottish TMA successfully concluded the first multi-sponsor coordinated consultation in January 2026. Delays to other clusters such as Manchester and West (Bristol) have continued to be driven by resourcing constraints and evolving stakeholder requirements, affecting the overall programme status.
- 1.28 **Funding of airspace changes:** A new charge on airspace users is funding the UKADS. The new charge is also being used to establish a [UK Airspace Design Support Fund](#) to which [eligible](#) UK airports (those outside the scope of the UKADS) can apply for up to £1 million funding to support their sponsorship of airspace change proposals that enable airspace modernisation. NERL has a function to administer the Airspace Design Support Fund in accordance with eligibility criteria published by the DfT and as directed by the CAA. The CAA began receiving [applications](#) to the fund in May 2026.
- 1.29 **En-route airspace:** NERL is also working to progress the elements of the AMS that lie directly within its area of responsibility. This work is focused on upgrading the technology used to provide existing air navigation services, modernising the airspace for which it is responsible and deploying new capabilities. Current work includes:
- Airspace developments to enable further deployment of free route airspace (FRA) in the upper air. In March 2026, NERL introduced the third deployment of FRA across the southern portion of Prestwick Centre's airspace above Flight Level 255. This change has enabled a greater opportunity for user-preferred trajectories to be flown across the whole of the Scottish and some of the London Flight Information Regions.
 - Progression of its technology transformation programme and confirmation of the deployment strategy for the roll-out into Prestwick upper airspace operations.

- Deployment of new queue management tools to improve airport capacity, resilience and reduce fuel/carbon.
- Continued deployment of flexible use of airspace improvements and modernised data-sharing technology.

1.30 NERL also supports the objectives of the AMS with respect to the introduction of new airspace users. Recent and ongoing work in this area includes:

- Development of potential capabilities that could provide ANSPs and UTM service providers with appropriate aeronautical data and tools to enable airspace access. This service architecture may support a national UK SWIM framework for safe airspace operations and help contribute to the UK-wide airspace integration of existing and new airspace users.
- Support for trials to demonstrate how new airspace users may integrate in a variety of airspace types, to validate the concepts, technology and procedures required for safe integration.

Ministry of Defence (MoD)

- 1.31 The AMS continues to recognise the MoD as a strategic partner in AMS delivery, alongside the DfT and CAA. Integration of defence requirements into the AMS will be achieved through the UK's Joint and Integrated approach to airspace management and the established relationship between the MoD's Defence Airspace and Air Traffic Management (DAATM) team and the CAA.
- 1.32 Military aviation is expected to see increasing use of advanced and autonomous capabilities, including uncrewed combat aircraft and Collaborative Combat Aircraft systems operating alongside crewed platforms. The UK AMS must ensure that airspace and ATM services can safely integrate these capabilities into shared civil-military airspace, supporting secure, scalable, and interoperable operations while maintaining safety, efficiency, and equitable access for all airspace users.
- 1.33 The CAA's Airspace Modernisation team continues to liaise regularly with the MoD, including them in all relevant Boards and Project Working Groups and meeting regularly.
- 1.34 78 Squadron (the RAF's area radar air traffic unit) embedded with NATS at Swanwick has recently added airspace modernisation to its priorities list, demonstrating the level of importance placed on the AMS by the MoD.
- 1.35 As airspace modernisation increasingly relies on digital information exchange and interoperable information services, continued civil–military collaboration is becoming more important than ever. Several future AMS capabilities, including digital datasets, digital Notice to airmen (NOTAM), SWIM and future data provision and consumption arrangements, will require coordinated development

and implementation across both civil and military stakeholders. Through established governance arrangements and joint working groups, the CAA and MoD are working together to ensure that future information services are developed in accordance with the UK's Joint and Integrated approach to airspace management, maintaining interoperability across the aviation system and supporting the safe integration of existing and emerging airspace users. This will help ensure that airspace users can access consistent and trusted information across civil and military environments, supporting safe and effective operational decision-making before and during flight.

- 1.36 Since the second edition of the AMS Part 3, the MoD has begun a study into the modernisation of the UK's Military Low Flying system, which will have relevance for the AMS, particularly the Lower Airspace Concept and integration of new users in lower airspace. As Defence activity includes operations below 500ft, it will likely interact regularly with general and commercial low-level UAS and eVTOL operations.
- 1.37 While acknowledging that integration of emerging technologies will in part be reliant on EC, Defence activity must retain the freedom to operate without restriction in UK airspace. Any future integration requirements must not negatively impact Defence's ability to conduct national security tasking or operational activity, including operations in a contested environment and with current EC methods. Specifically, there may be MoD aircraft, or classes of aircraft, that will be unable to comply with EC requirements. The CAA will continue to champion the requirement for resilience and redundancy and the minimum operational requirement for critical national CNS infrastructure.

Artificial intelligence strategy and Portfolio Hub

- 1.38 Artificial intelligence offers the ability to enhance many aspects of aerospace, including aircraft operations, airports, ground infrastructure, airspace management and consumer services through the automation of complex tasks and functions. The introduction of high levels of autonomy as a result of this automation presents both exciting opportunities and significant risks that require due diligence and careful regulation.
- 1.39 The CAA held its inaugural Strategic Insight Workshop in February 2026, focusing on a wide range of themes and their potential impacts for the industry and the CAA, including the expected and potential uses of artificial intelligence going forward. This event included key stakeholders from industry, MoD and academia. The CAA has published a [summary of insights](#) from the workshop.

Chapter 2

Deployment Plan progress

Introduction

- 2.1 Chapter 2 focuses on recent progress and planned future activity across the airspace modernisation programme. It is intended to provide an up-to-date view of delivery, key developments and forthcoming priorities, rather than repeat information already published in earlier editions of the AMS Part 3.
- 2.2 Previous editions of the AMS Part 3 remain available for review and should be read alongside this edition where additional background, historical context or a detailed record of earlier activity is required. This edition builds upon those publications and reflects the continued evolution of the programme.
- 2.3 To avoid unnecessary duplication, content from previous editions has only been reproduced where needed to support understanding of current activities. Where significant changes have occurred since the publication of the first edition, these are highlighted together with the rationale for the change and any implications for programme delivery.

AMS Delivery Control Boards – enabling activities

Integrating Lower Airspace

- 2.4 The Integrating Lower Airspace Control Board (ILACB) consists of several projects focusing on Future ATM and ANS aspects which incorporate delivery activities required by the AMS to enable near-term Future of Flight programme outcomes with respect to airspace and ATM. The ILACB provides oversight to project activity and is responsible for directing projects in accordance with business priorities and strategic objectives.

Airspace Classification Review



- 2.5 In support of the AMS, the CAA will continue to review and, where necessary, amend airspace structures to ensure that they remain safe, efficient and responsive to the needs of all airspace users. This work will continue in accordance with the new Air Navigation Directions 2026 and supporting guidance, which will provide the framework for prioritising and delivering airspace modernisation activity.

- 2.6 Looking beyond 2030, these activities will form part of a more formalised airspace performance review mechanism, providing a structured approach to assessing whether airspace arrangements continue to meet strategic objectives and deliver the intended operational, environmental and airspace user benefits. This evolution of the review framework will support ongoing modernisation while maintaining alignment with the AMS 2030+ vision and outcomes.
- 2.7 Following the introduction of the new Air Navigation Directions and associated guidance in 2026, a revision to CAP 1991 is expected to be undertaken to ensure the airspace review and sponsorship process remains aligned with the updated policy and regulatory framework. Any future airspace reviews sponsored by the CAA will be conducted in accordance with the revised arrangements and this activity will be captured within the remit of the Air Navigation Control Board.

Electronic Conspicuity (EC)



- 2.8 Electronic Conspicuity (EC) is a core element of the Future ATM/ANS programme, focused on improving the electronic visibility of all airspace users to help enable safe integration of crewed and uncrewed aviation. It underpins multiple other components of the lower airspace ‘stack’, including DAA, UTM, Lost C2 link processes and GI, and is therefore treated as a foundational safety enabler rather than a standalone capability. Current progress reflects a transition from early concept development to a more structured delivery phase. The [Initial EC Technical ConOps](#) setting out nine key positions was consulted on last year, with a [formal response](#) published in March 2026.
- 2.9 In the near term, work is focused on refining the EC ConOps and underlying positions while building the evidence base needed to inform policy decisions. This includes updating the EC ConOps following consultation and further ongoing testing, progressing safety assurance activities, an interim update to CAP 1391 and coordinating closely with live trials to generate real-world performance data. A key dependency is the ability to gather sufficient trial data to inform and validate technical positions and reduce uncertainty ahead of rulemaking. At the same time, a project exploring a UK EC mandate is advancing in parallel, with consultation, options assessment and drafting of the Opinion and Instruction Document forming the core of the legislative development pathway.
- 2.10 Looking out to 2028, the programme shifts into formal rulemaking and implementation. The regulatory changes necessary to implement any EC mandate would be developed in 2026/27, followed by a transition period of approximately two years to allow industry to adapt.

- 2.11 Beyond 2028 and out to 2031, EC transitions from an implemented requirement into a fully embedded component of a more digital, integrated airspace system; the aim of this stage of implementation is fundamentally linked to enabling the DAA concept. Its role becomes less about individual equipage compliance, and more about enabling system-wide functions such as advanced DAA, scalable UTM services, and data-driven airspace management. As policy maturity increases and reliance on airspace structure decreases, EC will act as a primary mitigation supporting routine mixed operations at scale, forming part of the wider ecosystem of digital services (including SWIM and UTM) that enable the long-term AMS vision for 2030 and beyond.

UAS Traffic Management (UTM)



- 2.12 UAS Traffic Management (UTM) is a central pillar of the Future ATM/ANS programme, designed to provide a scalable, digitally enabled approach to managing uncrewed aircraft operations in shared airspace. Its role is to incrementally move beyond traditional air traffic control constructs by enabling exceptions-based approaches to traffic management, where routine operations are managed through automation, data exchange and predefined rules rather than tactical human intervention. Progress to date shows UTM moving from early engagement with potential service providers and conceptual design towards a more structured policy, certification and implementation pathway, with increasing integration with traditional ATM alongside EC, SWIM and GI.
- 2.13 In the immediate future, the programme is focused on consolidating the UTM ConOps, policy framework and supporting initial rulemaking. Initial versions of the ConOps, policy concept and certification approach have been published for consultation, forming the primary mechanism for stakeholder input. At the same time, engagement with industry, particularly prospective UTM service providers, is ongoing to clarify certification requirements and ensure that regulatory approaches are practical and aligned with emerging service models.
- 2.14 Looking ahead to 2028, UTM activity shifts decisively into rulemaking, certification and early operational deployment. Consultation responses are expected to inform submissions to DfT in around 2027, with the aim of legislative changes (Statutory Instrument/Air Navigation Order) around 2028. In parallel, Acceptable Means of Compliance/ Guidance Material is developed and refined, with certification frameworks opening to allow UTM service providers to be formally approved. By this stage, UTM ConOps versions will have matured through multiple iterations and testing phases, and early operational services are

expected to be deployed, supporting increasingly complex and higher-volume BVLOS operations within defined airspace environments.

- 2.15 Beyond 2028 and out to 2031, UTM is expected to evolve into a fully integrated operational system supporting routine, large-scale uncrewed operations across UK airspace. With legislative frameworks in place and certified providers operating, UTM services will increasingly rely on integration with SWIM for data exchange and EC for situational awareness, enabling automated traffic management and dynamic airspace access. As the AMS matures towards 2030 and beyond, UTM becomes a core component of a digitally enabled, highly integrated airspace system, supporting multiple operators, higher densities of traffic and reduced reliance on traditional airspace segregation.

Detect and Avoid (DAA)



- 2.16 Detect and Avoid (DAA) is a core component of the Future ATM/ANS programme, focused on modernising traditional 'see and avoid' principles into a system that enables safe integration of uncrewed aircraft in shared airspace. Its purpose is to provide the technical and procedural capability for UAS to manage separation and collision risk without relying solely on air traffic control or airspace segregation. As such, DAA sits alongside the C2 link, EC and UTM as a key safety enabler, supporting progressively more complex operations and forming part of the potential longer-term shift towards more technology-led risk mitigations.
- 2.17 In the short term, DAA work is centred on developing and refining the policy concept, safety case and supporting technical evidence. Version 2 of the DAA policy concept is under active development, supported by a dedicated technical working group and external engagement with industry stakeholders. Safety assurance remains a major focus, with the first iteration of the safety case and change impact assessments progressing in parallel with policy updates. This phase is also closely tied to the wider testing programme, with DAA requirements being validated through early trial activity and iterative feedback loops, ensuring that policy development is grounded in operational evidence rather than theoretical assumptions.
- 2.18 Looking out to 2028, the programme moves toward consolidation, validation and publication of final policy and implementation artefacts. The DAA policy concept is expected to mature through multiple iterations aligned with wave-based testing with a final policy and supporting safety case targeted for publication by around 2027. During this period, the focus shifts to ensuring that DAA capabilities are

fully integrated with other elements of the system, particularly EC for surveillance inputs and UTM for traffic management, while also embedding requirements into regulatory frameworks, training and operational practices. By this stage, DAA is expected to support more routine BVLOS and mixed-traffic operations, reducing dependence on segregation and enabling increased operational density.

- 2.19 Beyond 2028 and out to 2031, DAA is expected to become a fully embedded capability within a digitally integrated airspace system, supporting scalable and routine operations across a wide range of environments. Rather than being treated as a standalone system, it operates as part of a broader ecosystem, drawing on EC data, supported by SWIM-enabled information exchange, and integrated with UTM services to deliver real-time, automated conflict detection and resolution. As policy maturity increases and reliance on airspace structure decreases, DAA becomes a primary mitigation mechanism, enabling high levels of operational flexibility and complexity in line with the long-term AMS vision for 2030 and beyond.

Atypical Air Environment (AAE)



- 2.20 The Atypical Air Environment (AAE) work supports enabling new and non-traditional operations, particularly uncrewed aircraft, in UK airspace. It focuses on defining how airspace can transition from today's highly structured, segregated environment to one that supports mixed, highly dynamic operations with reduced reliance on airspace restrictions. Early programme work established clear 'airspace scenarios', describing the shift from low-complexity, segregated operations today towards a future where technology (including EC, DAA and UTM) becomes the primary safety enabler, and operators are responsible for managing risk within a more flexible regulatory framework.
- 2.21 In the short term, AAE activity has concentrated on defining those scenarios in practical terms and aligning them with emerging policy across the programme. This includes setting out how operations will evolve across controlled and uncontrolled airspace, how approvals (such as SORA-based) will be applied, and how different levels of integration will be supported. Work has also focused on ensuring that AAE scenarios are used consistently across all projects (EC, DAA, UTM, SWIM, GI), helping to anchor policy development in a common operational context. At this stage, the environment remains largely trial-based and location-specific, with continued reliance on temporary airspace structures and bespoke approvals while evidence is gathered.

- 2.22 Looking out to 2028, AAE evolves from a conceptual framework into an operational reality supported by validated policy and maturing capabilities. As the EC mandate, DAA solutions, UTM services and GI come online, the need for segregated airspace reduces and more routine operations begin to take place in shared environments. Approvals become less location-specific and more standardised, with increasing reliance on organisational approvals and scalable frameworks rather than bespoke permissions. During this phase, AAE is characterised by medium to high levels of integration, where multiple operators can co-exist, and technology provides the primary means of managing risk in many scenarios.
- 2.23 Beyond 2028 and out to 2031, AAE represents the fully realised future operating environment described in the AMS. Airspace becomes far less dependent on structural constraints, with minimal reliance on dedicated volumes or temporary restrictions, and a high degree of operational flexibility across users. Multiple operators – both crewed and uncrewed – routinely share airspace at scale, supported by a mature ecosystem of digital services and safety mitigations. In this end state, AAE is no longer a separate concept but effectively becomes part of the default operating model for lower airspace, where risk management is driven by technology, data and operator responsibility rather than always by pre-defined airspace structures.

Ground Infrastructure (GI)



- 2.24 Ground infrastructure (GI) is a foundational element of the Future ATM/ANS programme, providing the physical and digital sensing layer that underpins situational awareness and surveillance and thereby enhancing EC in lower airspace. It includes technologies such as Automatic Dependent Surveillance–Broadcast (ADS-B) receivers, multilateration and EC beacon concepts, and can enhance the benefits of capabilities like EC and DAA and provide data to UTM. Work to date shows GI transitioning from an early conceptual phase into a ConOps, with technical direction sufficiently mature to support further development. Further testing remains necessary to address challenges related to standards, safety assurance and integration with existing ground-based surveillance infrastructure.
- 2.25 Recent activity has focused on developing and refining the GI ConOps, supported by initial technical validation and targeted testing requirements. Version 1.0 of the ConOps has progressed to targeted industry consultation. Key workstreams include defining receiver standards, validating ADS–B performance

and developing EC beacon and TIS-B (Traffic Information Service–Broadcast) concepts. Additionally, work is underway with Ofcom to authorise the use of 978 MHz for ground-to-air transmissions, which is a key enabler for these concepts, alongside early safety assessments that will feed into a formal safety case. At this stage, GI remains relatively immature compared with other project areas, with gaps in standards, specifications for new technologies, resilience considerations (for example, Positioning, Navigation and Timing (PNT)) and clearly defined regulatory requirements, but with growing confidence in its technical feasibility.

- 2.26 Looking ahead to 2028, GI is expected to move through consultation, safety validation and policy finalisation into early stages of implementation. Key milestones include publication of the ConOps and targeted consultation response in 2026. This will be followed by updated ConOps and safety case outputs, after initial testing and approval for the use of 978 MHz ground-to-air transmissions, alongside an appropriate licensing framework from Ofcom for operators. Final policy is expected by around 2027–2028. During this phase, GI capability will begin to be deployed in support of operational requirements enabling more reliable and scalable surveillance and data-sharing services across lower airspace. It will also increasingly align with other system components, particularly EC and UTM, ensuring that infrastructure supports consistent and interoperable operational performance.
- 2.27 Beyond 2028 and out to 2031, assuming that required infrastructures are both funded and deployed, GI becomes an embedded and integral part of a digitally enabled airspace ecosystem, supporting routine, high-density operations across a wide range of environments. Rather than being seen as standalone infrastructure, it functions as part of a distributed network providing trusted, high-integrity data to operators, service providers and automated systems. Therefore, GI will demonstrate interdependence with existing ATM surveillance infrastructure. As the AMS matures, GI will underpin the transition away from reliance on physical airspace structures toward technology-led risk mitigation, enabling real-time situational awareness and supporting advanced services such as automated traffic management, collaborative decision-making and system-wide optimisation of airspace usage.

Remotely Piloted Aircraft Systems C2 Link



- 2.28 The RPAS Command and Control (C2) Link workstream is a critical enabler within the Future ATM/ANS programme, focused on ensuring that remotely piloted aircraft maintain a secure, reliable and resilient communication link

between the aircraft and its operator. This link is fundamental to safe operation, underpinning command execution, situational awareness and contingency handling (such as lost link procedures, interworking with other systems such as UTM, DAA and EC/GI). As such, C2 Link policy is being developed alongside these other capabilities, with a strong emphasis on safety assurance, cyber resilience and alignment with the SORA framework.

- 2.29 In the near term, progress has centred on developing detailed policy concepts across different Specific Assurance Integrity Levels (SAIL), particularly SAIL 1–5, alongside a complementary ‘lost C2 link’ policy. Initial versions of the policy concept for SAIL 1–3 and supporting Acceptable Means of Compliance/ Guidance Material (AMC/GM) are in development for peer review, supported by a cross-functional technical working group. Engagement with stakeholders and internal policy teams is ongoing to ensure alignment with broader regulatory changes, including SORA and other Future ATM/ANS projects. Early consultation feedback has been broadly positive, and work is progressing toward formal consultation and governance throughout 2026, alongside parallel work to define technical standards (including emerging areas such as cloud-based architectures and cyber considerations).
- 2.30 Looking ahead to 2028, the C2 Link workstream transitions into consolidation, rulemaking alignment and operationalisation. Policy concepts are expected to be fully developed across all relevant SAIL levels (including SAIL 6) by around 2028, with consolidated documentation and updated policy versions published following iterative review and testing. During this phase, C2 requirements will be increasingly embedded within regulatory frameworks, supported by AMC/GM, and interworking with other system components such as DAA, EC, GI, UTM and SWIM. By this stage, C2 performance requirements will support routine BVLOS operations, with clear standards for reliability, availability and contingency handling (including automated fail-safe behaviours and procedures in lost C2 link scenarios).
- 2.31 Beyond 2028 and out to 2031, RPAS C2 Link becomes a mature and integral part of a digitally connected airspace ecosystem, enabling highly automated and scalable operations. Rather than being treated as a standalone technical constraint, it evolves into a networked service capability, supporting dynamic, resilient communication between aircraft, operators and system-level services. This includes greater use of distributed and cloud-based architectures, enhanced cyber security measures and tighter integration with SWIM-enabled data exchange and UTM services. In the long-term AMS vision, robust C2 links are a foundational requirement that enable high-density operations, reduced reliance on direct human control and safe operation across increasingly complex and shared airspace environments. They may also enable additional capabilities such as network-based remote IDs and/or network-based EC.

System Wide Information Management (SWIM)



- 2.32 System Wide Information Management (SWIM) provides the standards, infrastructure and governance framework that enables the discoverability, accessibility and interoperability of accurate, timely aviation data across the whole airspace system. It ensures that the right information is available to the right user, in the right format, at the right time, supporting more effective decision-making and improved situational awareness across the aviation ecosystem.
- 2.33 As aviation continues to evolve, with increasing traffic levels, the integration of uncrewed and autonomous aircraft, and greater expectations around efficiency and environmental performance, access to reliable and timely data is becoming increasingly critical. SWIM underpins this transition by enabling a modern, data-driven approach to airspace management, supporting a range of services including air traffic management, flight planning and optimisation, aerodrome operations, meteorological services and the safe integration of new airspace users.
- 2.34 The CAA is progressing SWIM as a key enabler of the AMS, ensuring alignment with international developments and working closely with ICAO and other global partners to maintain interoperability with wider air traffic management systems. Significant progress has been made in developing the foundational components of SWIM, particularly in relation to uncrewed operations. The first version of the SWIM artefacts, including the Implementation Framework, Technical Architecture and Concept of Operations, has now been completed. These have been aligned with wider programmes such as UTM and Common Information Service Provider/ Discovery and Synchronisation Service (CISP/DSS), and have undergone extensive technical review. The cross-CAA Solution Architecture Group exists to technically oversee, guide and assure across all projects within the Future ATM/ANS programme.
- 2.35 In parallel, a structured governance and engagement approach has been established. SWIM materials have been successfully presented through the relevant governance forums, securing agreement on the emerging regulatory approach and providing stakeholders with early visibility of direction and intent. Engagement with ICAO panels and working groups has ensured that the UK remains aligned with the evolving global SWIM framework, while also contributing to international thinking, particularly in relation to uncrewed operations.

- 2.36 Work has also been undertaken to improve communication and stakeholder awareness. This includes the development of a SWIM industry newsletter, alongside a coordinated programme of meetings and governance activity across the various SWIM workstreams. High-level design decisions, dependencies and next steps for uncrewed SWIM have been defined and shared, supporting a more consistent understanding across stakeholders.
- 2.37 From a programme delivery perspective, all key outcomes for the most recent reporting period have been achieved, including progress across uncrewed SWIM, CISP, policy and regulation, and the future development of SWIM, within a wider digital and data transformation context. A formal handover to the new SWIM Programme Manager has also been completed to ensure continuity.
- 2.38 Current activity is focused on maturing and formalising the initial SWIM artefacts and ensuring they progress effectively through governance. This includes sequencing SWIM documentation alongside wider Future ATM/ANS deliverables to maintain alignment across programmes.
- 2.39 Further work is underway to define the appropriate rulemaking approach for SWIM in the UK. This includes consideration of how best to embed SWIM requirements within existing legislative frameworks, providing flexibility while ensuring compliance with international expectations.
- 2.40 Technical work is continuing to develop more detailed integration scenarios, covering both crewed and uncrewed operations, and helping to define how SWIM will function in practice across the system. Engagement with policy teams across the CAA is ongoing to support upcoming governance decisions, while alignment with ICAO remains a priority, particularly in relation to expectations for uncrewed aviation.
- 2.41 In the immediate future, the focus will be on initiating the formal programme for SWIM in crewed operations, building on the foundations established through uncrewed work. This will include the development of a clear UK vision, expected by October 2026, setting out the challenges, opportunities and proposed approach to SWIM implementation, including associated rulemaking considerations. SWIM artefacts will continue to move through governance, supported by targeted engagement with policy teams and wider stakeholders. Communication will be strengthened through the publication of the SWIM newsletter and associated consultation activity.
- 2.42 Looking further ahead, by 2028, industry collaboration on SWIM, particularly in support of uncrewed operations, is expected to be well established, with implementation activity underway. SWIM artefacts will continue to evolve to incorporate more advanced integration and standardisation requirements, and industry will begin to deliver SWIM-compliant services as part of a progressively maturing ecosystem.

- 2.43 In the longer term, through to 2031, SWIM will expand to fully support crewed operations, alongside continued growth in digital and data capabilities. This will include the development of supporting functions such as cyber security, conformance monitoring and data governance, ensuring that SWIM remains a robust and scalable foundation for the future UK airspace system.

Air Navigation

- 2.44 The Air Navigation Control Board (ANCB) acts as the central governance and assurance body for the delivery of the AMS within the CAA, overseeing progress across key programmes such as PBN, LAC, CNS infrastructure, AIM and future operational concepts. Its remit is to review performance, risks, dependencies and delivery confidence, ensuring that workstreams are aligned to strategic objectives and that issues are escalated appropriately to higher governance forums. The ANCB operates through monthly reporting cycles, where project leads present status (RAG), milestones and actions, supported by a structured RAID (Risks, Assumptions, Issues, Dependencies) framework. It provides both assurance and challenge, identifying systemic risks (such as funding gaps, external dependencies or policy uncertainty) and directing follow-up actions, but does not itself deliver programmes. Instead, it functions as a coordination and control mechanism to maintain coherence, prioritisation and transparency across a highly interdependent portfolio.

Lower Airspace Concept



- 2.45 The Lower Airspace Concept (LAC) within the AMS aims to create a more integrated and efficient airspace environment by better accommodating commercial aviation, general aviation, uncrewed aircraft systems and other emerging airspace users while maintaining safety and access for all. The LAC is an overarching descriptor for several projects delivering: alignment of Flight Information Service (FIS) arrangements, aerodrome airspace structures (controlled vs uncontrolled), Transponder Mandatory Zones (TMZ), the Lower Airspace Service (LAS) and UTM. The LAC work is intrinsically linked to other modernisation activities such as EC, GI, SWIM, Traffic Information Service–Broadcast (TIS–B) and Flight Information Service–Broadcast (FIS–B). It seeks to upgrade the current Class G airspace and the Control Zones and Control Areas (CTRs/CTAs) of aerodromes within Class G which lie isolated and unconnected, with a view to a more connected airspace structure supporting flexible airspace management, improved connectivity and reduced environmental impact.

- 2.46 The CAA continued internal scoping and engagement with the DfT, to identify sustainable funding and delivery models with respect to new and existing users, which may eventually include the LAS within its scope. The LAC has made limited but structured progress due to resource reprioritisation and inter-programme dependencies, transitioning from an initially ambitious delivery programme into a constrained policy and concept-development activity. By mid-2025, it became clear that LAC was not deliverable under existing conditions. Work on LAC has therefore been scaled back to allow interdependent programmes to mature. Since then, progress has focused on scoping, research and development of guidance and concept papers, including work on airspace structures and FIS alignment. While these activities have improved clarity around what LAC should deliver, core implementation enablers – in particular funding, delivery capacity, operational frameworks and service models – remain unresolved, meaning progress is largely conceptual rather than operational.
- 2.47 Near-term efforts are centred on refining the policy and concept baseline. Beyond this, the logical next steps require moving from concept to execution by establishing a credible delivery model, including defining who leads airspace change (state vs industry), continuing discussion on charging and funding, and how supporting capabilities are introduced. Without these decisions, LAC risks remaining in a perpetual design phase rather than transitioning to implementation.
- 2.48 The most significant issues are the absence of a sustainable funding model, lack of a state airspace change proposal delivery capacity, and continued dependency on wider programme elements such as NAV MON, CNS infrastructure, and FIS transformation. These are compounded by policy uncertainty around the future model for lower airspace services (such as centralised vs distributed provision) and resource constraints affecting key enablers.
- 2.49 The holistic LAC vision is to establish a coordinated lower airspace ecosystem that brings together airspace design, services, technology, regulation and operations to support the safe and efficient integration of all current and future airspace users.
- 2.50 Deliverables, particularly those enabling BVLOS operations, are progressing at pace, supported by focused funding, innovation activity and regulatory prioritisation. This progress represents an important step forward for the UK's future airspace ecosystem and demonstrates the value of coordinated investment and clear delivery focus.
- 2.51 To fully realise these benefits at a system level, however, complementary progress across the broader LAC programme is also required. At present, much of the required work has been paused because of resource constraints and reprioritisation.

- 2.52 Increased momentum and resourcing in areas such as airspace design, service integration and cross-user operating frameworks will help ensure that emerging capabilities can be deployed within a coherent, scalable and sustainable airspace environment. It is recognised that maintaining alignment between capability delivery and the wider airspace modernisation framework is essential to achieving the objectives of the AMS. This will continue to be monitored, reported and managed through the established governance framework.

ICAO FIS Alignment Project

- 2.53 The ICAO FIS Alignment Project is developing a UK framework for developing updated UK policy to ensure better alignment of UK FIS provision with ICAO provisions and which will support the modernisation of lower airspace. It is currently focused on policy development, stakeholder engagement and concept refinement.
- 2.54 Recent work on ICAO FIS within the ANCB/AMS portfolio has focused on developing a UK concept aligned with ICAO FIS provisions and understanding how these could operate within lower airspace. Activity during 2025 included technical solution development, safety assessments, stakeholder engagement and the production of alignment material to establish a future service model.
- 2.55 In the medium term (2026–2028), the priority is expected to be policy and framework development rather than operational deployment. This includes refining the operational concept, developing guidance and recommendations, undertaking consultation with industry stakeholders and progressing the safety case required to support implementation.
- 2.56 By the latter part of the decade, the initial deployment concept for delivery of improved UK alignment with ICAO FIS provisions should be achieved, provided key dependencies have been resolved. This will require integration of FIS within wider lower airspace and airspace modernisation initiatives, supported by CNS capabilities, digital information services and NAV-MON resilience arrangements. Success will depend on securing funding, establishing sustainable delivery models and providing clarity on organisational responsibilities and service ownership.
- 2.57 Looking towards 2031 and beyond, ICAO-aligned FIS shall become a core element of a modern, digitally enabled lower airspace environment. In this future state, FIS would be supported by enhanced digital tools, which should, in turn, improve situational awareness and integration with wider ATM information services such as SWIM and digital AIM.

Flight Information Service–Broadcast (FIS–B)

- 2.58 The implementation of a UK Flight Information Service–Broadcast (FIS–B) is aligned with the strategic objectives of the AMS and the ICAO GANP. It is

intended to complement the provision of the UK Flight Information Service (UK Reg (EU) No 923/2012, the UK Standardised Rules of the Air – SERA, Annex I, Section 9 refers).

- 2.59 FIS–B will be a broadcast service transmitting meteorological and aeronautical information via 978 MHz UAT (Universal Access Transceiver) that can be received by aircraft equipped with a suitable device for receiving data over UAT and a means of displaying the information. As it is intended that FIS–B information will be transmitted via UAT, a key dependency for implementing the service is to obtain Ofcom licensing of the 978 MHz UAT frequency for ground–air transmissions.
- 2.60 In addition to working with Ofcom on the future licensing of UAT for ground–air transmissions, progress to date on developing a FIS–B within the ANCB portfolio has been confined to exploratory and governance-level work. Work has focused on scoping and feasibility issues, including consideration of UK national coverage, provision of the service by a single CAA-certificated ANSP, and the use of ground infrastructure that may, in the future, be utilised to provide both a FIS–B and a TIS–B. In parallel with the work to establish FIS–B, consideration will also be given to the specifications for UAT–In devices that would be deemed suitable to receive a FIS–B service, such as ADS–B devices, and the cockpit applications necessary to display the broadcast information. However, at present many technical, logistical and regulatory questions remain unanswered. As a result, the FIS–B project has not yet progressed to a defined concept of operations or delivery model, and remains at an early maturity level compared with other AMS components.
- 2.61 Up to the late 2020s, activity is expected to remain focused on definition and positioning and enabling policy considerations, rather than implementation. Work includes clarifying market structure, regulatory approach and potential service provision models. Continued engagement with key stakeholders in the applicable sectors will continue in parallel; these stakeholders including service provision, airspace users and application providers (both integrated (certified) applications on aircraft and, potentially, via carry-on, uncertified and unregulated devices). Like the wider FIS transformation and LAC work, FIS–B progress is constrained by similar systemic issues, particularly lack of resourcing, absence of a delivery model and unresolved policy decisions around lower airspace services. In this period, outputs are therefore likely to be limited to options analysis, stakeholder alignment and early concept development, rather than operational deployment.
- 2.62 By the early 2030s, if dependencies are resolved, a UK national FIS–B could be implemented operationally. FIS–B has the potential to form part of a digitally enabled FIS environment positioning FIS–B as an enabler of enhanced pilot situational awareness in lower airspace. This would complement the development of a digitally enabled FIS environment, digital AIM, supporting NAV

MON resilience, and evolving surveillance capabilities. However, delivery remains highly contingent on resolution of foundational issues, including who provides the service, how it is funded and how it integrates with existing FIS/FISO (Flight Information Service Officer) functions. Without progress in these areas, FIS-B risks remaining at the conceptual stage rather than an operational national service delivering potentially significant safety and efficiency benefits to a broad range of airspace users.

Performance Based Navigation (PBN)



- 2.63 The Performance Based Navigation (PBN) workstream within the AMS focuses on establishing a modern UK regulatory and policy framework, including updating legislation, guidance material and airspace design standards.
- 2.64 By the late 2020s, the programme is expected to provide the regulatory foundation for industry-led deployment of PBN procedures across UK airspace, supporting wider airspace modernisation, operational efficiency and environmental improvements. Integration with future concepts such as AAM and TBO will need to be explored and confirmed.
- 2.65 PBN remains one of the most stable and consistently progressing elements within the ANCB portfolio, with progress driven primarily through policy and regulatory development rather than operational deployment. Throughout 2025–2026, activity has focused on replacing legacy EU-derived regulations, updating key guidance material and establishing a clear UK-specific PBN framework. Although delivery has remained on track, progress is dependent on external factors such as DfT legislative timelines and related programme dependencies.
- 2.66 Between 2026 and 2028, the emphasis shifts towards completing the new regulatory framework, publishing supporting guidance and compliance material, and embedding PBN requirements into UK airspace design processes. Additional policy initiatives, including vertiport-related concepts, support this transition, but the overall focus remains on creating the enabling framework rather than delivering direct operational change.
- 2.67 From around 2028 onwards, PBN is expected to move from regulatory development into operational enablement, providing the foundation for industry-led deployment across airspace redesign programmes and wider modernisation activities. The extent and pace of implementation will depend on the delivery of airspace change programmes, CNS infrastructure readiness, funding and industry capability.

- 2.68 Looking towards 2031, PBN is expected to be an established component of the UK airspace system, supporting performance-based operations across terminal, en-route and emerging environments. Future developments are likely to focus on more advanced navigation concepts and continued refinement of operational practices, with progress increasingly linked to international standards, technology evolution and wider airspace modernisation initiatives. Overall, PBN represents a coherent, low-risk and steadily advancing workstream that enables broader modernisation outcomes. PBN is a complex concept that has revolutionised aircraft navigation since its adoption. It is also one of the enablers to achieve TBO.

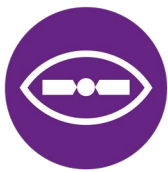
Flexible Use of Airspace



- 2.69 The Flexible Use of Airspace (FUA) work has continued to make steady and relatively low-risk progress, remaining one of the more stable elements of the AMS portfolio. The programme has successfully completed key foundational activities, including the publication of updated safety buffer policy and the development of Variable Profile Areas (VPAs), which introduce more flexible and dynamic allocation of airspace to support future TBO. By late 2025, work on VPAs was approaching completion, with supporting policy updates and amendments to CAP 740 being developed to embed the concept into normal UK airspace management practice. Overall, FUA has maintained a positive delivery trajectory, reflecting the fact that much of the work is within the CAA's control and can be progressed through policy and operational development rather than large-scale infrastructure deployment.
- 2.70 The next phase of FUA focuses on moving beyond policy development and into the gradual implementation of more advanced flexible airspace concepts. This includes embedding VPA within routine airspace management processes and developing the foundations for Dynamic Mobile Areas (DMAs), which are intended to support more responsive and adaptive use of airspace in the future. Work will continue through dedicated governance and coordination groups to refine operational procedures, safety assurance mechanisms and supporting tools. Longer term, FUA concepts are expected to contribute to a more trajectory-based operating environment, enabling greater integration between conventional aviation, military operations, AAM, BVLOS drones and other emerging airspace users.
- 2.71 The principal challenges facing FUA are not immediate delivery issues but rather its dependence on broader modernisation enablers. Advanced concepts such as DMA rely on the development of capabilities including TBO, SWIM-enabled

information exchange, digital flight data and wider CNS modernisation. Consequently, while the FUA programme itself is progressing well, many of its most ambitious benefits cannot be realised until other AMS workstreams mature. There is also a risk that increasing demand from Future of Flight and BVLOS operations places pressure on existing airspace management arrangements before the full suite of FUA tools and supporting technologies is available. As a result, maintaining alignment between FUA, CNS, SWIM, LAC and Future of Flight programmes will be essential if the UK is to achieve the flexible, integrated and efficient airspace model envisaged by the AMS.

CNS infrastructure



- 2.72 As a key enabler, CNS (Communications, Navigation and Surveillance) infrastructure includes improved navigation resilience, expanded digital communications capabilities and surveillance supporting both conventional and emerging airspace users. Progress on CNS infrastructure within the ANCB programme is characterised by steady policy and technical groundwork but limited delivery of tangible capability given the long-term nature of these aspects.
- 2.73 Across 2025–2026, CNS activity has remained largely foundational, progressing in parallel across communications, navigation and surveillance. System definition is required and has key dependencies on ICAO standards, DfT decisions and NATS implementation. As a result, CNS is progressing but remains constrained by definition gaps, resource limitations and external dependency, rather than by internal delivery issues.
- 2.74 In the near to medium term, CNS activity is focused on delivering the foundational policies, frameworks, technical standards and infrastructure requirements needed to support future airspace modernisation. Navigation work is currently centred on assessing infrastructure requirements to improve network resilience. (The following section provides further detail on this activity.) Communications work is focused on developing performance-based frameworks aligned with ICAO SARPs, ensuring the UK is well positioned to adopt emerging capabilities such as advanced datalink (LDACS) and enhanced data communications as international standards mature.
- 2.75 Surveillance activity is progressing through a growing programme of policy and standards development, supported by active engagement with ICAO and wider international partners, including representation through the Chair of the ICAO Surveillance Panel. Key areas of focus include enabling the use of ADS–B for air traffic services by translating ICAO concepts into practical implementation,

working closely with initiatives such as the BVLOS Facilitation Team, alongside the development of policy relating to 24-bit aircraft address management, multilateration (MLAT) and ADS-B interoperability across different technologies. While balancing international standards with evolving industry requirements continues to present challenges, significant progress is being made across these areas.

- 2.76 Resourcing has increased substantially in recent years to support the expanding demands of the AMS, enabling a broader programme of work across CNS. While competing priorities continue to influence the pace of activities such as CAP 670 review and update, the document remains an important component of the UK's technical regulatory framework. Work on emerging sectors, including High Altitude Platform Systems (HAPS), is also continuing, recognising the practical limitations imposed by current surveillance technologies while monitoring developments that may enable future solutions.
- 2.77 Across this period, CNS activity will primarily deliver the policy, regulatory and technical foundations necessary to support future operational capabilities and provide a clear pathway for their implementation across the aviation system.
- 2.78 By the end of this decade, new CNS capabilities will transition from definition into initial implementation and integration phases. Communications capability via digital datalink services continues to increase in scale of use. Deployment benefits will still depend on aircraft equipage and international alignment. Surveillance will increasingly support new entrants (such as UAS and AAM) and integration into a more digital ATM environment. Success in this area is highly contingent on resolving earlier blockers, for instance, clear national requirements, funding models and ensuring industry delivery capability, meaning CNS may still be partially implemented rather than fully operational.
- 2.79 Looking towards 2031, CNS infrastructure is expected to underpin a modernised, performance-based ATM environment, supporting PBN operations, digital information exchange (SWIM) and more flexible airspace use. However, most major CNS capabilities, such as LDACS, satellite augmentation (SBAS/GBAS) and surveillance, sit on longer-term horizons (often 2030+) and remain dependent on ICAO standards and industry readiness.

Minimum Operational Network and Resilient Operating Networks (MON/RON)



- 2.80 The AMS identifies the development of a Minimum Operational Network (MON) as a key enabler of resilience.

- 2.81 MON is the minimum suite of conventional CNS infrastructure retained to ensure the safe continuation of air navigation services during the loss or degradation of Global Navigation Satellite System (GNSS) signals. The Resilient Operating Network (RON) is the wider operational framework that enables the continued provision of air navigation services during disruptions by combining resilient infrastructure, contingency procedures and recovery arrangements. In this framework, the MON represents a core technical element of the RON, providing essential capabilities that support operational continuity and safety.
- 2.82 The MON provides a minimum terrestrial navigation infrastructure to ensure continuity of ATM/ANS in the event of degradation or loss of GNSS capability. The MON supports continued safe operations, albeit at a reduced level of service, and forms an essential part of the UK's navigation resilience framework.
- 2.83 Governance has been established through the creation of a Navigation MON working group under the ANCB. The group currently brings together the CAA, ANSPs (including NATS) and the MoD. Wider stakeholder involvement will follow in due course.
- 2.84 A UK NAV-MON concept has been defined, identifying the MON as a terrestrial infrastructure supporting GNSS-based PBN operations to certain aerodromes and areas. Initial MON objectives are to support aircraft navigation in UK airspace for manned aircraft.
- 2.85 Initial technical design is being developed, based on a rationalised DVOR (Doppler VHF Omnidirectional Radio Range) network supporting both PBN and non-PBN operations. This, together with an optimised DME (Distance Measuring Equipment) network, will support RNAV 5 and RNAV 1 PBN specifications. Coverage modelling has identified both areas considered currently with sufficient support capability, and those where gaps exist requiring further development.
- 2.86 Initial operational concepts for GNSS degradation scenarios have been identified, including continued RNAV1 operations where supported, reversion to conventional navigation and approach procedures, and the application of reduced traffic levels where necessary.
- 2.87 Early stakeholder engagement has been conducted with NATS and the MoD, with plans to expand engagement across industry and with international partners. A draft UK NAV-MON proposal has been developed, outlining infrastructure concepts, operational considerations and key policy issues.
- 2.88 Work to 2028 will focus on the transition from concept development to decision making and defined implementation planning. This will include a directive of the target level of service, including coverage, redundancy and operational performance assumptions. A finalised infrastructure design will be developed, encompassing the configuration of the DVOR network and the optimisation of the DME network, together with the identification and integration of any additional

sites required to support the augmented network. A supporting regulatory and policy framework will be established, defining requirements for ANSPs, aerodromes and aircraft operators.

- 2.89 MON capability will be integrated with airspace modernisation programmes, including future airspace implementation activities, air traffic control procedures and contingency operations. In addition, engagement will be expanded to include airlines, general aviation, aerodromes and international stakeholders, including consideration of cross-border interoperability.
- 2.90 The UK aims to deliver a fully operational MON/RON capability. This will include implementation of the optimised and augmented DME network and rationalised DVOR infrastructure, fully integrated into UK ATM operations and air traffic control systems. Ongoing monitoring and assurance will be established to ensure the performance and resilience of the MON/RON.
- 2.91 The MON/RON concept will be extended in a future phase to consider emerging airspace users, including RPAS and AAM operations. The role of alternative positioning, navigation and timing technologies will be evaluated to enhance long-term resilience. The UK will also maintain alignment with international developments to ensure interoperability and consistency with ICAO and European frameworks.
- 2.92 Key steps to be completed under this workstream over the next few years are:
- by June 2026, governance, strategic definition and initial proposed designs have been established
 - by 2028, requirements, infrastructure design and regulatory frameworks will be agreed
 - some time after 2031, a fully operational and integrated MON/RON capability will be put in place to support UK aviation resilience.
- 2.93 This section reflects the MON/RON activity undertaken and planned within the timescales of the AMS Part 3 Edition 3 publication, up to April 2026. At the time of publication (September 2026), it is recognised that the strategic focus is continuing to evolve from MON towards RON, reflecting increasing national, regional and global interest in this area and the growing importance of associated capabilities.
- 2.94 As policies, standards and operational requirements mature, clearer direction is expected from UK Government, regulatory, regional and international bodies. This is likely to result in the further prioritisation of MON/RON-related activities to align with emerging strategic objectives. Consequently, some work originally identified as MON activity may transition into RON-focused programmes, while other initiatives may be accelerated in response to evolving priorities. Future

delivery timescales and resource allocation will therefore be shaped by these developing requirements and the priority they are afforded within the wider aviation and airspace modernisation landscape.

Environmental sustainability



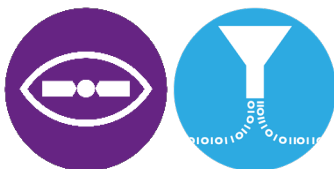
- 2.95 The CAA published a refreshed [sustainability strategy](#) in May 2026. The AMS and its objectives are a key part of the strategy to meet our 2050 net zero obligations. Improved efficiencies in airspace have the potential to help negate or reduces emission increases from growth.
- 2.96 At the present time, the areas of focus for aviation activities related to environmental sustainability are climate impacts, public health including local impacts and resilience to climate change. The CAA is engaging with AMS partner organisations, industry and academia, and plans to conduct outreach with environmental stakeholder communities to explain the approach.
- 2.97 We are recommencing work on the AMS fourth objective on environmental sustainability to embed sustainability principles through all airspace modernisation activities. We recognise that airspace modernisation is a potential lever for operational efficiencies to help the sector realise sustainability benefits.
- 2.98 We have made progress to develop how to apply the AMS fourth objective and define its scope and applicability across the full breadth of the AMS. This has included exploring the subject in more detail with the AMS delivery partners, DfT and the CAA sustainability team.
- 2.99 Together these organisations have sought to identify current best practice in AMS activities and assess the implications of legislation, guidance and directions that currently apply against the delivery of the AMS, as identified in AMS Part 1.
- 2.100 The application of the AMS fourth objective will be driven in large part by the requirements set out by government. Consideration of growth, increases in aviation activity and environmental factors will be made in accordance with this UK government policy and direction. The AMS must remain cognisant of the evolving external environment and the focus on environmental sustainability both within aviation and more generally. UK growth and airport expansion plans as outlined in Chapter 1 must also be considered.
- 2.101 We expect that the approach to the fourth objective will continue to evolve alongside the requirements set by government, and as the scientific basis for monitoring, mitigation and other airspace and aviation-related sustainability

topics (for example, non-CO₂ emissions and adaptation) develops. Any update on the fourth objective will be outlined in the next iteration of the AMS.

- 2.102 Environmental sustainability has been a key focus of research and development funding applications from the AMS Support Fund (see below). A focused call for environmental proposals was made during 2024. Examples of projects underway seeking to show the benefits that can be achieved through airspace modernisation are:
- fair and equitable distribution of noise
 - fuel-efficient delay absorption.
- 2.103 A targeted round of the AMS Support Fund to support work that will improve understanding of public attitudes to noise from emerging BVLOS drone operations was initiated in April 2026.
- 2.104 From 2026, a planned iteration of AMS Parts 1 and 2 will ensure alignment with any new environmental sustainability elements of the GANP and Long-Term Aspirational Goal that are published by ICAO, alongside any new UK-specific considerations such as the UK's 2050 net zero target and any cross-transportation activities required by government.

New and emerging strands

Future of AIM



- 2.105 Future aeronautical information exchange is a foundational enabler of airspace modernisation. The transition from legacy products to interoperable information services will support increasingly integrated, automated and digital airspace operations, enabling both existing and emerging airspace users easy access to relevant aeronautical information.
- 2.106 Significant progress has already been made through the introduction of ICAO digital datasets and preparation for the UK's transition to the enhanced European AIS Database Service (eEAD). Current priorities include implementation of digital NOTAM, elements of Airport Mapping Database (AMDB), electronic charts and the identification of any new user needs that must be met by AIM information services. Longer-term activities include full transition from traditional aeronautical information products towards interoperable information services and the development of future solutions for the provision and consumption of aeronautical information to support operational decision making.

- 2.107 Future aeronautical information exchange is no longer solely an information domain initiative. It is a critical enabler of the safe integration of both existing and emerging airspace users across the ATM environment, supporting other GANP and AMS objectives such as TBO and Flight and Flow Information for a Collaborative Environment (FF-ICE). Every modernisation capability ultimately relies on the right information being available in the right place at the right time. Aeronautical information provides the operational context that enables every current and future flight to take place.
- 2.108 The long-term objective of these activities is to ensure that airspace users no longer need to search across multiple publications, products and information sources to obtain the information required to safely plan and conduct a flight. Instead, aeronautical information will be made available through information services provided at the State level, enabling systems and applications to provide relevant information when and where it is needed.
- 2.109 In practical terms, this will support improved situational awareness, safer and more efficient pre-flight planning and in-flight decision making, and greater confidence that the information being used is up to date, complete and derived from an authoritative source. As aviation becomes increasingly digital and automated, future aeronautical information services will provide the information foundations necessary to support both existing and emerging airspace users operating within an integrated airspace environment.

Future of AIM for lower airspace

- 2.110 It is also the CAA's intention to support the future of AIM for lower airspace, ensuring that the benefits of digital transformation are realised across the full range of lower-airspace users. Current activities include implementation of electronic VFR (Visual Flight Rules) charts, retirement of paper VFR charts, establishing the definition of aeronautical significance and associated mechanisms to provide and maintain aeronautical information relevant to lower airspace users. This work aims to ensure that future AIM products and services remain accessible, relevant and interoperable for all users.

Regulation of data products and services

- 2.111 The transition to an AIM information services environment supporting future aircraft operations naturally brings increased focus on confidence in the downstream data chain. The CAA, as the competent authority for Data Services (DAT) providers, is currently implementing the regulatory framework, certification arrangements and oversight processes necessary to support both existing and future data services providers.
- 2.112 This includes arrangements for UK-certified providers, recognition of certification issued by other competent authorities, and consideration of future data providers supporting future operations and, in particular, new airspace users. Together,

these activities will provide the regulatory foundations required to support trusted digital data exchange and information services.

Joint and integrated approach to aeronautical information

- 2.113 Delivery of the future aeronautical information exchange vision will require continued collaboration between civil and military aeronautical information stakeholders. There are several areas where a joint and integrated approach to aeronautical information will be essential, including the use of the Aeronautical Information Exchange Model, digital NOTAM implementation, migration to eEAD and the provision of AIM information services for all airspace users.
- 2.114 Civil and military stakeholders are committed to delivering a joint AIM roadmap to identify dependencies, opportunities for collaboration and areas requiring aligned implementation activities. This work will help ensure that civil and military aeronautical information services continue to evolve together, supporting interoperability, data quality and information availability for all airspace users, while contributing to the wider AMS objective of an integrated airspace environment.

Electronic Conspicuity (EC) mandate



- 2.115 The EC mandate is a key policy initiative within the Future ATM/ANS programme, aimed at making EC equipage a regulatory requirement to improve visibility and safety and to maintain equitable access to airspace for all users. The work has moved from conceptual policy development into a structured proposal for rulemaking and delivery, following provisional endorsement from the DfT on the preferred implementation approach. Current progress reflects a strong focus on building the legislative case, aligning operational and technical considerations, establishing governance, and designing effective stakeholder engagement to support delivery and overall implementation.
- 2.116 A critical next step is the public consultation, which launched in July 2026, seeking stakeholder input on the preferred implementation approach. This follows a period of targeted pre-consultation engagement and builds on the earlier consultation of the [EC – Initial Technical ConOps](#) and its [published response](#). The EC mandate consultation will be a key decision point, informing final policy positions, legislative drafting and implementation planning. Subject to consultation outcomes and legislative timelines, the programme anticipates a transition period beginning in 2027, with the EC mandate formally coming into force by the end of 2028, marking a significant milestone in the delivery of the AMS.

Resilient PNT



- 2.117 The Positioning, Navigation and Timing (PNT) work has evolved significantly from a traditional focus on GNSS-enabled navigation towards a broader navigation resilience agenda. Initial activity concentrated on understanding the extent of aviation's dependence on GNSS and the risks associated with interference, jamming and spoofing. More recently, the work has expanded to include the development of resilient PNT policies for RPAS/UAS operations, assessment of GNSS vulnerabilities and alignment with wider AMS initiatives such as NAV-MON, Satellite-Based Augmentation System (SBAS) and future CNS infrastructure. The discovery phase of the Resilient PNT programme identified substantial exposure to GNSS disruption and resulted in recommendations covering policy, monitoring, reporting, alternative PNT technologies and international standards engagement. The work has therefore moved beyond identifying the problem to defining how resilience can be built into future aviation systems.
- 2.118 The DfT is reviewing the case for rejoining the European Geostationary Navigation Overlay Service (EGNOS). The UK lost access to the EGNOS system when it left the EU in 2021. Since then, no SBAS capability has been in place across the UK. For aviation, this has resulted in a reduction in landing capability at some UK airports and hospital landing sites. EGNOS is a European SBAS that improves the accuracy, reliability and integrity of GPS signals across Europe. It enables high-precision positioning for safety-critical transport operations such as aircraft landing and maritime navigation by providing corrected, real-time data. For aviation, EGNOS provides validated GPS signals to enable more precise and accurate satellite-based approaches, resulting in lower landing minima (i.e. decision height). This enables greater operational flexibility during inclement weather conditions (i.e. low cloud base). The benefits and use of EGNOS will extend further than conventional aviation and may include new and innovative aviation platforms (UAS, eVTOLs), maritime and rail.
- 2.119 Over the medium term, the focus is on establishing the policy, regulatory and technical foundations required for resilient PNT across all airspace users. This includes embedding explicit PNT requirements within UK SORA and other regulatory frameworks, improving monitoring and reporting of GNSS interference events, and developing a clearer understanding of operational resilience requirements. A key area of activity is the assessment of non-GNSS alternatives, including technologies such as eLORAN and other complementary navigation solutions, alongside continued development of NAV-MON as a resilient ground-

based fallback capability. At the same time, engagement with ICAO, EUROCAE, JARUS, DfT and DSIT⁴ is intended to ensure UK work aligns with international standards and emerging best practice. By the end of this period, the expectation is that the UK will have established a clearer policy framework and an agreed architecture for navigation resilience, even if large-scale deployment remains underway.

- 2.120 Looking beyond 2028, the PNT programme is expected to transition from policy and framework development into operational deployment and integration. The long-term objective is a layered resilience model combining GNSS, SBAS-based augmentation, NAV-MON/RON infrastructure, and complementary non-GNSS PNT technologies, providing multiple independent sources of navigation assurance. This would support conventional aviation, Future of Flight operations, BVLOS drone activity, AAM and other emerging airspace users within a common resilient navigation framework. By around 2031, the ambition is for PNT resilience to be embedded as a core feature of UK aviation infrastructure, reducing dependence on any single technology and ensuring that the benefits of modernised airspace can be delivered safely and reliably even during periods of GNSS degradation or outage.

Higher Airspace Operations (HAO)



- 2.121 The Higher Airspace Operations (HAO) work strand within the AMS seeks to address the growing operational, regulatory and strategic gap in airspace management capability above approximately FL500. This region is becoming increasingly active because of emerging platforms such as HAPS, stratospheric balloons and hypersonic vehicles, which operate beyond the scope of traditional ATM. The work strand recognises that the current UK framework – where airspace above FL660 remains largely unregulated – creates risks in safety, security and coordination, while also limiting the UK's ability to capitalise on economic, defence and technological opportunities in the stratospheric domain.
- 2.122 In response, a HAO concept is under development that will propose a phased approach to enabling HAO activities; both transit to and from higher airspace and operations within it. This will align with the indicated international direction for a digitally enabled operating model built around cooperative, data-driven airspace management. Central to this in the longer term is the notion of a UK Cooperative

⁴ Department for Science, Innovation and Technology. The relevant functions have since been absorbed into the Department for Business, Innovation, Science and Trade (DBIST).

Operational Volume, using 4D airspace constructs and shared trajectory data to enable strategic deconfliction, safe integration across civil and military users, and effective management of critical phases such as ascent and descent. This approach aligns with evolving international thinking and positions the UK to bridge emerging US and European models, while ensuring interoperability, innovation and national security integration as higher airspace activity accelerates.

- 2.123 Next steps focus on formalising HAO as a priority within the AMS, the DfT having incorporated it into the AMS ‘priority areas’ in early 2026. This will enable a structured programme of work, including airspace classification and establishing a clear definition of higher airspace, launching early coordination mechanisms such as registries, and progressing through trial environments and operational sandboxes. Over the medium to long term, this will evolve into formalised regulatory frameworks, cooperative airspace structures and integrated civil-military governance, ensuring that the UK is well positioned to safely and effectively manage this rapidly developing domain.

Faster-than-Sound flight



- 2.124 Progress on Faster-than-Sound (FTS) flight within the ANCB/AMS context is at an early, exploratory and policy-shaping stage, with work focused on understanding how supersonic (and potentially hypersonic) operations could be accommodated within UK airspace. To date, activity has been primarily conceptual and regulatory, examining integration challenges such as airspace design, environmental constraints (notably sonic boom) and compatibility with existing ATM systems. As with other forward-leaning programmes, FTS is not yet a delivery-focused workstream but rather a horizon-scanning and framework-defining activity, closely linked to broader future ATM and high-altitude operations discussions. Progress has therefore been steady in terms of understanding requirements and dependencies but limited in terms of operational implementation.
- 2.125 Up to the late 2020s (around 2028), the focus is expected to remain on policy development, regulatory positioning and international alignment, including engagement with ICAO and industry to define standards for supersonic operations, noise/boom management and integration into controlled airspace structures. This period will likely produce concepts of operation, initial regulatory approaches and early assessments of airspace and CNS implications, but little direct deployment. Looking toward to around 2031, FTS activity is expected to evolve into early operational integration, potentially through limited or trial

operations aligned with emerging aircraft capabilities and global regulatory frameworks. However, progress remains highly dependent on international standards, technological maturity and environmental policy decisions, meaning that the UK role is likely to be one of enabler and regulator rather than lead deployer, with gradual and conditional integration into the wider airspace system.

Research and development

Airspace Modernisation Strategy Support Fund (ASF)

- 2.126 The [Airspace Modernisation Strategy Support Fund](#) (ASF) is intended to aid research and development projects in support of the delivery of airspace modernisation, where the delivery benefits multiple stakeholders and/or research will enable wider industry deployment. Funding is allocated to projects that support the delivery of elements defined in the AMS and therefore funding proposals must align with the overall AMS objectives.
- 2.127 As of 2026, the ASF continues to provide grant funding to multiple projects across a variety of topics that aim to deliver research that can drive the pace of modernisation for the UK air navigation system. Current projects include:
- **PBN arrivals optimisation:** This project will address the issues identified during the Reduced Night Noise trial and develop guidance for implementing PBN arrivals to deliver the expected noise benefits. It will use simulations rather than a live trial to provide greater flexibility, supported by modelling to validate the associated noise and carbon benefits.
 - **Reference Service Architecture development:** This project aims to develop a Reference Service Architecture (RSA) that will serve as a high-level blueprint of the service interfaces required to modernise airspace operations. The RSA will be a multi-layer model, which captures the anticipated UK ATM service architecture for the 2030 timeframe, presented in an interactive form (such as a website) that allows different views to be explored in detail depending on user need. The RSA will be a tool to facilitate alignment between stakeholders, such as ANSPs, airports, airspace users and the regulator, on the service requirements and interfaces necessary to achieve the objectives of airspace modernisation.
 - **Project RAPID:** The overall objective of this project is to provide feedback to inform, evidence and support the adoption and alignment of the three CAA DAA-related policy documents.
 - **4G and 5G network at-altitude surveys:** This project will collect UK mobile network data from multiple locations and altitudes (up to 500 ft) across different environments (rural, suburban and urban) to assess 4G and 5G performance. The aim is to determine whether cellular networks can provide the reliability required to support safety-critical services.

- **Managing shared airspace** – UTM interoperability for BVLOS operations: This project seeks to establish and operationalise an industry-driven UTM service provider deployment to support multiple overlapping BVLOS operations within shared airspace. It aims to develop a UK Concept of Operations for UTM-supported UAS operations, based on the US UTM Implementation connected to the Federal Aviation Administration's UTM Operational Evaluation, located in Texas (also known as Key Site).
- **Airspace optimisation tool:** Hawkrose has developed an evaluation and optimisation system called the Hawkrose Airspace Optimisation Tool (HAOT) and configured the system in collaboration with Heathrow Airport Ltd. Hawkrose will develop the tool further and scale it for use by the whole UK airspace modernisation programme.
- **Leveraging Extended Projected Profile (EPP) data to improve fuel and emissions efficiency during the descent phase of TBO in UK airspace:** This project will leverage anonymised data from easyJet's Future Air Navigation System-Contract (FANS-C) equipped aircraft, combining simulations with real-flight data to assess the extended project profile impact on fuel and emissions. Analysis will target key metrics such as descent rates and routing efficiencies. Simulations will model scenarios like selecting latitude and longitude points for descents to bypass restrictions. Data privacy will be prioritised through anonymisation to build trust and enable scalable application.
- **Airspace characterisation for uncrewed DAA operations (Project ACUDO):** The overall objective of this project is to provide feedback to inform, evidence and support a rigorous and efficient process to characterise UK airspace regions for the purposes of high-integrity DAA verification.
- **Research into autonomous DAA algorithms through part live/part simulation demonstrations and procedure development:** This project will develop and validate advanced DAA capabilities for autonomous UAS through a unique combination of real-world, controlled, conflict avoidance.

2.128 We publish the results of completed projects on the ASF [webpage](#).

ASF example project delivered – Flight Path Design Visual Repository sponsored by Tetra Tech UK and Trax International

2.129 This project developed and implemented a web-based Flight Path Design Visual Repository (DVR) that is intended to enhance the development, engagement, and consultation aspects of all airspace change proposals required to deliver airspace modernisation in the UK. The Flight Path DVR aimed to deliver a step change in the UK's approach to options development, community outreach and airspace integration, especially for larger, more complex modernisation airspace change proposals like those included in the four regional clusters of what was

originally known as the UK airspace change [masterplan](#). To request sight of the final report (DVR User Guide), please email airspace.modernisation@caa.co.uk.

Research projects beyond the ASF

- 2.130 In addition to the ASF, the CAA continues to monitor the wider European and global ATM research and development landscape.

Chapter 3

Horizon (ASBU Block 3)

Introduction

- 3.1 The structure of AMS Part 3 is designed to evolve and iterate as projects and their outcomes develop from future concepts through to tangible CAA deliverables.
- 3.2 Chapter 3 therefore identifies the operational concepts, technologies and information services that are planned for deployment before the end of GANP ASBU Block 3 period between 2026 and the end of 2031. This chapter organises the ASBU Elements by Thread, which are displayed using their GANP abbreviations. These abbreviations can be found here: [ASBU Threads - ICAO GANP Portal](#).
- 3.3 While Chapter 2 describes and includes the formalised and maturing delivery programme, most of the ASBU Block 3 activities have remained in the same state, or with no substantive change, compared with the 2024 baseline. Therefore, most of the content of this chapter originates from the first edition of the AMS Part 3, Chapter 3: Technical Look Ahead, published in July 2024. The content has been reframed to better fit the AMS delivery elements, ICAO GANP element and UK sub-element structure used in the AMS Part 2 and AMS Part 2 database. Changes also include amendment to the ICAO GANP ASBU durations to align them with the latest version of the ICAO GANP and ensure consistency between global, regional and national planning time horizons. This change facilitates improved structuring for future versions.
- 3.4 Additionally, over time the CAA intends to optimise alignment between plans and reporting, such as the Secretary of State AMS annual progress report and the Local Single Sky implementation monitoring (LSSIP). The CAA has decided to take this approach to ensure a clear link between editions of the AMS Part 3 Deployment Plan and progress reporting as the overall programme evolves and matures.
- 3.5 The CAA expects that a number of ICAO GANP threads will be amended by the forthcoming 8th edition of the ICAO GANP, whereby individual GANP elements will be added, deleted or moved to a later block.

ASBU Block 3 elements

UK Delivery Element UK-ABN/1 Trajectory-based operations



OPFL

- 3.6 The GANP OPFL Thread describes the evolution of operational concepts to optimise climb and decent operations, aiming to improve efficiency, environmental performance and predictability of aircraft operations during climb and descent phases of flight.
- 3.7 The GANP introduces the following OPFL elements in Block 3:
- OPFL-B3/1 Helicopter RNP 0.3 terminal and en-route operations
 - OPFL-B3/2 Expansion of upper limit of RVSM band of flight levels
 - OPFL-B3/3 Target-to-target separations using space-based ADS-B data
- 3.8 On this thread, the CAA is active as part of the global expertise and technical collaboration through ICAO panels. The CAA will monitor ICAO developments for these elements and, when appropriate, determine the applicability to the UK air navigation system and plan any associated policy-making activities. Deliverables will be included in future iterations of the AMS Part 3 where necessary.

TBO

- 3.9 The GANP TBO thread describes the evolution of operational concepts to deliver TBO within the global ATM system.
- 3.10 The GANP introduces one TBO element in Block 3:
- TBO-B3/1 Network-based on-demand synchronization of trajectory-based operations.
- 3.11 The GANP anticipates increasing capabilities will emerge to support the exchange and synchronisation of individual trajectory intent and projections in many airspace environments, including low level. Protocols will enable the enhanced sharing of flight-centric information between aircraft and among ATM systems across airspace environments. This will allow more efficient and accurate flight planning and coordination of aircraft among an expected larger number of operations utilising lower levels of UK airspace.
- 3.12 The AMS requires the implementation of TBO in line with the GANP TBO thread. The UK must also remain cognisant of EU rulemaking and maintain alignment

with ICAO EUR region developments to ensure seamless interoperability across state boundaries. Initial major steps towards TBO in the UK are expected to be delivered by 2031. These steps include the integration of airport operations plans (AOPs) and initial trajectory information-sharing in accordance with UK Regulation (EU) 716/2014.

- 3.13 Additionally, TBO as envisaged for commercial air transport will provide a basis on which UAS and AAM can, in the future, be similarly enabled to link and synchronise various time advisories and flightpaths for individual aircraft. Flight segments can then be coordinated to provide equitable and efficient operations. This would help achieve an efficient coordination process across time-based capabilities leading to stable, consistent and robust local trajectory solutions. In turn this would improve individual flight efficiency while optimising the overall airspace performance. The development of enabling policies for the integration of flight plan and trajectory data, along with integration of UAS and AAM TBO in lower airspace, is dependent on progress in several areas such as, but not limited to, SWIM, output from BVLOS Temporary Reserved Area (TRA) trials, PNT developments and additional ATM services. Specific activities and deliverables will be added to the AMS Part 3 when appropriate.

UK Delivery Element UK-ABN/2 Terminal airspace redesign



APTA

- 3.14 Point-in-Space (PinS) operations are enabled through UK Element UK-ABN/2 (Terminal airspace redesign) using the ICAO GANP ASBU thread APTA to describe PinS operations for helicopters. Future work will explore and, where necessary, develop policy for PinS approaches in support of vertiports and AAM. AAM aircraft performance characteristics and vertiport policy requirements, such as safeguarding, are essential elements in the formulation of any future policy.
- 3.15 The GANP introduces the following GANP APTA elements in Block 3:
- APTA-B3/1 Parallel approaches without vertical guidance
 - APTA-B3/2 Implementation of A-RNP to support non-complex simultaneous independent parallel approaches.
- 3.16 ICAO panels that develop technical proposals for this thread are actively supported by the CAA. The CAA will monitor ICAO developments for these elements and, when appropriate, determine the applicability to the UK air navigation system and plan any associated policy-making activities. Deliverables will be included in future iterations of the AMS Part 3 where necessary.

DATS (Remote Aerodrome ATS)

- 3.17 The DATS thread, formerly referred to as RATS (Remotely Operated Aerodrome Control), became DATS (Digital Aerodrome ATS) in the 7th Edition of the ICAO GANP. Notwithstanding the amended ICAO nomenclature, the UK and EU still consider the technical content relating to this thread as 'Remote ATS', which is reflected in associated policy. There are no Block 3 elements in the extant ICAO GANP framework; however, the CAA expects two new DATS elements to be introduced in the forthcoming 8th Edition of the GANP that relate to Blocks 3 and 4. These are expected to be elements for multiple-mode aerodrome flight information service (AFIS) and multiple-mode aerodrome control service.
- 3.18 The UK continues to contribute to the relevant ICAO panel that leads the development of technical proposals for this thread. The CAA will monitor ICAO developments for these elements and, when appropriate, determine the applicability to the UK air navigation system and plan any associated policy-making activities. Deliverables will be included in future iterations of the AMS Part 3 where necessary.

Surface Traffic Management

- 3.19 The GANP SURF thread describes the evolution of surface operations with a focus on improving safety, efficiency and situational awareness on aerodrome movement areas. By taking account of all aspects of ground operations and leveraging optimisation algorithms, A-SMGCS (Advance Surface Movement Guidance and Control System) routing and guidance is automated and follows agreed A-CDM (Airport Collaborative Decision Making) strategies. The air traffic controller can operate in manual, semi-automated or automated mode.
- 3.20 The GANP introduces the following SURF elements on Block 3:
- SURF-B3/1 Optimisation of surface traffic management in complex situations
 - ACDM-B3/1 Full integration of Total Airport Management (TAM) into TBO.
- 3.21 The CAA is active as part of the global expertise and technical collaboration through ICAO panels. The CAA will monitor ICAO developments for these elements and, when appropriate, determine the applicability to the UK air navigation system and plan any associated policy-making activities. Deliverables will be included in future iterations of the AMS Part 3 where necessary.

UK Delivery Element UK-ABN/3 Network management



ACDM

- 3.22 The GANP ACDM thread describes the evolution of Airport Collaborative Decision Making with a focus on improving the efficiency, predictability and resilience of airport operations by leveraging real-time information sharing.
- 3.23 The GANP ACDM element in Block 3 is:
- ACDM-B3/1 Full integration of ACDM and TAM in TBO.
- 3.24 The DfT and CAA will work to determine the UK applicability of this element in the context of the European ATM network and UK ambitions for gate-to-gate operations. Deliverables will be included in future iterations of the AMS Part 3 where necessary.

NOPS

- 3.25 The GANP NOPS thread describes the evolution of network operations and aims to improve the overall performance and resilience of the global ATM network through dynamic airspace management, air traffic flow management and collaborative decision making.
- 3.26 The GANP introduces the following NOPS elements in Block 3:
- NOPS-B3/1 ATM network services in full TBO context
 - NOPS-B3/2 Cooperative network operations planning
 - NOPS-B3/3 Innovative airspace architecture.
- 3.27 The CAA expects the NOPS thread to evolve with the next edition of the GANP with a number of elements amended and moved into later blocks, along with the introduction of additional elements.
- 3.28 The CAA continues to contribute to the relevant ICAO panel that leads the development of technical proposals for this thread. The CAA will monitor ICAO developments for these elements and, when appropriate, determine the applicability to the UK air navigation system and plan any associated policy-making activities. Deliverables will be included in future iterations of the AMS Part 3 where necessary.

RSEQ (Runway sequencing)

- 3.29 The RSEQ thread describes the operational concepts that focus on enhancing airport runway throughput and safety by optimising sequencing, spacing and

timing particularly for high-density terminal operations with multiple airports. Integrated arrival management and departure management enables dynamic scheduling and runway configuration to better accommodate arrival/departure patterns and integrate arrival/departure management. In addition, integrated arrival management and departure management expands scope from single airport operations to consider multiple airports within the same terminal airspace.

- 3.30 The GANP introduces the following RSEQ elements in Block 3:
- RSEQ-B3/2 Arrival management in terminal airspace with multiple airports
 - RSEQ-B3/3 Increased utilisation of runway capacity by improved real-time runway scheduling
- 3.31 RSEQ-B3/4 Improved operator fleet management in runway sequencing.

FICE

- 3.32 The FICE thread describes the information concepts that focus on enhancing the exchange of flight and flow information between aviation stakeholders to enable more coordinated, efficient, data-driven and dynamic ATM.
- 3.33 The GANP introduces one FICE element in Block 3:
- FICE-B3/1 Flight information management services for enhanced trajectory operations.
- 3.34 The CAA is active as part of the global expertise and technical collaboration through ICAO panels. The CAA will monitor ICAO developments for these elements and, when appropriate, determine the applicability to the UK air navigation system and plan any associated policy-making activities. Deliverables will be included in future iterations of the AMS Part 3 where necessary.

UK Delivery Element UK-ABN/4 Integration



UK-ALIGN

- 3.35 UK-ALIGN is a specific UK thread, indicated in AMS Part 2, that is used to frame the bespoke requirements relating to the alignment of UK policy with ICAO provisions and contains associated UK elements. The content is described in a similar way to the GANP elements for consistency and traceability.
- 3.36 For the equivalent GANP Block 3 period the following work is anticipated:

Flight intent and flight progress data

- 3.37 The submission of the planned intention of flight, more commonly referred to as a flight plan, is a critical component for the integration of new airspace users as well as a fundamental tool in the management of airspace capacity and targeting of service provision for existing users.
- 3.38 A flight plan typically includes essential information about the flight, such as the aircraft's identification, proposed departure time, route, cruising altitudes and speeds, destination and estimated time en route. For new airspace users, this may also include specific operational details relevant to the type of aircraft or activity, such as UAS operational ceilings and trajectories.
- 3.39 The submission of flight-plan data will remain voluntary in some cases. However, third-party functionality such as 'point and click' submission via Electronic Flight Bag applications will ease the process of submission in airspace requiring compulsory submission of flight-plan data.
- 3.40 Flight-progress data refers to the management and updating of flight-plan data once the flight has started and is en route.
- 3.41 Modifications to the rules surrounding the reception, processing and distribution of some types of flight plan and flight-progress data will be required; that is, route validation of VFR flight plans and the mandated distribution of low-level flight-progress data between ANSPs. The national reception, processing and redistribution of flight intent as well as flight-progress data will continue to form an intrinsic part of SWIM.

Evolution of ATM to enable scaled operations

- 3.42 The ability of any new airspace user to operate in low-level airspace under IFR will clearly place considerable demand on ATS provision within airspace classifications where separation is required to be delivered between IFR flights. Any change to those separation agreements or to the core requirements of the flight rules (such as the long-term digital flight rules concept) should be progressed internationally but contributed to and anticipated nationally. Additionally, the development of any specific requirements for equipage will be transparent and collaborative with industry.

CSEP

- 3.43 The CSEP thread describes the operational concepts that focus on enhancing efficiency and safety through cooperative separation that is envisaged by the AMS as a medium- and longer-term enabler to all AMS strategic objectives. Cooperative separation evolution is particularly important for the integration of diverse airspace users, whereby aircraft are afforded greater autonomy and access based on cooperative separation capabilities.
- 3.44 The GANP introduces the following CSEP elements in Block 3:

- CSEP-B3/1 Interval management (IM) procedure with complex geometries
- CSEP-B3/2 Remain well clear (RWC) functionality for UAS/RPAS
- ASUR-B3/1 New non-cooperative surveillance system for airborne aircraft (medium altitudes).

3.45 ICAO panels that develop technical proposals for this thread are actively supported by CAA experts. The CAA will monitor ICAO developments for these elements and, when appropriate, determine the applicability to the UK air navigation system and plan any associated policy-making activities. Deliverables will be included in future iterations of the AMS Part 3 where necessary.

UK Delivery Element UK-AM/5 Airspace management



UK-Flexible airspace

- 3.46 UK-FA is a specific UK thread that describes the bespoke flexible airspace elements that are in the context of lower airspace operations in the UK and in addition to ICAO GANP airspace management concepts.
- 3.47 For the equivalent ICAO GANP Block 3 period the following work is anticipated:
- FA UK B2/3 Develop airspace activity data sharing via SWIM protocols.

FRTTO

- 3.48 The FRTTO thread describes the operational concepts that focus on improving the efficiency and resilience of the ATM network, by enabling aircraft to fly optimised routes achieved through the deployment of dynamic airspace structures and associated procedures.

AFUA

- 3.49 The Advanced Flexible Use of Airspace may provide further options for future modernisation activities including the ability to further exploit Variable and Dynamically Activated Areas.
- 3.50 The CAA continues to contribute to the relevant ICAO panel that leads the development of technical proposals for this thread. The CAA will monitor ICAO developments for these elements and, when appropriate, determine the applicability to the UK air navigation system and plan any associated policy-making activities. Deliverables will be included in future iterations of the AMS Part 3 where necessary.

UK Delivery Element UK-AM/6 Data services



AMET

- 3.51 The AMET thread describes the evolution of information concepts for aeronautical meteorology services, focusing on improving the resolution, range, accessibility and integration of meteorological information into ATM, enhancing decision-making in all phases of flight.
- 3.52 The GANP introduces the following AMET elements in Block 3:
- AMET-B3/1 Meteorological observations information
 - AMET-B3/2 Meteorological forecast and warning information
 - AMET-B3/3 Climatological and historical meteorological information
 - AMET-B3/4 Meteorological information service in SWIM.
- 3.53 Contributions to the relevant ICAO panel that leads the development of technical proposals for this thread are made via CAA experts. The CAA will monitor ICAO developments for these elements and, when appropriate, determine the applicability to the UK air navigation system and plan any associated policy-making activities. Deliverables will be included in future iterations of the AMS Part 3 where necessary.
- 3.54 It will be necessary to fully understand user requirements and use-cases in order to ensure that future aeronautical meteorological services result in the provision of information that supports the GANP concepts as described in the applicable UK delivery elements; and that they deliver the envisaged enhanced safety, efficiency, environmental performance, scalability and predictability and resilience of operations. ICAO has recognised that feedback from industry and users will be key to the successful delivery of the AMET threads. Successful delivery of the AMS delivery elements will similarly be dependent on UK operational stakeholders highlighting specific requirements if necessary.

UK Delivery Element UK-AM/7 Future surveillance and spectrum



ASUR

- 3.55 The ASUR thread describes the aeronautical surveillance technology concepts that have a focus on improving the accuracy, reliability and coverage of surveillance technologies that will provide greater safety, flexibility and resilience for the ATM system.
- 3.56 There is one ASUR element in Block 3 that remains under development:
- ASUR-B3/1 New non-cooperative surveillance system for airborne aircraft (medium altitudes).
- 3.57 The CAA is active as part of the global expertise and technical collaboration through ICAO panels. The CAA will monitor ICAO developments for these elements and, when appropriate, determine the applicability to the UK air navigation system and plan any associated policy-making activities. Deliverables will be included in future iterations of the AMS Part 3 where necessary.

UK Delivery Element UK-AM/8 Integration of CNS&S



COMI

- 3.58 The COMI thread describes the technology concepts that focus on the evolution of communications infrastructure that improves safety and efficiency and enables scalable ATM operations.
- 3.59 The GANP introduces the following COMI elements in Block 3:
- COMI-B3/1 VHF Data Link (VDL) Mode-2 Connectionless
 - COMI-B3/3 L-band Digital Aeronautical Communication System (LDACS)
 - COMI-B3/5 SATCOM Class B Voice and Data
 - COMI-B3/6 Advanced Aeronautical Mobile Airport Communication System (AeroMACS)
 - COMI-B3/7 Space-based VHF.

UK Delivery Element UK-AM/9 Aircraft capabilities



COMS

- 3.60 The COMS thread describes the technology concepts that focus on the evolution of communications services for voice and data communications and is complementary to the COMI thread.
- 3.61 The GANP introduces the following COMS elements in Block 3:
- COMS-B3/1 Extended CPDLC (B2 incl. Adv-IM and dynamic RNP) for dense and complex airspace
 - COMS-B3/2 Extended ADS-C (B2 incl. Adv-IM and dynamic RNP) for dense and complex airspace.
- 3.62 Performance-based communications and surveillance (PBCS) is the combination of the criteria of performance-based communication (PBC) and performance-based surveillance (PBS). It relates to communication and surveillance based on performance specifications applied to the provision of air traffic services. PBCS elements are expected to evolve over time to incorporate domestic and complex airspace in addition to the current oceanic procedural airspace capability.
- 3.63 The CAA continues to contribute to the relevant ICAO panel that leads the development of technical proposals for this thread. The CAA will monitor ICAO developments for these elements and, when appropriate, determine the applicability to the UK air navigation system and plan any associated policy-making activities. Deliverables will be included in future iterations of the AMS Part 3 where necessary.

WAKE

- 3.64 The WAKE thread describes the operational concepts that focus on the evolution of wake turbulence separation on final approach and for en-route operations enabling improvements in safety and efficiency.
- 3.65 The GANP introduces the following WAKE elements in Block 3:
- WAKE-B3/1 Dependent parallel approaches
 - WAKE-B3/2 Independent segregated parallel operations
 - WAKE-B3/3 Wake turbulence separation minima based on leader/follower static pairs-wise
 - WAKE-B3/4 Enhanced dependent parallel approaches

- WAKE-B3/5 Enhanced independent segregated parallel operations
- WAKE-B3/6 Time-based wake separation minima for departure based on leader/follower static pairwise
- WAKE-B3/7 Time-based dependent parallel approaches
- WAKE-B3/8 Time-based independent segregated parallel operations.

3.66 The CAA will monitor ICAO developments for these elements and, when appropriate, determine the applicability to the UK air navigation system and plan any associated policy-making activities. Changes will be included in future iterations of the AMS Part 3 where necessary.

Appendix A: Timelines

2025	2026	2027	2028-30	2031+	CAA Control Board	Project	Updated milestone
	●				Air Navigation	Performance-Based Navigation (PBN)	Develop and publish new legislation, AMC and GM for PBN
			●				Produce a UK concept for the future use of vertical navigation utilising a satellite-based navigation system
		●					Determine policy options for UK Reduced Departure Divergence
			●				Develop policy on point-in-space (PinS) approaches at vertiports
●						Flexible Use of Airspace	Establish safety assurance, operational procedures and tool support for Variable Profile Areas
				●			Establish safety assurance, operational procedures and tool support for Dynamic Mobile Areas
						Lower Airspace Concept*	Requirements and policy for determining the areas where air traffic services are provided and the designation and design of airspace to support that provision
							Develop updated policy on the airspace structures to support aerodromes operating in uncontrolled airspace
							Deployment concept for delivery of improved UK alignment with ICAO FIS provisions
							Enable the use of enhanced functions of a flight information display by FISOs
			●			CNS Infrastructure	Development of performance-based surveillance framework for the UK
			●				Establish common infrastructure requirements for the provision of LAS
				●			Identify surveillance requirements for high altitude platform systems (station)
			●				Identify surveillance requirements for Advanced Air Mobility operators
	●						Updated rationalisation, optimisation, and augmentation plan for the development of a Minimum Operating Network (MON)/ Resilient Operating Network (RON)
				●			Operational introduction of dual-frequency multi-constellation GNSS enabled GBAS for the UK
			●				Operational introduction of dual-frequency multi-constellation GNSS enabled SBAS for the UK
				●			Operational introduction of dual-frequency multi-constellation GNSS enabled ABAS for the UK
			●				Develop a Performance-based Communications Framework for the UK in line with the ICAO direction

* Work on LAC has been scaled back to allow interdependent programmes to mature. Progress across these related workstreams is continuing in a coordinated manner, supporting the delivery of a coherent and integrated long-term vision for LAC

Appendix A: Timelines

2025	2026	2027	2028-30	2031+	CAA Control Board	Project	Updated milestone
			●		Air Navigation	CNS Infrastructure	Increase utilisation of air-ground digital data (currently CPDLC) and provide enhancements to current capability
				●			Extended use of ADS-C datalink to automatically downlink flight data from aircraft to ground systems. Development of appropriate datalink service to support TBO (LDACS, Terrestrial-SATCOM)
			●				Extend satellite voice communications using performance-based communications approved systems
				●			Routine use of digital air-ground communications
	●					Future of AIM	Define and deliver ICAO Digital Datasets for operational use
		●					Define and deliver Digital NOTAM
		●					Migrate to eEAD and make datasets available via ECTL AIM information services
		●					Define and deliver Airport Mapping Database (AMDB)
			●				Define and deliver Digital Charts (phase out legacy paper charts)
			●				Define and deliver UK-specific AIM Information Services (SWIM) and interface to consume information services (HMI)
			●				Define and deliver Digital Operational Reporting Information System (DORIS) to promulgate all temporary changes
		●				Regulation of Data Products and Services	Develop the policies, processes and rulemaking needed to certify and oversee DAT providers under UK Reg (EU) 2017/373 Annex VII
		●					Establish arrangements with EASA and FAA to enable UK AOCs to use data providers certified by those authorities and support mutual recognition
			●				Define a regulatory approach for organisations providing aeronautical data products that fall outside the scope of UK Reg (EU) 2017/373
	●					Flight Information Service-Broadcast (FIS-B)	Confirm that NATS will, in principle, provide a UK FIS-B under the terms of the NATS (En-route) plc licence, Schedule 4 (as a method of meteorological and aeronautical information (data) dissemination) and in accordance with the applicable provisions contained in UK Reg (EU) 2017/373
	●						Confirm the requirement for the systems associated with FIS-B to be regulated under the ANO 2016 Articles 205 and 206 (including transmitters, message preparation and generation equipment)
		●					Establish the basis on which NATS will carry out the work necessary to implement a UK FIS-B
	●						Establish plans for NATS to carry out FIS-B trials

Appendix A: Timelines

2025	2026	2027	2028-30	2031+	CAA Control Board	Project	Updated milestone
		●			Air Navigation	Flight Information Service-Broadcast (FIS-B)	Establish CAA and Ofcom agreement to make the 978 MHz (UAT) frequency available for ground-to-air transmission as an enabler for the provision of FIS-B (and TIS-B) services in the UK
		●					Complete stakeholder engagement activities to fully understand user requirements and use-case scenarios
			●				Identify requirements for regulatory material applicable to a UK FIS-B and, based on this work, establish and/or amend regulatory material accordingly
			●				Implementation of an operational UK FIS-B
			●	●			Post-implementation review
			●			Airspace Classification Review	Review airspace design and classification to ensure that it is fit for purpose and maintains a high standard of safety
●							North West Transit Corridor
●					Integrating Lower Airspace	Ground Infrastructure	Project scoped
●							Project delivery plan baselined
	●						ConOps ready for publication
	●						ConOps published / targeted consultation starts
	●						Consultation response published
		●					ConOps and safety case following Wave 1 Testing
		●					Ofcom approval of 978MHz for ground-to-air use
			●				Final GI policy ready for publication
	●					Command and Control (C2) Link	AMC and GM for SAIL 1-3 complete
		●					Consolidate C2 document v2 published
		●					Consolidate C2 document v3 published
	●					Detect and Avoid (DAA)	Policy concept v2 published
		●					Final DAA policy published
●						Electronic Conspicuity (EC)	Ofcom licensing of 978MHz for air-to-air use published
●							EC consultation commenced
	●						EC consultation response published
	●						EC v2 ConCops ready for publication
		●					Final EC policy, AMC and GM ready for publication
●						UAS Traffic Management (UTM)	Review rules of the air (SERA) right-of-way
●							Initial ConOps complete
	●						ConOps, policy concept and rulemaking consultation published
●							

Appendix A: Timelines

2025	2026	2027	2028-30	2031+	CAA Control Board	Project	Updated milestone
●					Integrating Lower Airspace	UAS Traffic Management (UTM)	Certification requirements for UTMSPs drafted
	●						ConOps consultation response published
			●				UTM Statutory Instrument laid in law and ANO changes
			●				Final UTM ConOps published
●						System Wide Information Management (SWIM)	SWIM concept definition agreed by CAA
	●						Uncrewed SWIM ConOps and implementation framework consultation response published
	●						SWIM Registry defined and delivered for UK State
		●					Industry starts delivering in SWIM-compliant manner
			●				Framework for Air/Ground SWIM for non-safety critical information published
				●			Framework for Air/Ground SWIM for safety-critical information published
				●			Introduce Flight and Flow Information for a Collaborative Environment
●						Future ATM/ANS Programme	Programme Airspace Technical Architecture and ConOps approved
●							DAA, UTM and EC v1 ConOps/policy concepts in place and ready for testing
	●						Every Future ATM/ANS project is supported by a validated ConOps or policy concept
	●						Programme Airspace ConOps v1 publication
		●					Programme Airspace ConOps v2 publication
			●				Programme Airspace ConOps v3 publication
●							UK SORA Air Risk (Model) Classes (ARCs) for RPAS integration with crewed aircraft
	●					EC mandate	Statutory consultation launch
		●					Statutory Instrument laid in law and ANO changes
		●					EC mandate transition starts
			●				EC mandate live into law
	●					Testing	Policy artefacts updated post Wave 1 testing completed
		●					Policy artefacts updated post Wave 2 testing completed
			●				Policy artefacts following holistic testing completed

Key:

- Completed
- Forecasted

APPENDIX B

Abbreviations

Abbreviation	Description
AAE	Atypical Air Environment
AAM	Advanced air mobility
ABAS	Aircraft-based augmentation system
A-CDM	Airport Collaborative Decision Making
ACOG	Airspace Change Organising Group
ADS-B	Automatic Dependent Surveillance–Broadcast
ADS-C	Automatic Dependent Surveillance–Contract
AFIS	Aerodrome Flight Information Service
AFUA	Advanced Flexible Use of Airspace
AIC	Aeronautical Information Circular
AI	Artificial Intelligence
AIM	Aeronautical Information Management
AM	Airspace modernisation
AMC	Acceptable means of compliance
AMDB	Airport Mapping Database
AMS	Airspace Modernisation Strategy
ANCB	Air Navigation Control Board
ANP	Air navigation plan
ANS	Air navigation service
ANSP	Air navigation service provider
ANPS	Airport National Policy Statement
AOP	Airport operating plan
APNT	Alternate Positioning Navigation and Timing
ASBU	Aviation System Block Upgrade
ASF	Airspace Modernisation Strategy Support Fund
ASM	Airspace management
A-SMGCS	Advanced Surface Movement Guidance and Control System
ATM	Air Traffic Management
ATS	Air Traffic Service

BVLOS	Beyond visual line of sight
C2	Command and control
CAA	UK Civil Aviation Authority
CAP	Civil Aviation Publication
CDM	Collaborative decision making
CISP	Common Information Service Provider
CNS/CNSS	Communications Navigation, Surveillance (and Spectrum)
ConOps	Concept of operations
CPDLC	Controller–pilot datalink communications
CTA	Control Area
CTR	Control Zone
C2	Command and Control
DAA	Detect and Avoid
DAATM	Defence Airspace and Air Traffic Management
DAC	Dynamic Airspace Configuration
DFMC	Dual-Frequency Multi-Constellation
DfT	Department for Transport
DMA	Dynamic Mobile Area
DME	Distance Measuring Equipment
DiSCO	Digitising Specific Category Operational authorisations
DVOR	Doppler VHF Omnidirectional Radio Range
eEAD	enhanced European AIS Database
EASA	European Union Aviation Safety Agency
EC	Electronic conspicuity
ECHO	European Concept for Higher Airspace Operations
EGNOS	European Geostationary Navigation Overlay Service
eLORAN	Enhanced long-range navigation
EU	European Union
EUR/NAT	European/North Atlantic
EVS	Enhanced Vision Systems
eVTOL	Electric vertical take-off and landing
FA	Flexible Airspace
F-ATM/ANS	Future Air Traffic Management/Air Navigation Services
FF-ICE	Flight and Flow Information for a Collaborative Environment
FID	Flight Information Display

FIS	Flight Information Service
FIS–B	Flight Information Service–Broadcast
FISO	Flight Information Service Officer
FRA	Free Route Airspace
FTS	Faster than sound
FUA	Flexible Use Airspace
GANP	Global Air Navigation Plan
GBAS	Ground Based Augmentation System
GI	Ground infrastructure
GM	Guidance material
GNSS	Global Navigation Satellite System
HAO	Higher Airspace Operations
HAOT	Hawkrose Airspace Optimisation Tool
HAPS	High Altitude Platform System
HENPS	Heathrow Expansion National Policy Statement
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
ILACB	Integrating Lower Airspace Control Board
IM	Interval Management
JARUS	Joint Authorities for Rulemaking on Unmanned Systems
LAC	Lower Airspace Concept
LAS	Lower Airspace Service
LARS	Lower Airspace Radar Service
LDACS	L-band Digital Aeronautical Communications System
LSSIP	Local Single Sky Implementation
LTMA	London Terminal Control Area
J&I	Joint and Integrated
MLAT	Multilateration
MoD	Ministry of Defence
MON	Minimum Operational Network
NAV MON/RON	Navigation Minimum/ Resilient Operational Network
NERL	NATS (En Route) plc
NOTAM	Notice to Airmen
Ofcom	The Office of Communications
OSC	Operating safety case

PANS	Procedures for Air Navigation Services
PANS-ATM	Procedures for Air Navigation Services – Air Traffic Management
PBC	Performance-Based Communication
PBCS	Performance-Based Communication and Surveillance
PBN	Performance-Based Navigation
PBS	Performance-Based Surveillance
PDRA	Predefined Risk Assessment
PinS	Point-in-Space
PNT	Position Navigation and Timing
RCP	Required Communication Performance
RDD	Reduced Departure Divergence
RLP	Required Link Performance
RNAV	Area Navigation
RNP	Required Navigation Performance
RON	Resilient Operational Network
RPAS	Remotely Piloted Aircraft System
RSA	Reference Service Architecture
RSP	Required Surveillance Performance
SAIL	Specific Assurance Integrity Level
SARP	Standards and Recommended Practice
SATCOM	Satellite Communication
SBAS	Space-Based Augmentation System
SCNS	Spectrum, Communications, Navigation and Surveillance
SERA	Standardised European Rules of the Air
SES	Single European Sky
SESAR	Single European Sky Air Traffic Management Research
SI	Statutory Instrument
SID	Standard Instrument Departure
SJU	SESAR Joint Undertaking
SoL	Safety of Life
SORA	Specific Operations Risk Assessment
STAR	Standard Instrument Arrival
SUA	Special Use Airspace
SWIM	System Wide Information Management
TAM	Total Airport Management

TBO	Trajectory-Based Operations
TIS-B	Traffic Information Service–Broadcast
TMA	Terminal Control Area
TRA	Temporary Reserved Area
UAS	Unmanned Aircraft System
UAT	Universal access transceiver
UKADS	UK Airspace Design Service
UKACS	UK Airspace Coordination Service
UKSA	UK Space Agency
UTM	Unmanned Aircraft Systems Traffic Management
VFR	Visual Flight Rules
VPA	Variable Profile Area

APPENDIX C

Text description of Figure 1

- C1 This appendix is a detailed text description of **Figure 1: AMS delivery components**, which appears on page 9.
- C2 The first tier of the structure is the CAA/DfT co-sponsors Airspace Modernisation Strategy Programme Board. Reporting to the co-sponsors Board are two programme-level governance boards:
- **Airspace Modernisation Programme Board**
 - **Future of Flight Programme Board.**
- C3 The **Airspace Modernisation Programme Board** oversees two Control Boards which form the third tier:
- **Air Navigation Control Board**
 - **Integrating Lower Airspace Control Board.**
- The latter reports to the Future of Flight Programme Board and executes its projects.
- C4 Each element under these Control Boards encompasses the projects that drive delivery of the AMS (an asterisk signifies that this is a new or emerging activity for this third edition of the AMS Part 3):
- **Air Navigation Control Board:**
 - Consideration and Guidance for Vertical Interactions
 - Flexible Use of Airspace (FUA)
 - Lower Airspace Concept
 - Future of Aeronautical Information Management (AIM)*
 - Performance Based Navigation (PBN)
 - Higher Airspace Operations
 - Regulation of data products and services*
 - Flight Information System–Broadcast (FIS–B)*
 - Communications, Navigation and Surveillance (CNS) infrastructure.
 - **Integrating Lower Airspace Control Board:**
 - Electronic Conspicuity (EC)

- Detect and Avoid (DAA)
- UAS Traffic Management (UTM)
- Command and Control Link (C2 Link)
- Ground Infrastructure (GI)
- Future ATM/ANS programme
- System Wide Information Management (SWIM)
- Electronic Conspicuity mandate*
- Testing*.

C5 There is a dotted boundary surrounding the Control Boards and their structure, which includes the external partners who play a critical role in the delivery of specific elements of the AMS, through coordinated cooperation and defined responsibilities. These are:

- NERL (NATS (En Route) plc) which provides the UKADS (UK Airspace Design Service) and the UKACS (UK Airspace Coordination Service)
- Ministry of Defence.