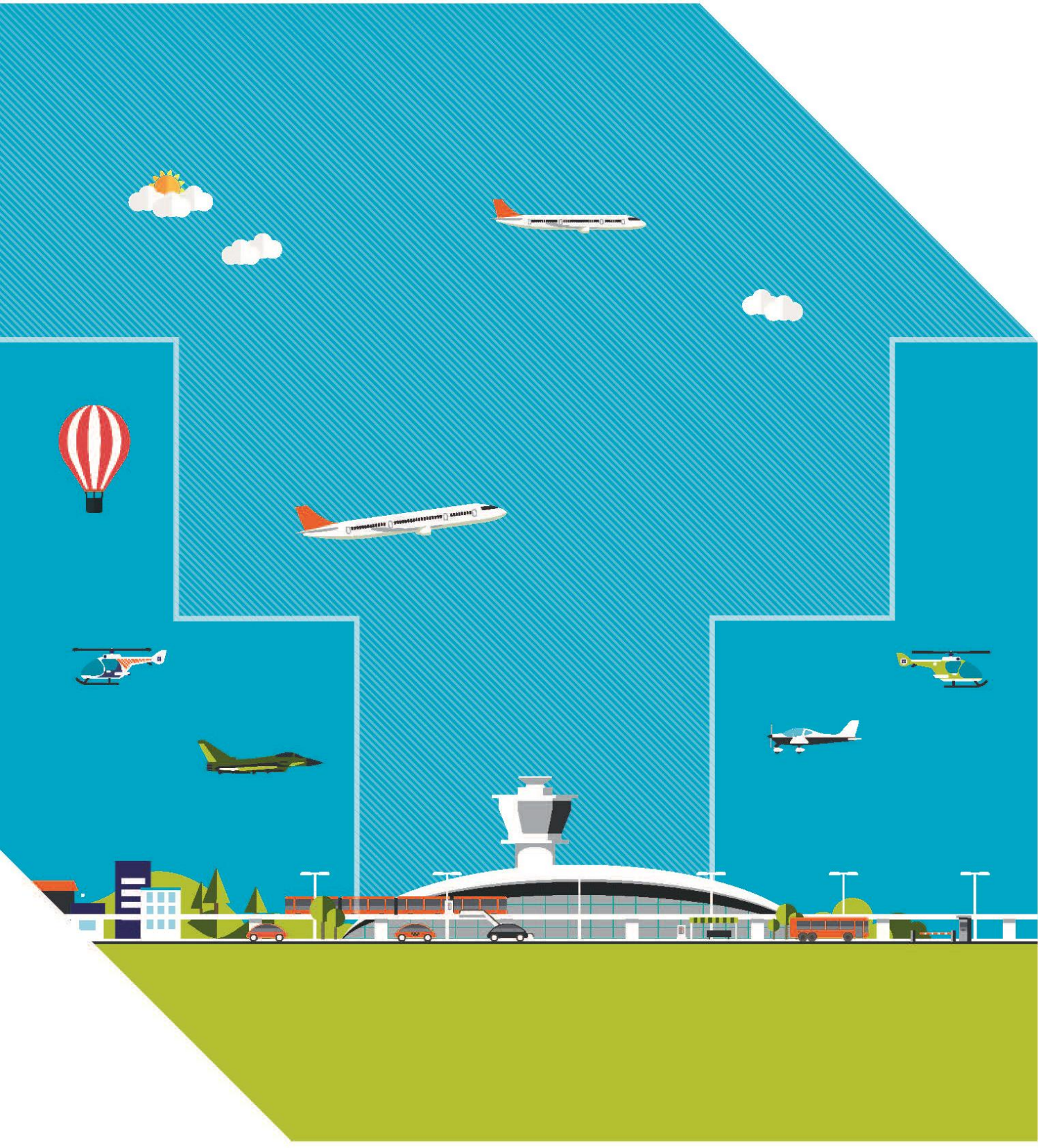
Airspace Modernisation – 2020 Progress Report

CAP 2016



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Revision history

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The latest version of this document is available in electronic format at www.caa.co.uk/CAP2016

Contents

Executive Summary

1. In 2017, the Government updated the Civil Aviation Authority's (CAA's) strategic role for airspace modernisation by issuing new Air Navigation Directions. Consistent with our role as specialist aviation regulator and our statutory responsibilities, we are required to prepare and maintain a co-ordinated strategy and plan for the use of UK airspace for air navigation up to 2040, including for the modernisation of the use of such airspace.

2. Our Airspace Modernisation Strategy[1] (AMS) responds to that requirement, setting out the detailed initiatives that industry must deliver to achieve the objectives envisaged in current government policy.

3. The strategy sets out the ends, ways and means of modernising airspace, initially focusing on the period until the end of 2024.[2] The **ends** are derived from UK government and relevant international policy and the **ways** of achieving them are set through 15 initiatives that include new airspace design, new operational concepts and new technologies. To establish the **means** of delivering modernised airspace, such as the resources needed, the strategy requires the entities responsible for delivering the initiatives to draw up delivery plans, with progress overseen by the CAA.

4. The CAA must report to the Secretary of State annually on the delivery of the strategy. The update provided within the following chapters of this report comprises of detail on the progress made by the industry, as well as on the work the CAA have conducted in 2020, in response to the challenges facing the airspace change programme.

5. In 2020 the COVID-19 pandemic has had an unprecedented impact across the world. People's lives have changed, and governments around the world

1 CAP1711 Airspace Modernisation Strategy December 2018

2 2024 corresponds to the end of the next Single European Sky Performance Scheme reference period (RP3)

have had to introduce new laws and policies to keep people safe. On a local scale, people have had to maintain social distancing and self-isolation. On an international scale, borders have been closed. The aviation sector has been dramatically affected, and work in 2020 has focused on identifying which initiatives in the AMS can and should continue, and which may need the co-sponsors to consider a different approach or additional support. The most prominent impact of the pandemic has been observed in delays to delivery of the FASI airspace change programmes,

6. In Chapter 1 we provide an overview of the current initiatives and our assessment of progress towards completion of each one. This has been done in the form of a 'RAG' status and compared against progress made in 2019.

7. Four of the fifteen initiatives are assessed as on track overall (green), in comparison with six reported green in 2019. Nine initatives require attention (the same number as reported last year), whilst both FASI airspace change programmes have been assessed as having 'major issues'.

8. In light of the COVID-19 pandemic and its impact on the industry, key activities planned for 2020 across all fifteen AMS initatives have been either paused or delayed, which had a direct impact on delivery.

9. With that, some progress was made under deployment of the Advanced Flexible Use of Airspace - initiative 3, where NATS En-route Limited (NERL) has undertaken feasibility planning activities for the Flexible Use of Airspace State Programme, with Ministry of Defence submitting an airspace change proposal for a trial to assist in developing their Flexible Use of Airspace requirements.

10. Under the initiatives that set out a major national programme of airspace redesign (FAS Implementation South and North, initiatives 4 and 5 respectively), most airspace change sponsors paused work on their airspace change proposals (ACPs) due to the impact on resources caused by the pandemic. The Airspace Change Organising Group (ACOG)

published their report on 'Remobilising the Airspace Change Programme'[3], in which they made ten recommendations to the DfT and CAA, based on plausible scenarios set against different recovery models for aviation, and the ability or appetite of sponsors to continue with modernisation. In October 2020 the CAA published guidance[4] setting out the evidence and assurance that sponsors resuming an existing paused airspace change will need to provide to the CAA, before restarting and progressing further. The CAA also developed and engaged on draft criteria for acceptance of the airspace change Masterplan[5], which set out the proposed requirements for ACOG's development of the Masterplan, and the analysis the DfT and the CAA will undertake, before deciding whether to accept the Masterplan into the Airspace Modernisation Strategy. ACOG have established the FASI Programme Management Working Group, to coordinate the production of a joined-up Programme Plan for inclusion in the Masterplan; and a FASI Technical Working Group, for all participants, to share information about their emerging airspace design options, and to identify the interdependencies.

11. At the time of writing this progress report, the Department for Transport (DfT) and CAA have yet to respond to all of the recommendations in ACOG's 'Remobilising the Airspace Change Programme' report. This includes ACOG's recommendation that the Department provide funding to airspace change sponsors to remobilise the airspace change programme. Therefore, whilst there has been some progress in the governance and planning of these initiatives, the CAA has concluded there is a risk to their progression unless a source of funding is identified.

12. Under the Satellite Navigation Route Replication - initiative 7, the CAA has submitted a State PBN Deployment Plan to EUROCONTROL, which was accepted; and a PBN Implementation State Report to the Network

[3] ACOG: Remobilising Airspace Change Report July 2020
[4] CAA: Airspace Modernisation Update
[5] CAP1887 Proposed Criteria for Assessing and Accepting the Airspace Change Masterplan

Manager. The CAA has also updated its PBN web pages, to include a link for submittal of the individual stakeholders' PBN Transition Plans.

13. Under Review of Air Traffiic Service Provisions in the UK - initiative 9, the CAA continued work on the development of a draft FIS procedures, with planned stakeholder engagement for next year.

14. There were several achievements under the Airspace Classification Review - initiative 10, where the CAA have prepared, consulted on and published a new procedure for reviewing the classification of airspace. Earlier in the year the CAA have also publicly called for suggestions from stakeholders for volumes of airspace that might be considered for reclassification under the new process. The CAA have also commenced recrutiment of a new team, which will be responsible for tasks under the airspace classification review workstream.

15. Under Deployment of Electronic Surveillance Solution - initiative 11, the DfT has made available funding to encourage the adoption of Electronic Conspicuity within the UK's General Aviation and Remotely Piloted Aircraft Systems communities, with the CAA responsible for distributing these funds via a rebate scheme.

16. Under Efficient Use of Radio Frequency Spectrum - initative 12, the CAA have reached an Agreement in Principle with Ofcom, for the use of 978MHz, for some form of additional electronic conspicuity capacity, with trials planned for early 2021 to demonstrate how the frequency will be used. The trials will be covering Beyond Visual Line of Sight (BVLOS) operations and provision of Traffic Information Service from ground to air.

17. Under Full Adoption of Datalink Communications - initative 13, the UK have achieved full compliance with Datalink IR 29/2009, which was implemented on the 5th of February 2020.

18. Under Air Traffic Management - initative 15, NERL has nearly completed the initial build phase of the Voice and En Route systems. NERL has also secured Data Centres to host virtualised system architecture, equipage of Swanwick and Prestwick Ops rooms, and undertook 23 of 24 factory

acceptance tests for the main voice system. NERL has also achieved completion of the connection of NERL network, across the entirety of the UK. iTEC achieved Factory Acceptance Testing for the version that will be used for Limited Operational Service (LOS) at Prestwick. NERL has also collaborated with the CAA on the development of the RP3 Roadmap for AIS delivery.

19. In Chapter 2 we provide an update from the co-sponsors on governance, policy and regulatory process since the last publication of the progress report in 2019 and the publication of the AMS in 2018.

20. Chapter 3 outlines 2020 stakeholder engagement activity undertaken by the CAA and the entities leading on the delivery of initiatives under the AMS. The chapter also sets out the approach for engagement plans in the future.

Chapter 1

Delivery plans and progress 2020

1.1 The means of delivering airspace modernisation, such as the resources needed to bring in changes, ultimately rests with the industry organisations that will use airspace. For example, the CAA can set out why airspace redesign is needed and the policy ends it must achieve, but we cannot do that airspace change ourselves. Delivery plans must be set out by the organisations that will undertake this design, or integrate the concepts and technologies.

1.2 A remider of the delivery entities for each initiative, and the means of tracking progress is captured in Figure 1.1

1.3 Table 1.1 below provides an overview for each initiative. Progress towards completion indicated in delivery plans has been indicated by a green, amber or red status and compared with progress inidcation made in the previous year:

- green status indicates that the initiative is on track to be completed in the timescales expected;
- amber status indicates that the initiative needs attention from key stakeholders to ensure completion in the timescales expected, or that there may be merit in reconsidering deadlines where possible;
- red status indicates there are major issues with the initiative and a significant risk that completion will not be achieved in the timescales expected.

1.4 Key dependencies and risks to the realisation of modernisation benefits are also summarised in Table 1.1. The risks are assessed on a 1 (low) to 5 (high) scale against likelihood (L), and severity (S).

Figure 1.1 – Delivery Entities and Progress Tracking

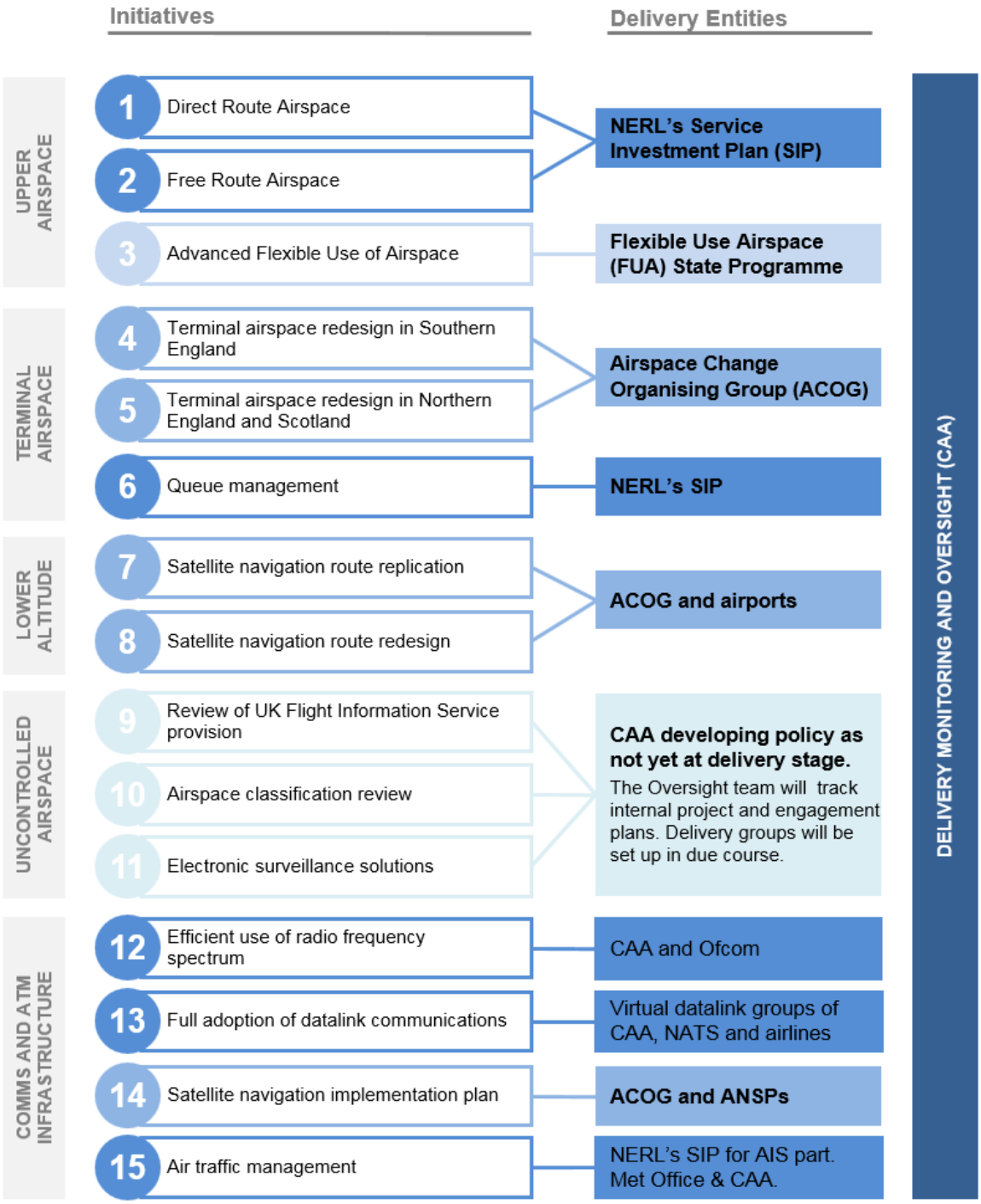


Table 1.1 Initiative plan and progress status - December 2020

Direct Route Airspace	1	NERL's SIP

UPPER AIRSPACE

Description: deployment of additional waypoints to the existing route network.		**Implemented**
1.1 New waypoints	1.2 Established procedures	1.3 Airline flight planning system
Timescale: by 2022		**Driver:** EU ATM Masterplan
Stage: Implemented		**Mechanism:** NERL's SIP

Progress Update

The implementation of Direct Route Airspace (DRA) was mandated in European Law under the EU Implementing Regulation EU716/2014 as a steppingstone towards Free Route Airspace (See Initiative 2).

DRA has been introduced by NERL and optimised ahead of the required timescales. NERL continues to develop the airspace design on an iterative basis, including waypoint location, to optimise the airspace.

DRA was deployed with no anticipation of delivering environmental benefits. Post Implementation Review (PIR) undertaken by NERL indicated 3,541T fuel and 11259T of CO2 benefit realized in 2015.

This initiative is now considered as implemented and closed, due to the fact that NERL has dedicated efforts and resource to further optimise airspace design under the Free Route Airspace concept, as described below under initiative 2.

Risks to benefit realisation: n/a	**Score:** n/a

Free Route Airspace	2	NERL's SIP

UPPER AIRSPACE

Description: removal of all fixed routes so aircraft can fly fully optimised routes.		**2019** ➡ **2020**
2.1 Remove fixed route network	2.2 New procedures	2.3 Airline flight planning system
Timescale: 2025		**Driver:** EU ATM Masterplan
Stage: Delivery		**Mechanism:** NERL's SIP

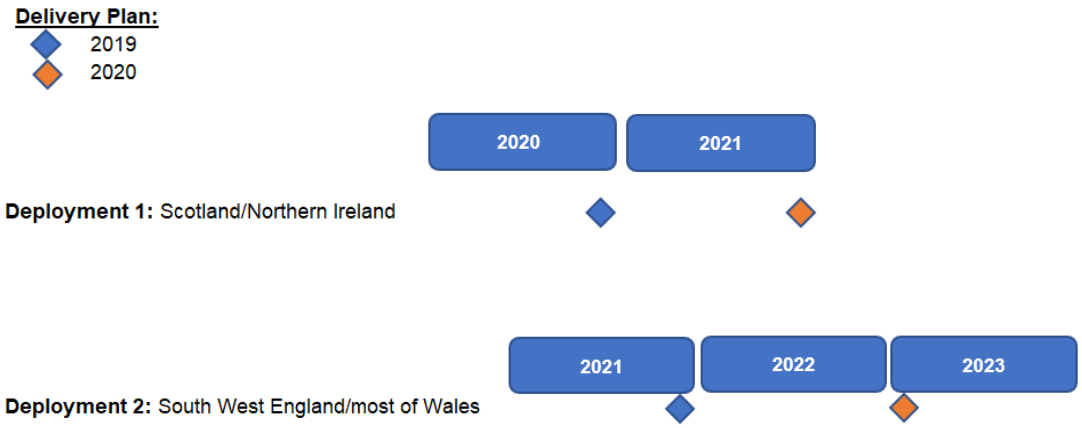
Scope

Free Route Airspace (FRA), as defined by EUROCONTROL, is a *'specified airspace within which users can freely plan a route between a defined entry point and a defined exit point, with the possibility of routeing via intermediate (published or unpublished) waypoints, without reference to the Air Traffic Services (ATS) route network, subject of course to availability. Within such airspace, flights remain subject to air traffic control'*.

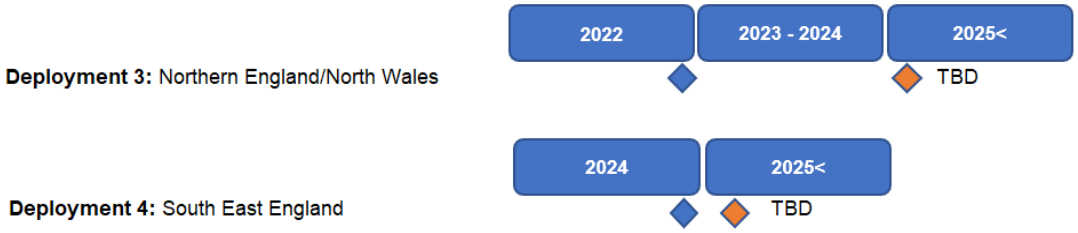
The implementation of FRA was mandated in European Law under the EU Implementing Regulation EU716/2014. NERL is intending to cover these requirements and Borealis Alliance[6] ambitions for the UK, whilst managing the deployment in line with other simultaneous airspace modernisation projects.

The programme was originally initiated in January 2015, to fulfil the key free route planning principles, where users could ultimately flight plan to preferred trajectories, irrespectively of the air traffic control responsibility boundaries across the Borealis-controlled airspace.

Key Milestones



6 The Borealis Alliance is a group of ANSPs collaborating on a major programme to deliver free route airspace across the whole of Northern Europe.



Although Deployment Plans for phases 1 and 2 (D1, D2) have now shifted by approximately 12 months, in comparison with the plans set out in the 2019 progress report, delivery of the initiative is currently expected to meet the required timescales.

With NERL's proposed phased approach to delivery over the whole RP3 period, deployment dates for Northern England/North Wales and the South East England are yet to be confirmed.

Key Achievements

The initial work undertaken, focused on collaborative development of the Concept of Operation at a European level, with NERL initiating the CAP1616 airspace change process for local deployments phase 1 & 2. The airspace change proposal phase 1 (FRA D1: ACP-2018-1) is currently at step 4a[7] of the airspace change process. The online Airspace Change Portal includes up to date information and documents for this change, which can be accessed here.

The airspace change proposal phase 2 (FRA D2: ACP-2019-12), which supports deployment of FRA across the Swanwick West Sector Group, is currently at stage 3a of the airspace change process. The online Airspace Change Portal includes up to date information and documents for this change, which can be accessed here.

FRA deployment in the PEMAK triangle and TAKAS box areas of airspace (FRA D2.1: ACP-2020-39) is currently at step 2b, with the Stage 2 Develop & Assess gateway passed in November 2020. The online Airspace Change Portal includes up to date information and documents for this change, which can be accessed here .

The programme was paused as a result of COVID-19, in consultation with customers, and permission to restart the programme was received in September 2020. The phased introduction of FRA will lead to a further two deployments, though a Statement of Need has not yet been submitted to the CAA for either.

Dependencies

Deployments 3 & 4 are dependent on the iTEC platform installation, which is part of Initiative 15, with timescales yet to be confirmed.

[7] NATS: Free Route Airspace Deployment 1 Stage 3

Benefits

The key benefit of Free Route Airspace delivery is an improvement of Upper Airspace efficiency. In line with requirements set out within the AMS and the EU Reg. 716/2014 – Pilot Common Project, it will deliver airspace harmonisation at a European level, enabling operational and fuel consumption cost savings, whilst reducing CO2 emissions, in line with environmental objectives set out within DfT's Air Navigation Guidance 2017.

During the Options Appraisal Phase II stage NERL submitted information regarding anticipated deployment benefits, which detail can be accessed through the links provided under the 'Key Achievements' section above. NERL estimated that D1 deployment would deliver up to 3,841T of fuel and up to 12,214T of CO2 benefit.

D2 benefit analysis undertaken by NERL in September 2020, estimated a potential fuel benefit of up to 3,157T, dependent on the scale of structural limitations required. Integration with Systemized Airspace model P8 is likely to change this interim estimate, with figures planned for an update in 2021.

Both D1 and D2 fuel and CO2 figures are enabled benefits, and therefore realized benefits are contingent on airline flight planning behavior. In addition, the above presented figures have been based by NERL on pre-COVID-19 forecasts and cannot be validated at this stage, due to volatile impact of the pandemic on traffic levels.

Benefit scoping of D3 and 4 D4 is yet to be undertaken by NERL, with no further information available at this stage on the impact of later delivery.

Stakeholder Engagement

NERL engaged with stakeholder groups, consisting of Air Navigation Service Providers, Airlines, Airports, Data Houses/ Flight-planning providers; National Air Traffic Management Advisory Committee (NATMAC) Members and the Ministry of Defence, as part of D1 consultation.

Consultation responses were Collated and Reviewed in March 2020, as part of Step 3d of the CAP1616 process.

NERL have also commenced engagement on the Investment Programme with a virtual pre-SIP Customer call held in September, followed by airspace investment workshop in October and a Technical Infrastructure Sustainment and Transformation workshop in November. NERL has welcomed feedback from the call participants, as well as presenting investment proposals and benefits. The engagement is an ongoing process and will continue into 2021.

Stakeholder Impact

With deployment affecting operations above 25,500ft, it is anticipated, based on NERL's assessment, that the programme will not bring significant change to noise or visual intrusion below 7,000ft (DfT specified threshold), therefore bringing no change to impact on stakeholders on the ground.

It is also expected that large scale military operations will be managed through flight plan restrictions, notifiable by NOTAM, therefore deployment of Free Route Airspace is expected not to have an adverse impact on military operations.

Whilst commercial airlines' operations will be positively impacted by deployment of Free Route, the expectation is that the general aviation sector will not be impacted in an adverse manner.	
Risks to benefit realisation That aircraft operators do not invest in the flight planning system upgrades required to use Free Route options effectively and maximise the benefits of implementation.	**Score:** 8 (Likelihood:2) * (Severity:4)

Advanced Flexible Use of Airspace 3 — FUA State Programme

UPPER AIRSPACE

Description: to increase airspace configuration options supporting more efficient use.		**2019** ➡	**2020**
3.1 New airspace structures	3.2 New procedures	3.3 Airspace management tools	
Timescale: 2022-24	**Driver:** EU ATM Masterplan and UK State Requirements		
Stage: Delivery	**Mechanism:** Flexible Use of Airspace State Programme (FSP) Working Group		

Scope

Established in 2016, the Flexible use of Airspace State Programme (FSP) Working Group have developed the Advanced Flexible Use of Airspace (AFUA) concept and a co-ordinated plan, based on design principles to accommodate both civil and military user requirements, through improved management of special use airspace (SUA) and flexible airspace structures (FUA) for commercial and military use.

The main activities that will deliver this initiative include:

- airspace changes and redesign of airspace structures to offer more flexible locations, in line with military requirements and civil traffic flows
- extending Airspace Management (ASM) tools, processes and data sharing, through access and use of LARA (Local and Regional Airspace Management tool)
- implementing a new performance framework to provide statistics and trend analysis

Key Milestones

Re-planning activity of the programme is expected to commence as part of the RP3 consultation. The next steps are to progress into the identify and define phases of programme, which will provide more granular detail to the plan and establish projects and ACPs to progress delivery.

As the programme matures and other influencing developments require change, such as regulatory direction or defence security reviews, this plan will be updated to ensure alignment.

Key Achievements

In light of the COVID-19 pandemic and its impact on the industry, key activities planned for 2020 have been paused, with areas of progress listed below:

MoD

- requirements development and trial ACP submission
- commenced collaborative work with NERL on identifying and agreeing where primacy of civil access at peak network demand can be improved

NERL

- ongoing ASM data integration with ATM systems (DSESAR platform)
- feasibility planning activities for FSP

Risks

- The concept cannot be realised without improved utilisation performance, which relies on true interoperability, integration and commonality of tools, support systems and processes between the civil and military users.

- To mitigate against safety risks and enhance CDM, integration of ASM data to provide a level of automation is required.

- Due to the complexity of the programme and dependencies, any larger MoD ACP will not be delivered until after Free Route Airspace implementation.

- Lack of resource and funding availability may hinder implementation of the programme in the planned timescales. Mitigation activity is dependent on the RP3 plan agreement, for which NERL is in the process of undertaking consultation engagement activity. Scalable and cost-efficient technical solutions are also being investigated by all stakeholders and MOD continue to review workforce resource to enhance ASM.

Dependencies

It is recognised that successful implementation of AFUA is dependent on other AMS initiatives, namely initiatives 2 - Free Route Airspace and initiative 10 - Airspace Reclassification, as well as other programmes aiming to create opportunities that enable airspace efficiency and optimisation.

The programme is also dependent on technical solutions, service and user agreements and enhanced airspace management processes, which must be articulated and agreed, in order to facilitate any future airspace changes. The detail of these activities will be developed as the programme moves forward. Funding arrangements for airspace management tools need to be confirmed before procedures can be developed.

Benefits

The key benefit brought about by the deployment of AFUA is efficient airspace management. It will make planning and sharing of airspace between agencies more collaborative and predictable. Reservation of any volumes of airspace needed for a particular exercise or mission will be more efficiently tailored, thereby delivering

operational efficiencies to MoD, whilst minimising as far as possible any disruptive impact on other Airspace Users.

With that, additional airspace capacity will reduce the risk factors associated with traffic congestion and peaks in controller workload. Increasing the number of route options available to airspace users will allow air traffic controllers to manage more flights through the same sectors and aircraft will have the flexibility to plan and re-plan flightpaths in response to poor weather, segregated areas and airspace restrictions.

The programme will further support delivery of environment benefits, with aircraft having the flexibility to flight plan and fly more direct routes at more efficient altitudes and speeds, than with limited fixed waypoints, reducing emissions per flight and saving fuel.

Finally, with the military having efficient and effective access to suitably sized and sited volumes of airspace to complete its missions, information on actual planned utilisation of reserved airspace will be shared in real time, enabling airspace to be handed between users with minimal unutilised time.

Stakeholder Engagement

The FSP working group is chaired by the CAA and is supported by members from stakeholder organisations including MoD, NERL, Airline operator representatives and ATM consultants, whilst members of General Aviation community and other interested parties will be consulted on, in line with the requirements of the CAP1616 process.

Stakeholder engagement continually undertaken over the last 3-year period under FSP enables both NERL and MoD to ensure that stakeholders develop their current procedures and extend the use of LARA throughout their organisations and operational areas. Future stakeholder engagement through FSP will establish forums and mechanisms to strengthen collaboration between the key industry stakeholders, where dependencies on each stakeholder group will be examined, to support delivery of each programme milestone.

The engagement will cover the following:

- enhancements to En-route air navigation (e.g. Free Route Airspace) and the introduction of trajectory management for commercial air transport flights (NERL, Airlines, Flight Plan System Providers)
- co-dependent airspace changes at lower altitudes (sponsored by airports) and in the terminal network (sponsored by NERL) that impact on FUA structures
- the deployment and integration of more advanced and interconnected Airspace Management Tools for the temporary booking and release of FUA structures (NERL, MOD, Airlines)
- new and amended policy and regulatory outputs required to guide the development and operation of FUA improvements in the UK (DfT, CAA and MOD)

- activities to align FUA improvement activities with ANSPs and Military stakeholders in other European States (NERL, MOD, CAA)
- Deliver a programme of engagement with key stakeholders to refine and agree the scope of any dependencies and the actions required to manage them effectively
- Create the forums and programme management mechanisms to track the progress of each action and monitor the impact on the dependencies.

Risks to benefit realisation That the implementation of new airspace structures restricts the access of civil and/or military traffic to key routes or volumes of airspace, generating inefficiencies and capacity constraints in certain areas of the UK; and that AFUA will not deliver sufficient airspace to facilitate military activity.	**Score:** 9 (Likelihood:3) * (Severity:3)

FAS implementation South 4 **ACOG**

TERMINAL AIRSPACE

Description: redesign of the terminal network in Southern England. **2019** ⬇ **2020**

4.1 Terminal airspace redesign	4.2 New procedures	4.3 Not Applicable
Timescale: 2026	**Driver:** EU ATM Masterplan and airports NPS	
Stage: Delivery	**Mechanism:** Airspace Change Organising Group (ACOG)	

Scope

Of the 15 initiatives in the AMS, two are known as Future Airspace Strategy Implementation – South, and Future Airspace Strategy Implementation – North (known as FASI-S and FASI-N respectively). These are complex airspace design programmes that require coordination between the different sponsors of airspace changes.

The CAA and the DfT have commissioned NERL to lead the FASI-S programme to create a coordinated plan for airspace changes in the South of the UK (or Masterplan for short). NERL has been asked to establish an impartial team known as the Airspace Change Organising Group (ACOG) to carry out this task. In due course, the Masterplan will identify the individual airspace change proposals, that will need to be developed to achieve the necessary modernisation.

The sponsors involved in the FASI-S programme are NERL (which manages upper airspace and its design) and the airports, which for FASI-S are: Biggin Hill, Bournemouth, Bristol, Cardiff, Exeter, Gatwick, Heathrow, London City, Luton, Manston, RAF Northolt, Southampton, Southend and Stansted.

The FASI-S airspace change programme is particularly complicated due to the number of changes necessary to achieve modernisation over the South of the UK.

The programme paused in March 2020 when COVID-19 hit, and all the FASI airports were compelled to refocus their attention on conserving liquidity and managing the crisis. A report by ACOG' Remobilising the Airspace Change Programme'[8], assessed the impact of the pandemic on the Masterplan and the airspace changes within it and, amongst a series of ten recommendations, requested that the government fund the component airspace changes up to the end of stage 2 of the airspace change process.

The CAA has supported the DfT in assessing the potential to fund this work and ensure the continuation of the programme, to realise the environmental and other benefits to be realised through it. At the time of writing this document there has been no formal decision about whether the airspace change programme can be funded externally. Without a solution to the problems that have led to the pausing of this programme, the CAA considers the delivery of this initiative to be at risk.

Masterplan approach
The purpose of the Masterplan is to set out where airspace change could be taken forward, to provide benefits and to consider potential conflicts, trade-offs and dependencies. The Masterplan does not set the detail of individual airspace designs or solutions. It will include a programme plan for the development of the individual changes that together will make up the Masterplan as well as an implementation plan for those changes. It will identify where any airspace changes would be needed to deliver a range of benefits, including to reduce noise, deliver air quality or fuel efficiency benefits or where more direct routes are possible that could reduce controlled airspace.

Key Achievements
NERL has now established ACOG and submitted Iteration 1 of a Masterplan, for changes in Southern England to the CAA. The CAA and DfT, as co-sponsors, intended to publish this along with CAA's assessment of it in early 2020, however publication was delayed due to COVID-19.

ACOG's work since Iteration 1 was produced, has refocussed the direction of the Masterplan, however the CAA intends to publish its feedback on Iteration 1 of the Masterplan, undertaken before ACOG was established, for completeness.

Masterplan Acceptance Criteria
Acceptance of the Masterplan is a separate regulatory decision to airspace change decisions.

ACOG proposed an iterative approach to the development of the Masterplan, which recognises that different information and levels of detail will be available at different points as the plan develops. The Masterplan which ACOG produces will be formally assessed by the CAA and the DfT as co-sponsors and, subject to that assessment, accepted into the AMS.

[8] ACOG: Remobilising Airspace Change

That acceptance makes the Masterplan, together with CAP 1616, the legal basis against which the CAA makes decisions on individual airspace change proposals, including those individual proposals that are in the Masterplan.

Between February and June 2020, the CAA carried out an engagement exercise on the draft criteria for acceptance of the Masterplan. The draft criteria set out the proposed requirements for ACOG's development of the Masterplan and the analysis the DfT and CAA will undertake, before deciding whether to accept the Masterplan. That analysis seeks to determine whether the commission for the Masterplan is being met, and that the Government's policy objectives are being delivered.

The CAA is currently analysing the results of the engagement exercise and expect to publish the acceptance criteria in Spring 2021.

ACOG - Structure
ACOG manages the delivery of FASI-S and FASI-N initiatives. The requirement for ACOG is defined in the AMS, and the DfT and CAA co-sponsor the AMS and monitor and report on ACOG's activities, as in this progress report. NERL provide ACOG with facilities and administrative support.

The ACOG team operates with oversight from an impartial Steering Committee, comprising of senior experts drawn from across the aviation sector. ACOG team is recruited and organised into three delivery areas: Programme Management, Coordination and Integration, and Communications and Engagement. The team leaders in each area report to the Head of ACOG, with delivery progress overseen by the ACOG Steering Committee.

ACOG's report – Remobilising Airspace Change
ACOG were due to produce Iteration Two of the Masterplan by Summer 2020.

COVID-19 has caused most sponsors (airports and NERL) to pause their airspace change programmes, while they focus on more immediate operational priorities. In light of this, ACOG were asked to consider plausible scenarios set against different recovery models for aviation and the ability or appetite to continue with modernisation, in light of the devastating effects of the pandemic. The resulting analysis has produced a set of predictable outcomes that have informed ACOG's assessment of the impacts on stakeholders and generated ten recommendations.

There were four illustrative options that demonstrated the range or breadth of activity that could be undertaken, dependent principally on the availability of funding, to remobilise the programme.

The DfT and CAA immediately accepted three of ACOG's recommendations, namely to:

- ask ACOG to establish clear protocols for:
  - the airports that are able to resume work on airspace change;
  - engagement with those that remain paused;
  - the exit process for those that decide to opt out (subject to their criticality to the programme);

- ask NERL and ACOG to work together to re-evaluate NERL's 2018 feasibility report into airspace modernisation, specifically in order to identify the core set of airport-led airspace changes, that will be required in the post COVID-19 world;

- in the short term, work with ACOG to ensure that work on airspace change, that can still progress, does not conflict with or constrain the broader programme.

The DfT and CAA committed to consider the remaining recommendations in further detail, given the range and scale of the options proposed. The CAA has since provided with an update aimed at Sponsors restarting a 'paused' ACP, on how the CAA intends to assure, that ACPs in the FASI-S programme, that are progressing to a CAP1616 Stage 2 Gateway assessment, do not constrain the optimisation of the wider network.

Sponsors restarting a 'paused' Airspace Change Proposal (ACP)
In October 2020, the CAA published updated guidance, which sets out what evidence and assurance that sponsors resuming an existing airspace change will need to provide to the CAA, before restarting and progressing further. This guidance applies whether they are part of the FASI programmes or not, and which have been paused.

There are a number of considerations that the CAA will need to understand in terms of any relevant changes in the background context, including;

- any changes to the issue or opportunity identified in the Statement of Need, operating environment or geographical area in which the ACP is being developed;

- changes to law, government policy or CAA requirements that would affect the development of an ACP, or parts of an ACP;

- changes to identified stakeholders.

If there have been relevant changes in context, the sponsor will need to consider whether previous work is still appropriate, can be adjusted or requires an element of work or stage of the CAP1616 process to be revisited.

The ACP restart guidance[9] includes our current understanding of the government's position on relevant policy and our approach to actual and traffic forecasts during, and as a result of, the COVID-19 period.

The aim is to avoid requiring sponsors to repeat work previously conducted where possible. However, there may be circumstances where work will need to be revisited or further information provided on a case by case basis to minimising the possibility of the ACP failing at a later stage due to context changes during the pause.

[9] CAA: ACP Restart Guidance

Risks

A number of high priority risks have been identified by ACOG during its first full year of operation. These could significantly impact on the scope and timeframes of the Programme when it remobilises and are identified as follows:

- insufficient short-term funding to remobilise the Programme – airport ACP sponsors and NERL are restricted in their ability to invest in airspace developments, especially in the near term due to impact of COVID-19 on their revenue;

- insufficient resources - linked to the funding risk, redundancy schemes at many of the airports have created significant resource gaps across the Programme and reduced the availability of specialists with important technical knowledge and experience.

- uncertainty around traffic recovery profile and future traffic levels impact the ability to develop required scope of each ACP and the nature of the dependencies between them. For example, if traffic fails to return to pre-COVID-19 levels over the long-term, there is a risk that some airport ACPs may need to revert to earlier stages in the change process, to align their revised design options to a lower capacity requirement.

- uncertainty about future runway developments - linked to the traffic forecasts, uncertainty of scope and timeframes of plans to introduce additional runway infrastructure in the South East of England makes it difficult for the airports and NERL to determine the required scope of each ACP and the nature of the dependencies between them.

- changes to the policy and regulatory framework that underpins airspace change, both domestic and international have the potential to impact progress in developing airspace changes and the policy objectives they should meet. For example, possible updates to the scope of the Airspace Modernisation Strategy, the timelines for compliance with EU Implementing Rules that will be adopted into UK law at the end of the UK-EU transition period and the application of Single European Sky legislation each have the potential to affect the Programme.

Dependencies

One of the key functions of the ACOG team is to coordinate the identification of interdependencies emerging between co-dependent ACPs and support the participants to integrate their airspace designs effectively.

During 2020, ACOG worked with the participants to collate baseline information about the potential number and location of the interdependencies by creating a detailed inventory of the connecting points between the airport-led and NERL ACPs.

In 2021, ACOG plans to continue this work with the Programme participants to define the nature of the dependencies in each area at a level of detail and examine potential solutions.

Benefits

The Programme is expected to generate a range of benefits for a broad mix of stakeholder groups. Due the complexity of the Programme, it is possible that creating benefits that fall to one stakeholder group may at times lead to disbenefits for others. The trade-offs between benefits and disbenefits must be carefully managed and informed by widespread stakeholder engagement.

In 2019, the Secretary of State for Transport provided a set of strategic aims that the Programme should deliver, including creating additional capacity, reducing controlled airspace and removing constraints in the lower altitude airspace to facilitate General Aviation (GS) and Remotely Piloted Aircraft Systems (RPAS) operations, mitigating the impact of aircraft noise and reducing aviation emissions.

During 2020, ACOG has produced an inclusive framework for quantifying and tracking the impacts and benefits of the component ACPs and the overall system level design.

During 2021, the Benefits Framework will be expanded and refined, drawing together information about the range of impacts associated with the ACPs and gathering feedback from external stakeholders about the wider costs and benefits of the system level design.

Stakeholder Engagement

As a relatively new body, ACOG's engagement in the first part of the year was focused on raising awareness of ACOG and its role in coordinating the national programme of airspace change. This included engagement with a broad range of stakeholders. ACOG's engagement approach aims to ensure that stakeholder's feedback is valued and that they can influence important features of the final airspace design.

The engagement plans developed by ACOG in 2020 have provided the Programme participants with greater insight into the size, nature and diversity of the stakeholder groups and how to encourage active participation. The engagement activities conducted during 2020 aimed to ensure all stakeholder groups are aware of what is planned as part of the Programme, why the changes are being taken forward, how they will be consulted, how their views will be taken into account and timescales for this. The focus of ACOG's stakeholder engagement during 2020 and evidence of engagement activities has been set out below:

Airports

- Multiple dedicated engagements with all FASI-S and FASI-N airports to define the requirements to redesign arrival and departure procedures at lower altitudes and integrate their routes with the NERL-led network level changes;
- General briefings to the UK airport community at the 2020 Airport Operators Association (AOA) Conference and engagement with the European airport community at the EUROCONTORL Digitally Connected Airports Conference;
- Dedicated engagement with the AOA Airspace and Air Traffic Services Working Group;
- Engagement with a broad base of UK airports, airlines and ANSPs at the Industry Coordination forum for the AMS (ICAMS);

- Regular engagement with airport communications teams.

Airlines

- High-level briefings on the role of ACOG and the drivers, scope and timelines of the UK Airspace Change Programme delivered to UK airline executives and senior trade association representatives (Airlines UK and IATA);
- Two dedicated airspace concept and technical integration workshops with airline operations, technical pilots and avionics experts;
- General briefings to the airline community delivered at the Airlines 2050 Conference and the UK Board of Airline Representatives.

General Aviation and Unmanned Aerial Systems

- Briefings to the General and Business Aviation Strategic Forum (GBASF) and the National Air Traffic Management Advisory Committee (NATMAC) on the proposed approach to enhancing airspace access and integration;
- Engagement with Airspace4All (forum encouraging the GA community to adopt a unified approach to airspace modernisation) on tracking the rationalisation of controlled airspace;
- Engagement with the Aircraft Owners and Pilots Association (AOPA), Light Aircraft Association (LAA) and the British Business and General Aviation Association (BBGA) on ACOG's role and objectives regarding airspace access and integration;
- Engagement with UK Research and Innovation on the safe and efficient integration of RPAS operations as part of the Programme.

Community Representatives, Interest Groups and Local Government

- Support to airport participants in their engagement with local communities to agree airspace design principles for the ACPs;
- Engagement on the approach to improving aviation's environmental performance with Sustainable Aviation, the Aviation Environment Federation and DfT's Airspace and Noise Engagement Group;
- Engagement with the Independent Commission on Civil Aviation Noise on the proposed approach to joining up airspace consultations across co-dependent ACPs with impacts in the same geographical areas.

Central Government

- Briefings for the Transport Select Committee secretariat, Secretary of State for Transport and Aviation Ministers;
- Support for the NERL-led Parliamentary Drop-in sessions;
- Dedicated briefings for Members of Parliament.

Passengers, Businesses and the Wider Economy

- ACOG is the lead coordinator of the '*Our Future Skies'* media campaign that represents a coalition of airlines, airports, NERL and trade associations, describing how and why the airspace is being modernised and the process for engaging with stakeholders;
- Engagement with business groups including the CEOs of the Institute of Directors and Confederation of British Industry.

European stakeholders

- Engagement with the Network Manager at EUROCONTROL to ensure that the UK Airspace Change Programme maintains technical alignment as the Single European Sky initiative evolves.

A list of the potential ACOG stakeholder engagement related milestones for 2021 is set out below:

- Conduct comprehensive engagement on the development of the Masterplan, concentrating on the potential impact of interdependencies and possible solutions;
- Conduct dedicated engagement with General Aviation and RPAS operators to ensure their needs and requirements are collectively coordinated with the ACPs;
- Publish guidance on the approach to coordinated consultations for co-dependent ACPs with the potential to create cumulative impacts;
- Implement mechanisms to track the reclassification and release of controlled airspace and the realisation of benefits for GA operators and Military airspace users;
- Publish guidance for Programme participants on the features of effective engagement, including work with ICCAN to further develop its toolkit for consulting on the noise aspects of airspace change.

Risks to benefit realisation That the large number of co-dependent airspace changes required to modernise terminal airspace in the south of England are not co-ordinated effectively, leading to sub-optimal airspace designs, poor engagement with affected stakeholders, inefficient network integration and implementation delays. Inability of sponsors to undertake the work, due to financial and resource pressure, brought about by COVID-19's impact to sponsors' revenue.	**Score:** 20 (Likelihood:4) * (Severity:5)

FAS implementation North 5 — **ACOG**

TERMINAL AIRSPACE

Description: redesign of the terminal network in Northern England and Scotland

2019 ⬇ **2020**

5.1 Terminal airspace redesign	5.2 New procedures	5.3 Not applicable
Timescale: 2026	**Driver:** EU ATM Masterplan	
Stage: Delivery	**Mechanism:** Airspace Change Organising Group	

Progress Update

Future Airspace Implementation North (FASI-N) is a similar to FASI-S redesign of the airspace in Northern England and Scotland, to be coordinated by ACOG and with participation from NERL and seven airports: Aberdeen, East Midlands, Edinburgh, Glasgow, Manchester, Leeds-Bradford and Liverpool. The CAA conducted stage 1 assessments of both Glasgow and Edinburgh ACPs in February 2020, with the work subsequently paused, following impact of COVID-19.

Although a Masterplan has been commissioned for FASI-S, none has yet been commissioned for FASI-N. The reason for this is that both the Airports National Policy Statement and NERL's 'Feasibility Report into Airspace Modernisation in the South of the UK'[10] highlighted the urgency of coordinated airspace change in Southern England.

In due course, the DfT and CAA will co-commission the creation of Masterplans covering modernisation of the rest of UK airspace. In the absence of that co-commission, the CAA does not have a feasibility assessment or Iteration One of a northern or UK-wide Masterplan. Until development of such Masterplan that includes the North of the UK, the coordination necessary for FASI-N airspace changes is that described in CAP 1616 only.

Engagement and achievements under the FASI-N programme have been reflected within the text of initiative 4 above.

Risks to benefit realisation That the large number of co-dependent airspace changes required to modernise the terminal airspace in the north of England and Scotland are not co-ordinated effectively, leading to sub-optimal airspace designs, poor engagement with affected stakeholders, inefficient network integration and delays to implementation. Inability of sponsors to undertake the work, due to financial and resource pressure, brought about by COVID-19's impact to sponsors' revenue.	**Score:** 16 (Likelihood:4) * (Severity:4)

Queue management **6** **NERL's SIP**

TERMINAL AIRSPACE

Description: new capabilities to stream the flow of traffic. **2019** ➡ **2020**

6.1 Linear Holding Structure	6.2 New procedures	6.3 Queue management tools
Timescale: by 2024	**Driver:** EU ATM Masterplan	
Stage: Delivery	**Mechanism:** NERL's SIP	

Scope

NERL reports that queue management tools and procedures are relatively well developed and understood, with NERL an active member of the SESAR Deployment Alliance. As part of SIP re-planning, NERL expect greater clarity on the scope, ambition and timetable for further deployments of queue management, whilst focusing on benefit-driven approach to consultation with their customers.

[10] NERL: Feasibility Report into Airspace Modernisation in the South of the UK

Under the initiative's concept, NERL envisages deployment of Arrival Manager (AMAN) at Manchester and Stansted, upgrading Heathrow Time Based Separation (TBS) to Pairwise and deploying Optimised Mixed Mode TBS at Gatwick, subject to spending limits, airport funding and customer SIP approval.

Extended arrivals management (XMAN) is in place at Heathrow and went live at Gatwick in December 2019. Dependent on the outcome of the SIP-consultation, this may be upgraded to provide an Arrival Streaming capability through AMAN at suitably equipped airports. SESAR-funded research will determine to what extent this capability could support all UK airports as a Multi-airport Arrival Streaming Service (MASS) concept, which may further align to the Common Project 1 requirement to support overseas airports' XMAN procedures.

TBS Pairwise
Time Based Separation (TBS) is already in place at Heathrow. This is planned to be enhanced to Static Pairwise separation, which is individually tailored to each aircraft type. The project has over 1m EURO of SESAR 2020 funding.

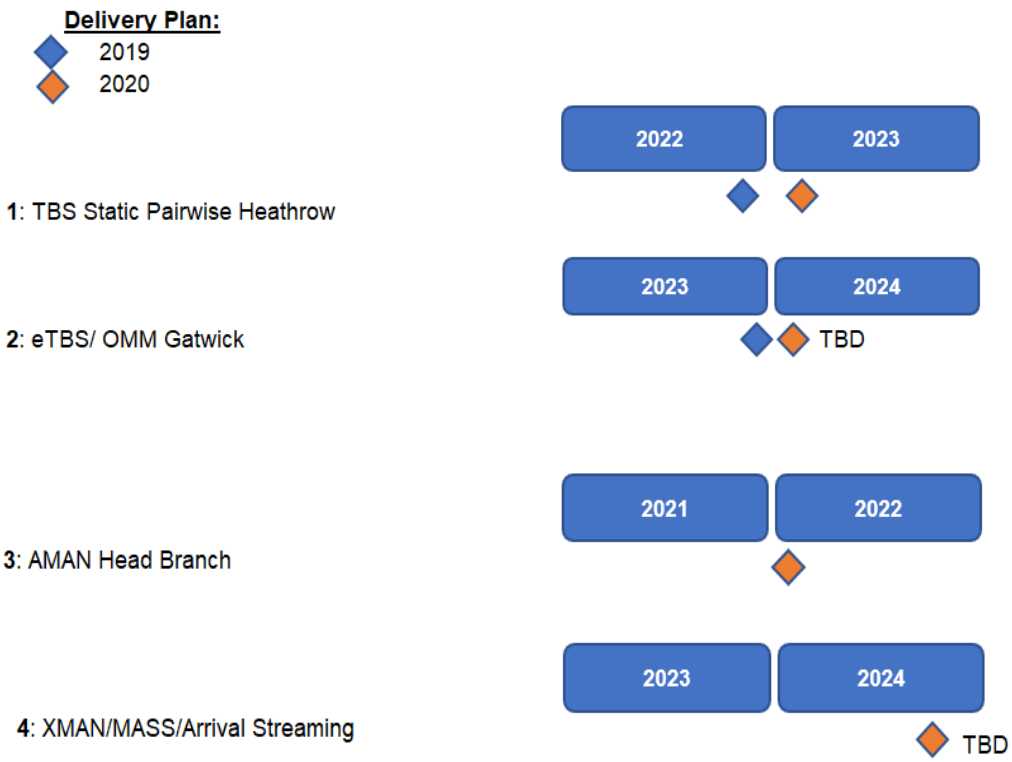
TBS Optimised Mixed Mode Gatwick
Optimised Mixed Mode TBS optimises the spacing between arriving aircraft, while allowing for interleaved departures. The OMM+ variant adjusts arrival spacing, while additionally taking account of the type of departing aircraft. This requires additional system and operations inter-operability. The exact version to be delivered is under discussion under the SIP engagement activity and will be confirmed by NERL in due course.

XMAN, MASS & Arrival Streaming
The concept is based on deployment of arrival streaming capability, so that pilots can manage their flights to meet a time-separated target time at the start of systemised airspace. The benefit anticipates increase of the numbers of aircraft that can fly a continuous descent from en-route to the TMA and reducing stack-holding time. Work is initially primarily SESAR funded and, depending on suitable positive results, will then be proposed by NERL as individual projects, planned for SIP discussions in 2021.

Key Milestones

NERL is currently engaging with the industry on the SIP re-planning. Outcome of this activity will determine the exact scope and planned timescales of deployment for this initiative, whilst some indication of optimum delivery windows has been suggested, as part of the customer engagement process.

Below information is indicative and subject to change, following completion of NERL SIP re-planning activity and subsequent projects' mobilisation.



Key Achievements

Whilst the consultation on the scope of delivery under SIP is still ongoing, at the time of writing this report, an achievement to highlight under the Queue Management initiative is the completion of Feasibility and Options Study and simulation of TBS OMM at Gatwick Airport in March 2020.

Risks

The key risk highlighted by NERL, is the dependency on prompt remobilisation of deployment in the early months on 2021, following outcome of SIP consultation. Impact may be seen, with above indicative timescales to shift for AMAN Head Branch and eTBS deployments. NERL has also highlighted the risk to TBS OMM implementation, with some elements currently out of scope and the need for funding from Gatwick Airport.

Dependencies

Key dependency on deployment of this initiative, particularly XMAN, is the influence of the FASI-S programme design and timing. TBS OMM deployment is also dependent on a suitable build opportunity of the NODE system, the ability to undertake ExCDS changes and integration with EFPS.

Benefits

Deployment of the queue management initiative is expected to deliver environmental benefits, associated with cost efficiencies for airspace users. It will maintain and where possible, enhance safety performance and deliver workload efficiencies through a

combination of ATM System and Airspace Change. Below is a summary of the currently deployed queue management benefits, observed by NERL:

Gatwick Extended Arrivals Management
Extended arrivals management and reduced descent speed procedures save airlines 1200 tonnes of fuel annually by transferring 27,000 minutes of delay out of the TMA.

Heathrow Demand Capacity Balancer
Using Demand Capacity Balancer (instead of normal ATC flow regulations), generated 26-41% less pre-departure delay during trials held between April and June 2019. Analytical modelling indicated that stack holding could be reduced by 5 mins, as a result of asking long haul aircraft to slightly slow during the entire cruise phase.

Heathrow Extended Arrivals Management
Extended arrivals management and reduced descent speed procedures save airlines 8000 tonnes of fuel annually, by transferring 132,000 minutes of delay out of the TMA. Higher proportion of heavy, faster aircraft, with routine stack-holding provides a big opportunity to gain benefits of slowdown.

Heathrow Time-Based Separation using NERL's and Leidos' *Intelligent Approach* the following benefits were noted by NERL:

- 62% reduction in Arrival (ATFM) delays due headwinds & more stability in landing & flow rates
- 230,000 minutes annual reduction in Heathrow average airborne holding, saving 15,000 tonnes of fuel per annum
- Average landing rate increased by +2 /+4.2 landings/hour & improved consistency of ATC spacing
- Arrival spacing savings equivalent to over 30 minutes of extra landings per day
- No tactical flight cancellations due headwinds
- Overall savings (including holding & delay) > €30m p.a.

Expected benefits for the proposed future queue management solutions have been captured by NERL and communicated as part of their SIP consultation. A summary has been provided by NERL below:

eTBS Pairwise
Solution will include safety case to reduce Minimum Radar Separation on final approach to realise benefits for all wake pairs. It will also optimise Runway Occupancy Time spacing indications. The benefit is expected to translate into an increased landing capacity, reduced delays and airborne holding and is expected to deliver >30kT CO2 per annum at 2019 traffic levels. Building on the SESAR work, the project will industrialise Pairwise Wake Vortex Separation into Heathrow TBS, providing increased landing capacity of 1-2 landings per hour, enabling significant fuel/CO2 savings and enhancing airport service resilience.

TBS OMM
The solution is expected to deliver increased landing capacity, reduction in delays and airborne holding. Environmental benefit will dependent on the degree to which additional capacity is scheduled. Early studies and simulations showed potential for substantial benefits in landing capacity (circa 2.8 - 4 landings per hour dependent on the solution OMM or OMM+).

XMAN, MASS & Arrival Streaming
Benefits of these solutions are expected to deliver significant Fuel/CO2 savings and reduce airborne holding, complexity and controller workload. It will also enhance capacity and safety and contribute to the wider benefits of the systemised airspace concept.

Stakeholder Engagement

NERL consulted with customers in June 2020 and advised of the urgent action to pause long-term investment activity, due to COVID-19 impact.

NERL held another customer engagement in September, to seek user agreement to restart investment plan at a lower rate than originally planned, again as a result of COVID-19. Stakeholders were advised that NERL is in the process of re-planning the investment plan to, consider the full impact of the pandemic and have engaged with customers in October, and as part of the formal consultation in December 2020.

Risks to benefit realisation That the implementation of multiple arrival and departure management systems focused on different airports are not integrated effectively at a network level, leading to pinch points & inefficiencies.	**Score:** 6 (Likelihood:2) * (Severity:3)

Satellite navigation route replication 7 — **ACOG and airports**

LOWER ALTITUDE

Description: replication of existing arrival and departure routes using Performance-based Navigation (PBN) concepts.	**2019** ⬇	**2020**
7.1 Route Upgrades	7.2 New procedures	7.3 Aircraft avionics upgrades
Timescale: by 2030	**Driver:** ICAO GANP, EU PBN Implementing Regulation	
Stage: Delivery	**Mechanism:** ACOG / Airports	

Scope

The scope of the initiative is based on requirements defined within ICAO GANP and the Commission Implementing Regulation (EU) 2018/1048, known as the PBN-IR.

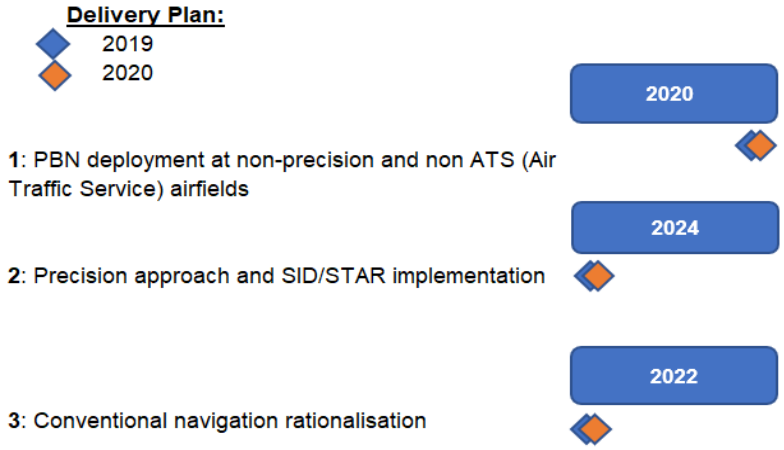
Performance-based navigation (PBN) is a concept, providing specifications for area navigation (RNAV) and required navigation performance (RNP), which can be applied to an airspace volume, air traffic route or instrument procedure.

ICAO defines the concept as an '*area navigation, based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace. (…) Airborne performance requirements are expressed in navigation specifications in terms of accuracy, integrity, continuity and functionality needed for the proposed operation, in the context of a particular airspace concept. Within the airspace concept, the availability of GNSS Signal-In-*

Space (SIS) or that of some other applicable navigation infrastructure has to be considered in order to enable the navigation application.'[11]

The Navigation Specification is one of the components of the PBN concept, where integrity, continuity and accuracy of operational performance is defined, in a particular Airspace. Description for achievement of set performance is also included, such as requirements for specific navigation functionalities. Pilot training and knowledge requirements are also set, along with required operational approvals, dependent on the type of specification. RNP specification requires on-board self-contained performance monitoring and alerting, whereas RNAV specification does not. The Navigation Specification will indicate requirements for space- or ground-based navigational aids (Navaid Infrastructure), which availability must be considered, to support the navigation application on ATS routes, in line with instrument flight procedures.

Key Milestones



The key milestones presented above are applicable under the current timeframe however, they are expected to significantly change under the 2021 delivery plans, as a consequence of UK-EU Transition.

The DfT plans to review whether additional UK regulation is required for PBN in 2021, since only the parts of the EU regulation that were applicable by the end of the Transition Period will be retained into UK law.

Key Achievements & Stakeholder Engagement

Early in the year, the CAA was required to submit a State PBN Transition Plan to EUROCONTROL. The report was submitted and subsequently accepted.

In terms of coordination with the Network Manager (NM), the CAA submitted a State Report on behalf of UK providers of ATM/ANS, including aerodromes. This report reflects the current status of PBN implementation in the UK and CAA's expectations

[11] ICAO PBN Manual (Doc 9613)

for the 2020, 2024 and 2030 compliance dates. NM has provided feedback to this State Report with no further follow-up being required.

The CAA wrote to all NATMAC members in August and reminded providers of ATM/ANS, including aerodromes of their obligations, in respect of compliance to the PBN IR and the 3rd December 2020 deadline.

The CAA then followed up with an update to the CAA PBN web pages, including a link whereby aerodromes can submit to the CAA their online PBN Transition Plans. To date, the CAA has spoken to a number of aerodromes, to assist them in completing the PBN Transition Plan form.

Risks

The CAA have recognised the risk of limited aerodrome compliance with the requirement to submit PBN Transition Plans. At the time of writing this report, only 6 airport submissions have been received so far. Further non-compliances have been noted with regards to RNP Approach procedures at 12 Instrument Runway Ends and the requirement for 3 lines of operating minima at 13 Instrument Runway Ends.

There is also a risk noted by the CAA, of NERL exceeding the performance requirement for ATS routes, considered a technical non-compliance with the EU PBN Implementing Regulation.

Dependencies

Most airports required to upgrade their arrival and departure routes to PBN are doing so as part of the FASI-N and FASI-S programmes.

There is therefore a significant dependency with Initiatives 4 and 5, including the successful co-ordination of ACPs by ACOG. There is also dependency on the quality of the ACPs by sponsors, following the CAP1616 process, before submission to the CAA's airspace regulators for a decision.

Initiative 7 is also interdependent with the Satellite Navigation Implementation Plan, delivered under initiative 14.

Benefits

PBN delivers operational benefits of improved safety, access, flight efficiency and capacity, through optimising aircraft routing. With that, it translates into reduced CO2 emissions and fuel burn efficiencies. Applying the appropriate navigation performance specification can also mitigate against noise-sensitive areas, adding to environmental benefits of the concept.

Risks to benefit realisation It is expected that route replication can be achieved successfully, however not delivering on expected environmental benefits. Industry non-compliance with December 2020 deadline is the key driver for the initiative's status to be assessed as amber and requiring attention.	**Score:** 12 (Likelihood:4) * (Severity:3)

Satellite navigation route redesign 8 **ACOG and airports**

LOWER ALTITUDE

Description: deployment of new arrival and departure routes using Performance-based Navigation (PBN) concepts. **2019** ➡ **2020**

8.1 Route Design	8.2 New procedures	8.3 Aircraft avionics upgrades
Timescale: 2030	**Driver:** ICAO GANP, EU PBN Implementing Rule	
Stage: Delivery	**Mechanism:** ACOG / Airports	

Most airports requiring new arrival and departure routes designed to PBN standards, will be doing so as part of the FASI-N and FASI-S programmes.

There is therefore a significant dependency with Initiatives 4 and 5, including the successful co-ordination of ACPs by ACOG and the quality of the ACPs following the CAP1616 process before submission to the CAA's airspace regulators for a decision. In some circumstances new routes may be more difficult to achieve, and this will be monitored as ACPs progress.

The CAA asked other airports not covered by FASI-programmes to submit to the CAA their plans via an online template which was launched in 2020.

Key achievements, risks and benefits have been captured under initiative 7, above.

Risks to benefit realisation Design of new routes changes the environmental impact and can provide respite through alternation, however greater requirement for consultation cost and resource may lead to delayed delivery by impacted sponsors.	**Score:** 12 (Likelihood:4) * (Severity:3)

Review of air traffic service provisions in the UK 9 **CAA developing policy**

UNCONTROLLED AIRSPACE

Description: review of air traffic service provision in the UK to ensure alignment with international standards and interoperability across airspace boundaries. **2019** ⬇ **2020**

9.1 Define ATS requirements	9.2 ATS framework	9.3 Not applicable
Timescale: 2026	**Driver:** ICAO SARPs and PANS	
Stage: CAA Policy	**Mechanism:** TBC	

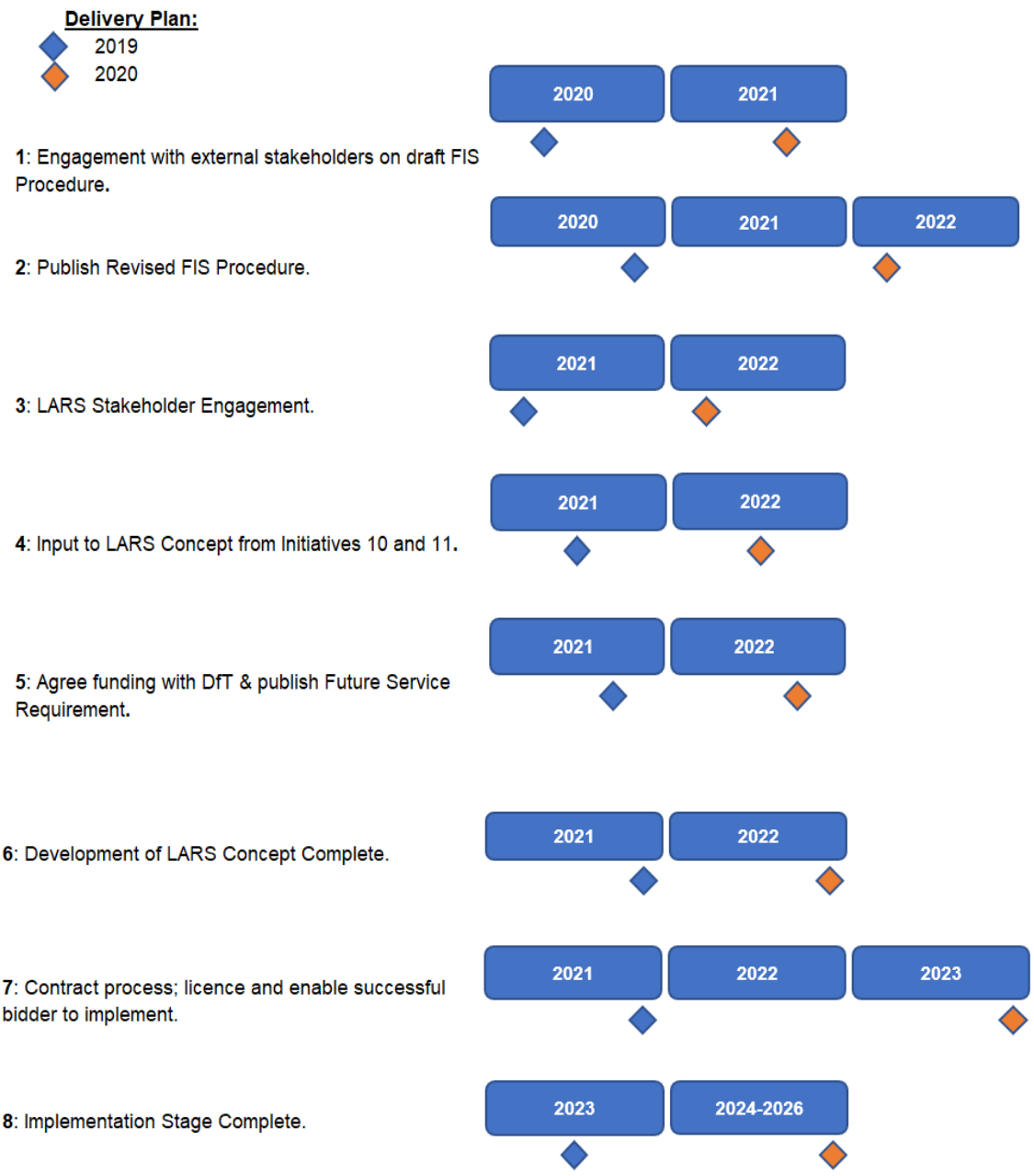
Scope

Initiative 9 requires the CAA to review air traffic service (ATS) arrangements in uncontrolled airspace. Specifically, it requires the following:

(a) a review of the ATS arrangements in uncontrolled airspace, which includes achieving increased alignment with ICAO's provisions on flight information service (FIS), and as a result- compliance with EU Part-ATS;

(b) consideration of the mechanisms and arrangements by which ATS are provided to aircraft in an En-route phase of the flight (currently delivered through the lower airspace radar service - LARS concept).

Key Milestones



Key Achievements

The CAA engaged with the MoD, NERL and Highlands and Islands Airports Ltd., to seek help to develop the State safety assessment of cooperative surveillance by Q3 2021, to help set the framework for those looking to deploy capabilities such as ADS-B and MLAT. The initial draft document on the airspace concept has been shared with stakeholders in December 2020 and describes the potential future surveillance environment. The CAA will also look to establish a working arrangement with stakeholders to help develop the State level safety goals and arguments, as well as look at the deployment level safety considerations.

In addition, the CAA continues with the work on the development of a draft FIS procedure, with a stakeholder engagement activity planned for latter parts of 2021.

Risks

Decisions on reclassification volumes of airspace and electronic conspicuity solution may impact timescales for deployment of proposed FIS procedure and LARS concept, where flexibility in airspace use is assumed to be required.

Delivery timescales for stakeholder engagement and subsequent deployment may slip further, due to ongoing COVID-19 restrictions and inability to predict the final industry impact.

Dependencies

Initiative 9 has key interdependencies with initiatives 10 and 11. FIS provision concept will inform work undertaken under airspace reclassification, whilst provision of interoperable and used by all airspace users electronic conspicuity solution will enable delivery of the concept, proposed under initiative 9. Implementation for all three initiatives will also need to be planned, reviewed and coordinated, to ensure safety is maintained and to reduce risks of impacting delivery.

Stakeholder Engagement

Consultation as part of the Provision of FIS procedure and LARS concept development has been undertaken as part of the AMS Concept Working Group, at the end of 2019. Representation included members of the airline, airport, GA and pilot community, with MoD and NERL in attendance. Planned March 2020 engagement with stakeholders at NATMAC, to update on the progress of concept development, has been cancelled due to the impact of COVID-19.

It is expected that FIS procedure engagement with NATMAC will take place in Q2/Q3 2021. Final publications and LARS concept development work will continue after that date, with a plan for a more detailed, targeted engagement, to explain the principles of ICAO FIS, their impact on stakeholder and to better understand specifics of local Operations and risk levels.

Benefits

Ensures UK compliance and alignment with international standards.

Risks to benefit realisation	**Score:** 12 (Likelihood:3) * (Severity:4)

That the funding model required to deliver a service that serves the needs of users will not be possible. Available technology may not fully support developed concepts and procedures.	

Airspace classification review 10	CAA Airspace Classification Team

UNCONTROLLED AIRSPACE

Description: review of airspace classification to optimise the integration of all classes of aircraft. **2019** ➡ **2020**

10.1 Optimised classification	10.2 New procedures	10.3 Electronic Conspicuity

Timescale: 2025 **Driver:** ICAO SARPs and PANS CAA (Air Navigation) Directions

Stage: Delivery **Mechanism:** TBC

Scope

The October 2019 amendment to the Air Navigation Directions gave the CAA a new function to regularly consider whether airspace classifications should be reviewed; to carry out a review (which includes consultation with airspace users), where we consider a change to classification might be made; and as we consider appropriate, to amend any classification in accordance with procedures developed and published by the CAA for making such amendments.

Key Achievements

Throughout 2020 the CAA developed a new procedure to review the classification of airspace. The Air Navigation Directions give the CAA a different role from the existing CAP 1616[12] airspace change process that governs proposed changes in airspace design. The procedure to review the classification of airspace is functionally separate from the CAP 1616 process, which gave us some flexibility to keep it proportionate to the intended objective and tailor it accordingly. There is one important fundamental difference, which is that the Directions require the CAA to propose the classification change, whereas CAP 1616 airspace change proposals are, with a few exceptions, generally 'sponsored' by an airport or air navigation service provider, with the CAA acting only as regulator.

[12] CAP 1616 Airspace change: Guidance on the regulatory process for changing the notified airspace design and planned and permanent redistribution of air traffic, and on providing airspace information. www.caa.co.uk/cap1616

We published the finished procedure as CAP 1991[13] on 30 November 2020 and brought it into effect on 1 December 2020. We also published a summary of the new procedure as CAP 1991a.[14] We had consulted widely on a draft of the procedure – CAP 1934[15] – between June and September 2020 and published the outcome of the consultation as CAP 1990.[16]

The three stages of the new procedure we have introduced are as follows:

Consider

The CAA commits to carry out a review of airspace classification every two years, with the possibility to defer the review by up to one year. Any decision to defer is based on whether we can reasonably anticipate having sufficient resources for a review, taking into account:

- national or international obligations
- airspace safety, efficiency, environmental or access benefits that a review might help to define and deliver
- outstanding priorities from previous reviews
- Department for Transport advice or directions.

We then confirm that we are carrying out a review and when. We may limit the broad scope of the review. We notify aviation stakeholders of our decision and reasoning.

Review

We use appropriate intelligence, including continuous monitoring of airspace safety, access or utilisation issues, to draw up a plan that lists airspace volumes where a case could be made for a proposed amendment to the classification, and a proposed schedule for when we will address them. We consult organisations in the Airspace Modernisation Strategy governance structure that represent airspace users and consider any additional suggestions from them. We apply filters to remove proposals not appropriate for this procedure, for example where they would have significant environmental or operational impacts, or where there is an ongoing or recent change in airspace design already. We engage with relevant controlling authorities to help refine the requirements for the next (Amend) stage. We publish our final plan of airspace volumes that we want to take further to the Amend stage and adopt it as part of the Airspace Modernisation Strategy.

Amend

We develop each proposal to amend airspace classification, relying on vital input from the controlling authority that manages that airspace, and working with other relevant stakeholders as necessary. Our proposal may be to change airspace dimensions or classification or manage access through alternative forms of air traffic management. The airspace controlling authority develops the operational procedures and safety case with

13 CAP 1991 Procedure for the CAA to review the classification of airspace. www.caa.co.uk/cap1991

14 CAP 1991a Summary of the procedure for the CAA to review the classification of airspace. www.caa.co.uk/cap1991a

15 CAP 1934 Draft procedure for reviewing the classification of airspace – a consultation. www.caa.co.uk/cap1934

16 CAP 1990 Outcome of the consultation on a draft procedure for reviewing the classification of airspace. www.caa.co.uk/cap1990 The actual responses can be seen on our consultation website. https://consultations.caa.co.uk/policy-development/draft-procedure-to-review-airspace-classification/

CAA assistance, but ultimately the controlling authority owns the safety component. We consult relevant impacted stakeholders about the proposal. We submit each proposal to the Airspace Regulation decision-making process. The controlling authority implements any change and after one year the CAA reviews the effectiveness of the change.

To accomplish this, these proposals are handled by a specialist CAA Airspace Classification team dedicated to this procedure that includes the skills to undertake airspace design. The new team has been recruited and we expect it to be in place in January 2021 to commence work on the first amendments. There are some aspects of a proposed change in classification that, even with those specialist skills, we cannot produce alone. We are reliant on the airspace controlling authority, as only they will have the local operational knowledge needed. This is why the controlling authority owns the safety of the airspace, and therefore the operational procedures and safety case for the amended design, even if we assist them as they prepare it.

The CAA's Airspace Regulation decision-making process assesses whether any amendment in classification complies with all relevant implementation requirements for airspace design and does not conflict with the airspace design overall. Although that formal decision comes at the end of the procedure, and is taken independently, there is still formal discussion between the CAA teams during the design process.

Progress with the initial review
In response to the October 2019 amendment to the Directions, and in parallel with developing the new procedure, the CAA decided to commence an initial review of the classification of airspace in December 2019. Stakeholders were asked to identify airspace volumes where a change to classification could be made, and to provide a rationale and supporting evidence for their suggestions. In June 2020 we published a summary of the responses to that initial review, as CAP 1935.[17]

Risks and mitigations

Key risks to the delivery of the initiative have been noted by the CAA and outlined below, alongside proposed mitigating actions:

- The controlling authority responsible for the airspace volume for which the CAA proposes for reclassification, may not have the resources to cooperate, particularly during the current COVID-19 pandemic. To mitigate that risk, the CAA will produce evidence as to why the change is necessary. Although the CAA is sympathetic to the current industry difficulties, any cost the controlling authority does incur should be seen as part of the cost of managing that airspace effectively, and therefore the CAA expects full cooperation. The CAA will monitor the implementation of the new procedure, in order to identify anything that is blocking progress, and may decide to engage with government about how to resolve any issues. The Air Traffic Management and Unmanned Aircraft Bill, should it become law, would give the Secretary of State (or the CAA if powers are delegated) new powers to compel input from the controlling authority, where it would assist in the delivery of the CAA's airspace strategy.

17 CAP 1935 Outcome of the consultation on the airspace classification review 2019/2020. www.caa.co.uk/cap1935 The actual responses can be seen on our consultation website https://consultations.caa.co.uk/corporate-communications/airspace-classification-review-2019-2020/

- The environmental impacts of a classification change could be uncertain. Removing controlled airspace, for example, effectively opens up that volume of airspace to all flights. If the airspace were previously relatively unused (hence the reclassification), there could potentially be an increase in noise from new low-level traffic. The CAA does not envisage any significant environmental impacts from a classification change, because these would have been filtered out at an earlier stage in the procedure. However, the CAA cannot model the impacts outside controlled airspace and in respect of this procedure, the CAA does not have specific guidance from the Department for Transport, on assessing environmental impacts. If the CAA notes a correlation between increased noise complaints and classification amendments, we will advise the Department for Transport, and reflect any policy changes they make in updates to the procedure. As with any change, the controlling authority will monitor its implementation and after one year the CAA will report on the effectiveness of the change and whether any further action is needed.

Dependencies

Key dependency with initiative 9 has been noted by the CAA, where aligning with ICAO and EU flight information service provision requirement is sought through delivery. In addition, there is reliance on electronic conspicuity mandate, delivered under initiative 11.

Stakeholder Engagement

The CAA consulted stakeholders in December 2019 seeking suggestions for volumes of airspace that might be considered for reclassification through the CAA's new procedure. We had 604 responses, of which 557 were from members of the General Aviation community, 24 were from the commercial aviation industry, 13 were from residents affected by aviation or local organisations such as community action groups and three were from national representative organisations such as trade associations.

The CAA held stakeholder sessions in January 2020, to brief on the consultation and to hear the views. The CAA has also consulted on a draft of the new procedure in June 2020, contacting more than 1325 individuals and organizations through a direct email and a further 10,000 through the CAA's Skywise platform. We had 123 responses, of which 72 were from members of the General Aviation community, 20 were from residents affected by aviation or local organisations such as community action groups, 17 were from the commercial aviation industry and 10 were from national representative organisations such as trade associations.

Potential 2021 Milestones

The new Airspace Classification team will spend 2021 developing the options to amend airspace volumes identified from the December 2019 consultation.

It is envisaged that the Airspace Concepts Document will be shared with NATMAC in Q2/Q3 2021.

Risks to benefit realisation That industry cannot support the level of service provision aspired to within a revised airspace structure.	**Score:** 12 (Likelihood:4) * (Severity:3)

Deployment of electronic surveillance solutions 11 **CAA developing policy**

UNCONTROLLED AIRSPACE

Description: deployment of electronic surveillance solutions to aircraft and at airports to aid integration of traffic.		**2019** ➡	**2020**
11.1 New airspace structures	11.2 New procedures	11.3 Electronic Conspicuity	
Timescale: 2024	**Driver:** Safe and Efficient Airspace / Integration of new airspace users		
Stage: CAA policy	**Mechanism:** TBC		

Scope

The CAA is developing a strategy that looks at the part Electronic Conspicuity can play as an enabler in addressing mid-air collisions and airspace infringements, airspace modernisation and Remotely Piloted Aircraft Systems integration. This work will be a key enabler for Initiatives 9 and 10. This strategy will build on the work undertaken by the CAA and the inputs from a cross section of stakeholders via a Call for Evidence[18], focusing on the technical solution required to progress.

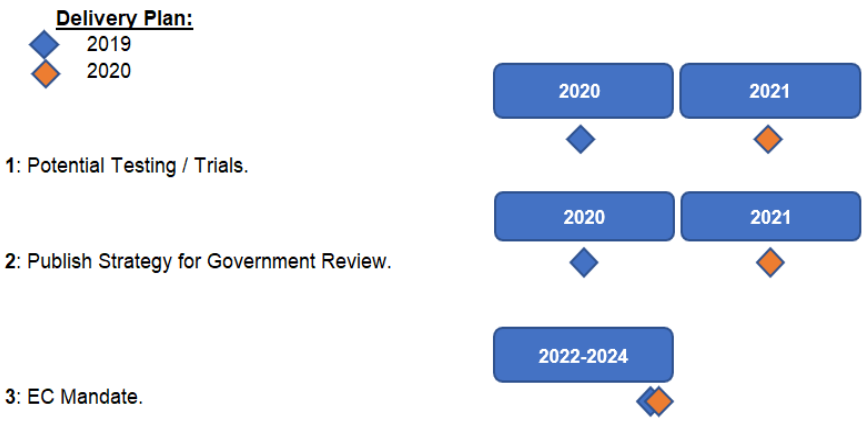
Electronic Conspicuity (EC) is an umbrella term for the technology that can help pilots, unmanned aircraft users and air traffic services be more aware of what is operating in surrounding airspace. EC includes the devices fitted to aircraft and unmanned systems, that send out the information, and the supporting infrastructure to help them work together. Airborne transponders, air traffic data displays, ground-based antennas and satellite surveillance services are all examples of EC. The information generated by these can be presented to pilots and air traffic services visually, audibly or both to provide them with information on other traffic nearby. This strengthens the principle of 'see and avoid' by adding the ability to 'detect and be detected'. To be most effective, it needs 100% of users operating in a designated block of airspace to be using compatible EC devices, for detection purposes.

Many airspace users (with aircraft weighing more than 5700kg), are legally required to transmit EC information using ADS-B Out transponders, under the terms of the new European surveillance rules, effective December 2020[19]. A general EC equipage mandate for the UK is needed, to provide those airspace users not covered by the European rule with certainty to plan their investment, into compliant EC devices.

18 CAP1837: Response to CAP 1776 Electronic Conspicuity - a call for evidence and future plans - including views gathered at the Share the Air Conference (June 2019)

19 Amendment to EC Reg. 1207/2011

Key Milestones



Key Achievements

The DfT has made funding available to encourage the adoption of EC within the UK's GA and RPAS communities. The CAA is distributing these funds via a rebate scheme.

The scheme has opened to applications on the 5 October 2020 and it will close on the 31 March 2021, or once the funding has been used. Those airspace users which are meeting the funding requirements, can claim a 50% rebate of the purchase cost of an EC device, to a maximum of £250.00 (including VAT), per applicant. The CAA anticipates up to 10,000 rebates to be available.

Benefits

EC can play a vital role in the AMS. The solution is seen as an enabler to the on-going modernisation of the UK's airspace structure and route network. It is expected to help mitigate the risk of mid-air collisions in Class G, and infringements into controlled airspace, whilst enabling safe and efficient integration of unmanned aircraft.

Risks

Because the availability of the protected portion of radio frequency spectrum, used by aviation stakeholders to transmit ADS-B (1090Mhz) is limited, there is a risk that the general EC equipage mandate creates a surge in demand for spectrum, that cannot be accommodated. This may lead to gaps in the ability to create a full known environment, as the spectrum becomes saturated. Consideration was given to the use of non-aviation protected spectrum, but such unassigned frequency bands offer no assurance against degraded performance, interference (deliberate or otherwise), or the reallocation of the frequency to other non-aviation applications. Users of EC devices that rely on unassigned frequency bands, subject themselves to the safety risks, that the electronic surveillance data is unverified, and the devices are not built to known minimum standards.

In responses to the risks associated with the supply and demand of 1090MHz spectrum, the CAA engaged a technical specialist (QinetiQ) to model the impact of a general equipage mandate, in one of the UK's spectrum congestion hotspots. The

modelling showed that the risk of spectrum saturation has low impact on the plans to implement a general equipage mandate, providing the compliant devices are sufficiently low power (circa 20 watts).

The RPAS integration risk is closely related to the spectrum supply risk. Given the potential high demand from the RPAS sector and the finite amount of spectrum resource, the CAA is observing international developments in this area and is working closely with Ofcom, under initiative 12, to mitigate the risk and find an optimum general equipage mandate solution.

Stakeholder Engagement

Building on a call for evidence and conference that took place in 2019, the CAA continues to engage with all potential user groups, through regular meetings on the subject of EC.

Ongoing engagement is undertaken through NATMAC and the Electronic Conspicuity Working Group (ECWG), which was established in 2014 and meets 3 or 4 times a year. Attendees include 15 to 20 representatives form GA Groups, GASCO, NERL, CAA and occasional representation of manufacturing industry.

Additionally, the CAA has an opportunity to meet twice a year with GA stakeholders at the MAC Challenge Group programme.

The CAA also engaged with the industry on the topic of EC on several occasions throughout 2020, under the Innovation and RPAS workstreams.

Potential 2021 Milestones

Key delivery milestones under the initiative are planned for 2021. The CAA notes the requirement for a detailed technical and spectrum standards guidance production, to support the EC mandate, along a definition to address compliance, non-compliance and exemptions where appropriate.

The CAA is also anticipating finalization of a full Regulatory Impact Assessment (RIA) in support of the mandate work.

Risks to benefit realisation That the adoption of electronic surveillance solutions on board aircraft and on the ground at airports is not considered commercially viable and competitive.	**Score:** 12 (Likelihood:4) * (Severity:3)

	Efficient use of radio frequency spectrum	**12**	**CAA and Ofcom**
COMMS AND ATM INFRAST	**Description:** cross-industry plan for the efficient use of radio-frequency spectrum to support growing demand from aviation.	**2019** ➡	**2020**
	12.1 Airspace structures	12.2 New procedures	12.3 Develop standards

Timescale: ongoing	**Driver:** EU Part-ATS / Surveillance Implementing Rule
Stage: Delivery	**Mechanism:** CAA / Ofcom

Scope

Communications (including datalinks), Navigation (terrestrial and space-based) and Surveillance (primary, secondary and ADS-B) systems all require appropriate radio spectrum to operate safely and efficiently.

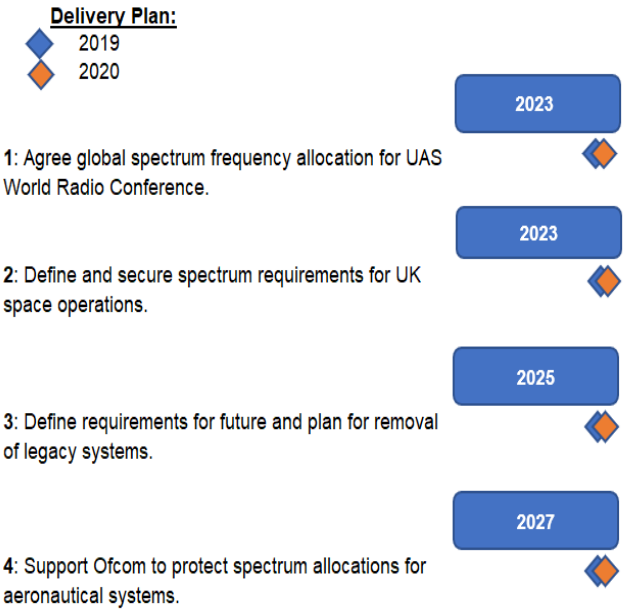
At a global level, the United Nation's International Telecommunications Union manages the Radio Regulations, which are the international treaty, governing the global and regional use of radio-spectrum and satellite orbits.

The treaty can only be amended through a World Radiocommunication Conference (WRC), which will next occur in 2023. There are six items on the agenda where aviation is seeking action to enhance its use of spectrum, with further ten, that aviation needs to watch, as they could potentially adversely impact aviation's access to spectrum.

Within the UK spectrum, assignments are licensed by Ofcom, the UK's telecommunications regulator.

Key Milestones

The key milestones for initiative 12 are mainly driven outside the aviation sector, by the work of radio regulators, tabled at the Spectrum Implementation Group. The following key dates are therefore observed:



Key Achievements

Key achievements noted by the CAA include obtaining Agreement in Principle with Ofcom, for the use of 978MHz. That is to provide some form of additional EC

capacity ahead of trials, planned for early 2021. The trials are expected to demonstrate how the frequency will be used, covering Beyond Visual Line of Sight (BVLOS) operations and provision of Traffic Information Service from ground to air. The CAA also continues to define future spectrum requirements, alongside planning for rationalisation of legacy systems. The CAA also instigated a task force within ICAO, to address development of a CNS systems and Spectrum (CNSS) roadmap beyond 2050, and a new and streamlined Standards and Recommended Practices and Framework.

Risks

The CAA recognises potential issues with timely and precise definition of remotely piloted aircraft and UK Space requirements, along with operational and safety risks identified and requiring mitigation, due to non-aeronautical system (wireless microphones), allocated by the radio regulator within in the frequency band used by aviation.

It is also recognised that the WRC 2023 date may be shifted, due to the extended travel restrictions because of COVID-19 and logistics around remote participation on such a large, global scale of stakeholders.

Dependencies

Allocation of aviation spectrum is dependent on Ofcom's UK-balanced approach, based on requirements of all frequency user-industries.

Benefits

The main objective is to provide airspace users with safe, reliable and interoperable operational environment, the benefits therefore translate into greater capacity of a globally finite radio spectrum resource. Initiative 12 is therefore expected to deliver benefits, by:

- enabling single, unified airspace management;
- enabling CNS functions in an integrated system, whilst ensuring adequate redundancy;
- addressing radio frequency capacity issue, protection, resilience, efficiency, and compatibility;
- ensuring spectrum utilization meets radio regulations;
- maintaining sufficient and suitable spectrum for aviation needs.

Stakeholder Engagement

UK engagement consisted of position alignment with the WRC ICAO, with the CNS Taskforce, looking to deliver draft report to High Level Safety Conference in 2022 for the next Air Navigation Conference.

Risks to benefit realisation Lack of sufficient, suitably assigned and protected spectrum will constrain the widespread adoption of new technologies and procedures, designed to improve airspace safety, efficiency and capacity. The situation is exacerbated by aviation's current in-efficient use of the spectrum resources it already has access to, which could potentially be available to support all future requirements and minimize the risk.	**Score:** 12 (Likelihood:3) * (Severity:4)

Full adoption of datalink communications 13 — Virtual datalink groups of CAA, NATS and airlines

COMMS AND ATM INFRASTRUCTURE

Description: cross-industry plan for the full adoption of datalink communications. **2019** ⬆ **2020**

13.1 Not applicable	13.2 New procedures	13.3 Develop standards
Timescale: by 2035	**Driver:** ICAO FANS / EU ATM Masterplan	
Stage: Delivery	**Mechanism:** CAA, NERL and UK Airlines	

Scope

Datalink refers to a system of text message transmission between the aircraft and ground. Controller–pilot datalink communications (CPDLC) allows certain non-urgent ATC messages to be communicated via text message, rather than voice.

European Commission Regulation No. 29/2009 on datalink services, applies to all flights operating as general air traffic, in accordance with instrument flight rules in all airspace above FL285, with some exceptions. In 1983 ICAO began an effort to establish a datalink architecture under its Future Air Navigation System (FANS) structure. This advance became the architecture and protocol standard of an oceanic communications network. ICAO have developed FANS to different baseline standards. 'Baseline 2' includes advanced services such as:

- 4D Trajectory Negotiation & Synchronization
- Flightdeck-Based Interval Management (aircraft spacing)
- Taxi Clearance
- Hazardous Weather Reporting
- Runway Visual Range
- Operational Terminal Information.

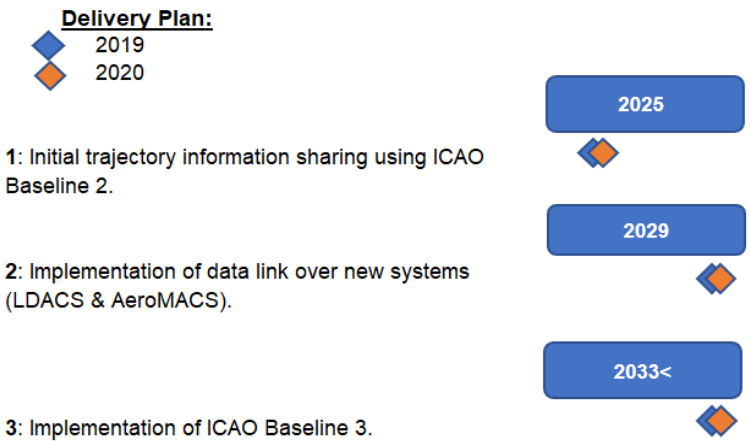
'Baseline 3' will drive performance improvements to enable a global airborne network for air traffic control and related services, that uses multiple down-links to the ground network.

Adoption of datalink communications covers requirements of Datalink IR 29/2009, as follows:

- Transactions (messages) supported by air-ground data link communications, with clearly defined operational goal.
- Systems (Flight data processing/Ground-based and airborne human machine interface/ Air-ground communication) and on-board equipment capability, to provide and operate air-ground data link communications, based on ICAO and EUROCAE standards.
- All flights operating as general air traffic in accordance with instrument flight rules in the airspace of Western Europe above FL 285. FANS (Future Air Navigation Systems) convergence in the long term.

Key Milestones

Whilst the key 2020 milestone has been met, with UK achieving compliance with Datalink IR 29/2009, future delivery plans linked to Baseline 2 and 3 deployment remain unchanged and on track, as shown below:



Key Achievements

UK achieved full compliance with Datalink IR 29/2009, which was implemented on the 5th of February 2020, with exceptions related to aircraft of certain age, size, expected aircraft retirement date and economic justifications.

Ongoing compatibility testing is also being undertaken, of L-band digital aeronautical communication system (LDACS[20]) with DME and TACAN navigation aids, interrogators and beacons.

In addition, work continues on Project IRIS[21], which aims at conducting satellite communications trial, requiring cooperation between 13 ANSP across EU. The trial, currently on target for late 2021 will test offering of extra capacity to meet ICAO baseline 2 deployment in 2025.

Risks

Although the target of 75% equipage datalink capability is being met, only 50% of flights are using CPDLC. Despite lower-than expected data and aircraft traffic levels, as a result of COVID-19, performance issues related to particular aircraft datalink equipment and frequency management (congestion) were noted by the CAA as evident. Actions to address these issues are currently being investigated.

Dependencies

There is a strong link between datalink services and trajectory information sharing and dependency exists with deployment of SWIM under initiative 15. The ability to move to full Trajectory Based Operation in a collaborative environment, strongly depends on

[20] L-band Digital Aeronautical Communication System

[21] Iris for Aviation

simultaneous sharing of the full range of aeronautical and meteorological information between airspace users, to provide with a similar picture of the operational environment to all.

Benefits

Datalink use is not universal, but the benefits are being seen where it is deployed, and greater utilisation is being encouraged. More controllers are seeing the benefits of using both datalink and voice messaging to reduce workload and ambiguity in communication, thereby reducing safety risk.

The use of CPDLC messages provides several advantages over traditional voice communications. Datalink also plays a centre role in the implementation of trajectory-based operations. Text-based messages reduce the margin for error due to a poor voice radio connection and they liberate space on the congested VHF channels for more urgent voice communications.

Datalink therefore delivers operational benefits, reducing controller workload and frequency congestion, and increase efficiency and awareness in the cockpit.

Stakeholder Engagement

Engagement with industry on datalink has been largely a Eurocontrol-led initiative. The CAA published an Aeronautical Information Circulars (AIC) on the European implementation of VHF datalink in February 2020.

Risks to benefit realisation That a lack of co-ordination in the adoption of datalink solutions across airports, aircraft operators and air traffic control will reduce the benefits of the technology.	**Score:** 9 (Likelihood:3) * (Severity:3)

Satellite navigation implementation plan 14 — **ACOG and ANSPs**

COMMS AND ATM INFRASTRUCTURE

Description: a national infrastructure plan for CNS, that includes the retention of sufficient ground navigation aids, communications and surveillance capability to ensure the continued provision of air services in contingency.

2019 ➡ **2020**

14.1 National standards	14.2 National standards	14.3 Rationalise ground infrastructure
Timescale: 2030	**Driver:** EU Part-ATS / EU PBN IR	
Stage: Delivery	**Mechanism:** ACOG / ANSPs	

Scope

Across a number of implementation dates, the Commission Implementing Regulation (EU) 2018/1048, requires the introduction of 3-Dimensional Performance Based Navigation (PBN) instrument approach procedures, SIDs and

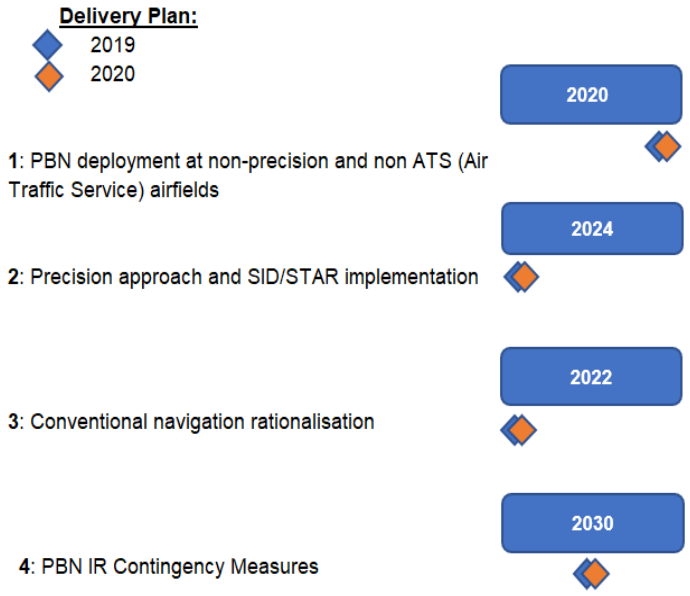
STARs and the application of PBN on ATS routes. It also places airspace usage requirements on rotorcraft operations and requires all providers of ATM/ANS, including aerodromes, to present PBN Transition Plans to the CAA.

Article 6 of the PBN IR details the necessary contingency measures that should be introduced, to ensure continuity through other means where, for unexpected reasons beyond their control, GNSS or other methods used for performance-based navigation are no longer available.

This may require retention of a network of conventional navigation aids and related surveillance and communication infrastructure.

Key achievements, risks and benefits have been captured under initiative 7 above, with dependencies also with initiative 8 and 12.

Key Milestones



Risks to benefit realisation Rationalisation of conventional navigation aids will be complex, as there needs to be appropriate contingency, particularly due to potential interference threats such as space weather or jamming trials.	**Score:** 12 (Likelihood:4) * (Severity:3)

COMMS AND ATM INFRASTRUCTURE

Description: air traffic management to modernise systems, tools and procedures.	**2019** ⬇	**2020**
15.1 Not applicable	15.2 New procedures	15.3 New systems and tools
Timescale: by 2035	**Driver:** ICAO GANP / EU ATM Masterplan	
Stage: Delivery	**Mechanism:** NERL's SIP and Met Office via CAA	

Scope

Initiative 15 in the AMS sets out the requirement for the modernisation of air traffic management systems, tools and procedures. Part of this work is to implement modern data exchange and sharing services, that will allow the efficient communication of flight, meteorological and aeronautical information to operational stakeholders, using new air traffic management systems and tools on the ground and in the air.
Much of this work has been set out in ICAO's Global Air Navigation Plan (GANP) and the Commission Regulation EU No 716/2014 (Pilot Common Project (PCP) legislation), which supports the implementation of the European Air Traffic Management Master Plan.

ICAO Information Management (IMP) and Meteorology (METP) Panels are responsible for timely delivery of the provisions, supporting implementation of the GANP, which provides Aviation System Block Upgrades (ASBU), Modules and Roadmaps. ASBU framework defines 6-year timeframes and deadlines for each block, to be available for implementation.

Key Milestones

AIM- and MET- related activities are planned in three main ASBUs, with key deployment dates provided below:

- DAIM – Digital Aeronautical Information Management – Blocks 1 & 2
- SWIM – System Wide Information Management – Blocks 2 & 3
- AMET – Meteorological information – Blocks 0 – 4

ATM activities related to SESAR, envisage deployment of:

- iTEC - Flight and Radar Data Processing tool
- Foursight – an aircraft trajectory prediction (conflict detection) system
- Main and Second Voice - (Communication) systems

NERL's planning for the deployment of Voice and En Route systems have been revised in the light of COVID-19. The aim is deployment of a common platform, providing mutual system contingency and resolution of legacy issues. Deployment is currently expected to follow the proposed timelines:

Key Achievements & Future Work

As a result of COVID-19, NERL had to take immediate action to preserve liquidity which included pausing most of the long-term investment plan. However, NERL maintained some aspects of expenditure which were essential to the critical path for the SESAR work.

The initial build phase of the Voice and En Route systems is 80% complete, including securing Data Centres to host virtualised system architecture, equipage of Swanwick and Prestwick Ops rooms. NERL has also completed 23 out of 24 factory acceptance tests for the main voice system and achieved completion of the connection of NERL network, across the entirety of the UK.

iTEC achieved Factory Acceptance Testing for the version that will be used for Limited Operational Service (LOS) at Prestwick. Integration and Deployment is approximately 15% complete with revised planning currently under way for testing and transition.

NERL has also collaborated with the CAA on development of the RP3 Roadmap for AIS delivery and is reviewing service delivery and future tasks on quarterly basis. Whilst NERL is responsible for the deployment of AIS elements under the initiative, they are currently engaging with the industry on the SIP re-planning activity, which will further define the scope and planned timescales of deployment under RP3.

Significant work is underway and planned for the modernisation of, and access to, MET data. This includes Digital Data Exchange Model for Aviation Meteorological Information (IWXXM), which has been developed and maintained by the World Meteorological Organisation. It is anticipated that many of the meteorological data feeds provided to NERL will meet any future requirements under SWIM.

Work is also currently being undertaken to modernise the provision and delivery of MET information used in flight planning. The UK is one of two ICAO World Area Forecast Centres to provide all the MET information required for airlines to flight plan. Work is being established to ensure that this data will be provided in a SWIM compatible manner. ICAO's MET Panel will meet in June 2021, to further discuss this work and update on delivery plans.

Risks

The following risks have been identified by the CAA and NERL, with regards to deployment of scope under the initiative. Those are presented below:

- Financial pressure due to the impacts of COVID-19 may lead to re-prioritization of projects, were some elements of the initiative may not be delivered or delivered at timescales significantly different to estimated deployment.

- Resource availability within the CAA's AIM & MET team, and NERL project teams may increase reliance on third party contractors for delivery, impacting planned timescales.

- Lack of clarity and consistency between users and industry requirements, along with RP3 re-prioritization and changing EU ATM Masterplan priorities, may cause a disconnect between what the industry expects and what is delivered in the short-term.

Dependencies

Successful deployment of initiative 15 impacts delivery of the performance-based navigation concept, under initiatives 7 and 8, and supports delivery of initiative 9 - Review of Air Traffic Service Provision in the UK, which relies on timely deployment of SWIM. Deployment of Electronic Conspicuity under initiative 11 on the other hand, enables technical integration of solutions, delivered under initiative 15 workstream.

Initiative 15 is also an enabler, and partially addressed the Surveillance IR requirements, delivered under initiative 12, whilst benefit realisation of SWIM is inter-dependent on deployment of datalink solution, under initiative 13.

Dependencies have been noted on successful development of new user requirements, in line with innovation, and establishing an alignment point, especially in the areas of RPAS and Space flights.

Global dependency is also of importance, which is based on industry's readiness to implement change and requirement for harmonization across all international stakeholders.

Benefits

The ATM system is increasingly reliant on accurate and timely information. Such information must be organized and provided by solutions that support system wide interoperability and secured seamless information access and exchange.

Global improvements in information management are needed and the implementation of SWIM should ensure delivery of the right information, to the right people at the right time, in an interoperable manner that meets the appropriate quality standards.

There are a number of benefits achieved through the modernisation of ATM systems, tools and procedures, especially through the application of SWIM, such as:

- improved safety by providing the capability to receive relevant information in timely and effective manner;
- improved efficiency by enabling performance-based operations and by transitioning to service orientated environment;
- improved collaborative-decision making by all stakeholders through the access to quality data including dynamic data, and improved exchange of information;
- improved ATM performance and increased capacity.

This initiative will also provide improved access to increasing amounts of high quality, high detail and globally available MET data, in line with SWIM. This is required by a variety of aviation stakeholders and by concepts and activities, such as performance-based navigation, flight planning, continuous descent operations and continuous climb operations. This will help to improve the efficiency, performance and safety of operations, whilst minimising environmental impacts.

Stakeholder Engagement

Entities under the airspace modernisation governance structure will be engaged through both bespoke and general types of meeting. An example of CAA's engagement plans with NERL and MET Office will see targeted consultation, whilst regular meeting will be held, such as:

- CIV MIL Interface Meeting
- CAA AIM Interface Meeting
- NOTAM Interface Meeting
- CAA/MET Office Quarterly Review Meetings
- MET User Forum, and
- AIS User Forum.

The CAA's ATM Inspectorate within Safety and Airspace Regulation Group (SARG) have an obligation to assess safety assurance associated with changes to ATM Functional Systems. Regular oversight meetings ensure that compliance with safety regulatory requirements of the D-SESAR project are met.

NERL consulted with customers in June 2020 on the ATM elements of the initiative's scope and advised of the urgent action to pause long-term investment activity, due to COVID-19 impact.

NERL has then held another customer engagement in September, to seek user agreement to restart investment plan at a lower rate than originally planned, again as a result of COVID-19. Stakeholders were advised that NERL is in the process of re-planning the investment plan to, consider the full impact of the pandemic and have engaged with customers in October, and as part of the formal consultation in December 2020.	
Risks to benefit realisation That the requirements to change the airspace and upgrade air traffic management systems, tools and procedures in the same timeframe creates complex interdependencies that require significant resources, funding and additional development time to resolve.	**Score:** 12 (Likelihood:4) * (Severity:3)

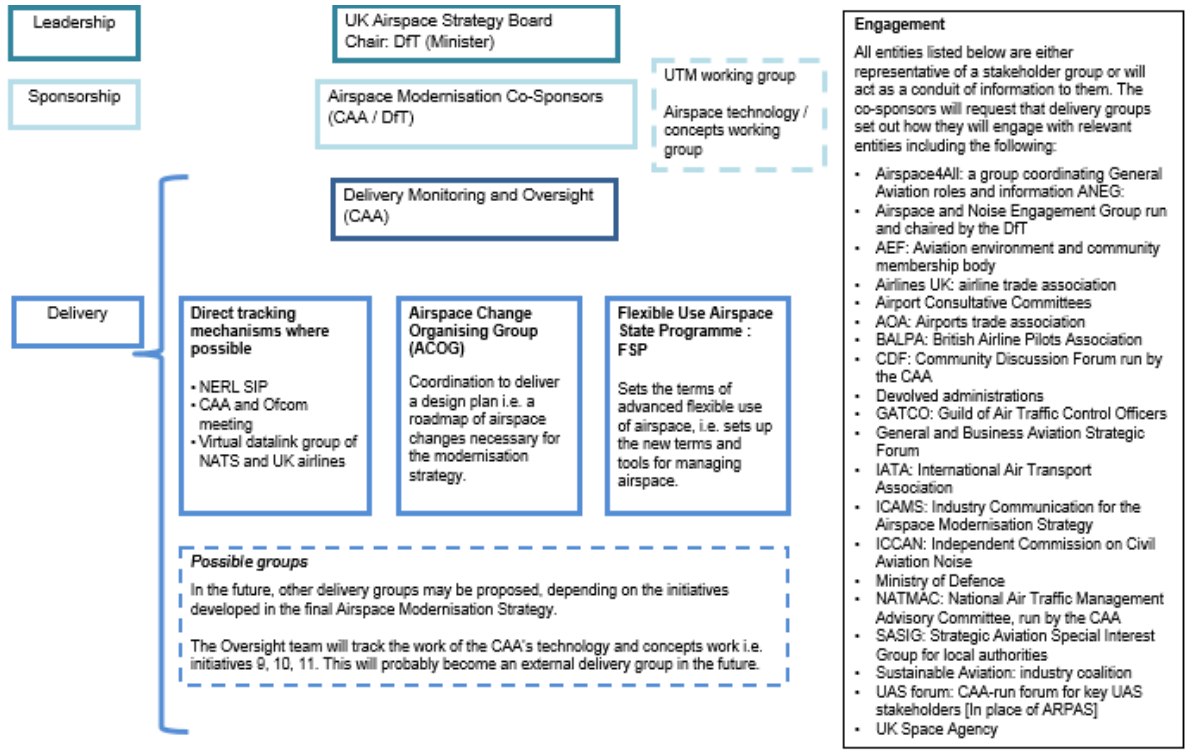
Chapter 2

Co-sponsor updates

Governance

2.1 The Airspace Modernisation governance was amended and published in the 2019 progress report, revising the structure set out in the annex (CAP1711b)[22] to the Airspace Modernisation Strategy, jointly owned with the DfT. A reminder of the governance structure is included below in Figure 2.1:

Figure 2.1 – Governance Structure



[22] CAP1711b: Governance Annex to CAP1711

The Role of The Co-Sponsors: Policy and Regulation

Airspace Modernisation Co-Sponsors

2.2 The Department for Transport (DfT) and CAA act as co-sponsors for airspace modernisation. The DfT is accountable for national policy on airspace, and the CAA for the strategy. Whilst these accountabilities are distinct, they act as co-sponsors together to ensure alignment. Together, the DfT and CAA commission specific projects, necessary for airspace modernisation, including the delivery of the initiatives set out in the Airspace Modernisation Strategy. Such commissions will require delivery groups or an organisation leading a delivery group to develop a realistic, evidenced and financed plan with any contingencies made explicit. It must be noted however, that whilst in some cases delivery of initiatives is a matter of law, for others delivery depends on the voluntary participation of delivery groups. In such cases, the confidence of delivery is therefore dependent on the benefits and delivery bandwith that organisations can commit to.

2.3 The co-sponsors agree deliverables and outcomes and set parameters for delivery groups tasked with planning and delivering modernisation projects and Airspace Modernisation Strategy initiatives.

2.4 The expectation of the co-sponsors is that progress of the commissioned projects is monitored and reported on by CAA's Airspace Modernisation Oversight Team, further described in the section below. The co-sponsors will be the point of escalation on delivery issues, communicated by the Oversight Team, and will jointly consider when and how to intervene. Further detail on the co-sponsors role is set out in the annex on governance, that was initially published alongside the AMS in December 2018. The governance annex will be updated in the future.

Airspace Modernisation - Impact of COVID-19

2.5 The COVID-19 pandemic has had an unprecedented operational and financial impact on the aviation industry. With the loss of revenue steming significantly reduced demand for air travel due to international restrictions

and public concerns for safety, many organisations across the sector were faced with difficult decisions to make their staff redundant or furloughed.

2.6 In light of the pandemic, we recognise that the timescales in which airspace modernisation will take place will change. That poses a significant risk to the delivery of the overall Airspace Modernisation Strategy at a programme level, as long-term investments and efforst are re-prioritised or paused, and skills may be lost as staff numbers are reduced. Detailed assessment of delivery risks and their impacts is presented at an initiative level in Chapter 2 of this report.

Co-Sponsors statement on commitment to Airspace Modernisation

2.7 The Department for Transport (DfT) and CAA, as co-sponsors of airspace modernisation released a statement[23] in July, confirming a continued commitment to airspace modernisation. Airspace modernisation is vital to the future of aviation to delivering net zero and now, to supporting the aviation sector's recovery from the impact of the COVID-19 pandemic.

2.8 One of the greatest challenges in the AMS is the need to redesign airspace across the UK, which requires a coordinated approach to a series of airspace changes. The impact of the pandemic has had a fundamental impact on the progression of airspace changes, with many sponsors of those plans pausing their work. The Masterplan for those changes is being prepared by an impartial unit in NERL, the Airspace Change Organising Group (ACOG). In July 2020 ACOG published their report on 'Remobilising the Airspace Change Programme'. The co-sponsors responded to this report in the statement referred to in the paragraph above. Updates on ACOG's work and the work the CAA has done, in response to the challenges facing the airspace change programme have been outlined within Chapter 1 of this report.

[23] DfT/CAA Co-Sponsors Update on Airspace Modernisation

CAA's commitment to Airspace Modernisation

2.9 Different departments within the CAA may have different roles within the initiatives. From a co-sponsor perspective, the CAA may have strategy or policy responsibilities. From a regulatory perspective, the CAA may be a decision-maker, or may have a technical role in introducing certain requirements.

2.10 On initiatives 4 and 5, which together comprise the airspace change programme and include the work ACOG is doing to develop an airspace change Masterplan, the CAA is acting in a strategic role. We need to accept the Masterplan into our AMS, and this means we have been working in a co-sponsorship function to set out both the requirements for the Masterplan, and how we will assess and accept them. Following ACOG's report, we have also been working on the recommendations that the co-sponsors accepted in our July 2020 statement. This work has beenexplained in more detail in Chapter 1.

2.11 On initiative 10, the CAA has been given a new role in the 2019 update to the Air Navigation Directions, to have a process for reviewing and amending airspace classifications. The CAA has therefore been undertaking policy development work to design and consult on a new process, introduced in December 2020. This work has been explained in more detail in Chapter 1.

2.12 On initiatives 9 and 11 the CAA has a regulatory role, in that we must set out the technical solutions required to enable delivery of the initiatives. The work the CAA has done to make progress on these was explained in more detail in Chapter 1.

Reviewing the Airspace Modernisation Strategy

2.13 The AMS sets out what airspace modernisation must achieve and how it will happen. When we first published the AMS in Decemeber 2018, we intended to review it in 2020 to make sure it responded to any policy changes brought about in the Department for Transport's Aviation Strategy, and to build upon some of the gaps we identified in it. Whilst the Aviation Strategy has not yet been finalised, the impact of the COVID-19 pandemic

means that the context for aviation has changed. In July 2020 the CAA published a statement committing to this review, and saying that we will decide how and when to undertake it by continuing to monitor the effects of the crisis and judging when we may have more certainty as to how the UK and the rest of the world is emerging from it.

2.14 Before any revisions are made by the CAA to the AMS engagement with industry, stakeholders and the public will be needed. The Air Navigation Directions 2017 also require the CAA to consult the Secretary of State in developing the AMS.

2.15 To revise the AMS the CAA will:

- Work with the Department for Transport to revisit the key assumptions in the AMS, including the objective, the policy, and the context for airspace modernisation.
- Complete the task started by the 2018 AMS by looking ahead of 2025 to set a vision for 2040, the timeframe given to us by the Air Navigation Directions 2017.
- Confirm where initiatives set out in the AMS are still relevant, and whether there are any new approaches that could innovate and improve delivery. We will also consider whether any new initiatives should be added.
- Consider whether there is an opportunity to capitalise on the current reduction in air traffic to lock in improvements in air quality and reductions in CO2 and noise.
- Run a public consultation exercise, which will include consulting the Secretary of State before confirming any revision to the AMS publicly.

2.16 This work has commenced in November 2020 with listening sessions, attended by key stakeholder groups enlisted within the AMS Governance Structure. There will be further opportunities for stakeholders to feed into the review in 2021, including through the public consultation we will run.

2.17 The CAA has held two sessions, entitled ‘Lower Airspace User Groups’, which consisted of representatives from GA and RPAS communities,

including drones and model aircraft stakeholders. The CAA has also held two sessions entitled ‘Commercial Airspace Users’. The group was made up of represtenatives from ACOG, Air Navigation and Air Traffic Service Providers, Airport Operators, Airline Association and the Military. The CAA has also held a session entitled ‘Community and Environmental Groups’, with representatives from the Independent Commission on Civil Aviation Noise (ICCAN), the Community Discussion Forum (CDF), the Aviation Environment Federation and airport cosultative committees.

2.18 The key aim was to gather feedback and seek understanding of the stakeholders’ views on the content of the current AMS. Stakeholders were also invited to share their feedback on any identified gaps, and to highlight relevant issues not originally addressed under the strategy. The CAA has also sought to better understand and capture stakeholder-specific issues, that may have arisen in the wake of COVID-19 and encouraged feedback on how these could be included in the AMS going forward.

2.19 Of the thirty two attendees over the five sessions, twenty nine answered the CAA’s survey on whether they found the session useful. Of those, ninety three percent found the sessions useful and wanted to remain involved in future engagent.

2.20 The CAA will collate and analyse information gathered during all sessions and will share feedback on the identified trends, outcomes and next steps in early 2021.

2.21 The CAA intends to complete any revisions to the AMS to provide clarity to the industry, in time for any modifications to NERL’s forward planning cycle. As NERL are responsible for delivery of many of the AMS initiatives, the CAA will seek to coordinate and align any AMS revisions, where sensible, so that any changes can be factored into the NERL plan. The CAA is currently consulting[24] on the approach to the next review of NERL’s price

[24] CAP1994 - Economic Regulation of NATS En Route Plc: Consultation on The Approach to The Next Price Control Review

control arrangements, including the timing and duration of any changes to the existing arrangements.

ATMUA Bill

2.22 The Air Traffic Management and Unmanned Aircraft Bill was paused at report stage in the House of Lords during the COVID-19 pandemic but has been scheduled to return on 7 January 2021.

2.23 The proposed Bill creates new powers for the Secretary of State to decide to direct the development of an airspace change. When determining whether to use the power, the Secretary of State would consider advice from the CAA. This advice would need to take account of the Masterplan, and how critical that airspace change was to achieve airspace modernisation.

2.24 Other than in respect of NERL's licence condition, neither the Government nor the CAA currently have effective levers or powers to guarantee that airspace change is taken forward, should a sponsor decide that they do not wish to participate in the programme on a voluntary basis. This means that, where ACPs are interdependent, one airspace change sponsor could hold up several others.

2.25 Given the benefits that modernisation can deliver, the Government expects airports to participate in the modernisation programme voluntarily, working closely with ACOG.

2.26 The CAA remains of the view that this legislation is fundamental to the delivery of the future UK Masterplan including the potential to deliver benefits such as reductions in noise or controlled airspace.

2.27 The CAA is in a process of developing Guidance On Use Of Powers Under Part I Of The Air Traffic Management And Unmanned Aircraft Bill. This guidance will publicly set out the CAA's approach to advising the Secretary of State on using the powers, and subsequently enforcing them within the legal framework.

2019 Directions Update

GNSS Approaches

2.28 The Global Navigation Satellite Systems (GNSS) Programme is a DfT sponsored CAA delivered Programme. It aims to introduce GNSS approaches to airfields outside of controlled airspace with no approach control. The Programme will deliver significant safety improvements enabling pilots to recover to airfields and land safely in poor weather. It will also encourage commercial development activity across the smaller airfields, enabling them to operate in poor weather conditions, where previously their operations have been limited to fair weather days. The rollout of GNSS approaches is widely supported by the aviation sector, including by the International Civil Aviation Organisation.

2.29 The Programme is divided into 2 phases with phase 1 having delivered 2 approvals so far, with the remainder of sponsors in the final stages of the airspace change process. Recognising the benefits that GNSS is delivering, DfT is sponsoring a multi-year programme, which aims to deliver this capability to other airfields across the UK. Phase 2 will see an expansion of the Programme to encourage other airfields around the UK to benefit from this enhancement in safety and opportunity for increased growth; we are engaging key stakeholders in an attempt to reach out to the GA community to encourage their involvement.

2.30 As the Programme transitions between phases, the CAA has revised and refined the airspace change process, to streamline engagement for future sponsors.

2.31 A key part of this Programme is the provision of financial support to the sponsors. The financial assistance package has been designed and implemented in a very short time period to ensure that they are reimbursed in a timely manner. All sponsors that have successfully applied have already received financial support.

2.32 There are a number of challenges that the Programme has faced when prioritising this work. There is a key dependency on external stakeholders

outside of CAA's control. The CAA cannot directly control sponsors whether and when to take forward a GNSS application. The CAA cannot control the quality of sponsors' submissions, or directly influence the output of the IFP design houses, both being key inputs to the programme.

2.33 This Programme however, remains a priority activity for the CAA and a CAA- dedicated Facilitation Team will support the sponsors throughout the process. Coupled with a financial assistance package from the DfT there is an expectation of successful adoption of more GNSS approaches and a realisation of the safety and commercial benefits across the UK. The CAA's Faciliation Team is focused on delivering this package of work, as directed by the DfT.

Delivery, Monitoring and Oversight

2.34 Reporting into the co-sponsors, the CAA's delivery, monitoring and oversight role is carried out by a new oversight team in the Strategy and Policy Department. In February 2020, the CAA has appointed a new Head of Airspace Modernisation Oversight to oversee, track and regularly report on AMS initiatives' delivery to the co-sponsors and annually to the Secretary of State. The CAA has also recruited an Airspace Modernisation Oversight Associate, to deliver a secretariat function to the team. Further hires may be considered by the new Head of Oversight in due course.

2.35 The Oversight team will also have a key role to play in problem solving modernisation delivery and advising on the potential use of powers (should these be re-introduced into the legislative programme) to direct sponsors to prepare and submit airspace changes that are required as part of the CAA's strategy and plan.

2.36 The new Oversight team will work directly with CAA colleagues and industry groups that are undertaking work necessary to deliver the 15 initiatives.

Progress and Risks in 2020

2.37 In the first chapter we have assessed each initiative and how delivery has progressed in 2020, including an assessment of the impact of the COVID-19 pandemic on the delivery of airspace modernisation. At a strategic level, the CAA must use this progress report to raise any concerns or risks to delivery, and advise on potential solutions or mitigations.

Risks to the AMS Scope

2.38 The scope of the UK airspace modernisation programme has been set out through the publication of the AMS in 2018. Since then and in light of the COVID-19 pandemic's impact to the industry, a risk has been identified where the balance of initiatives may no longer align with the requirements of stakeholders. In order to mitigate that risk, the CAA is planning to undertake a review of the AMS strategy, taking into account changing priorities of stakeholders, along with identifying and including any new emerging stakeholder groups, to help shape any changes to strategy and policy.

Risks to the Airspace Change Programme

2.39 The greatest risk in the AMS concerns the delivery of the airspace change programme. Two of the most important and complex initiatives in the AMS concern the coordinated redesign of terminal and upper airspace across the UK. Airports have paused their airspace changes, unable to invest in infrastructure development, due to their current financial positions, work re-prioritisation and management bandwidth. To help manage this, ACOG asked the DfT to fund the immediate next phase of airspace change work for airports, which would help the Masterplan to continue up to a point. The CAA has supported the DfT in assessing the potential to fund this work and ensure the continuation of the programme, including the environmental and other benefits to be realised through it. At the time of writing this document there has been no formal decision about whether the airspace change programme can be funded externally. Without a solution to the problems

that have led to the pausing of this programme, the CAA considers the delivery of this initiative to be at risk.

2.40 Even if the funding is made available however, airports will have other, potentially competing priorities as they seek to recover economically from the impact of the pandemic. The CAA will continue to engage with airports to highlight the importance and benefits of the airspace change programme. The CAA is also concerned that the weaknesses in the current framework for airspace change – namely the dispersed accountability and reliance on the willingness and ability of individual entities to co-ordinate – are being further exacerbated by the COVID-19 crisis. We will continue to closely monitor the impact of COVID-19 while also supporting the need for legislation to help manage this challenge.

Funding

2.41 CAA's RP3 decisions included the creation of an AMS Support Fund (ASF) to be financed from the CAA's component of UK Determined Costs.

2.42 It was intended to deal with uncertain requirements in support of the delivery of airspace modernisation during RP3. The ASF was to provide the opportunity for entities, other than NERL, to seek financial support to address airspace modernisation requirements that cannot be funded by other means.

2.43 The ASF was planned to be £10 million for RP3 and intended to be used for projects that are important to the success of the AMS and where there were no other appropriate mechanisms for the recovery of these costs.

2.44 The Advisory Board was to check the quality of proposals, assess them for any regulatory issues, and ensure they meet the ASF eligibility criteria. Once the Advisory Board confirmed that an investment proposal was of sufficient quality and met the eligibility criteria, it was to be sent to the Decision Board. The Decision Board was to review potential investment proposals and determine whether to fund an activity.

2.45 As a result of COVID-19's impact on the aviation industry, the CAA has not been able to build up the ASF and, without having received the revenue, it is therefore unable to consider dispersing monies from the Fund. The approach to utilising the ASF will be considered further in 2021.

2.46 Airport ACP sponsors and NERL are restricted in their ability to invest in airspace developments, especially in the near term, due to the impact of COVID-19 on their revenue, work re-prioritisation and management bandwidth. ACOG has therefore produced and submitted to Government an industry informed proposal, recommending short term financial support for the airport-led ACPs under the FASI-S and FASI-N deployment, to complete the development and assessment of airspace design options and progress quickly to the implementation of the Masterplan.

2.47 The Government's decision on financial support for the FASI-programmes will be critical to ACOG's ability to develop and manage a realistic Masterplan from 2021 onwards.

Resourcing

2.48 As a result of the COVID-19 pandemic and to preserve the CAA's cash flow position, the CAA decided to freeze external recruitment and review our use of contractors, casual staff, agency staff, and fixed term contracts. However, this exposed the CAA to a potential risk of not being able to secure sufficient resources (numbers and skills), to deliver its new role of co-sponsoring and monitoring/overseeing delivery of the AMS plan or other related aspects, such as new airspace classification function. There was a viable concern, that lack of resources causes delays to AMS implementation and contributes to missed opportunities to improve the management and modernisation of UK airspace. With that, the general recruitment freeze has now been removed and any hiring for individual posts will be carfully justified and considered.

2.49 The CAA must provide oversight of the delivery of the Masterplan and, from a regulatory perspective, ensure the airspace change process is followed by the estimated twenty one airspace change proposals, that comprise the

airspace change programme. This would require the CAA to increase its staff resource for both its oversight function in testing and monitoring the delivery of the Masterplan, and its airspace regulation function for making decisions about individual changes. The majority of CAA's airspace-related costs are funded from the UK en-route unit rate. Due to the impacts of COVID-19 the CAA has frozen most of the staff recruitment whilst revisiting its future funding position.

2.50 In order for the CAA to design and propose an amendment to the airspace classification, there has been a requirement identified for creation of a new team, to include specialist skills that can undertake airspace design. The CAA is in a process of recruiting both internally and externally for four specialist roles in airspace design, environment, cartography and safety management, along with an Engagement Lead and a Team Principal function. The Team Principal hire has been concluded in December, with the remaining roles to be filled in early 2021.

Chapter 3

Stakeholder Engagement & Commitment

3.1 Airspace modernisation is vital to the future of aviation, and now to supporting the aviation sector's recovery from the impact of the COVID-19 pandemic. The pandemic is having a fundamental impact on the sector, which in turn will impact the progress of the Airspace Modernisation Strategy (AMS) delivery.

3.2 For the first half of the year, key stakeholder engagement was limited and mainly focused on supporting the industry's recovery from the impacts of COVID-19. Only in the second half of the year, the CAA was able to re-engage on AMS-related workstreams with a broad range of stakeholders, from the commercial sector, General Aviation (GA), Remotely Piloted Aircraft Systems (RPAS), community representatives, interest groups and government.

3.3 The various 2020 engagement exercises undertaken are demonstrated below, by stakeholder type.

Engagement with GA and RPAS Community

3.4 General Aviation (GA) and Remotely Piloted Aircraft Systems (RPAS) communities were engaged by ACOG on initiatives 4 and 5. Briefings were delivered at the General and Business Aviation Strategic Forum (GBASF) and NATMAC, covering proposed approach to enhancing airspace access and integration. The CAA has also held a public engagement exercise on the criteria proposed to use to determine whether to accept the Airspace Change Masterplan into the AMS.

3.5 Engagement with Airspace4All (forum encouraging the GA community to adopt a unified approach to airspace modernisation), was undertaken on the topic of tracking the rationalisation of controlled airspace.

3.6 Engagement also took place with the Aircraft Owners and Pilots Association (AOPA), Light Aircraft Association (LAA) and the British Business and General Aviation Association (BBGA) on ACOG's role and objectives regarding airspace access and integration.

3.7 ACOG has also engaged with UK Research and Innovation, on the safe and efficient integration of RPAS operations as part of the Programme.

3.8 GA and RPAS communities were also engaged by the CAA on initiatives 10 and 11.

3.9 There have been several phases of engagement relating to the development of a new CAA procedure to review the classification of airspace, beginning with a formal consultation in December 2019. In January 2020 targeted information sessions and roundtables outlined the purpose of the consultation and what the CAA required from stakeholders to help identify volumes of controlled airspace where the classification could be amended to better reflect the needs of all airspace users on an equitable basis. Stakeholders were also provided with further information on the supplied evidence base and how it could be used to inform their responses to the consultation. The CAA published a consultation response document in June 2020 (CAP 1935) alongside a formal consultation on a draft of the new procedure to review the classification of airspace (CAP 1936). That consultation closed in September 2020 and a response document (CAP 1990) was published alongside the new procedure (CAP 1991) in November 2020 (see Initiative 10 in Chapter 1).

3.10 The CAA continues regular engagement with all potential user groups of Electronic Surveillance Solutions, undertaken through NATMAC and the Electronic Conspicuity Working Group (ECWG). The CAA has also held several targeted engagement events through 2020 with the RPAS industry, on developing Unified Traffic Management (UTM) to support the safe integration RPAS operations, where the importance of Electronic Conspicuity was recognised as a fundamental building block of UTM.

3.11 General briefings on the AMS were also delivered by the CAA to the NATMAC, GA Partnership, GBSAF and RPAS Forum. These briefings included updates on the Classification Review, Masterplan, and the AMS governance structure. As well as a tailored engagement event for the GA Partnership, where we provided insight on our approach to AMS with the DfT, and another for GBASF, where the CAA discussed the AMS governance structure and highlighted ways of engagement.

3.12 The CAA has also engaged with the GA and RPAS community at the Listening Sessions in November 2020, to gather feedback on AMS, in light of its upcoming planned revision.

Engagement with Airlines

3.13 Airlines were engaged by NERL on initiatives 2, 6 and 15. Engagement on initiative 2 was held as part of D1 consultation. Consultation responses were collated and reviewed in March 2020, as part of Step 3d of the CAP1616 process, to enable Free Route Airspace. In June 2020, NERL consulted and advised on the urgent action to pause long-term investment activity around queue management tools and procedures, as well as air traffic management systems, due to the impact of COVID-19. Further engagement was held in September, to seek user agreement on restarting investment activity at a reduced rate than originally planned. In October, stakeholders were also advised that NERL was re-drafting the investment plan to consider the full impact of the pandemic and have engaged with customers as part of a formal consultation in December 2020.

3.14 Airlines were engaged by ACOG on initiatives 4 and 5. ACOG delivered high-level briefings on its role and the drivers, scope and timelines of the UK Airspace Change Programme. The briefings were delivered to UK airline executives and senior trade association representatives (Airlines UK and IATA).

3.15 ACOG has also held two dedicated airspace concept and technical integration workshops with airline operations, technical pilots and avionics experts.

3.16 General briefings to the airline community were delivered at the Airlines 2050 Conference in October 2020 and the UK Board of Airline Representatives.

3.17 Engagement was also carried out with a broad base of UK airports, airlines and ANSPs at the Industry Coordination forum for the AMS (ICAMS).

3.18 Airlines were engaged by the CAA on initiatives 4, 7, 10,13 and 15. The CAA carried out a public engagement exercise on the proposed criteria for assessing and accepting the airspace change masterplan into the AMS (CAP 1887). The CAA wrote to all members of the National Air Traffic Management Advisory Committee (NATMAC) in August and reminded providers of ATM/ANS, including aerodromes of their obligations, in respect of compliance to the PBN IR and the forthcoming December deadline. This was then followed up with an update to the CAA PBN web pages, including a link whereby aerodromes can submit to the CAA their online PBN Transition Plans. The CAA has also spoken to several aerodromes, to assist them in completing the PBN Transition Plan form.

3.19 There have been several phases of engagement relating to the development of a new CAA procedure to review the classification of airspace, beginning with a formal consultation in December 2019. In January 2020 targeted information sessions and roundtables outlined the purpose of the consultation and what the CAA required from stakeholders to help identify volumes of controlled airspace where the classification could be amended to better reflect the needs of all airspace users on an equitable basis. Stakeholders were also provided with further information on the supplied evidence base and how it could be used to inform their responses to the consultation. The CAA published a consultation response document in June 2020 (CAP 1935) alongside a formal consultation on a draft of the new procedure to review the classification of airspace (CAP 1936). That consultation closed in September 2020 and a response document (CAP 1990) was published alongside the new procedure (CAP 1991) in November 2020 (see Initiative 10 in Chapter 1).

3.20 The CAA published an Aeronautical Information Circular (AIC) on the European implementation of VHF datalink in February 2020. Engagement with industry on datalink has been largely a Eurocontrol-led initiative, the main body of work to raise operator and ANSP awareness on the benefits of use and their equipage and service provision requirements, having been conducted many years ago.

3.21 The CAA continually engaged on the implementation of modern data exchange and sharing services that will allow the efficient communication of flight, meteorological and aeronautical information. This was conducted through several regular meetings which brought together a variety of stakeholders, such as:

- CAA/Met Office Quarterly Review Meetings
- CIV MIL Interface Meeting
- CAA AIM Interface Meeting
- NOTAM Interface Meeting
- MET User Forum, and
- AIS User Forum.

3.22 The CAA has also engaged with the Airline community at the Listening Sessions in November and December 2020, to gather feedback on AMS, in light of its upcoming planned revision.

Engagement with Airports

3.23 Airports were engaged by NERL on initiatives 2, 6 and 15. Engagement as undertaken as part of D1 consultation. Consultation responses were collated and reviewed in March 2020, as part of Step 3d of the CAP1616 process, to enable Free Route Airspace.

3.24 In June 2020, NERL consulted and advised of the urgent action to pause long-term investment activity around queue management tools and procedures, as well as air traffic management systems, due to the impact of COVID-19. Further engagement was held in September, to seek user agreement on restarting investment activity at a reduced rate than originally planned. In October, stakeholders were also advised that NERL was re-

drafting the investment plan to consider the full impact of the pandemic and have engaged with customers as part of a formal consultation in December 2020.

3.25 Airports were also engaged by ACOG on initiatives 4 and 5. The engagement was undertaken through multiple dedicated meetings with all FASI-S and FASI-N airports.

3.26 ACOG also delivered general briefings to the UK airport community at the 2020 Airport Operators Association (AOA) Conference in November 2020 and engaged with the European airport community at the EUROCONTORL Digitally Connected Airports Conference in February 2020.

3.27 Dedicated engagement was conducted with the AOA Airspace and Air Traffic Services Working Group, along with engagement with a broad base of UK airports, airlines and ANSPs at the Industry Coordination forum for the AMS (ICAMS).

3.28 Airports were engaged by the CAA on initiatives 4, 7,10, 14 and 15. The CAA held a public engagement exercise on the criteria proposed to use to determine whether to accept the Airspace Change Masterplan into the AMS.

3.29 The CAA wrote to all members NATMAC in August and reminded providers of ATM/ANS, including aerodromes of their obligations, in respect of compliance to the PBN IR and the forthcoming December deadline. This was then followed up with an update to the CAA PBN web pages, including a link whereby aerodromes can submit to the CAA their online PBN Transition Plans. The CAA has also spoken to several aerodromes, to assist them in completing the PBN Transition Plan form.

3.30 There have been several phases of engagement relating to the development of a new CAA procedure to review the classification of airspace, beginning with a formal consultation in December 2019. In January 2020 targeted information sessions and roundtables outlined the purpose of the consultation and what the CAA required from stakeholders to help identify volumes of controlled airspace where the classification could

be amended to better reflect the needs of all airspace users on an equitable basis. Stakeholders were also provided with further information on the supplied evidence base and how it could be used to inform their responses to the consultation. The CAA published a consultation response document in June 2020 (CAP 1935) alongside a formal consultation on a draft of the new procedure to review the classification of airspace (CAP 1936). That consultation closed in September 2020 and a response document (CAP 1990) was published alongside the new procedure (CAP 1991) in November 2020 (see Initiative 10 in Chapter 1).

3.31 The CAA has engaged with the MoD, NERL and Highlands and Islands Airports Ltd., to seek help to develop the State Safety Assessment of Cooperative Surveillance in Support of Air Traffic Services by Q3 2021, in order to set the framework for deployment of such capabilities. The initial draft document on the airspace concept was shared with stakeholders in December 2020 and described the potential future surveillance environment. The CAA will also look to establish a working arrangement with stakeholders to help develop the state level safety goals and arguments, as well as look at the deployment level safety considerations.

3.32 The CAA continually engaged on the implementation of modern data exchange and sharing services that will allow the efficient communication of flight, meteorological and aeronautical information. This was conducted through several regular meetings, listed under paragraph 3.21 above.

3.33 The CAA has also engaged with the Airport community at the Listening Sessions in November and December 2020, to gather feedback on AMS, in light of its upcoming planned revision.

Engagement with Air Navigation Service Providers

3.34 Air Navigation Service Providers (ANSPs) were engaged by NERL on initiatives 2, 6 and 15.

3.35 The engagement took place as part of D1 consultation. Consultation responses were collated and reviewed in March 2020, as part of Step 3d of the CAP1616 process, to enable Free Route Airspace.

3.36 In June 2020, NERL consulted and advised of the urgent action to pause long-term investment activity around queue management tools and procedures, as well as air traffic management systems, due to the impact of COVID-19. Further engagement was held in September, to seek user agreement on restarting investment activity at a reduced rate than originally planned. In October, stakeholders were also advised that NERL was re-drafting the investment plan to consider the full impact of the pandemic and have engaged with customers as part of a formal consultation in December 2020.

3.37 ANSPs were also engaged by ACOG on initiatives 4 and 5. The engagement was carried out as part of dedicated meetings with the AOA Airspace and Air Traffic Services Working Group. ACOG has also engaged with a broad base of UK airports, airlines and ANSPs at the Industry Coordination forum for the AMS (ICAMS).

3.38 ANSPs were engaged by the CAA on initiatives 4, 7, 10, 12, 13, 14 and 15. The CAA held a public engagement exercise on the criteria proposed to use to determine whether to accept the Airspace Change Masterplan into the AMS.

3.39 The CAA wrote to all members of NATMAC in August and reminded providers of ATM/ANS, including aerodromes of their obligations, in respect of compliance to the PBN IR and the forthcoming December deadline. This was then followed up with an update to the CAA PBN web pages, including a link whereby aerodromes can submit to the CAA their online PBN Transition Plans. The CAA has also spoken to several aerodromes, to assist them in completing the PBN Transition Plan form.

3.40 There have been several phases of engagement relating to the development of a new CAA procedure to review the classification of airspace, beginning with a formal consultation in December 2019. In January 2020 targeted information sessions and roundtables outlined the purpose of the consultation and what the CAA required from stakeholders to help identify volumes of controlled airspace where the classification could be amended to better reflect the needs of all airspace users on an equitable

basis. Stakeholders were also provided with further information on the supplied evidence base and how it could be used to inform their responses to the consultation. The CAA published a consultation response document in June 2020 (CAP 1935) alongside a formal consultation on a draft of the new procedure to review the classification of airspace (CAP 1936). That consultation closed in September 2020 and a response document (CAP 1990) was published alongside the new procedure (CAP 1991) in November 2020 (see Initiative 10 in Chapter 1).

3.41 CAA engagement has consisted of regular meetings to position alignment for the UK, at the ICAO World Radiocommunication Conference (WRC), with the Communications Navigation and Surveillance (CNS) taskforce looking to deliver draft report to High Level Safety Conference in 2022 for the next Air Navigation Conference.

3.42 The CAA published an Aeronautical Information Circulars (AIC) on the European implementation of VHF datalink in February 2020. Engagement with industry on datalink has been largely a Eurocontrol-led initiative, the main body of work to raise operator and ANSP awareness on the benefits of use and their equipage and service provision requirements, having been conducted many years ago.

3.43 The CAA has also carried out engagement with the MoD, NERL and Highlands and Islands Airports Ltd., to seek help to develop the State Safety Assessment of Cooperative Surveillance in Support of Air Traffic Services by Q3 2021. The initial draft document on the airspace concept was shared with stakeholders in December 2020 and described the potential future surveillance environment. The CAA will also look to establish a working arrangement with stakeholders to help develop the state level safety goals and arguments, as well as look at the deployment level safety considerations.

3.44 The CAA continually engaged on the implementation of modern data exchange and sharing services that will allow the efficient communication of flight, meteorological and aeronautical information. This was conducted through several regular meetings listed under paragraph 3.21 above

3.45 The CAA has also engaged with the ANSP community at the Listening Sessions in November and December 2020, to gather feedback on AMS, in light of its upcoming planned revision.

Engagement with the Government

3.46 Government was engaged by ACOG on initiatives 4 and 5, through the means of briefings for the Transport Select Committee secretariat, Secretary of State for Transport and Aviation Ministers;

3.47 The Government was also engaged by ACOG at the NERL-led parliamentary drop-in sessions and at dedicated briefings for Members of Parliament.

3.48 The CAA engaged with the Government regularly through correspondence with Members of Parliament on a variety of topics surrounding the AMS. A tailored Airspace Information Session was also held with the House of Lords in February 2020 along with a virtual Parliamentary Airspace Masterclass for MPs in May 2020. The overarching aim of this session was to increase awareness of the CAP1616 airspace change process amongst politicians and how they and their constituents can participate in the process. This was followed up with a briefing document, which was sent to MPs to assist them with airspace issues in their constituency.

Engagement with Community Representatives and Interest Groups

3.49 Community Representatives and Interest Groups were engaged by ACOG on initiatives 4 and 5

3.50 Support was given by ACOG to airport participants in their engagement with local communities, to agree airspace design principles for the ACPs.

3.51 Engagement was also held on the approach to improving aviation's environmental performance with Sustainable Aviation, the Aviation Environment Federation and DfT's Airspace and Noise Engagement Group.

3.52 ACOG has also engaged with the Independent Commission on Civil Aviation Noise on the proposed approach to joining up airspace

consultations across co-dependent ACPs with impacts in the same geographical areas.

3.53 The CAA provided the Airspace and Noise Engagement Group (ANEG) with an update on the AMS and engaged with the Independent Commission on Civil Aviation Noise (ICCAN) on best practice regarding noise engagement. The CAA met with community representatives on several occasions throughout the year, including joint meetings with the CAA and DfT, and bilateral meetings with senior members of the CAA staff.

3.54 The CAA consulted these stakeholders on a draft of the new procedure to review the classification of airspace (CAP 1936). The consultation closed in September 2020 and a response document (CAP 1990) was published alongside the new procedure (CAP 1991) in November 2020. (See Initiative 10 in Chapter 1). The CAA has also held a public engagement exercise on the criteria proposed to use to determine whether to accept the Airspace Change Masterplan into the AMS.

3.55 The CAA has also engaged with the Community Representatives and Interest Groups at the Listening Sessions in December 2020, to gather feedback on AMS, in light of its upcoming planned revision.

Engagement with the Military

3.56 Military were engaged by NERL on initiatives 2, 6 and 15. The engagement was carried out as part of D1 consultation. Consultation responses were collated and reviewed in March 2020, as part of Step 3d of the CAP1616 process, to enable Free Route Airspace.

3.57 NERL consulted and advised the Military in June 2020, of the urgent action to pause long-term investment activity around queue management tools and procedures, as well as air traffic management systems, as a result of the impact of COVID-19. Further engagement took place in September, to seek user agreement on restarting investment activity at a reduced rate than originally planned. In October, stakeholders were also advised that NERL was re-drafting the investment plan to consider the full impact of the

pandemic and have engaged with customers as part of a formal consultation in December 2020.

3.58 The Military were engaged by the CAA on initiatives 7, 10, 14 and 15. The CAA wrote to all members of NATMAC in August and reminded providers of ATM/ANS, including aerodromes of their obligations, in respect of compliance to the PBN IR and the forthcoming December deadline. This was then followed up with an update to the CAA PBN web pages, including a link whereby aerodromes can submit to the CAA their online PBN Transition Plans. The CAA has also spoken to several aerodromes, to assist them in completing the PBN Transition Plan form. The CAA has also held a public engagement exercise on the criteria proposed to use to determine whether to accept the Airspace Change Masterplan into the AMS.

3.59 There have been several phases of engagement relating to the development of a new CAA procedure to review the classification of airspace, beginning with a formal consultation in December 2019. In January 2020 targeted information sessions and roundtables outlined the purpose of the consultation and what the CAA required from stakeholders to help identify volumes of controlled airspace where the classification could be amended to better reflect the needs of all airspace users on an equitable basis. Stakeholders were also provided with further information on the supplied evidence base and how it could be used to inform their responses to the consultation. The CAA published a consultation response document in June 2020 (CAP 1935) alongside a formal consultation on a draft of the new procedure to review the classification of airspace (CAP 1936). That consultation closed in September 2020 and a response document (CAP 1990) was published alongside the new procedure (CAP 1991) in November 2020 (see Initiative 10 in Chapter 1).

3.60 Engagement was also made with the MoD, NERL and Highlands and Islands Airports Ltd., to seek help to develop the State Safety Assessment of Cooperative Surveillance in Support of Air Traffic Services by Q3 2021, to help set the capability deployment framework. The initial draft document

on the airspace concept was shared with stakeholders in December 2020 and described the potential future surveillance environment. The CAA will also look to establish a working arrangement with stakeholders to help develop the state level safety goals and arguments, as well as look at the deployment level safety considerations.

3.61 The CAA continually engaged on the implementation of modern data exchange and sharing services that will allow the efficient communication of flight, meteorological and aeronautical information. This was conducted through several regular meetings listed under paragraph 3.21 above.

3.62 The CAA chairs the Flexible use of Airspace State Programme (FSP) and is supported by members from stakeholder organisations including MoD, NERL, Airline operator representatives and ATM consultants. The MoD, NERL and CAA have jointly engaged regularly on the Advanced Flexible Use of Airspace (initiative 3), which has enabled both NERL and MoD to ensure that stakeholders have developed their current procedures and extend the use of LARA (Local and Regional Airspace Management tool), throughout their organisations and operational areas.

3.63 The CAA has also engaged with the Military community at the Listening Sessions in December 2020, to gather feedback on AMS, in light of its upcoming planned revision.

Engagement with All Entities

3.64 All entities were engaged by the CAA, in July 2020. A joint statement with the DfT was published, regarding the continued commitment to airspace modernisation and the intention to review the work on airspace modernisation going forward. This included mass emails to DfT and CAA's stakeholder lists, and entities from the AMS governance structure.

3.65 In light of the impact of the COVID-19 pandemic, the CAA is planning to undertake a review of the AMS sooner than expected. Before considering any changes however, the CAA is in a process of engaging with stakeholders on the governance structure. A number of listening sessions were held in November and early December, as summarised in paragraphs

above. The key aim was to gather feedback and seek understanding of the stakeholders' views on the content of the current AMS. Stakeholders were also invited to share their feedback on any identified gaps, and to highlight relevant issues not originally addressed under the strategy. The CAA also sought to better understand and capture stakeholder-specific issues, that may have arisen in the wake of COVID-19 and encouraged feedback on how these could be included in the AMS going forward.

2021 Commitment to Stakeholder Engagement

3.66 Looking forward into 2021, the work to review and revise the AMS will involve further dedicated public consultation engagement with the industry, stakeholders and enlisted AMS governance entities, before any changes are made.

3.67 The CAA and DfT will also publish a co-sponsor and oversight stakeholder engagement plan, to publicly share our commitment to listen to every stakeholder group and ensure they have an opportunity to help shape any changes to policy and strategy.