

Airspace Change Organising Group

2020 Annual Report

March 2021

ACOG



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Sir Timo Anderson
KCB DSO
 Chair, ACOG Steering
 Committee

Chairman's Statement

The UK's Airspace Modernisation Strategy (AMS) published in 2018¹ called for the establishment of the Airspace Change Organising Group to design and coordinate the roadmap of, often interrelated, airspace design changes required for modernisation. However, having mobilised in the latter half of 2019, ACOG's objective of achieving initial operating capability in 2020 and delivering Iteration 2 of the UK's airspace modernisation Masterplan by that summer was comprehensively derailed by the profound effects of the COVID-19 pandemic as it struck in March last year. Airports' local airspace changes below 7000ft are self-funded.

As sector revenues collapsed, airspace change sponsors' responses to the existential threat posed by the pandemic's destruction of cashflows left no room for what became by force majeure highly discretionary spend.

Notwithstanding, the enforced pause in normal business permitted ACOG to focus on the foundational elements of organisational structure, core systems and processes, operating model and critically important stakeholder mapping. Few with any knowledge of the complexity and chequered history of the airspace modernisation task will underestimate the premium attached to the latter. Airspace modernisation overlays a very broad spectrum of operational clients, interested and affected groups, all nested within a society having to adjust rapidly to a more independent global profile, whilst evolving its collective thinking on priorities for action, such as climate management. Amidst this highly dynamic environment sit the sometimes-competing priorities of various stakeholder groups. Whilst the Air Navigation Guidance and CAA's CAP1616 airspace change process encapsulate the who, how and when of stakeholder involvement in the formal process, understanding who those

1. <https://publicapps.caa.co.uk/docs/33/CAP%201711%20Airspace%20Modernisation%20Strategy.pdf>



stakeholders are, their goals and concerns is critical to ACOG's ability to engage with them and facilitate airspace modernisation that delivers balanced outcomes in an efficient and timely manner.

In the early part of last year, very good progress was being made in crafting Iteration 2 of the Masterplan, which was on track for assessment by the CAA by the summer. The vacuum that would otherwise have ensued when that iteration had to be shelved was quickly and very productively filled by ACOG's analysis of potential post-pandemic recovery scenarios for the sector, with a view to identifying how best to set the conditions for a remobilised airspace modernisation programme. Paramount among the associated report's recommendations was the need to explore options for the provision of emergency external support funding to enable the strategic programme to weather the pandemic storm and adhere as closely as practicable to the timescales set out in the AMS.

Thereafter, ACOG worked diligently to support the AMS' co-sponsors² in compiling a compelling business case for Government intervention to safeguard the tangible benefits that a systemised approach to modernising our airspace will bring. These range across multiple axes from managed growth to reducing harmful emissions, better user access, less friction for travellers and strengthened resilience in our national airspace infrastructure. I am delighted therefore at the recent announcement of Government funding to enable the programme to remobilise and help lay the ground for an efficient sector recovery. This will also protect the anticipated timeline to the maximum extent possible and the realisation of the significant benefits ACOG are confident will accrue on the back of long-overdue modernisation.

ACOG's year ahead will be characterised by the mechanics of remobilising quickly, with a keen focus on making up for lost time, helping crystallise much of the pre-pandemic good work that had been undertaken by individual airspace change sponsors and the communities they reside within and serve, and delivering Iteration 2 of the Masterplan in the 4th quarter of this year for subsequent scrutiny and approval by the CAA. I and my Steering Committee colleagues look forward immensely to our role in assuring progress in this critical national infrastructure programme against the Government's AMS-defined outcomes and ACOG's core objectives.³

2. Department for Transport and Civil Aviation Authority.

3. <https://www.ourfutureskies.uk/about-us/who-are-acog/>



Mark Swan
Head of ACOG

Head of ACOG's Statement

The year 2020 will go down globally as the darkest in the history of aviation as all stakeholders, both commercial and non-commercial, struggled to survive the catastrophic effects of COVID-19. The Aviation Sector is unlikely to recover for several years, and when it does, we need to have transformed the airspace that it uses, not only for airlines but for all users of this critical national infrastructure.

Our first Annual Report sets out our work this year against the most challenging backdrop that we are ever likely to face. With some industry partners on the very limits of solvency, and highly experienced staff no longer available, the ability to change gear into a truly national transformation programme will be difficult but not impossible. Our report is designed to provide the impetus for that change by demonstrating that we are ready to lead, coordinate and facilitate, a strategically important pillar of national infrastructure investment that will indeed “build back better”.

We have achieved our principal objectives in establishing our organisation, its structure, processes and governance over this last year and had formulated the latest draft of the Masterplan just before the pandemic struck.

We have reached out to all stakeholders and engaged at every level and whilst there are resource and investment risks, there is also a unique opportunity to integrate and modify our airspace for the benefit of all users over the coming years. Our work this year has also helped identify the path to contributing up to 20% of aviation emissions savings in UK airspace towards the 2050 net-zero target, by embarking on a national, coordinated programme of upgrades rather than a piecemeal approach.



Our sponsors, the DfT and CAA, have confirmed the ongoing imperative to modernise the UK's airspace in the face of the unprecedented challenges created by COVID-19. Five key principles underpin this imperative. These are:

- Support aviation's commitment to reach net-zero emissions by 2050
- Increase capacity and reduce delays as traffic levels recover
- Improve the management of aircraft noise around airports
- Open-up the airspace for all users including General Aviation and Drones
- Enable the removal of outdated ground-based navigation infrastructure

To achieve this, Government support in terms of short-term funding is essential to a successful recovery and to future proof our national airspace as part of the Airspace Modernisation Strategy. I am delighted that the Secretary of State for Transport has announced £5.5m of support for the Programme over the next 12 months. This will enable the creation of a new Masterplan, not only for the 21 commercial airports across the UK, but also one that will benefit other airspace users and the public alike. We eagerly look forward to launching a revised airspace change programme in Spring 2021 with a focus on sustainability.

Our first Annual Report considers the progress against the delivery plans for FASI South and FASI North as component parts of the UK Airspace Change Programme. In this capacity the report provides a summary of;

- Achievements to date and a look ahead at future key milestones
- Communication and engagement activities
- Risks to the programme
- ACOG's finances

I would like to acknowledge the significant efforts of the ACOG team and members of the ACOG Steering Committee that have continued their work behind the scenes methodically preparing the way for remobilising the UK Airspace Change Programme now that the time is right.

Introduction

The Airspace Change Organising Group (ACOG) is an aviation specific team of technical, programme management and communications specialists tasked with coordinating the UK's Airspace Infrastructure Transformation Programme (the Programme). The requirement for ACOG is defined in the Airspace Modernisation Strategy (AMS), that describes the initiatives needed to improve air traffic management and contribute to the Government's vision for quicker, quieter and cleaner flights.

The Department for Transport (DfT) and Civil Aviation Authority (CAA) co-sponsor the AMS and oversee ACOG's activities. NATS Enroute Plc (NERL) provide ACOG with facilities and administrative support. The ACOG team operates as a unit separate from NERL, but with oversight from an independent and impartial Steering Committee comprising senior experts drawn from across the aviation sector.

ACOG manages the delivery of two important AMS initiatives: The Future Airspace Implementation South (FASI-S); and Future Airspace Implementation North (FASI-N). FASI-S is a transformative redesign of the airspace structure in Southern England and Wales with participation from fourteen airports and NERL. FASI-N is a similar redesign of the airspace in Northern England and Scotland with participation from seven airports and NERL.

Collectively, FASI-S and FASI-N form the core of the AMS and are recognised by Government as a critical investment in the national transport infrastructure. There is also recognition within Government that to be truly transformative, the needs of non-scheduled airspace users such as General Aviation, Drones and the Military, will also need to be addressed.

The Programme paused in March 2020 when COVID-19 hit, and all of the industry participants were compelled to refocus their attention on conserving liquidity and managing the crisis.

One of ACOG's most important roles is to draw together an overall Masterplan that looks out to 2040. Creating and maintaining the Masterplan is the cornerstone of our work and the focus of our engagement with all stakeholders that have an interest in airspace modernisation. ACOG are committed to producing a Masterplan in collaboration with all aviation stakeholders that provides detailed information on the airspace design options under development, the potential areas of overlap between individual changes and the compromises and trade-offs that may need to be made to integrate them effectively. The next iteration of the Masterplan will be created in 2021 providing more details on the impacts of the individual changes. In due course, the public will be able to access the Masterplan as well, to understand how the airspace changes might affect them and when they will be consulted about different aspects of the Programme.

The Secretary of State for Transport provided a set of strategic aims for ACOG in a letter to the CAA.⁴ These aims will be incorporated into the Masterplan and are set out below:

- Create additional airspace capacity to support the growth of aviation
- Reduce controlled airspace to the minimum necessary to facilitate safe aviation operations
- Remove unnecessary lower airspace constraints
- Reduce airspace inefficiencies and congestion-related delays for passengers
- Reduce noise and CO₂ emissions

4. <https://publicapps.caa.co.uk/docs/33/20191104%20Transport%20Secretary%20to%20Deirdre%20Hutton%20-%20ACOG.PDF>

Achievements to date

ACOG's five core objectives provide a useful point of reference to consider the achievements of 2020 and look ahead at the potential milestones for 2021. ACOG's core objectives are to:

- Lead the airports and NERL in the creation of a credible and implementable Masterplan for FASI-S and FASI-N.
- Coordinate analysis with stakeholders to identify and understand the dependencies created by overlapping airspace changes.
- Facilitate between stakeholders to strike efficient compromises and trade-offs that are needed to integrate the overall design.
- Demonstrate the collective impacts of the airspace changes and identify opportunities for all stakeholders to share in the benefits.
- Build a broad base of support for the airspace changes and join-up the industry's approach to communications, engagement and consultations.

For 2020 (the first full year of ACOG operations), the team had an additional one-off objective to establish its organisational structure, processes, and governance. The following sections summarise the achievements linked to each objective and look ahead at the potential milestones for 2021.

Establishing the ACOG organisation, processes and governance

The ACOG team was mobilised incrementally during 2019. In Q1-2020 the team finalised its organisational structure, governance arrangements and established a central set of processes to drive delivery. A review of ACOG's core competencies is planned for Q1-2021 to ensure that the team's knowledge and experience are aligned to the evolving requirements of the Programme. The 2020 achievements linked to establishing ACOG and the potential milestones for 2021 are summarised in Table 1.

Table 1: Establishing ACOG, achievements and milestone lookahead

Theme	2020 achievements	Milestones for 2021
1.1 ACOG Organisational Structure	a) ACOG team 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 and delivery progress is overseen by the ACOG Steering Committee.	b) Q1-2021: A review of ACOG's core competencies is expected to guide the re-organisation of the team to best meet the evolving requirements of the Programme as delivery activity resumes following the CV19 pause, and to address any modifications to the scope of ACOG's role and functions.
1.2. Core systems & processes	<p>a) Designed and embedded a central set of processes to manage ACOG's delivery tasks, quality assurance and budget.</p> <p>b) Established a ring-fenced IT network and dedicated document management system for the ACOG team to ensure independence from the NERL estate.</p> <p>c) Developed 1-year and 3-year Business Plans and the initial ACOG Target Operating Model.</p> <p>d) Completed Stakeholder Mapping to identify, analyse and segment the groups that are potentially impacted by the Programme and examine their requirements.</p>	<p>e) Q2-2021: ACOG's central business processes and IT systems to be independently validated in preparation for ISO9001 audit and accreditation.</p> <p>f) Q1-2021: Implement business intelligence and information dashboard functions to strengthen the monitoring of delivery activities.</p>
1.3. Governance arrangements	a) Engaged the Helios consultancy to conduct an independent review of the ACOG governance arrangements and inform refinements to the terms of reference and working practices that support the FASI-S and FASI-N Programme Boards and their reporting lines to ACOG Steering Committee.	<p>b) Q1-2021: Update the composition and terms of reference for the FASI-S and FASI-N Programme Boards to ensure they are configured to best meet the evolving requirements of the Programme as delivery activity resumes following the CV19 pause.</p> <p>c) Q1-2021: Support the implementation of broader ACOG governance arrangements.</p>

Creating the Masterplan

FASI-S and FASI-N are large, complex undertakings. The Programme participants must work together to develop airspace design options, assess a wide range of possible flight paths, manage consultations with affected stakeholders and plan the migration from today's operation to the future. One of ACOG's most important roles is to draw together these many overlapping strands of work into an overall Masterplan. The purpose of the Masterplan is to set out where and when airspace changes will be taken forward to provide benefits and in doing so to consider dependencies, trade-offs and conflicts.

ACOG worked closely with the CAA during 2020 to agree on the scope of the Masterplan in greater detail, identify the information required from the Programme participants and develop the criteria that will be used by the Regulator to assess and accept the plan. ACOG and the participants were finalising a Deployment Schedule for the Airspace Change Proposals (ACPs) that would form the basis of the Masterplan in March 2020 when COVID-19 hit. In April 2020, the CAA requested that ACOG refocus to analyse the impact of different recovery scenarios on the Programme and identify options for post-crisis remobilisation. One of the most important recommendations arising from ACOG's report on Remobilising the UK Airspace Change Programme was the proposal for central government "bridge funding" to progress the airport-led ACPs. With a catastrophic

decline in aviation demand, the airports' ability to fund airspace changes is practically non-existent, especially for the next 18 to 24 months. ACOG's role as a trusted, independent coordinator was essential to encourage the participating airports to share sensitive commercial information in support of a funding proposal, which ACOG developed and presented to the DfT in August 2020.

The remobilisation report also recommended that NERL revisited its 2018 Feasibility Study for airspace modernisation to identify the core set of ACPs that would be required to optimise the network following COVID-19. It was recommended that ACOG work with the airports and NERL to re-evaluate the Programme Plan based on the Feasibility Study to ensure alignment between the lower altitude and en route ACPs and assess how best to achieve aircraft emissions savings. ACOG expect to create the next iteration of the Masterplan during 2021, which will include the updated Programme Plan and bring together the options developed by each component ACP into an overall system-level design. The features of the system-level design and the process by which it was developed will be assessed and, if suitable, accepted by the CAA. Following regulatory acceptance, ACOG expects to conduct a public consultation on the Masterplan in 2022. The 2020 achievements linked to creating the Masterplan and potential milestones for 2021 are summarised in Table 2.

Table 2: Creating the Masterplan, achievements and milestone lookahead

Theme	2020 achievements	Milestones for 2021
2.1. Masterplan scope and development approach	<ul style="list-style-type: none"> a) Agreed an iterative approach to development of the Masterplan with the CAA. b) Defined the detailed scope of the Masterplan in collaboration with NERL and the CAA and set out the information required from the Programme participants to create the next iteration. 	<ul style="list-style-type: none"> c) Q2 & Q3-2021: Work with NERL and the airport participants to collate, examine and present the information required for the next iteration of the Masterplan. d) Q4-2021: Sign-off the Masterplan with the ACOG Steering Committee and submit to CAA to assess and accept.

2.2. Masterplan access and accept criteria	a) Supported the CAA to develop and consult on the criteria to assess and accept the Masterplan (CAP1887).	b) Q2-2021: Incorporate the updated assess and accept criteria (finalised post consultation) into the Masterplan scope and development approach.
2.3. Joined up Programme Plan	<p>a) Established the FASI Programme Management Working Group to coordinate the production of a joined-up Programme Plan for inclusion in the Masterplan.</p> <p>b) Finalised the ACP Deployment Schedule for FASI-S (prior to CV19) working with NERL and the airport participants.</p> <p>c) Re-evaluated the scope of the Programme (post CV19), working with NERL, to identify the core set of ACPs that will be required to support network optimisation and assessed how best to achieve airspace emissions savings.</p>	<p>d) Q1-2021: Update and document the methodology for coordinating the production of the Programme Plan for inclusion in the Masterplan, incorporating lessons learned from the pre-CV19 FASI-S ACP Deployment Schedule.</p> <p>e) Q3-2022: Produce the baseline Programme Plan for FASI-S and FASI-N and sign-off with the respective FASI Programme Boards.</p> <p>f) Q3-2021: Re-evaluate the ACP Deployment Schedule to ensure that the airport-led and network ACPs are aligned from a technical and timeline perspective.</p>
2.4. Scenario Analysis	<p>a) Conducted Scenario Analysis to identify options for remobilising the UK Airspace Change Programme and agreed the report recommendations with the ACOG Steering Committee, NERL, the CAA and DfT.</p> <p>b) Supported the CAA to define the process for restarting the Programme and the individual component ACPs in a controlled manner.</p> <p>c) Supported the CAA to define the process by which, in the short-term absence of the Masterplan, individual ACPs can progress with assurance that they do not conflict with future network upgrades.</p>	<p>d) Q1-2021: Support all Programme participants through the CAA ACP restart guidance and incorporate any retrospective actions required into the Programme Plan.</p> <p>e) Q1 & Q2-2021: Support specific ACPs that plan to progress their proposals beyond Stage 2 of CAP1616, in the short-term absence of a Masterplan, through the agreed CAA assurance process regarding conflicts with future network upgrades.</p>

2.5. Proposal for short-term funding support	a) Produced and submitted to Government an industry-informed proposal recommending short term financial support for the airport-led ACPs to complete the development and assessment of airspace design options and progress quickly to the implementation of the Masterplan.	b) Q1 2021: Work with the DfT, CAA and Programme participants to support the implementation of the agreed scheme for financial support for the airport-led ACPs.
2.6. Access and integration	a) Engaged with the UK Research and Innovation’s Future Flight Programme to support the development of airspace access and integration concepts.	b) Q3-2021: Coordinate a proposal for research funding to trial the integration of GA and Drone operations within part of one of the Programme deployments.

Understanding interdependencies and integrating the airspace design

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. The 2020 achievements linked to identifying interdependencies and potential milestones for 2021 are summarised in Table 3.

Table 3: Identifying interdependencies, achievements and milestone lookahead

Theme	2020 achievements	Milestones for 2021
3.1. Technical Working Groups and Bilaterals	<p>a) Established the FASI Technical Working Group for all participants to share information about their emerging airspace design options and identify the interdependencies.</p> <p>b) Supported regular bilateral meetings between the co-dependent airports and NERL to examine the potential solutions to interdependencies between design options.</p> <p>c) Developed and agreed a comprehensive facilitation process with the participants for use in the event of a potential dispute regarding airspace design options and the treatment of interdependencies.</p>	<p>d) Q1-2021: Remobilise Programme Management and Technical Working Groups and support the resumption of bilateral meetings between participants.</p> <p>e) Q2-2021: Develop the methodology for identifying and assessing the impact of ACP interdependencies at a system-level for inclusion in the Masterplan.</p>

3.2. Management of network connecting points	<p>a) Supported the airports and NERL to collate a framework of network connecting points across the FASI regions and guide the development of the system-level design.</p> <p>b) Conducted assurance activities with operational air traffic controllers to validate the emerging system-level design.</p>	c) Q4-2021: Develop route interaction management plans that define the solutions to significant airspace design interdependencies in greater detail and enable a consistent appraisal of the cumulative impacts.
3.3. Integrating options appraisal and trade-offs	a) Developed guidance for Programme participants on the assessment of airspace design options and the approach to integrating the outputs across co-dependent ACPs.	b) Q2-2021: Develop guidance on the appraisal of cumulative impacts that may be created by overlapping airspace design options and the approach to presenting and assessing trade-off decisions.
3.4. Integration of Performance-based Navigation (PBN) designs	<p>a) Conducted dedicated airline, airport and ANSP workshops concentrating on the application of advanced PBN routes and the management of horizontal and vertical separations in a systemised environment.</p> <p>b) Developed guidance on the technical implementation of multiple route options deployed to mitigate the noise concentration associated with PBN routes.</p>	c) 2021: Convene an ANSP and airline task force to fully define the technology, procedures and airspace concepts needed to achieve optimised horizontal and vertical separation of traffic using PBN routes in a systemised environment.

Demonstrating impacts and benefits

The Programme is expected to generate a range of benefits for a broad mix of stakeholder groups. Due to 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 GA and UAS 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. The ACOG Benefits Framework was used to assess the potential for the ACPs to reduce aviation emissions and contribute to the aviation sector's plans to decarbonise.

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. The 2020 achievements linked to demonstrating impacts and benefits and potential milestones for 2021 are summarised in Table 4.

Table 4: Impacts and benefits, achievements and milestone lookahead

Theme	2020 achievements	Milestones for 2021
4.1. Benefits framework	a) Created the ACOG Benefits Framework to quantify and track ACP benefits and the impacts of the overall system-level design.	b) Q3-2021: Expand and refine the Benefits Framework as the ACPs develop their airspace design options and feedback from external stakeholders help to shape the assessment of wider costs and benefits.
4.2. Quantifying Emissions Savings	a) Produced a high-level assessment of the Programme's potential to reduce aviation emissions at national level and aligned to the analysis conducted for the Sustainable Aviation decarbonisation roadmap.	b) Q4-2021: Validate the assumptions underpinning the expected % contribution that the Programme is expected to make to the decarbonisation roadmap.
1.3. Wider costs and benefits	<p>a) Engaged with General Aviation, UAS and Military airspace users to begin quantifying the wider costs and benefits of the Programme on their operations.</p> <p>b) Engaged with EUROCONTROL on best practice approaches to demonstrating the impacts of system-level airspace changes and agree access to environmental measuring tools and airspace simulation facilities.</p>	<p>c) Q3-2021: Develop assessment methodologies to effectively incorporate the potential costs and benefits to other airspace users into ACP options appraisals.</p> <p>d) Q4-2021: Develop metrics to track the reclassification and release of controlled airspace and the removal of constraints to access and integration in collaboration with the CAA Airspace Reclassification Review team.</p> <p>e) Q3-2021: Assess, develop and adopt appropriate environmental metrics model.</p>

Communications and engagement

Our communications and engagement activities aim to build a broad base of support for airspace modernisation and join-up the industry's approach to this. This includes leading the national communications campaign for airspace modernisation, known as Our Future Skies, coordinating engagement with key stakeholders on the development of the Masterplan and producing the strategy for interrelated public consultations where the impacts of several different ACPs have the potential to overlap.

Through the Our Future Skies campaign ACOG has worked closely with industry and other stakeholders to raise awareness of and build national and political support for airspace modernisation. This included a new website and online brochure, speaking events and dedicated briefings for senior leaders across the industry and government.

These activities were delivered alongside and separate to ACOG's specific engagement actions to raise awareness of the organisation's independent role in coordinating the Programme through the development of the Airspace Masterplan. As part of the process for developing this, ACOG is required to prepare a strategy to undertake effective engagement with the core stakeholder groups, set out within the AMS. This will ensure that stakeholders' feedback can influence important features of the final design.

Following the devastating impact of the pandemic, ACOG's communications activities will focus on raising awareness of the national programme of airspace change and our commitment to work with the industry and government to deliver sustainable change.

Over the next 12 months, ACOG will be engaging with representatives from organisations and groups that are either users of airspace, or may be potentially affected by changes to it to help inform and shape future iterations of the Masterplan.

The engagement activities conducted during 2020 aimed to ensure stakeholder groups are aware of the national programme of airspace change, ACOG's role within this and the next steps and timescales for the Programme. Due to the pandemic, a key focus of the engagement activity in 2020 was about demonstrating and making the case for short term emergency Government funding. Table 5 sets out the focus of ACOG's stakeholder engagement during 2020 and summarises the evidence of engagement activities.

Table 5: Summary of 2020 stakeholder engagement

Theme	2020 achievements
Airports	<ul style="list-style-type: none"> a) 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. b) General briefings to the UK airport community at the 2020 Airport Operators Association (AOA) Conference and engagement with the European airport community at the EUROCONTROL Digitally Connected Airports Conference. c) Dedicated engagement with the AOA Airspace and Air Traffic Services Working Group. d) Engagement with a broad base of UK airports, airlines and ANSPs at the Industry Coordination forum for the AMS (ICAMS).
Airlines	<ul style="list-style-type: none"> a) 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. b) Airspace concept and technical integration workshops with airline operations, technical pilots and avionics experts. c) 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	<ul style="list-style-type: none"> a) Briefings to the General and Business Aviation Strategic Forum (GBASF) and the National Air Traffic Management Advisory Committee (NATMAC). b) Engagement with Airspace4All (forum encouraging the GA community to adopt a unified approach to airspace modernisation) on tracking the rationalisation of controlled airspace. c) Engagement with the Aircraft Owners and Pilots Association (AOPA), Light Aircraft Association (LAA) and the British Business and General Aviation Association (BBGA). d) Engagement with UK Research and Innovation on the safe and efficient integration of UAS operations as part of the Programme.
Community Representatives, Interest Groups and Local Government	<ul style="list-style-type: none"> a) Support to airport participants in their engagement with local communities to agree airspace design principles for the ACPs. b) Engagement on the approach to improving aviation's environmental performance with Sustainable Aviation, the Aviation Environment Federation, community interest groups and DfT's Airspace and Noise Engagement Group. c) Engagement with the Independent Commission on Civil Aviation Noise on the proposed approach to joining up consultations across co-dependent ACPs with impacts in the same geographical areas.

Central Government	<ul style="list-style-type: none"> a) Briefings for the Transport Select Committee secretariat, Secretary of State for Transport and Aviation Ministers. b) Support for the NATS-led Parliamentary Drop-in sessions. c) Dedicated briefings for Members of Parliament.
Passengers, Businesses and the Wider Economy	<ul style="list-style-type: none"> a) ACOG is the lead coordinator of the 'Our Future Skies' campaign that represents a coalition of airlines, airports, NATS and trade associations, describing how and why the airspace is being modernised and the process for engaging with stakeholders. b) Engagement with business groups including the CEOs of the Institute of Directors and Confederation of British Industry.
European stakeholders	<ul style="list-style-type: none"> a) 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.

Lookahead at the 2021 Stakeholder Engagement Milestones

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

- a) Conduct comprehensive engagement on the development of the Masterplan, concentrating on the potential impact of interdependencies and possible solutions.
- b) Conduct dedicated engagement with General Aviation and UAS operators to ensure their needs and requirements are collectively coordinated with the ACPs.
- c) Publish guidance on the approach to coordinated consultations for co-dependent ACPs with the potential to create cumulative impacts.
- d) Implement mechanisms to track the reclassification and release of controlled airspace and the realisation of benefits for GA operators and Military airspace users.
- e) 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 the Programme

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 as it remobilises, specifically:

Risk that there is insufficient short-term funding to remobilise the Programme; leading to significant non-linear delays to benefits realisation, particularly in dilution of the contribution to decarbonising the aviation sector: The airport ACP sponsors are operating under severe financial constraints that limit their ability to invest in airspace developments, especially in the near term. NERL's investment in airspace modernisation is also restricted by the impact of the crisis on revenues.

The recent announcement of bridge funding for the next 12 months to support the airport-led ACPs through the next stage of the change process will enable the Programme to remobilise and the production of a viable masterplan in 2021. However, the funding risk is expected to persist into FY22/23 because of the ongoing effects of the crisis on global air transport.

Risk that there are insufficient resources to deliver the Programme to scale and time; leading to significant non-linear delays to benefits realisation, particularly in dilution of the contribution to decarbonising the aviation sector: 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 knowledge and experience.

Government bridge funding will enable the Programme to remobilise and minimise the impact of

this risk, albeit there is likely to be some delay to the overall realisation of benefits owing to the effects of COVID 19 on the Industry. ACOG will recruit additional specialist resources during Q2-2021 to return the team to its original size and strengthen our capability – especially in the area of environmental costs and benefits.

Risks associated with the uncertainty around the traffic recovery profile; Ongoing uncertainty about how and when flight numbers will recover to pre-crisis levels and the long-term profile of the demand makes it difficult for the airports and NERL to determine the requirements of each ACP. 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.

The forecast profile of global air traffic has continued to drop during 2021 because of delays in the creation of a standardised approach to health travel documentation and the uneven roll-out of vaccination programmes. However, the encouraging results of vaccination have created more certainty for long-term recovery. Rapid testing for passengers and the growth of bilateral travel bubbles are expected to drive an upturn in flights during 2022. Nevertheless, IATA expect that the demand for air travel will take several years to fully recover and the airlines do not expect to reach pre-crisis levels before 2024.

Risk associated with uncertainty about future runway developments; Linked to the traffic forecasts, ongoing uncertainty about the 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.

ACOG has agreed with the DfT and CAA to adopt an iterative approach to the development of the Airspace Masterplan so that the current uncertainty about the introduction of additional runway infrastructure can be managed effectively from an airspace design perspective.

Risks associated with changes to the policy and regulatory framework that underpins airspace change; Possible changes to airspace related policies and regulations have the potential to hinder progress in developing airspace changes and the policy objectives they should meet.

The CAA has committed to reviewing the UK Airspace Modernisation Strategy during 2021. The review will be informed by widespread engagement with aviation stakeholders, environmental interest groups and community representatives. The evolution of the policy and regulatory framework that underpins airspace change will be shaped by the outputs of the review. ACOG's iterative approach to Masterplan development will ensure that the definition and assessment of potential airspace design options conducted during the next phase of the Programme are aligned with the review process.

Finance

ACOG has been allocated a delegated budget funded through the NERL portion of the UK en route unit rate. As an independent and impartial organisation, ACOG has discretion in the performance of its duties and authority over the use of its budget. The ACOG Steering Committee monitors ACOG financial performance and NERL retains “arms length” oversight of ACOG’s activity via its regulatory licence requirements. ACOG’s budget includes the costs of its resources, external suppliers and discretionary spend. The costs associated with some supporting functions, including premises, payroll and resources are absorbed by NERL and not presented here.

Table 6 sets out the budgeted, forecast and actual costs associated with ACOG’s activities for the calendar years 2019 to 2022.

The ACOG team was established in 2019 and began to mobilise its operations. Key resources were recruited slightly slower than expected, creating a £0.4m underspend. Recruitment for the remaining ACOG roles was paused in March 2020 when the pandemic hit. All non-essential external support and discretionary spend were also frozen, in line with the Aviation Sector’s response to the crisis. As a result, ACOG will spend £2.1m of its £3.0m budget and return £0.9m underspend. ACOG expect to draw on the full budget allocation of £2.9m over the next calendar year if the UK Airspace Change Programme remobilises as planned from January 2021.

The business planning process that establishes NERL’s determined costs and unit rate for 2021 to 2024 has not been concluded, meaning ACOG’s spending forecast and budget for 2021 onwards is subject to confirmation.

Table 6: Budgeted, forecast and actual financial information

	2019	2020	2021	2022
Actual	£1.5m	£2.1m		
Forecast			£2.9m	£3.1m
Budget	£1.9m	£3.0m	£2.9m	£3.1m

Conclusion

The Coronavirus pandemic has presented one of the toughest challenges for the aviation industry in its history, from airlines and airports to the millions of people the industry employs.

Despite the challenges, there is consensus that as recovery commences, airspace modernisation needs to be at the heart of the recovery plan for aviation.

Upgrading UK airspace will be critical in contributing to a clean recovery of the sector by creating simpler and more fuel-efficient routes. Current forecasts show that modernising airspace offers the potential to reduce future aviation CO₂ emissions in UK airspace by up to 20% by 2050.

We need to invest in our airspace now so that it is fit for flying in the future. We can be confident that in time, more people will be flying again and once again our airspace – our national infrastructure in the sky - that we have relied on for so long will be at capacity. Upgrading the airspace infrastructure will make it

easier for today's modern aircraft to fly more direct routes, with quicker climbs and later descents to help reduce emissions, as well as their noise footprint on the ground.

It will make flying more efficient and help prevent rising delays as the industry recovers from the pandemic, resulting in less congestion for holidaymakers, business passengers and cargo alike. It will also future-proof the airspace and ensure access for other important users, including General and Business aviation, our Military and the growing commercial drones sector.

The complex process of upgrading UK airspace is a critical infrastructure project for this country. It is already underway and it must continue if the UK wants to maintain global competitiveness for trade, business and investment while bringing benefits to the environment and consumers.

ACOG