Foreword

Mark Swan

We are currently in the middle of a once-in-a-generation national programme of change in the way that we structure the network of airspace routes operating in our skies.

In addition to making our journeys by air more reliable, airspace modernisation has the potential to make aviation both cleaner and greener: delivering a near-term contribution to our jet-zero commitments for the sector whilst also reducing, where possible, noise nuisance for communities and freeing up regulated airspace for other recreational general aviation uses.

Achieving these objectives will not be easy which is why the UK Government and regulator have committed to a concerted programme of change. The Airspace Change Organising Group (ACOG) has been set up to coordinate the delivery of this programme and we are determined in all our interactions with our stakeholders to see the potential benefits materialise. This environmental strategy sets out the role that we can play in this journey and some of the actions we are taking to play our part to turn the greener future we all want into a reality.

Mark Swan, Head of ACOG
Over 20 of the biggest UK airports together with NATS, the national air navigation service provider, are developing airspace change proposals (ACPs) to upgrade and redesign airspace structures and flightpaths.

This coordinated national programme forms a major part of the UK’s Airspace Modernisation Strategy (AMS). The overall aim of the AMS is to enable cleaner, more efficient and more reliable flights through the incorporation of the latest navigational technologies and flight procedures.
ACOG’s role in modernisation

ACOG was established in 2019 to support both the UK Government and the Civil Aviation Authority (CAA), the UK’s aviation regulator, by coordinating this national change programme. Because airspace changes must be undertaken safely and take account of their likely impacts on stakeholders, the process governing change is necessarily detailed. Each of the organisations has a specific role to play in ensuring that the programme is delivered efficiently and safely and that the aims of the AMS are met.

An airspace change in one part of the airspace can have an impact on nearby airports as well as the rest of the network and ACOG’s role focuses on these interdependent airspace changes, together with identifying other airspace changes with the potential to offer wider benefits. It is vital that these changes are properly coordinated and sequenced so that they can be implemented effectively. It is also important that the combined effects of these changes are properly captured and any trade-offs between proposals are understood by change sponsors (i.e. airports and NATS) and their stakeholders, and we are tasked with providing guidance to sponsors on how to approach these complex issues. We bring all of this together by publishing a series of Masterplans, assessing and advising on these interactions.
# ACOG’s role in Airspace modernisation

<table>
<thead>
<tr>
<th>Role</th>
<th>Policy</th>
<th>Regulation</th>
<th>Guidance</th>
<th>Technical Proposals</th>
<th>Assessments of Impacts</th>
<th>Stakeholder Engagement</th>
<th>Coordination</th>
<th>Advising</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Airspace Change Proposal (ACP) Sponsors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Engaging with other airports and NATS on interdependent proposals.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Formulating the detailed proposals for change.</td>
<td>Undertaking assessments in accordance with regulation and following guidance where appropriate.</td>
<td>Consulting and engaging with stakeholders on local issues relevant to a proposal.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>UK Government</strong></td>
<td>Setting national law, public policy, and high-level objectives.</td>
<td>Targetted guidance on the interpretation of policy (e.g. noise).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>UK CAA</strong></td>
<td>Development of the Airspace Modernisation Strategy (AMS) and acceptance of the associated Masterplan.</td>
<td>Establishing procedures and guidance for airspace change.</td>
<td>Review submitted proposals against regulatory requirements.</td>
<td>Check that appropriate assessments have been undertaken by sponsors.</td>
<td>Review that adequate consultation and engagement has been undertaken by sponsor.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ACOG</strong></td>
<td>Establishing guidance on how to manage issues generated by interdependent ACPs.</td>
<td>Facilitating the adoption of compatible proposals.</td>
<td>Disseminating a framework for assessing interdependent ACP proposals.</td>
<td>Engaging with stakeholders on issues arising from interdependent ACPs.</td>
<td>Coordinating interdependent airspace change proposals at the regional and national level. Publication of a series of airspace change “Masterplans”.</td>
<td></td>
<td></td>
<td>Advising the CAA and DfT on airspace change issues which cannot be voluntarily resolved between ACP sponsors.</td>
</tr>
</tbody>
</table>

---

ONE SKY ONE PLAN | ENVIRONMENTAL STRATEGY
The environmental case for modernisation

Aviation plays a significant role in facilitating trade and travel and generates significant benefits to the economy.

High volumes of traffic combined with the complexity of the UK’s airspace and the outdated route structure of much of the UK’s airspace network means that inefficiencies in the system are forecast to increase over time if no action is taken.

Symptoms of this pressure on the system include a forecast increase in cancellations and delays, and airborne flights having to take more indirect routes to their destination, with costs in terms of time, fuel and higher carbon emissions. Investment in airspace modernisation is an important response to ensuring that these pressures can be reduced and aviation can continue to provide effective and efficient services to the UK whilst delivering on the UK’s environmental commitments to quieter flights and a zero-carbon future.

The environmental challenges and opportunities for airspace modernisation

Airspace modernisation has the potential to deliver both noise and carbon improvements.

Aircraft noise has been shown to have a significant impact on those living in the vicinity of airports. It is expected that modernising airspace will deliver significant net noise benefits for local communities. Government policy is “to limit and, where possible, reduce the number of people in the UK significantly affected by adverse impacts from aircraft noise.” (Reference: 2017 Air Navigation Guidance)

In addition to quieter engines, noise nuisance can be reduced either by laterally re-routing aircraft away from inhabited areas where possible or by changing the vertical trajectory of flights so that they overfly at a higher altitude. Noise will unfortunately remain an issue for those living and working under flight paths. However, by engaging
and consulting with communities as required by airspace regulations (CAP1616), careful rerouting of flight paths by airports has the potential to lessen these noise impacts and supplement the benefits from progressively quieter average flights as airframe and engine technologies improve.

Airspace modernisation’s potential for delivering carbon reduction benefits is also significant. By taking steps to remove bottlenecks and lessen airborne holding (so called “stacks”) and introduce more direct routes, aircraft are expected to burn less fuel with resultant savings in emissions. This is particularly the case in congested parts of the network such as in the South-east of England, where the scope for simplification is considerable, as well as in the upper airspace, where noise considerations become less of a factor and fuel efficiency/CO2 can be unequivocally prioritised. For instance, modernisation steps planned by NATS (NERL) for airspace changes above 7000 feet are scheduled to reduce national aviation emissions by 4.6% from a 2016 baseline by 2050 in line with the UK industry’s zero carbon roadmap.

ACOG has a role to play in helping to optimise these benefits by providing coordination of these proposed changes at the national level. In some cases, particularly at lower altitudes, it may not be possible to change flight routes and reduce both noise and CO2 and a trade-off between these desired outcomes will have to be made.

**Illustration of local noise and CO2 trade-offs.**

- **Populated area**
- **Altitude marker**
- **Departure routes**
  - CO2 emissions optimised
  - Balanced noise and CO2 impacts
  - Noise optimised

Not to scale
What ACOG is doing to address environmental challenges and maximise opportunities

Our task at ACOG is to work with airport sponsors to help deliver environmentally beneficial outcomes. We will do this through the modernisation programme, working within the constraints of our role, namely focusing on the coordination of interdependent airspace changes and the identification of new strategic opportunities for airspace change.

However, we can help steer the process by issuing guidance on the best approach to be taken and by advising the CAA and DfT on any issues that cannot be resolved by the sponsors relating to the changes. This gives ACOG the opportunity to highlight opportunities that exist to enhance outcomes, particularly where routes or operating procedures could be improved, or novel technologies implemented.

In short, we believe that our role is best fulfilled by us acting to create the most favourable conditions for environmentally beneficial airspace changes to take place. To do this, we have identified four areas where we will focus our efforts on the environment:
1. Provision of information on the opportunities and challenges

Working on the principle that “better decisions are taken on the basis of better information”, we will use the Masterplanning process to inform ACP sponsors and other local and national stakeholders on the opportunities and challenges that exist in the programme. We will seek to be clear, accurate and informative in setting out information on environmental impacts, both forecasted and realised.

This work includes:

- Establishing clear environmental data in the Masterplan at the national and regional level, to be updated in Masterplan iterations as further detail becomes available.
- Assisting the CAA and DfT (and their consultants) in the task of compiling a Strategic Environmental Assessment (SEA) and Habitats Regulation Assessment (HRA) on the Masterplan.

2. Creating guidance and toolkits to assist sponsors in evaluating their environmental impacts

This is the first time that such a significant programme of airspace change has been undertaken in the UK involving multiple airports developing their proposals along similar timescales. This presents a number of issues in terms of how environmental impacts should be assessed and benefits traded-off between airports where necessary. At ACOG, we are undertaking work in collaboration with our co-sponsors at the CAA and DfT to ensure that the processes are clear and align seamlessly with existing regulations governing the process of airspace change (e.g. CAP1616).

This work includes:

- Developing a Cumulative Assessment Framework (CAF) to provide guidance on how to model and assess cumulative impacts and trade-offs (environmental and non-environmental) for neighbouring ACPs.
- Undertaking a trial of the Eurocontrol IMPACT tool in conjunction with Manchester Airport to explore the model’s suitability in assessing impacts for interdependent ACPs.
**Working with sponsors to identify and exploit opportunities for better environmental performance**

Airspace change is a complex and technically demanding undertaking that requires specialist knowledge and expertise across a number of fields. This can create resource and prioritisation issues for ACP sponsors balancing multiple short and medium-term priorities, particularly as they recover from the challenges of the pandemic. To assist in addressing this, we will work with airport sponsors, NATS (NERL) and the wider industry where appropriate to help share information on operational or technical changes that have the potential to deliver environmental benefits.

**This work includes:**

- **Actively encourage the adoption of environmental enablers**
  - Working through appropriate channels (e.g. ACOG’s Airline Operators Technical Group and TMA technical coordination groups and bilateral engagement) to help explore and share good practice on technical and operational improvements to the airspace network.

- **Funding targeted projects to establish the case for high potential operational improvements such as Continuous Climb Operations (CCO) at airports within the Masterplanning process.**

**Engaging with stakeholders to better understand their concerns and shape the Masterplan programme**

ACOG is in regular dialogue with the CAA and DfT on its activities to ensure that our approach is aligned to national environmental and aviation policy. In addition, we have established a number of ways of achieving feedback on the Masterplan, including the various initiatives we are adopting on noise and carbon issues.

**This work includes:**

- **Engage and consult to improve outcomes**
  - Undertaking national and regional public engagement exercises as part of developing the Airspace Masterplan to test the approaches that we are adopting to key issues.

- **Establishing stakeholder forums including the Community Advisory Panel to seek feedback on our engagement approach and the development of materials to aid understanding of the airspace change process.**
# How will the Environment strategy be used in the immediate future?

Applying the environment strategy will be central to the work of ACOG. Whilst the delivery of a programme of this kind is subject to a number of risks and influences that might alter timings, the following indicative schedule sets out what can be expected in this area over the coming years. We look forward to continuing to work further with stakeholders to help turn the potential environmental benefits of change into reality.

<table>
<thead>
<tr>
<th>Workstream</th>
<th>2022 Q4</th>
<th>2022 Q1</th>
<th>2022 Q2</th>
<th>2022 Q3</th>
<th>2022 Q4</th>
<th>2023 Q1</th>
<th>2023 Q2</th>
<th>2023 Q3</th>
<th>2023 Q4</th>
<th>2024 Q1</th>
<th>2024 Q2</th>
<th>2024 Q3</th>
<th>2024 Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information provision</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Next Masterplan iteration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assisting the CAA with phased work on the Masterplan’s Strategic Environmental Assessment (SEA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Guidance and toolkits</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refinement of Cumulative Analytical Framework (CAF)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trial and evaluation of IMPACT toolkit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Working with sponsors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exploring and facilitating best practice on technical and operational improvements to the airspace network.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development of work on Continuous Climb Operations (CCO)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Engaging with stakeholders</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Public and Regional Engagement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meetings with established stakeholder forums</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>