

Developing the United Kingdom's Future Airspace Strategy

Consultation and Stakeholder Engagement

1 November 2010

Government Code of Practice on Consultation

The code of practice and the criteria within it apply to all UK public consultations by government departments and agencies, including consultations on EU directives. UK non-departmental public bodies and local authorities are encouraged to follow this code. Devolved Administrations are free to adopt this code, but it does not apply to consultation documents issued by them unless they do so¹. Though the code does not have legal force, and cannot prevail over statutory or mandatory external requirements (eg under European Community law), it should otherwise generally be regarded as binding on UK departments and their agencies, unless Ministers conclude that exceptional circumstances require a departure from it.

A full version of the code of practice is available on the Department for Business Innovation & Skills website at:

http://www.bis.gov.uk/files/file47158.pdf

The code contains six criteria. These must be reproduced within all consultation documents. Any deviation from this code must be highlighted in the consultation document and should state the reasons for departing from the code and what specific measures have been taken to ensure that consultation is as effective as possible.

Consultation criteria:

- 1. Consult widely throughout the process, allowing a minimum of 12 weeks for written consultation at least once during the development of the policy.
- 2. Be clear about what your proposals are, who may be affected, what questions are being asked and the timescales for responses.
- 3. Ensure that your consultation is clear, concise and widely accessible.
- 4. Give feedback regarding the responses received and how the consultation process influenced the policy.
- 5. Monitor your department's effectiveness at consultation, including through the use of a designated consultation coordinator.
- 6. Ensure your consultation follows better regulation best practice, including carrying out a Regulatory Impact Assessment if appropriate. (*Not appropriate for the Future Airspace Strategy but may be appropriate for individual projects/elements to deliver the overall Strategy.*)
- 1. For non-Ministerial departments and other organisations, where 'department' is used it refers to the consulting organisation and where 'Minister' is used it means the decision-maker, for example the board, responsible for the consultation.

1. Executive Summary

- 1.1 The Future Airspace Strategy aims to provide a policy structure to enable a modernised air traffic management system that provides safe, efficient airspace, that has the capacity to meet reasonable demand, balances the needs of all users and mitigates the impact of aviation on the environment.
- 1.2 Successfully meeting the growth in demand for aviation has added complexity to our airspace arrangements over the years and, in turn, added complexity has placed constraints on airspace capacity. It is highly likely that the pressure on the UK's scarce airspace capacity will continue to grow over the long term and we must plan for this. There are three broad strategic drivers to modernise the UK airspace system: Safety, Capacity and the Environment.
- 1.3 The Future Airspace Strategy will determine the key characteristics of a proposed future airspace system and identify the changes required to deliver it, including the policy and regulatory considerations that may need to be made to support these changes.
- 1.4 The work on the Strategy has now reached the stage where we need the contribution of other members of the aviation community to ensure that the Strategy covers all aspects of UK airspace, to gain stakeholder buy-in and agreement on what the final version of the Strategy should look like. The Future Airspace Strategy work will be open to stakeholder consultation from 1 November 2010 to 7 February 2011.

2. Introduction

- 2.1 This consultation document sets out the rationale, objectives and proposed approach to developing the UK's Future Airspace Strategy. The Strategy aims to provide a policy structure to enable a modernised air traffic management system that provides safe, efficient airspace, that has the capacity to meet reasonable demand, balances the needs of all users and mitigates the impact of aviation on the environment.
- 2.2 Once agreed and published the Future Airspace Strategy will provide a common view or road map, for the development and introduction of new technology into the ground and air elements of the UK's Air Traffic Management System.

2.3 The UK airspace system is an integral part of the European air traffic management network and cannot be considered in isolation. The Future Airspace Strategy will need to take account of the relevance and impact of European developments and aims to ensure alignment and integration with key initiatives. In particular, the Strategy must consider the alignment with the main Single European Sky (SES) development and implementation work. The Future Airspace Strategy needs to be the National contribution to the Single European Sky Air Traffic Management Research (SESAR) programme and support European Aviation Safety Agency (EASA) rule-making work.

3. Background

- 3.1 Successfully meeting the growth in demand for aviation has added complexity and placed constraints on our airspace arrangements, particularly in areas with the highest volumes of air traffic, such as the southeast of England.
- The current global recession has curbed demand but experience of previous setbacks suggests demand will start to increase again. Thus the pressure on the UK's scarce airspace capacity will continue to grow over the long-term and we must plan for this.
- 3.3 The UK has an excellent aviation safety record, underpinned by high safety standards. Maintaining and improving this record is demanding greater vigilance and enforcement as the complexity of airspace continues to increase.
- 3.4 In addition to enhancing the safety and the capacity of the system we also need to improve the efficiency and the mitigation of the environmental impacts of aviation. Notwithstanding a wide range of mitigation measures, the environmental impact of aviation (including greenhouse gas emission, local air quality impacts and aircraft noise) causes widespread public concern. The aviation sector recognises the importance of this challenge and the Future Airspace Strategy maps out some of the potential steps needed to address it.
- 3.5 Delivering greater airspace efficiency must also balance the requirements of different airspace user groups (airlines, general aviation and the military). It is the interaction between all the parties involved that provides the impetus to consider how airspace arrangements should evolve over the next 20 years.

The Future Airspace Strategy needs to address the development of UK airspace to 2030. The Strategy is intended to provide a tool kit of options that will assist us in determining how the operation, management and regulation of our airspace should evolve depending on the circumstances. The Future Airspace Strategy will determine the key characteristics of a proposed future airspace system and identify the changes required to deliver it, including the policy and regulatory considerations that may need to be made to support these changes.

4. Rationale and Objectives

- 4.1 There are three broad strategic drivers to modernise the UK airspace system and achieve the Future Airspace Strategy aims:
- 4.1.1 **Safety** the implementation of a modernised airspace system is driven by the need to continuously improve safety levels, in particular in light of the forecast growth in demand for airspace and the expected adoption of new technology and operational concepts across the system.
- 4.1.2 **Capacity** it is likely that the pressure on the UK airspace system will continue to grow with a changing profile of demand from different user groups leading to a tightening in the supply and demand balance for airspace, if not across all UK airspace then certainly at certain times and in certain geographical areas. There are already 'hot spots' in the airspace today that could be improved by adopting concepts that are set out in the Future Airspace Strategy thereby making the current system safer and more efficient.
- 4.1.3 Environment the Future Airspace Strategy will need to enable aircraft to fly in more environmentally efficient ways while maximising capacity benefits and improving safety. The environmental impact of air travel both locally, in terms of noise and air quality, and globally in terms of climate change, plays an important role in determining how the UK airspace system should develop. The Future Airspace Strategy will need to provide a regulatory framework to facilitate the implementation of air traffic management improvements that reduce greenhouse gas emissions from aircraft and contribute to minimising aviation's environmental impact.
- 4.2 In following the strategic drivers for the Future Airspace Strategy to modernise the airspace system, it should be possible to achieve a number of benefits. The table overleaf maps out the summary of benefits that could be achieved by the Future Airspace Strategy across the key areas of safety, capacity, environment and cost. In the table:

- 4.2.1 Safety benefits refer to direct increases in safety levels and/or the ability to maintain current levels of safety while enabling benefits in other areas.
- 4.2.2 Capacity benefits refer to the ability of an air navigation service provider to supply additional airspace capacity safely, while not expanding the total volume of controlled airspace, unless absolutely necessary.
- 4.2.3 Environmental benefits refer primarily to reducing aircraft greenhouse gas emissions and noise impact.
- 4.2.4 Cost benefits refer to the ability of users and suppliers to operate in more cost effective ways ultimately reducing the cost of Air Traffic Management service delivery.

Table 1

Safety Benefits	Capacity Benefits	Environmental Benefits	Cost Benefits
 Performance-based Navigation allows routes to be flown more accurately and consistently. 	Increased navigational accuracy enables closer spaced routes. Introduction of free.	Enabling more direct routes and optimal vertical profiles reduces Green House Gas (GHG) emissions.	 Enabling more direct routes and optimal vertical profiles reduces fuel burn and costs.
Building flexibility and resilience into the system, reduces the occurrence of pinch points and high-risk	Introduction of free routeing, systemisation and ATM support tools enables higher volumes of traffic to be managed. Classible (demand)	Continuous climb and descent procedures reduce the total number of people impacted by aircraft	 Building flexibility and resilience into the system reduces costly delays. Move to space-based
 New communications, navigation and surveillance technology improves situational awareness of users and controllers. 	 Flexible / dynamic structures accommodate demand. Reduced reliance on stack holding releases airspace for redesign in the busy terminal 	 FAB integration expands environmental benefits across state borders. Reduce reliance on stack holding reduces 	navigation aids reduces cost of maintaining and replacing ground infrastructure. • Common, simpler approaches to management and regulation thought FAB
Simplification of the airspace structure and classification reduces potential for errors, infringements and level busts.	 Integration of airspace through Functional Airspace Blocks (FAB) mean interfaces are simpler and more efficient. 	GHG emission from delays in the air.	 integration reduces costs to users and regulators. Alignment of strategies across different industry partners and across ANSPs allows for a seamless and more cost
A cooperative environment creates safety benefits.	Access to sufficient airspace for non-CAT users.		effective change process as different techniques are introduced.

- 4.3 To enable the UK to achieve the Future Airspace Strategy aim of a modernised airspace structure, the characteristics of the airspace in 2030 have been set out. These are: Routeing will be based on user preferred 4D trajectories; airspace structures will need to be flexible and operate dynamically following the UK's Joint and Integrated principles; there will be increased use of systems and technology to safely manage additional complexity and airspace structures will need to be designed to enable integration across Functional Airspace Blocks and national boundaries.
- 4.4 The objective of the consultation on the Future Airspace Strategy is to allow stakeholders to help shape the final strategy and to give a common road-map for airspace development over the next 20 years. The Strategy will need to provide industry with an overview of the strategic direction, enabling aviation stakeholders to make informed investment decisions that align with the Strategy.

5. Consultation Process and Stakeholder Engagement

- 5.1 The CAA's draft Future Airspace Strategy document has been produced with support from NATS, the Ministry of Defence and the Department for Transport. The work has been progressed within 5 workstreams: Policy and Regulation, Technology and Operations, Environment, Safety and Capacity and Demand. The first version of the draft was reviewed by The Future Airspace Challenge Team¹ during a one day workshop before being further developed to take on board their comments and observations. The work has now reached a stage where we need the contribution of other members of the aviation community in order to ensure that the Strategy covers all the aspects of UK airspace, to gain stakeholder buy-in to the Strategy and agreement on what the final version of the Strategy should look like.
- The main consultation body will be the National Air Traffic Management Advisory Committee (NATMAC) but individual organisations can also provide responses. The NATMAC will be briefed on its role at their meeting on 28 October 2010. All consultation documents will be placed on the CAA website by 1 November 2010 and a stakeholder forum will be held at the RAeS on the same day. The consultation period will run from 1 November 2020 for 14 weeks until 7 February 2011.

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¹ The list of Challenge Team members with short biographies is at the Appendix.

6. Consultation Questions

The draft Future Airspace Strategy document is available on the CAA Website at: www.caa.co.uk/FAS. Stakeholders are free to provide general, or specific comments on the draft in addition to the questions below. Recognising the length of the document and its annexes then stakeholders may wish to focus on the tables of 'Key Points', 'Risks' and 'Conclusions and Recommendations'. The Consultation questions have been broken out into a general section and then in relation to the 5 workstreams set out in paragraph 5.1 above.

6.2 General

- 6.2.1 The Future Airspace Strategy is predicated on modernisation of the UK airspace system, implementing new operational procedures, enabled by technology, to increase the safety and efficiency of Air Traffic Management. In your opinion what are the main drivers and priorities for the modernisation of the National Air Traffic Management system that should be considered?
- 6.2.2 From your perspective what are the most significant risks associated with the modernisation of the airspace system to deliver safety, efficiency and environmental benefits?
- 6.2.3 From your perspective what are the most likely benefits associated with the modernisation of the airspace system and what should the relative priorities be?

6.3 Policy and Regulation:

6.3.1 What are your views on the European and wider International issues and their relative importance as covered in the Future Airspace Strategy?

6.4 Technology and Operations

- 6.4.1 Technology and Operations Airspace
- 6.4.1.1 The Future Airspace Strategy aims to optimise the efficiency of the airspace system that may benefit one airport more than another. What are you views of a strategy that may need to balance such benefits and disbenefits and how do you think the relative merits should be evaluated?

- 6.4.1.2 What challenges do you envisage arising out of the introduction of greater airspace sharing, in comparison to the current promulgated route structure, that will enable equitable access to future airspace that balances the needs of all users?
- 6.4.1.3 The Future Airspace Strategy proposes significant changes to the UK airspace system. How could the current process for airspace change be strengthened to support a more robust and efficient appraisal, consultation and implementation of the proposals set out in the Strategy?
- **6.4.2** Technology and Operations Communication, Navigation and Surveillance
- 6.4.2.1 What factors do you consider particularly important when assessing the proposed increased use of future Communication, Navigation and Surveillance technologies and infrastructure that underpins many of the aspirations in the Future Airspace Strategy? How should the CAA ensure the evolution towards this technological capability is timely and coherent?

6.5 Environment

- 6.5.1 How would you assess the current emphasis on environmental matters within the Future Airspace Strategy in relation to safety and capacity?
- 6.5.2 How should the Future Airspace Strategy address the trade-off between different types of environmental impacts as set out in the document?

6.6 Safety

- 6.6.1 Do you have any suggestions as to the safety protocols that should apply to the Future Airspace Strategy to achieve the principle that, as an absolute minimum, safety levels must be maintained in making changes that benefit other aspects of the system and, where possible, changes should contribute directly to the development of a fundamentally safer system?
- What are your views on whether or not the Future Airspace Strategy should attempt to set targets against national safety Key Performance Indicators for either all of UK airspace, or specific hotspots as determined by UK operators and air navigation service providers, commensurate with maintaining a 'Just Culture'?
- 6.6.3 Do you believe that the CAA has the appropriate policies and tools to regulate new concepts and technologies emerging out of the SES initiative and, in particular, SESAR?

6.7 Capacity and Demand

6.7.1 How do you view the conceptual thinking on airspace efficiency as articulated in the Future Airspace Strategy draft, as the basis of a way forward?

7. Next Steps

7.1 Aviation stakeholders are invited to provide written response to this consultation by 7 February 2011 to e-mail FAS@caa.co.uk or in writing to the address below. If you require more information or detail then, in the first instance, please contact:

Tony Rapson
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7.2 Once the consultation is closed the responses will be considered and the draft updated accordingly with a view to producing and publishing the Future Airspace Strategy in the second quarter of 2011. Should the consultation response result in the requirement for a fundamental change to the policies being proposed then it may be necessary and appropriate to consider further consultation.

Appendix – The Future Airspace Strategy Challenge Team

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The Future Airspace Strategy Challenge Team

Captain David Rowland, RAeS (Team Leader)
Recent Past President of the Royal Aeronautical
Society. Retired from British Airways in 1999 having
been General Manager of the Concorde Fleet.
David has been a member and past Chairman of the
Royal Aeronautical Society's Learned Society Board
and of the Flight Simulation Group as well as a
founder committee member of the aviation industry's
environmental group, Greener-by-Design and
chaired the Operations sub committee. David is a
Fellow of the Royal Institute of Navigation and a
Liveryman of the Guild of Air Pilots and Air
Navigators

Tim Johnson, Aviation Environmental Federation Director of AEF since 1997, Tim has worked with the Federation for over twenty years, having joined as Planning Officer in 1989 with a degree majoring in transport planning. Tim provides the AEF's representation at the International Civil Aviation Organisation as well as on the Department for Transport's External Advisory Group, and other stakeholder advisory roles associated with NATS, the Sustainable Aviation Initiative, the European Commission, and the academic partnership, OMEGA.

Richard Hooke, The Royal Bank of Scotland Managing Director of RBS' Aerospace & Defence business worldwide. Former Hawker Siddeley Aviation undergraduate apprentice, Richard spent 14 years in various executive roles at British Aerospace before spending 13 years at PricewaterhouseCoopers, where he was Global Aerospace & Defence Leader. Fellow of the Royal Aeronautical Society and visiting lecturer at the UK Defence Academy.

Richard Everitt, Port of London Authority
Qualified as a solicitor in 1974 and joined BAA in
1978. Following the privatisation of BAA in 1987, he
joined the Board in 1991 as director responsible for
strategy and regulatory matters. He resigned from
the BAA Board in 2001 to become Chief Executive
of National Air Traffic Services on its part
privatisation. He joined the Port of London Authority

as Chief Executive in late 2004.

Dr Christian Carey, Smith School Oxford

The aviation expert as part of the Low Carbon Mobility Centre at the Smith School of Enterprise and the Environment, at the University of Oxford. The Smith School is a multi-disciplinary hub focused on the challenges of climate change. In relation to this Dr Carey's work seeks to understand the future of aviation in an emissions constrained environment, with particular reference to the impact of technology and future business models for airlines.

Dr Tweet Coleman, FAA

Tweet Coleman's career has spanned positions as an FAA program manager and regional representative, Boeing 747 and 727 airline pilot and Dale Carnegie communications coach, with a master's degree in aeronautical science and a doctorate degree in aerospace aviation education from Oklahoma State University. Regarded as a flight safety expert, she has served as the FAA Academy's International Flight Standards Program Manager for the past five years.

Rear Admiral Simon Charlier

Joined the Royal Navy in 1978 starting his career as a Lynx pilot, he has also commanded three ships, HMS SHERATON, NORTHUMBERLAND and CORNWALL and completed numerous staff appointments. He took up his appointment as CINC Fleet's Chief of Staff (Aviation) in February 2008 and moved to establish the new appointment as Director Operations Group of the Military Aviation Authority in April 2010.

Prof Philip Bennett

Fellow of the Royal Academy of Engineering he has held a number of appointments in relation to safety critical systems, most recently as Technology Director for Crossrail from 2007–2009. He has expertise in control systems, hazard and risk analysis and safety-critical systems. He has worked as an international consultant specialising in the assessment and assurance of safety critical systems and is currently a Visiting Professor in the Department of Computer Science at the University of York.