



Department
for Transport

Guidance to the Civil Aviation Authority on Environmental Objectives Relating to the Exercise of its Air Navigation Functions

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Foreword



I am very pleased to be able to present to the Civil Aviation Authority (CAA) this revised Guidance on how it should exercise its air navigation functions.

Our airspace is a vitally important national asset and it needs to be managed safely, efficiently, with due regard to the needs of both airspace users and the wider general public, and consideration for the environment. Indeed, the long-standing success of the UK's aviation industry would not have been possible without these requirements being met.

Since the Guidance was first issued to the CAA in 2002, there have been significant developments, such as the creation of the CAA's Future Airspace Strategy, the establishment of the Single European Sky and our functional airspace block with Ireland, the publication of the Government's Aviation Policy Framework and the Airports Commission Interim Report. In addition, there have been numerous aviation technical and procedural developments which will have an impact on how aircraft are flown in the future in our airspace.

This new Guidance is therefore a timely update. We consulted on a draft in June 2013 and respondents were clear that a revised version is needed. The Airports Commission's Interim Report has also stressed the need to drive forward the implementation of the Future Airspace Strategy. This Guidance should assist in delivering both this Strategy as well as ensuring that local communities continue to be involved in the decision making process for airspace changes that may affect them.

The CAA has a distinguished track record in ensuring that the requirements placed upon it by the Government are met. I hope that the revised Guidance will enable it to maintain this high standard, whilst ensuring that the efficiency of our airspace is improved and an appropriate balance is maintained between the needs of all concerned.

Robert Goodwill MP

Parliamentary Under-Secretary of State for Transport

1. Introduction

1.1 Section 70(2) of the Transport Act 2000¹ requires the Civil Aviation Authority (CAA) to take account of any guidance on environmental objectives given to it by the Secretary of State. In 2001, the Secretary of State gave directions² to the CAA under Section 66(1) of the Transport Act 2000 setting out the circumstances when the CAA must also seek the approval of the Secretary of State for airspace changes which might have a significant effect on the level or distribution of noise and emissions. This was followed in January 2002 when the then Department for Transport, Local Government and the Regions issued specific guidance to the CAA which has subsequently formed the basis of how the CAA interprets its environmental duties in respect of approving changes to the UK's airspace structure. Since 2002, there have been a number of significant events which have, or will do so in the foreseeable future, affect UK airspace. These are:

- a.** in December 2003, the Department for Transport issued The Future of Air Transport White Paper which recognised the need to improve the efficiency of UK airspace and it looked to the CAA, as the independent regulator responsible for the planning and regulation of UK airspace, to bring forward a structured programme for the redesign of UK airspace. The White Paper also recognised the importance of the need to take into account the environmental impacts arising from airspace changes. The need to develop a more strategic approach on airspace was endorsed subsequently by the Transport Select Committee in its 2009 report on “the use of airspace”;
- b.** since 2009, the CAA has been leading work, with support from the Department for Transport, the Ministry of Defence, NATS and the Irish Aviation Authority³ to develop the Future Airspace Strategy (FAS) for the period up to 2030. The CAA's primary objective is to develop a “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”. This national strategy is aligned fully with our commitments under the Single European Sky (SES) legislation including implementation of the Single European Sky Air Traffic Management Research (SESAR) programme and our engagement with the Irish on the UK/Ireland Functional Airspace Block (FAB). Following development and consultation with industry, the Strategy was presented in June 2011 and set out the need to address: existing pressures on airspace; the challenges arising from future air traffic growth; the development and implementation of new technology; and the requirement to mitigate

¹ Section 70(2) of the Transport Act 2000 can be found at Annex A of this Guidance.

² The relevant sections of the Directions can be found at Annex B of this Guidance.

³ The Irish Aviation Authority's involvement is because of the joint UK/Ireland Functional Airspace Block which was established in June 2008 under the Single European Sky initiative.

aviation's impact on the environment. The Strategy also took into account the Coalition's position on additional runways and its desire to reduce aviation's contribution to climate change, a factor which has become increasingly important since 2002;

- c. in December 2012, the industry-led FAS Industry Implementation Group launched its plan for delivering Phase 1 of the FAS up to c2025. A considerable component of the plan is the need to redesign UK's terminal airspace to make it more efficient by using new procedures such as Performance-Based Navigation (PBN) and better queue management techniques;
- d. in March 2013, the Government launched its Aviation Policy Framework⁴ which set out the Government's objectives and principles to guide plans and decisions at the local and regional level, including with respect to airspace. This document replaced the 2003 Future of Air Transport White Paper⁵; and
- e. in December 2013, the Airports Commission published its interim report⁶ which expressed its support for: the Future Airspace Strategy; the introduction of PBN; the continued need for local communities to be involved in the decision making process for airspace changes that might affect them; and for the CAA be given more delegation to decide airspace changes.

1.2 It is therefore now appropriate that the Government revisits and refreshes the 2002 Air Navigation Guidance to the CAA to take into account these policy and technical developments whilst remaining consistent with the overall legislative framework.⁷

1.3 Underpinning this new Guidance are two key objectives. The first is the recognition that the UK needs to improve the efficiency of our UK airspace network and that includes mitigating the environmental impact of aviation. Secondly, is a reaffirmation of the need to consult local communities near airports when airspace changes are being considered in the vicinity of these airports. The Government recognises that it is not an easy task to always balance the interests of local communities and relevant stakeholders with those of the aviation industry, but we are confident that the CAA will continue to play an active role in ensuring that an appropriate balance is maintained in the future.

Purpose of Guidance

1.4 The purpose of this Guidance is to provide the CAA and the aviation community with additional clarity on the Government's environmental objectives relating to air navigation in the UK. However, when considering airspace changes, there may be other legitimate operational objectives, such as the overriding need to maintain an acceptable level

⁴ Aviation Policy Framework, Department for Transport, March 2013.

⁵ The Future of Air Transport, Department for Transport, December 2003.

⁶ Airports Commission Interim Report, Department for Transport, December 2013.

⁷ This was one of the key messages to come out of the consultation on the proposed air navigation guidance, Consultation on Guidance to the CAA on Environmental Objectives relating to the Exercise of its Air Navigational Functions, Department for Transport, June 2013.

of air safety, the desire for sustainable development,⁸ or to enhance the overall efficiency of the UK airspace network, which need to be considered alongside these environmental objectives. We look to the CAA to determine the most appropriate balance between these competing characteristics.

Definition of altitude in this Guidance

- 1.5** Throughout this document, altitude is expressed in feet above mean sea level (amsl) in order to provide a common datum. However, we require airspace change sponsors to take account of the altitude of the specific surface level involved when developing their proposals. This is particularly the case when airspace changes involve an altitude lower than 7,000 feet (amsl).

⁸ Sustainable development has both environmental and economic connotations, the need to enable aviation to grow sustainably if the UK economy is to remain competitive and achieve the objective for growth and employment.

2. Emissions and local air quality

Emissions

- 2.1** At the global level, aviation is a growing contributor to greenhouse gas emissions (GHG) that cause climate change. The Government's climate change strategy on aviation is to ensure that the aviation sector makes a significant and cost effective contribution towards reducing global emissions. While the Government, in 2012, decided to postpone a decision about requiring emissions from international aviation and shipping to be taken into account in the setting of carbon budgets (as required by the Climate Change Act 2008) until it comes time to set the fifth carbon budget, it did reaffirm its overall commitment to the 2050 target and recognised that emissions from international aviation and shipping should be treated the same as emissions from all other sectors, in order to reach our long-term climate goals.⁹
- 2.2** The Aviation Policy Framework sets out the priorities for action on climate change at global, EU and national levels in the aviation context. The focus is expected to remain on actions to target CO₂ emissions in the near future but as scientific evidence of the effects of non-CO₂ emissions becomes clearer it is likely that the approach taken will be revised. The CAA should therefore keep abreast of the Government's climate change strategy and priorities as well as broader developments in climate science, especially as they relate to aviation.
- 2.3** The CAA has the opportunity to contribute to the Government's aim of reducing CO₂ emissions by prioritising the most efficient use of airspace including procedures that enable aircraft to climb efficiently, allow direct routings, reduce holding times and facilitate the consistent use of continuous descent and low power/low drag procedures. The potential to maximise CO₂ efficiency is primarily above 7,000 feet (amsl) where local impacts are not a priority. CO₂ efficiency is also a consideration below 7,000 feet (amsl), although at these altitudes it must be balanced with other local impacts. More information on the altitude-based priorities is given in Chapter 4 of this Guidance.
- 2.4** Initiatives to enhance efficiency in the airspace across the UK, such as the SES and introduction of the UK-Ireland FAB, are expected to lead to an estimated reduction of 116,000 tonnes of fuel and 370,000 tonnes of

⁹ International aviation and shipping emissions and the UK's carbon budgets and 2050 target, Department of Energy and Climate Change, December 2012.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65686/7334-int-aviation-shipping-emissions-carb-budg.pdf

CO₂ between 2012 and 2015.¹⁰ Although this also includes savings in Irish airspace, it demonstrates the important contribution which a more efficient use of airspace can make to reduce the impact of aviation on the environment.

Local air quality

- 2.5** The Aviation Policy Framework sets out the Government's policy on air quality which is to "seek improved international standards to reduce emissions from aircraft and vehicles and to work with airports and local authorities as appropriate to improve air quality".¹¹
- 2.6** Aircraft engines, airport related traffic on local roads and surface vehicles all contribute to air pollution around airports. Oxides of nitrogen (NOx) and particulate matter are the two most important emissions affecting the air quality around airports. Studies have shown that NOx emissions from aviation related operations reduce rapidly beyond the immediate area around the runway. Due to the effects of mixing and dispersion, emissions from aircraft above 1,000 feet (amsl) are unlikely to have a significant impact on local air quality. Therefore the impact of airspace design on local air quality is generally negligible compared to changes in the volume of air traffic, and local transport infrastructures feeding the airport.
- 2.7** While the CAA should prioritise noise below 4,000 feet (amsl), consistent with the altitude-based priorities and the Government's policy to give particular weight to the management and mitigation of noise in the immediate vicinity of airports,¹² there could be circumstances where local air quality may be a consideration because emissions from aircraft taking off, landing or whilst they are on the ground have the potential to contribute to overall pollution levels in the area. This could lead to a situation where prioritising noise creates unacceptable costs in terms of local air quality or might risk breaching legal limits. The CAA should therefore take such issues into account when it considers they are relevant.

¹⁰ UK-Ireland FAB annual report 2011, jointly published by Irish Aviation Authority and NATS, May 2012.
<http://www.nats.co.uk/wp-content/uploads/2012/07/UK-Ireland-FAB-Report-2011.pdf>

¹¹ Aviation Policy Framework, section 3.48, page 65, Department for Transport, March 2013

¹² Aviation Policy Framework, section 3.25, page 60, Department for Transport, March 2013.

3. Noise

- 3.1** Aircraft noise is one of the most important environmental impacts arising from aviation for communities living close to airports as well as those living further afield under the main arrival and departure tracks. The Government has made it clear therefore that it wants to strike a fair balance between the negative impacts of noise and the economic benefits derived from the aviation industry.¹³ In addition, the benefits from any future growth in aviation are expected to be shared between the aviation industry and local communities.
- 3.2** The Government's overall policy on aviation noise, as established in the Aviation Policy Framework, is to limit, and where possible reduce, the number of people in the UK significantly affected by aircraft noise.¹⁴ The UK aviation industry is expected therefore to address noise from low level air traffic as a local environmental priority in line with the altitude-based priorities set out in Chapter 4.1 of this Guidance. Individual airports should be encouraged to work with the appropriate air traffic service providers to give particular weight to the management and mitigation of noise in the immediate vicinity of their airports.¹⁵ This principle is further clarified in the chapter on altitude-based priorities, but it is left to the CAA to determine what should be classed as the "immediate vicinity" taking account of individual circumstances such as location of the airport, height above sea level of the surrounding countryside, numbers of people likely to be affected by noise, and the size and operating characteristics of the aircraft involved.
- 3.3** In implementing this policy, the Government fully recognises the ICAO "balanced approach" principle to aircraft noise management.¹⁶ The CAA has an opportunity to support the Government on the third principle "noise abatement operational procedures", particularly with regard to optimising how aircraft are flown and the routes they follow to reduce the noise impacts.
- 3.4** The CAA can also support those airports considering using the powers available to them to set suitable noise controls at their airports. In addition, the CAA should, where relevant and without compromising its independence, also support the efforts made by airports to mitigate noise where changes are planned which could adversely impact the noise

¹³ Aviation Policy Framework, section 3.2, page 55, Department for Transport, March 2013.

¹⁴ The Aviation Policy Framework states that the Government will continue to treat the 57dB LAeq 16 hour contour as the average level of daytime aircraft noise marking the approximate onset of significant community annoyance. However, it also makes clear that not all people within this contour will experience significant adverse effects from aircraft noise. Nor does it mean that no-one outside of this contour will consider themselves annoyed by aircraft noise.

¹⁵ Aviation Policy Framework, section 2.25, page 60, Department for Transport, March 2013.

¹⁶ Balanced approach to aircraft noise management, International Civil Air Organization.

<http://legacy.icao.int/env/noise.htm>

climate, particularly in the case of proposals for new airport capacity or changes to operational procedures. In these cases, the Government expects the CAA to consider new and innovative approaches to regulation and for the industry to innovate in noise management techniques such as the provision of respite for communities already significantly affected by aircraft noise (see Chapter 7.9 of this Guidance).