

**GUIDANCE TO THE  
CIVIL AVIATION AUTHORITY  
ON ENVIRONMENTAL OBJECTIVES  
RELATING TO THE EXERCISE OF ITS  
AIR NAVIGATION FUNCTIONS**

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Department for Transport, Local Government and the Regions**

# **GUIDANCE TO THE CIVIL AVIATION AUTHORITY ON ENVIRONMENTAL OBJECTIVES RELATING TO THE EXERCISE OF ITS AIR NAVIGATION FUNCTIONS**

*Given by the Secretary of State  
under Section 70(2)(d) of the Transport Act 2000*

*Inquiries about this guidance may be made to  
Aviation Environmental Division  
Aviation Directorate  
Department of Transport, Local Government and the Regions  
Great Minster House, 76 Marsham Street  
London, SW1P 4DR*

[www.dtlr.gov.uk](http://www.dtlr.gov.uk)

email: [aed@dtlr.gsi.gov.uk](mailto:aed@dtlr.gsi.gov.uk)

# GUIDANCE TO THE CIVIL AVIATION AUTHORITY ON ENVIRONMENTAL OBJECTIVES RELATING TO THE EXERCISE OF ITS AIR NAVIGATION FUNCTIONS

*Section 70(2)(d) of the Transport Act 2000 requires the Civil Aviation Authority in carrying out its air navigation functions to take account of any guidance on environmental objectives given by the Secretary of State.*

## Introduction

### **Air navigation functions**

1. In exercising its air navigation functions the Civil Aviation Authority (CAA) must give priority to maintaining a high standard of safety in the provision of air traffic services in accordance with section 70(1) of the Transport Act 2000 (the 2000 Act). Otherwise it exercises these functions in the manner it thinks best calculated to meet the requirements set out in (a) to (g) of section 70(2) of the 2000 Act, in no particular order of importance:

- (a) to secure the most efficient use of airspace consistent with the safe operation of aircraft and the expeditious flow of air traffic;
- (b) to satisfy the requirements of operators and owners of all classes of aircraft;
- (c) to take account of the interests of any person (other than an operator or owner of an aircraft) in relation to the use of any particular airspace or the use of airspace generally;
- (d) to take account of any guidance on environmental objectives given to the CAA by the Secretary of State after the coming into force of this section;
- (e) to facilitate the integrated operation of air traffic services provided by or on behalf of the armed forces of the Crown and other air traffic services;
- (f) to take account of the interests of national security;
- (g) to take account of any international obligations of the United Kingdom notified to the CAA by the Secretary of State (whatever the time or purpose of the notification).

If there is a conflict inherent in the application of these provisions, the CAA must apply them in the manner it thinks is reasonable having regard to them as a whole.

### **Director of Airspace Policy**

2. The CAA is organised so that the exercise of its air navigation functions are discharged by the Director of Airspace Policy (DAP). The DAP has responsibility for the definition, development, approval, promulgation, regulation, monitoring and enforcement of policy for the allocation and use of UK airspace and its supporting infrastructure so as to secure the most effective use of the airspace in a way which, as far as practicable, meets the needs of all users, having regard for national security, economic and environmental factors, while maintaining a high standard of safety.

### **Directions given to the CAA under Section 66(1)**

3. The Secretary of State has given Directions to the CAA under section 66(1) of the 2000 Act in respect of all United Kingdom airspace. Those Directions are concerned with, amongst other things, the environmental impact of air operations, and require that:

8. Subject to section 70 of the Transport Act 2000 the CAA shall perform its air navigation functions in the manner it thinks best calculated to take into account:

- a) the Guidance given by the Secretary of State on the Government's policies both on sustainable development and on reducing, controlling and mitigating the impacts of civil aviation on the environment, and the planning policy guidance it has given to local planning authorities;
- b) the need to reduce, control and mitigate as far as possible the environmental impacts of civil aircraft operations, and in particular the annoyance and disturbance caused to the general public arising from aircraft noise and vibration, and emissions from aircraft engines;
- c) at the local, national and international levels, the need for environmental impacts to be considered from the earliest possible stages of planning, designing, and revising airspace procedures and arrangements; and
- d) the requirements of directions given under section 39 of the Transport Act 2000 to licence holders, an authorised person or authorised persons generally.

9. Where changes to the design or the provision of airspace arrangements, or to the use made of them, are proposed, including changes to air traffic control procedures, or to the provision of navigational aids or the use made of them in air navigation, the CAA shall:

- a) where such changes might have a significantly detrimental effect on the environment, advise the Secretary of State for Transport, Local Government and the Regions of the likely impact and of plans to keep that impact to a minimum;
- b) where such changes might have a significant effect on the level or distribution of noise and emissions in the vicinity of a civil aerodrome, ensure that the manager of the aerodrome, users of it, any local authority in the neighbourhood of the aerodrome and other organisations representing the interests of persons in the locality, have been consulted (which might be undertaken through the consultative committee for the aerodrome where one exists);

- c) where such changes might have a significant effect on the level or distribution of noise and emissions under arrivals tracks and departure routes followed by aircraft using a civil aerodrome but not in its immediate vicinity, or under a holding area set aside for aircraft waiting to land at a civil aerodrome, ensure that the manager of the aerodrome and each local authority in the areas likely to be significantly affected by the proposed changes, have been consulted; and
- d) refrain from promulgating such changes without first securing the approval of the Secretary of State.

## Aim of the Secretary of State's Guidance

4. The guidance sets out a clear framework within which the Director of Airspace Policy (DAP) will operate in discharging the CAA's air navigation functions. It includes advice on the Government's strategy for sustainable development, information about the guidance given to local planning authorities where this is relevant to the DAP's functions, and guidance on particular environmental objectives. It draws on:

- the 1998 White Paper on the Future of Transport, *A New Deal for Transport: Better for Everyone*,
- the 1999 White Paper - *A Better Quality of Life; a strategy for Sustainable Development in the UK*,
- the 2000 White Paper - *Delivering an urban renaissance: Our towns and cities*,
- the 2000 White paper - *Our countryside: the future, A fair deal for rural England*,
- the *National Air Quality Strategy*.

5. The guidance is divided into the following sections:

- A. The Government's policies on sustainable development (paragraphs 7 to 13)
- B. Planning Policy Guidance to local planning authorities (paragraphs 14 to 22)
- C. Specific aviation environmental objectives (paragraphs 23 to 29)
- D. Factors relevant to departures (paragraphs 30 to 46)
- E. Factors relevant to arrivals (paragraphs 47 to 50)
- F. Changes to airspace arrangements and procedures (paragraphs 51 to 59)
- G. Directions to providers of air traffic services under section 39 (paragraph 60)

It is the intention to review and reissue this guidance following publication of the Government's white paper on the future of aviation.

### Devolved administrations

6. Devolution has brought changes to the role of Government in the United Kingdom. Regulation of aviation and air transport, including regulation of safety, air navigation and economic matters, are "reserved" matters for the UK Parliament and Government.<sup>1</sup> The

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<sup>1</sup> Scotland Act 1998.

The Scotland Act 1998 (Transfer of Functions to the Scottish Ministers etc.) Order 1999, No. 1750.

Government of Wales Act 1998.

Northern Ireland Act 1998.

responsibilities of the devolved administrations vary. The Scottish Executive has certain powers relating to aerodromes, including on certain environmental and planning issues. The National Assembly for Wales has planning powers, including those that affect aerodrome matters. The Northern Ireland Assembly and the Northern Ireland Executive have powers relating to aerodrome issues, and, subject to the consent of the Secretary of State, can legislate on civil aviation matters.

## A. The Government's policies on sustainable development

7. Sustainable development is often defined as development which meets the needs of the present without compromising the ability of future generations to meet their own needs<sup>2</sup>. But quite simply it aims to ensure **a better quality of life for everyone, now and for generations to come**. Economic growth is vital for delivering a better quality of life, but in the past economic activity has tended to mean more pollution and a wasteful use of resources, which impairs quality of life. In addition, too many people have been left behind, excluded from the benefits of development but often suffering the adverse side effects. For the future, the Government's aim is to achieve economic, social and environmental objectives at the same time, and to consider the longer term implications of decisions. The White Paper - *A Better Quality of Life; a strategy for Sustainable Development in the UK*<sup>3</sup> sets four objectives:

- ✧ **maintenance of high and stable levels of growth and employment**  
*The UK has a strong aviation industry, including airlines, airports, aerospace manufacturers and supporting industries. They make a significant contribution to national GDP, as well as facilitating growth in other industries. The aviation industry also provides many jobs, both directly and indirectly.*
- ✧ **social progress which recognises the needs of everyone**  
*Aviation brings benefits through employment, cultural exchange and opportunities for travel. Foreign travel and holidays are now within reach of a broad cross-section of the population for education, leisure and visiting friends and families.*
- ✧ **prudent use of natural resources**  
*Aviation consumes many natural resources - in particular, fossil fuels and the raw materials necessary for producing aircraft. Airport development can also involve significant land use (including for access by surface transport) and urbanisation of the surrounding area.*
- ✧ **effective protection of the environment**  
*Aviation affects climate change, local air quality (particularly around airports which may harm human health), noise levels near airports and under flightpaths, energy use, waste and water. There are also environmental impacts associated with travel to and from airports.*

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<sup>2</sup> *Our Common Future (The Brundtland Report)* – Report of the 1987 World Commission on Environment and Development, Oxford University Press, 1987.

<sup>3</sup> Cm 4345, May 1999

8. Government policies also take account of ten guiding principles and approaches examined in Chapter 4 of the White Paper:

- ❑ putting people at the centre;
- ❑ taking a long term perspective;
- ❑ taking account of costs and benefits;
- ❑ creating an open and supportive economic system;
- ❑ combating poverty and social exclusion;
- ❑ respecting environmental limits;
- ❑ the precautionary principle;
- ❑ using scientific knowledge;
- ❑ transparency, information, participation and access to justice; and
- ❑ making the polluter pay.

9. Aviation has implications at the global, national, regional and local level for all four pillars of sustainable development. The challenge facing civil aviation is to deliver economic, social and environmental objectives while ensuring that the industry continues to operate safely, efficiently and effectively. In particular, negative effects on the environment should be minimised, taking account of land-use planning and conservation policies, whilst the contribution of air transport to the economy should be maximised. Additional capacity should be provided only where this is economically and environmentally justified. This necessarily involves striking a balance between the needs of an efficient air transport industry, providing jobs and serving the local, regional and national economy, and minimising the impacts on the environment and on the communities around aerodromes and under their flight paths. It is necessary to act proportionately, for example, by recognising that environmental dis-benefits may be justified when all sustainable development objectives are taken into account.

10. The CAA can contribute towards achieving the aims and objectives of sustainable development by seeking to optimise the benefits and minimising the harm to the environment, taking account of the likely costs and benefits of particular options or courses of action. When considering the design and use of existing airspace arrangements and changes to those arrangements, the DAP should proceed in a manner that is:

**comprehensive** – by utilising the most up-to-date and comprehensive information available, including on engineering, navigational, aeronautical and demographic factors;

**rigorous** – by identifying and reviewing all significant environmental effects of proposed changes, assessing their environmental impact, technical feasibility, any health and safety implications, cost-effectiveness, and carrying out a thorough examination of the options for minimising and reducing aircraft noise and emissions;

**forward looking** – by taking account of likely future as well as current planned operations, with a view to delivering stability in airspace arrangements as far as practicable;

**transparent** – by utilising clear assessment methodologies and making relevant information accessible through consultation or otherwise in accordance with open Government principles; and which is

**aimed at seeking improvements** – by not confining policy and activity to measures which prevent a worsening of the environmental impacts of aviation, but also seeking ways of reducing those impacts and improving the environment where possible.

11. Sustainable development indicators have been developed by the Government to help measure progress in achieving the sustainable development objectives. For example, a headline indicator for measuring progress against the objective of reducing air pollution and maintaining and improving air quality over the longer term, is "the number of days when air pollution is moderate or high". Noise levels are a key indicator for the objective of building sustainable communities.

12. Sustainable development objectives and principles underpin each area of public policy, including the Government's Rural White Paper — *Our countryside: the future - A fair deal for rural England*<sup>4</sup> and the Urban White Paper — *Our towns and cities: the future - Delivering an urban renaissance*<sup>5</sup>. These recognise that the environment, both local and global, requires increased protection. A key element of the Government's vision for creating a high quality of life is "good design and planning which makes it practical to live in a more environmentally sustainable way, with less noise, pollution and traffic congestion". The White Paper on the Future of Transport — *A New Deal for Transport: Better for everyone*<sup>6</sup> sets out a framework for:

- ❑ reducing pollution including greenhouse gas emissions from transport;
- ❑ improving air quality;
- ❑ reducing noise and vibration from transport;
- ❑ limiting the visual intrusion caused by transport (including light pollution)<sup>7</sup>;
- ❑ ensuring that the environmental impacts are taken fully into account in investment decisions and in the price of transport,

and includes the Government's commitment to develop new policies on civil aviation and a new UK airports policy, which will be brought together in a new White Paper.

13. In December 1999 the EU Commission published *Air Transport and the Environment: Towards meeting the challenges of sustainable development*<sup>8</sup> which sets out proposals for driving environmental performance in the aviation sector. The communication addressed three key specific issues:

- ❑ improving technical standards,
- ❑ implementing economic instruments and
- ❑ assisting airports to improve their performance.

The two key targets for this policy are the control of noise around aerodromes and emissions. The UK broadly welcomed the communication.

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<sup>4</sup> Cm 4909, November 2000

<sup>5</sup> Cm 4911, November 2000

<sup>6</sup> Cm 3950, July 1998

<sup>7</sup> Visual intrusion, including light pollution, is a more important issue for other modes of transport. In most situations, aircraft noise will be regarded as a more serious issue than visual intrusion and therefore should be given more weight. But as recognised in paragraph 55, visual intrusion may be an important issue in certain cases, such as in a national park or an AONB, at heights where aircraft noise is not normally considered a problem. Light pollution from airports can also be a problem, but is an airport planning matter that falls outside the scope of this guidance.

<sup>8</sup> COM 1999

## B. Planning Policy Guidance *(to local planning authorities)*

14. Planning policy guidance notes (PPGs) set out the Government's policies on different aspects of land-use planning, including National Planning Policy Guidelines (NPPGs) in Scotland. Local authorities must take their content into account when preparing their development plans and determining planning applications. They also give developers an indication of the factors to take into account when preparing proposals for development. Land-use policy around aerodromes and under their principal arrival tracks and departure routes is an important factor in helping to minimise the adverse impacts of aviation, particularly from aircraft noise. However, while a local planning authority may take a close interest in the air navigation arrangements likely to be associated with an airport planning proposal and may seek advice on them from the air traffic service (ATS) provider or the CAA, it may not make a planning condition which has a direct effect on those arrangements. Several PPG notes have a bearing on how the CAA exercises its air navigation functions, for example PPG 24 *Planning and Noise* and, in Scotland - Planning Advice Note PAN 56 *Planning and Noise*, are particularly important. It is recommended that the DAP keep abreast of the PPGs issued by the DTLR and corresponding guidance issued by the devolved administrations. The full library of planning guidance and circulars is available on the DTLR's website and the websites of the devolved administrations. The following are the most relevant to the CAA's air navigation functions:

### **PPG 1 - General Policies and Principles**

15. This reaffirms the role of the planning system in meeting the needs of a growing and competitive economy, in providing for new development and in protecting the natural and built environment. It emphasises the contribution of the planning system to achieving sustainable development. In Scotland the equivalent note is NPPG 1 *The Planning System* (revised 2000).

### **PPG 11 - Regional Planning**

16. This requires regional planning bodies (RPBs) to consider including in their regional transport strategies (RTSs), integral to Regional Planning Guidance (RPGs), a strategic steer on the role and future development of airports in their region, in accordance with the principles of sustainable development and in the light of national policy. The DAP should be aware of the RPG/RTSs as they influence the location, scale, density, design, mix of land uses and surface access, and make use of this strategic framework in its airspace planning. For this reason the DAP should seek to be involved in the development of the RPG/RTS, and in any associated transport studies, which impact on its interests.

### **PPG 12 - Development Plans**

17. This gives advice on how to achieve integrated land-use and transport policies. Local authorities may seek advice from the CAA in connection with the development of their plans.

### **PPG 13 - Transport**

18. This requires local planning authorities in England to integrate planning and transport in ways which promote accessibility and more sustainable transport choices, and reduce the need to travel. In Scotland the equivalent note is NPPG 17 *Transport and Planning* (1999). The DAP should be aware that in relation to airport development, PPG 13 advises that in preparing development plans and in determining planning applications, local planning authorities should consider the extent to which development is related to the operation of the airport and is sustainable, plan surface access needs as part of the wider transport strategy for

the local area, and consider carefully the environmental impacts of aviation proposals. Local planning authorities consult DTLR's Airports Policy Division (APD) on draft development plans, policies and proposals relating to airports and airfields, so as to avoid development close to an airport or airfield that is incompatible with any existing or potential aviation operations. The DAP should also contribute to this process as its understanding of the airspace arrangements will assist in the preparation of local development plans and policies.

### **PPG 23 - Planning and Pollution Control**

19. This gives advice on the relevance of pollution controls and air quality considerations to the exercise of planning functions in England. It is due to be updated. In Scotland the equivalent note is PAN 51 *Planning and Environmental Protection* (1997).

### **PPG 24 - Planning and Noise**

20. Issued in September 1994 (updating earlier guidance issued in 1973), PPG 24 gives advice to local planning authorities in England on the use of their planning powers to minimise the adverse impacts of noise (from all modes of transport and from heavy industry)<sup>9</sup>. In Scotland, Planning Advice Note (PAN) 56 - *Planning and Noise* (1999) fulfils a similar role. They set out the considerations to be taken into account in determining planning applications for noise sensitive developments and for those activities that will generate noise. It specifies noise exposure categories for residential development and recommends appropriate levels for exposure to different sources of noise (drawing on WHO<sup>10</sup> guidance). While it is important, wherever practicable, that noise sensitive developments (such as housing, hospitals and schools) should be separated from major sources of noise such as air transport, it is equally important that new developments involving noisy activities should, if possible, be situated away from noise-sensitive land uses.

21. The guidance in PPG 24 is principally addressed to local planning authorities. However, the core principles should also inform the DAP's consideration of airspace procedures and modifications to them. In the vicinity of established aerodromes the local planning authorities will have taken particular account of the final approach tracks and established departure procedures in granting planning permission for noise-sensitive development. Therefore, it is important that proposals for changes to departure procedures should include careful consideration of the impact on areas beneath the proposed track, as they may contain a legacy of noise sensitive development.

22. It is anticipated that final approach tracks will, for the foreseeable future, remain aligned with the runway centre line, so that any change to a final approach track would arise only as the consequence of a proposal to realign a runway. If the development of new instrument approach aids in future makes possible the introduction of curved approaches or variable rates of descent on the glideslope, their introduction at particular aerodromes should be considered on the same basis as any other change to the local airspace arrangements.

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<sup>9</sup> Some contact details have changed since PPG 24 was issued. References to CA4 of the Department of Transport should now be read as being to Aviation Environmental Division 4, DTLR, at Zone 1/33, Great Minster House, 76 Marsham Street, London, SW1P 4DR (Tel: 020 7944 5462); and references to DSEE of the CAA should now be read as being to ERCD at 45-59 Kingsway, London, WC2B 6TE (Tel. 020 7453 6086). The then Welsh Office issued a similar guidance note in October 1997 *Planning Guidance (Wales) - Technical Advice Note (Wales) 11*, ISBN 0-7504-2266-1.

<sup>10</sup> World Health Organisation.

## C. Specific aviation environmental objectives

23. Among the main environmental impacts of aviation are:

- ❑ the effects of aircraft emissions on climate change and on levels of ozone in the upper troposphere and lower stratosphere,
- ❑ the effects on local air quality around airports, and
- ❑ the effect of aircraft noise on people living near airports and under flightpaths.

The Government's objectives include reducing the environmental impacts of aviation, in particular of:

- ❑ greenhouse gas emissions and ozone depleting substances,
- ❑ local air pollution (to ensure that air quality continues to improve over the longer term and polluting emissions do not cause harm to human health or the environment), and
- ❑ noise.

24. At the global level, aviation is a growing contributor to emissions of the greenhouse gas emissions that cause climate change. Emissions from domestic flights are included within individual countries' targets agreed under the Kyoto Protocol process, but emissions from international aviation (and shipping) is not. In the meantime, countries are expected to limit or reduce emissions from international air services working through the International Civil Aviation Organisation. The UK's climate change programme<sup>11</sup> outlines some of the options that are being explored for reducing emissions. Ones most relevant to the DAP involve improvements to air traffic management and associated operating procedures. The Intergovernmental Panel on Climate Change has estimated that these measures have the potential to reduce aviation fuel burn by between 6% and 12% over the next 20 years. In particular, work to improve operational efficiency from departure gate to arrival gate, for example by better air traffic management and better ground control at airports, should minimise flight times and distances flown as well as helping to reduce emissions of greenhouse gases and ozone depleting substances.

25. At the local level the key impacts of aviation are noise and emissions.

26. Aircraft are currently responsible for a relatively small overall share of emissions of pollutants of most concern. For example, nationally, aircraft contribute around 1% of total NO<sub>x</sub> emissions, but this increases to about 30% in the vicinity of large airports. The relative contribution of aircraft is forecast to increase as air traffic grows and major sources such as road traffic reduce as vehicles become cleaner. Aircraft emissions and their contribution to local air quality is an important issue around some major airports. Local authorities are responsible under Part IV of the Environment Act 1995 for monitoring levels of pollutants in the vicinity of airports and for drawing up action plans, in partnership with airport operators where appropriate, to improve air quality where it falls below nationally prescribed target levels. The DAP is in a position to contribute towards reducing aircraft emissions generally by developing airspace arrangements and procedures that will enable aircraft to climb efficiently, allow direct routings

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<sup>11</sup> *Climate Change - The UK Programme*, November 2000, Cm4913. Department of the Environment, Transport and the Regions, Scottish Executive, The National Assembly for Wales, and Department of the Environment in Northern Ireland.

where possible, reduce holding times, and facilitate the consistent use of continuous descent and low power/low drag approach procedures. However, such measures are not expected to have a significant influence on local air quality in the immediate vicinity of airports.

27. The Government's Air Quality Strategy for England, Scotland, Wales and Northern Ireland was published in January 2000.<sup>12</sup> It sets health-based air quality objectives for eight key air pollutants<sup>13</sup> to be achieved between 2003 and 2005, and in one case by 2008. Where the public is likely to be exposed to poor air quality exceeding these levels, local authorities are currently working towards achieving the objectives through the local air quality management process, and in collaboration with major airport operators where necessary. It is also necessary for the UK to meet the requirements set out in EU legislation. The EU has legislated to control emissions of air pollutants and to establish air quality objectives. The Air Quality Framework Directive (96/62/EC) sets a strategic framework for tackling air quality consistently across the EU by setting legally binding limit values for each of 12 pollutants in a series of daughter directives. The first daughter directive, covering sulphur dioxide, nitrogen dioxide, particles and lead was agreed in April 1999. Without further measures being taken to reduce levels of air pollution, parts of the UK, including areas around some airports, will have difficulty achieving the 2010 limit values for NO<sub>2</sub> and particles.

28. Most noise impacts from air traffic occur in the vicinity of airports where aircraft operate in closest proximity to people's homes, schools, hospitals and other noise sensitive receptors. It is widely recognised to be one of the most objectionable impacts of airport development and an important environmental issue for those living close to airports as well as further afield under the main arrival and departure tracks. For many airports, taking effective measures to control and mitigate aircraft noise is fundamental to their sustainable development.

29. The Government's approach to tackling aircraft noise has four main strands and is consistent with the "balanced approach" to aircraft noise management described in ICAO Resolution 14/1<sup>14</sup>. The first is to seek reductions in noise at source by exploiting and encouraging developments in aircraft and engine technology. This is primarily a matter for international negotiation and agreement, implemented by EU and national regulation. The second, through the application of land-use planning and management policies (described in Section B above), is to direct the location of new noise sensitive development away from major sources of noise and to limit the encroachment of incompatible development into noise-sensitive areas. The third strand is to apply (and to encourage and assist airports and operators of aircraft to apply) noise abatement operational procedures, to the extent possible without affecting safety, in order to control operational noise and to mitigate its worst effects. The fourth and final strand is to provide the necessary legal framework for operating restrictions to be applied on the numbers and types of aircraft that may operate at particular airports or at particular times. The DAP has an important role to play in supporting the second and third strands. That role is set out in more detail in the following paragraphs.

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<sup>12</sup> *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Working Together for Clean Air*. Cm 4548.

<sup>13</sup> Benzene; 1,3-Butadiene; Carbon monoxide (CO); Lead; Nitrogen dioxide (NO<sub>2</sub>); Ozone; Particles (PM<sub>10</sub>); Sulphur dioxide (SO<sub>2</sub>).

<sup>14</sup> ICAO Resolution 14/1, a consolidated statement of continuing ICAO policies and practices related to environmental protection, agreed at the 33<sup>rd</sup> ICAO Assembly, Montreal – 5 October 2001.

## D. Factors relevant to departures

### Concentration of air traffic and noise

30. Airspace management considerations give rise to a concentration of departures along a limited number of fixed departure routes due to the requirement to maintain safe separation between successive departures, the need to minimise conflicts with inbound aircraft that call for tactical resolution by air traffic control (ATC), and the need to make efficient use of runway capacity (by minimising timed separation between departures). Standardising departure procedures also helps in reducing radio telephony (RT) and ATC workload, both of which contribute to safe and efficient use of the available capacity. Combined with practical issues arising from the position of navigational aids, these considerations unavoidably give rise to a concentration of departing traffic along a relatively small number of tracks. **It therefore makes sense to arrange for these routes to avoid densely populated areas as far as possible.** This is expected to remain the case for the foreseeable future, notwithstanding the introduction of new technologies, navigation techniques and procedures.

31. Government policy on the design of departure routes is informed by the work of two Noise Advisory Council (NAC) working groups in the 1960s and 1970s. In examining the fundamental question of concentration versus dispersal, from both an ethical and practical perspective, the NAC concluded that the best environmental outcome was to concentrate departures on the least practical number of routes which were designed specifically to minimise the number of people over-flown. Practical airspace management considerations were found to preclude both “perfect concentration” (directing all traffic along a single departure route over-flying the least number of people) and “perfect dispersal” (sharing noise disturbance equitably between all areas surrounding an airport).

32. It has therefore been the view of successive Governments that:

**the balance of social and environmental advantage lies in concentrating aircraft taking off from airports along the least possible number of specified routes, consistent with airspace management considerations and the overriding need for safety.**

33. This policy has general application (it is not confined to the three designated London airports<sup>15</sup>). In the case of Heathrow, Gatwick and Stansted the policy is given effect by the Secretary of State’s requirement for most departing aircraft to follow the noise preferential routes (NPRs) which form the initial part of the Standard Instrument Departures (SIDs). These NPRs are promulgated in notices published in the UK-AIP<sup>16</sup>. Many other airports have also required pilots to adhere to NPRs (in some cases called minimum noise routes) or similar procedures designed to reduce disturbance in the vicinity of the airport.

34. While the DAP should follow the principles in paragraphs 30-32 in most instances, there may be local circumstances where it is impossible to concentrate traffic over less populated areas and where the advantage lies in dispersing traffic to avoid the concentration of noise over noise sensitive areas. It is important to take account of the local circumstances.

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<sup>15</sup> These are the three airports presently designated under section 80 of the Civil Aviation Act 1982 for the purposes of section 78 of that Act, giving rise to the descriptor “designated airports”. Section 78 empowers the Secretary of State (and, in Scotland, the Scottish Ministers) to regulate noise and vibration connected with aircraft taking off or landing at designated airports.

<sup>16</sup> UK Aeronautical Information Publication (Air Pilot).

### **Importance of stability in the relationship between airspace and land-use planning**

35. Airspace planning and land-use planning in the vicinity of airports should continue to be mutually informed processes. The position of departure routes and the alignment of arrival tracks are important factors that inform local authorities' development control functions (cf. paragraphs 20-22 concerning PPG 24), and the legacy of past planning decisions will usually provide compelling arguments for preserving established route structures where possible. When considering changes to airspace arrangements, the DAP should:

**place a high value on the legacy of planning decisions and the location of noise-sensitive development, and generally should recognise the importance of the long-term stability of the route structure in the vicinity of airports, since people need to know where significant aircraft noise will be experienced.**

36. Changes to airspace arrangements (which includes procedures for the use of controlled airspace in addition to its design) should:

**be made after consultation, only where it is clear that an overall environmental benefit will accrue or where airspace management considerations and the overriding need for safety allow for no practical alternative.**

Existing boundaries to controlled airspace should not be a constraint if a satisfactory environmental outcome can be achieved only by taking additional airspace into control.

### **Compliance with Noise Preferential Routes**

37. The requirements for pilots to adhere to NPRs vary from airport to airport and in some cases from route to route; for example, they can preclude radar vectors below specified altitudes or over specified areas (other than for the purposes of avoiding immediate danger, including severe weather), and may require a minimum climb performance<sup>17</sup>. Such requirements form part of the balance struck between efficient airspace management and environmental considerations. The Government has not specified performance standards for the accuracy of track-keeping on Heathrow, Gatwick or Stansted NPRs and has no plans to do so, but it does offer advice to the public (including local maps) indicating where direct over-flight by departing aircraft can normally be expected. At the three designated airports these are expressed in the form of swathes extending 1½km either side of the nominal NPR centre line<sup>18</sup> (with a 20° 'funnel' leading from the runway) up to a specified altitude<sup>19</sup>, and are used by

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<sup>17</sup> A minimum of 4% in the case of the three designated airports.

<sup>18</sup> For as long as air navigation relies on radio beacons that transmit signals which correspond to the position of magnetic north, the nominal centre line of an NPR shown on a local map will not necessarily always correspond to the relevant VOR radial specified in the AIP, due to the drift of magnetic north and consequent need to recalibrate the VOR from time to time. It is important, whenever VORs are recalibrated, that DTLR and the relevant airport are advised and the necessary adjustments to the re-specification of NPRs and SIDs in the AIP are promulgated promptly. Similar action is necessary where NPRs rely on NDBs. This will contribute to reducing complaints about poor track-keeping. Normally, following a recalibration, the nearest VOR radial to the nominal NPR centre line shown on the published map should be specified in the AIP, but there may be occasions when it would be preferable to specify a different radial or to make no change at all if doing so would reduce over-flight of a noise sensitive area; e.g. because the VOR is some distance from the noise sensitive area and the radials are spread widely apart.

<sup>19</sup> This altitude may vary from route to route and at different times of the day and night.

the airports for the purposes of monitoring performance. Vectoring is permitted above specified altitudes.

38. Most large airports and many medium sized ones are under pressure from local communities to improve track-keeping on departure routes. Licensed aerodromes currently have the power, under section 38 of the 1982 Act, to fix their charges in relation to aircraft noise, or to the inconvenience resulting from such noise. The Government is proposing to amend section 38(1) to make it clearer that these charges can relate, for example, to compliance with NPRs. The DAP should:

**examine ways of improving the specification of departure procedures, including taking fuller advantage of modern navigation technologies, to assist operators to achieve a high standard of track-keeping performance.**

39. The design of departure procedures closer to an airport, where aircraft are lower and noise levels are higher, should generally be given greater weight over their design further afield in circumstances where a trade-off between the two cannot be avoided. However, the relative size of the populations affected in such cases should also be weighed in the balance, along with the differences in noise levels at points along the route.

40. It is also desirable to design departure procedures so that they do not replicate the final approach tracks of landing aircraft (when the airport is operating on the opposite runway) where the final approach track passes over built-up areas, in order to provide periods of relief from aircraft noise for those living under the approach track.

#### **Climb gradients**

41. Departure procedures should:

**be designed to enable aircraft to climb quickly and not be inhibited from climbing by conflicts with other traffic, including holding positions, taking into account the overriding need for safety.**

42. Steeper climb gradients can have environmental advantages and disadvantages depending on the local circumstances of the airport. Where steeper climb gradients immediately after take-off are considered necessary for ATC purposes, consideration should be given to the effect this may have on the use of noise reduction take-off procedures (including use of “cut-back”). Maximum permitted noise limits for aircraft taking off have been set by the Secretary of State at Heathrow, Gatwick and Stansted, and by airport operators elsewhere (in some cases in compliance with planning conditions). Certain types of aircraft are able to comply with these limits only by following noise reduction take-off procedures, including use of “cut-back”.

#### **Number and position of ground navigation aids**

43. The development of new systems and procedures for navigation will provide opportunities to review and reduce the number of ground based navigation beacons, and allow the land to be released for alternative uses. It may also be necessary to supplement existing navaid coverage in other areas to facilitate the use of the new navigation systems and procedures. The process of continuous review of navaid coverage should include as a priority

the importance of maintaining a stable route structure in the vicinity of airports, a good standard of track-keeping, and minimising impacts on the environment.

44. It is the Government's aim in connection with development of 'Area Navigation' (RNAV) procedures for use in terminal areas, to preserve the established route structures as far as possible in the vicinity of airports. Where it is not possible to do so, because the new technologies cannot be configured to support accurate navigation along an existing route to the required standard, the aim should be to introduce modified routes that over-fly as few people as possible. It will be necessary in all cases to tailor the new procedures to suit local circumstances; a one-size-fits-all solution is unlikely to be a viable environmental option.

#### **Over flight of National Parks and Areas of Outstanding Natural Beauty (AONBs)**

45. The National Parks and Access to the Countryside Act 1949 (which established AONBs and extends to England and Wales only) and planning policy guidance PPG 7 "The Countryside and the Economy" and PPG 24 "Planning and Noise" do not preclude over-flight of National Parks or AONBs, as it is often impractical to do so. Government policy will continue to focus on minimising over-flight of more densely populated areas below 7000ft. However, where it is possible to avoid over-flight of National Parks and AONBs below this altitude without adding to environmental burdens on more densely populated areas, it clearly makes sense to do so.

46. There is pressure to protect and preserve tranquil areas. In the Rural White paper - *Our countryside: the future, A fair deal for rural England*, the Government sets out its vision of a protected countryside in which the environment is sustained and enhanced for all to enjoy. The aim is to preserve all things which make the countryside attractive and special, which includes tranquillity. The Government's aim is to give stronger protection to the most valued landscapes in designated national parks and areas of outstanding natural beauty. Therefore, whenever practicable the DAP should:

**pursue policies that will help to preserve the tranquillity of the countryside where this does not increase significantly the environmental burdens on congested areas.**

## **E. Factors relevant to arrivals**

47. Where airports are close to populated areas, landing noise is increasingly regarded as a more serious problem than departure noise. This is because of the much improved climb performance of modern jet aircraft (especially twin-engined aircraft) and the dispersal of departures between several routes, in contrast to landing aircraft which must follow a straight final approach track at comparatively lower altitudes (for a given range from the airport). The noise climate under the approach tracks to busy airports, and particularly under the final approach tracks, can be inferior to that under departure routes, and is increasingly the focus of concern.

48. A number of factors determine the level and distribution of noise from landing aircraft; (i) the alignment of the runway, (ii) the angle of the glidepath, and (iii) the position of holding areas in relation to the final approach tracks and the associated procedures for integrating landing traffic in the initial and intermediate approach phases. For the foreseeable

future, measures targeted at the last of these will continue to offer the greatest potential for reducing noise from landing aircraft. The Government's aim is that radar manoeuvring areas and the positions of stacks are designed and managed in ways that will assist and promote the consistent use of “continuous descent approach” (CDA) and “low power/low drag” (LP/LD) operating procedures.

49. The DAP should:

**ensure that consideration is given to how the use of CDA and LP/LD procedures can be promoted in the course of developing new procedures and when considering proposals for changes to existing airspace arrangements.**

50. Both procedures should be regarded as “best practice” for use at all airports where local circumstances (such as terrain clearance) do not preclude it. The procedures also reduce fuel consumption and emissions.

## F. Changes to airspace arrangements and procedures

51. Where changes are proposed to the design of controlled airspace, or to the use made of it, the DAP should ensure that adequate consultation is carried out in accordance with the Directions given under section 66(1) of the 2000 Act, either by ensuring that the promoter of the change(s) undertakes the consultation, or by undertaking the consultation itself. In exceptional cases involving one or more of the designated airports, the DTLR may wish to be involved in the consultation or may even take the lead, and the DAP should check with the DTLR at an early stage to ascertain whether this is likely to be the case.

52. As a public corporation, the CAA is encouraged to follow the Government's code of practice on written consultation.<sup>20</sup> This advocates that the timing of any consultation should be built into the planning process from the start, so that it has the best prospect of improving the proposals concerned. It should be clear who is being consulted, about what issues, to what timescale and for what purpose. It should be as simple and concise as possible, include a summary of the main questions on which views are sought, and make it as easy as possible for readers to respond, make contact or complain. Sufficient time should be allowed for considered responses from all groups with an interest. Twelve weeks should be the standard minimum period for consultation unless there is a particular and justifiable urgency to implement the airspace changes quickly. Responses should be analysed carefully, the results made available to consultees and others on request, including a summary of the views expressed, and the reasons should be given for the decisions finally taken.

53. The method, form and extent of the consultation may vary depending on the circumstances of each case, but as a minimum the DAP should consider including the manager of the aerodrome and its principal users (where the changes relate to a particular aerodrome), other principal users of the airspace (which may be done through representative

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<sup>20</sup> Last updated on 1 January 2001 and available on the Cabinet Office consultation website. The code does not have legal force.

bodies), local authorities<sup>21</sup> in the neighbourhood of the aerodrome or, as the case may be, local authorities in other areas likely to be affected by the proposed changes, and other organisations and individuals (if any) who may represent the interests of people living there. It may be the case that all of the above interests are directly or indirectly represented on the airport consultative committee<sup>22</sup> where one exists. However, the DAP should be alert to the possibility that some members may not attend all committee meetings and that meetings may be held infrequently; so the DAP should take the precaution of also inviting views on the proposals directly from the organisations in question (e.g. from the Chief Executive Officer of the local authority), making clear the intention is to consult through the airport consultative committee, but not precluding the expression of views by others.

54. The DAP should be cautious in accepting a 'nil return' from a leading local authority in the area affected or any other major party as silently indicating support for the changes proposed. The proposals may have gone astray or been incorrectly addressed. Consulting in parallel through the aerodrome consultative committee where one exists, as well as directly with the key organisations likely to have an interest, can help to avoid such problems. Where a respondent introduces relevant new issues to the consideration of the proposals, the DAP should ensure these are considered and taken into account in reaching a decision, or, as the case may be, before referring the case to the DTLR for approval by the Secretary of State.

55. Consultation will usually be necessary where the proposed changes concern controlled airspace (classes A to E) at or below a height of 7000ft agl or could have significant knock-on effects on how traffic uses adjoining class F or G airspace at or below the same altitude. Visual intrusion by aircraft above 7000ft may be a consideration in exceptional cases, such as National Parks and AONBs. The DAP should exercise his judgement when considering the need for consultation where proposed change(s) would result in a general improvement in noise levels; consultation may not be necessary in such cases.

56. Where the proposed changes may have a significant effect on the level and distribution of noise in the vicinity of an aerodrome, and would be expected to alter the size or shape of the standard daytime noise contours in use at the aerodrome, or the shape of noise footprints of the noisiest aircraft operating there at night, the consultation should include assessments of those effects on the basis of contemporary traffic levels and forecast levels where appropriate (e.g. where the change(s) would enable substantial growth in traffic or where that growth is already planned).<sup>23</sup> Vibration from aircraft is unlikely to be a consideration except in the immediate vicinity of an aerodrome.

57. A consultation should usually include an examination of more than one option and reasons should be given if one option is strongly favoured over the others. An explanation should be given of the factors that will be taken into account in reaching a decision, but not so that these preclude consideration of relevant information and comments received from respondents. If safety factors preclude consideration of an option that would have a significantly better environmental impact, those factors should be explained. Where compliance with internationally recognised procedures is a factor in the development of the

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<sup>21</sup> For these purposes, county, district or borough and unitary authorities only need be consulted. If parish or town councils wish to respond directly, rather than through one of the aforementioned, they should be allowed to do so, but they should be consulted if they have made their interest known.

<sup>22</sup> Established pursuant to section 35 of the Civil Aviation Act 1982, as amended.

<sup>23</sup> Either INM or ANCON2 may be used, but ANCON2 should be used when it is currently in use at the aerodrome for other purposes.

proposals, it should be made clear whether compliance with them is mandatory, and if not whether United Kingdom practice in the case in question is always to comply with the internationally recommended procedure.

### **Promulgation**

58. Where procedures are recommended or required for noise mitigation purposes, whether by the airport operator, the ATS provider or the Secretary of State, the DAP should ensure that suitable provision is made in the UK-AIP so that pilots have every opportunity to comply.

### **Membership of airport consultative committees**

59. Most airport consultative committees have been established by the aerodrome manager to discharge the requirement placed on them to provide adequate facilities for consultation. Some 50 aerodromes have been designated under section 35 of the 1982 Act for this purpose.<sup>24</sup> The CAA is not required to be represented on such committees, but may be invited to attend meetings on specific issues such as consideration of airspace changes.

## **G. Directions to ATS Providers under section 39**

60. The DAP should take into account any requirements placed on ATS providers by the Secretary of State using the powers contained in section 39 of the 2000 Act. The DTLR will consult the CAA before the Secretary of State issues or amends directions to an ATS provider if they require a licence holder or an authorised person to do or not to do a particular thing.

Department for Transport, Local Government and the Regions

January 2002

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<sup>24</sup> The Aerodromes (Designation) (Facilities for Consultation) Order 1996 No. 1392