CHAPTER 1

The Policy Context

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This consultation is concerned with the local environmental impacts of future development and operations at Heathrow airport. Its main aim is to present the outcome of work over the past three years to assess the likely effects of future changes – in terms of noise, local air quality and surface access; to show how development could be taken forward within the limits set out in the White Paper; and to invite views on some specific questions. However, we recognise that the context of this work is our aviation policy – including our response to the global challenge of climate change set out in the White Paper, the 2006 *Progress Report*[3] ('Progress Report') and, more recently, our discussion document published in October 2007, which explains how the Government is taking forward its commitment to sustainable transport policy across the transport sector. Although these topics are outside the scope of this consultation, they are mentioned briefly here to provide background information. We also describe the key components of our assessment programme.

1.1 The aviation sector makes an important contribution to the UK economy, bringing significant benefits in terms of employment and business investment. International connectivity – and Heathrow is our main gateway to the global economy – supports billions of pounds of British exports and thousands of UK jobs, and encourages hundreds of international businesses to locate in the UK. The service sector accounts for some 70 per cent of UK GDP and the UK is the world's second largest exporter of services. The financial services sector requires six times more air travel than other businesses. But Heathrow's runways are now full and its route network is shrinking. Since 1990 the number of destinations served by Heathrow has fallen by over 20 per cent. Capacity constraints will lead to fewer routes, increasingly congested conditions and more delays at the airport and fewer connecting services to the UK regions.

1.2 As well as being an important international destination, Heathrow operates as the UK's major international hub airport. As demand continues to rise, the airport is also increasingly vulnerable to foreign competition and major European airports are expanding at Heathrow's expense. Amsterdam Schiphol, for example, has five runways and serves 21 UK airports compared with only nine served by Heathrow. Not addressing this would risk damaging UK interests, not only in aviation but more widely across the economy. Fifty two per cent of companies consider transport links are vital in deciding where to locate their business and 70 per cent of foreign companies' first location in Britain is within one hour of Heathrow[4].

3 *The Future of Air Transport Progress Report*, CM 6977 December 2006, DfT

4 Source: Economic Benefits of Heathrow Airport, BAA

Aviation policy

1.3 The Government's support for further development of Heathrow was set in the context of its wider aviation policies, including:

- making best use of existing airport capacity;
- ensuring that, over time, aviation pays the external costs its activities impose on society at large; and
- seeking to reduce and minimise the impacts of airports on those who live nearby and on the natural environment.

1.4 The *Progress Report* explained how the Government is addressing the global challenge of climate change by:

- action at the international level – pressing in the International Civil Aviation Organisation for an agreed basis for allocating aviation emissions to individual countries, and policies that will deliver an effective environmental outcome from the sector;
- action at the European level – including support for bringing aviation within the European Union emissions trading scheme. Under current proposals, aviation emissions would be capped at the average level over the period 2004 to 2006. This means that when trading is established, any additional aviation emissions above that level, including any arising from expansion of Heathrow, would lead to no increase in total emissions, since airlines would have to pay for the equivalent emissions reductions in other sectors. This will place the aviation industry on a more sustainable footing for the future;
- developing a periodic emissions cost assessment to establish the extent to which the aviation sector is already meeting its external climate change costs and to enhance our contextual understanding of the climate change costs of aviation when considering major increases in aviation capacity. We consulted earlier in 2007 on the proposed assessment methodology; and
- continuing to explore and promote other measures, including carbon offsetting schemes.

1.5 The Government also believes that domestic aviation taxes such as Air Passenger Duty (APD) can play a valuable role in encouraging behavioural change, reducing emissions from aviation and ensuring that air travel makes a fair contribution towards the Government's spending priorities, including public transport and the environment. As announced in the 2007 Pre-Budget Report, the Government intends to reform the taxation of aviation to send better environmental signals. From November 2009, we plan to

replace APD with a duty payable per plane rather than per passenger. We will consult on ways to make aviation duty better correlated to distance travelled and encourage more planes to fly at full capacity.

1.6 In October 2007, the Department for Transport (DfT) published *Towards a Sustainable Transport System: Supporting Economic Growth in a Low Carbon World*, setting out the Government's approach to transport policy in the light of the Eddington Study and the Stern Review (see **Annex D**). This describes the Department's policy framework to ensure that transport supports economic growth whilst addressing its climate change impacts as part of a coherent whole-economy solution, based upon Stern's three-pillars of pricing, technology and behavioural change. It also describes how the Department proposes to improve its longer-term strategy development processes, to ensure a fully cross-modal approach along the lines recommended by Eddington. This includes details of how it will consult with passengers, transport users and other stakeholders in developing its strategy.

1.7 The Stern Review[5] recommended that the best way to tackle the complex pattern of carbon emissions is to ensure that each activity which consumes carbon is priced in a way that reflects its true cost to society and to the environment. The Eddington Study[6] is equally clear that seeking artificially to constrain the natural growth of aviation, once carbon pricing is fully in place, would pose a significant cost to the UK economy, with no additional environmental benefit. Referring specifically to Heathrow, the Eddington Study stated that, 'even once users pay the full environmental costs of their journeys, there will remain a strong economic case for additional runway capacity'.

1.8 The Government is taking action in ways which mirror the Stern essential elements of a carbon reduction strategy. We will ask the new, independent Committee on Climate Change (CCC) to look at the implications of including international aviation in the UK's targets, as part of its overall review of the UK's 2050 target, which is due to report in autumn 2009. In addition, once the EU Emissions Trading Scheme rules have been finalised, we will also ask the CCC for advice on whether there is a methodology for including international aviation emissions in our domestic targets under the Climate Change Bill that is workable and compatible with the EU Emissions Trading Scheme (ETS) and takes account of progress in the UN Framework Convention on Climate Change and the wider

5 www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm

6 The Eddington Transport Study: Transport's Role in Sustaining the UK's Productivity and Competitiveness, December 2006 www.dft.gov.uk/about/strategy/eddingtonstudy/

international context, and on the impacts of adopting it.

1.9 Our work shows that a third runway at Heathrow would bring net economic benefits of around £5bn in NPV terms, even after taking account of climate change costs. If mixed mode operations were introduced in the interim, with or without additional air traffic movements, the net benefits would increase, reflecting the additional benefits of extra capacity and/or reduced delay in the period before a third runway could be available. This confirms that the economic case for expansion at Heathrow remains strong, as was concluded at the time of the White Paper.

1.10 Lack of capacity at Heathrow hinders the airport's ability to recover quickly from any weather-related or other disruption. Average overall delays[7] at Heathrow have increased by 15 per cent since 2002, from 16.3 minutes in 2002 to 18.8 minutes in 2006. These delays not only represent a threat to Heathrow's reputation and a cost to passengers in terms of delay. They are also bad for the environment as they lead to more fuel burn and associated emissions. These and wider costs and benefits are set out in detail in the consultation stage Impact Assessment at **Annex B**.

Project for the Sustainable Development of Heathrow

1.11 In the White Paper the Government made clear there is a strong case for seeking to secure the large economic benefits from increasing capacity at Heathrow. Allowing expansion would lead to more jobs and higher output and help the UK to retain its economic competitiveness. We also take seriously the environmental implications of further growth, and for that reason set specific conditions for adding a third runway, namely:

- No increase in the size of the area significantly affected by noise, as measured by the 57dBA noise contour in 2002 (127 sq km);
- Confidence that European air quality limits, applicable from 2010, would be met; and
- Improvements to public transport access.

The possible introduction of mixed mode on the existing runways, in the interim, is subject to the same conditions.

1.12 A programme of work known as the *Project for the Sustainable Development of Heathrow* (PSDH) was set up by the DfT in 2004 to consider whether, and how, these conditions might be met. It has been based on updated proposals from BAA for a third runway and new

7 Measured in terms of aircraft arrival and departure delays, averaged over any given hour

passenger terminal, and a separate scheme for introducing mixed mode on the existing runways.

1.13 The work, which looks ahead to 2030, means that we have had to forecast activities and their likely impacts well into the future. That can only be done with the aid of models that allow us to develop and test 'what if' scenarios on the basis of different assumptions. In doing so, we have drawn on a wide range of expertise both inside and outside Government to review the relevant science, to develop options and to model their effects. The key components of the work are summarised below.

Air passenger forecasts

1.14 Noise and ambient air quality at Heathrow in any given year will be affected by the overall level of activity at the airport. Forecasts of passenger throughput in future years also have a direct bearing on the demand for surface transport to and from Heathrow. Forecasts have been made of air passengers and aircraft movements up to 2030 and are described in **Annex C.**

Local air quality

1.15 A key component of PSDH was the setting up of three Panels of independent technical experts in 2004 to undertake a comprehensive review of the air quality modelling approach and to recommend the best methodology and modelling tools to use to predict the likely future position. The results of that work were published in a full technical report by the DfT on 19 July 2006 (see Further Reading, Annex D). We have taken full account of the Panels' recommendations in carrying forward the subsequent modelling and assessment work. The results employ the modelling approach recommended by the Panels, which is also one of the air quality modelling approaches used by the Department for Environment, Food and Rural Affairs (Defra) to support the review of the Air Quality Strategy for England, Scotland, Wales and Northern Ireland.

1.16 The most significant pollutants in relation to Heathrow development are of nitrogen dioxide (NO_2) and particulates (PM). Mandatory EU limit values came into force in 2005 for particulates and will do so in 2010 for NO_2 under Directive 1999/30/EC. The Air Quality Standards Regulations 2007 implement the air quality standards, including limit values, for these and other pollutants as set out in the EU framework and four

'daughter' directives. Of relevance to Heathrow are those intended to protect human health.

1.17 The Air Quality (England) Regulations 2000 (as amended) prescribe national policy objectives for seven pollutants as set out in the Government's National Air Quality Strategy (as amended), which local authorities are required to work towards as part of their statutory Local Air Quality Management duties under the Environment Act 1995. The UK national policy objectives generally preceded the setting of EU limit values. The Government's *obligations* under the 2007 Regulations include a requirement for the UK Government and associated bodies to produce plans or programmes where limit values are currently exceeded to ensure compliance with the limit values by the date that the values come into force, and to submit these to the European Commission.

1.18 National objectives in the Air Quality Strategy form part of a joint DfT/ Defra Public Service Agreement (PSA) which will help underpin decisions on the future development of transport and planning in the UK. An update of the National Air Quality Strategy was published on 17 July 2007[8]. A new ambient air quality directive, which is under negotiation, will streamline four existing air quality 'daughter' directives, and is expected to introduce some flexibilities (derogations) in meeting limit values – potentially up to an additional five years (2015) for NO_2 and perhaps to 2011 for PM_{10} – and add new controls on ultra-fine particles in order to better protect public health. The directive is currently at the second reading stage in the European Parliament.

Noise

1.19 Noise impacts of future scenarios have been assessed by the CAA's Environmental Research and Consultancy Department (ERCD) which produces the annual noise contours for Heathrow airport on behalf of the DfT. This assessment is based on proven techniques which model the noise effects of future aircraft movements, taking account of predictions about the likely make-up of the fleet and the noise performance of individual aircraft engine types.

1.20 We fully accept that aircraft noise can be an important issue for many residents living near major airports. From time to time, we have commissioned surveys of attitudes to aircraft noise in residential areas around major airports to inform an understanding of these issues. A major survey reported in 1985 the ANIS (United Kingdom Aircraft Noise Index Study). The results informed current policy that the daytime index for measuring people's exposure to

8 Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Cm 7169, Defra, July 2007

aircraft noise should be the L_{eq} index measured over 16 hours (0700-2300) and that the onset of significant community annoyance should be assumed to be around 57dBA L_{eq}. The Air Transport White Paper confirmed the continuing use of the L_{eq} metric and the 57dBA threshold in consideration of future airport development.

1.21 Since the ANIS study, the overall amount of air traffic has increased significantly whilst sound levels generated by individual aircraft events have significantly reduced. Older noisier aircraft types have been replaced by more modern aircraft types with quieter engines and much improved climb performance. This is reflected in the number of people living around Heathrow that fall into the 57dBA L_{eq} noise contour declining by 73 per cent since 1980.

1.22 The latest study *Attitudes to Noise from Aviation Sources in England* (ANASE) (see Annex D) was commissioned to inform future policy and was published on 2 November. We discuss its implications in the section on noise in Chapter 3. The implications of the European Environmental Noise Directive (END) 2002/49/EC on noise mapping are discussed in **Annex E**.

Surface access

1.23 We have worked with BAA to model the likely effects of airport development on the number of vehicles and distribution of road traffic and the likely take-up of public transport. The focus of this work has been to identify the relative contribution of road vehicle emissions to local air quality around Heathrow and to examine a range of possible measures to improve rail, bus and coach services to the airport and measures to manage road traffic.

Airspace

1.24 Airspace and air traffic control (ATC) arrangements to support the proposals in this document have been developed in conjunction with NATS and with policy advice and guidance from the CAA (Directorate of Airspace Policy and the Safety Regulation Group). The technical details are described more fully in supporting documents (see Annex D). Indicative flight paths are illustrated in Chapter 3. They have been developed primarily to establish that the operations are viable in principle and to provide a basis for assessing the environmental impacts. They should be regarded as indicative, in that they would need to be refined following further detailed

design and simulation, and formal CAA approval, with further public consultation where appropriate.

1.25 Aside from the conceptual airspace arrangements prepared to support the proposals in this document, NATS are obliged, under the terms of their operating licence, to make the most efficient overall use of airspace and to meet reasonable levels of overall demand. To help meet this requirement, they constantly review their airspace management, including procedures and applications of technology, and make proposals for airspace changes where they believe this is necessary.

1.26 Among current airspace change considerations, NATS are reviewing airspace arrangements in an area known as "Terminal Control North" or TC North. This area of airspace includes arrival and departure routes and holds for aerodromes and airports across a wide area including Stansted, London Luton, London City and Heathrow. Subject to further design work, it is likely that NATS will conduct formal public consultation early in 2008 on proposals for changes to this airspace, including around Heathrow. The TC North review is not driven by runway expansion at any individual airport but is 'business as usual' for NATS in seeking to manage the airspace to deliver a balance between enhancing safety, improving efficiency, delivering reasonable sector capacity increases and minimising environmental impacts. Implementation of any proposed changes would be subject to CAA approval and would be likely to precede any changes resulting from proposals in this document.

1.27 For the longer term, NATS and the CAA are considering the wider airspace implications of delivering capacity to meet user demand out to 2030, in line with the priorities set out in the White Paper.

Stakeholder engagement

1.28 The White Paper made clear that, in exploring the scope for further development, we would be drawing on the professional expertise of BAA as the airport operator, the Highways Agency, CAA and NATS. But the conclusions and results reported below are the Government's and flow from a rigorous process of analysis and assessment with the aid of state-of-the-art modelling.

1.29 A wide range of other stakeholders, including local authorities and the airline industry, has been involved in aspects of the work, either through individual meetings associated with the project, or through representative groups. Regular reports on progress have also been given to the Heathrow Airport Consultative Committee, which includes representatives of business and aviation interests as well as the local community around Heathrow. We have also had discussions with local authority officers and local residents' associations about the scope and handling of the consultation and public exhibitions, and officials have attended meetings of the Heathrow Local Focus Forum with local residents' associations.

1.30 At the outset, the Department established background information about the project on its website[9] and has updated this periodically.

9 www.dft.gov.uk/aviation/projectheathrow