



A focus on noise

Towards a sustainable Heathrow

Aircraft noise

As the UK's only hub airport, our interest is in enhancing the economic benefits that Heathrow provides, while minimising our impact on local communities and the environment.

This briefing sets out our approach to managing noise, supplementing the data contained in Heathrow's 2009 sustainability performance summary and FEU¹ reports, available at www.heathrow.com.

Aircraft noise

Most airport related noise is created by aircraft approaching or taking-off, taxiing and by engine testing within the airport perimeter.

Aircraft noise occurs when air passes over the plane's body and wings, from moving engine parts and by air being expelled from the engine at high speed.

While aircraft have become quieter, the number of flights at Heathrow has increased in recent years.

The effects of noise

People who live close to airports or under flight paths can often feel strongly about the disturbance to their lives from noise. Addressing their concerns is important for a successful Heathrow.

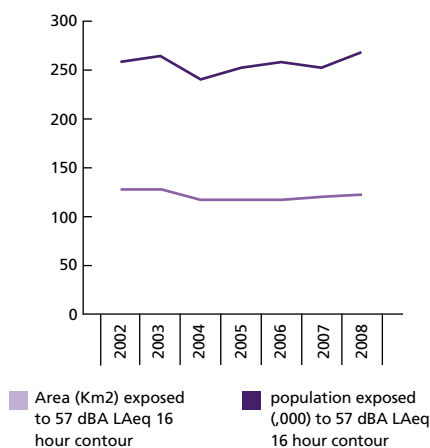
People experience and react differently to different sources and effects of noise. Effects include general distraction, speech interference and sleep disturbance which can lead to annoyance and complaints.

At BAA, we monitor research into the potential health effects of noise, which remain unclear and an area of ongoing interest for governments and other bodies.

Measuring noise

Noise contours provide an established basis for action to reduce noise, but we recognise that they do not always fully describe people's perceived experience. People are also concerned by changes in the number and frequency of flights and the time of day or night that they hear aircraft noise. We have committed to developing supplementary metrics to help better describe noise impacts.

Area and population affected by noise



¹ Flight Evaluation Unit

Noise contours

There are currently 2 principal methods used to measure average noise exposure around airports. In the UK and across Europe, these form the basis for developing aircraft noise policy and aircraft noise action plans.

In the UK, the summer day 'LAeq 16 hour' measures the average noise experienced during the 16 hour period between 0700 to 2300.

The UK Government has concluded that communities can become significantly affected by aircraft noise above 57 dBA LAeq 16 hour, which means an average of 57 decibels (dB) of noise over the 16 hour time period.

The summer LAeq day contours have been produced at Heathrow for many years. The population around Heathrow exposed to the 57 dBA LAeq 16 hour contour has fallen from 2,000,000 in 1980 to 268,000 in 2008.

The EU introduced 'Lden' in 2006, measuring the annual average relating to the 24 hour period, adding extra weighting to aircraft noise occurring in the evening and at night. In 2006, 756,000 people were exposed to the 55 dBA Lden contour around Heathrow, compared to 718,000 in 2009.

268,000

268,000 people around Heathrow are exposed to noise within the 57 dBA LAeq 16 hour contour.

Noise management: technology and international policy

BAA contributes to the international approach to managing aircraft noise. Technology is enabling the development of quieter aircraft. International noise management policy provides airport operators with the framework to reduce the impact of aircraft noise on local communities.

Technology

Through ACARE², the European aviation industry has established a challenging set of environmental goals for 2020. Alongside targets relating to air quality and climate change, this includes reducing the perceived impact of noise from new aircraft by 50% against new aircraft in 2000.

ACARE has provided guidance to those involved in technological research on achieving these goals. Solutions are being sought through innovation in engine and airframe development.

One challenge is that while the overall environmental performance of both CO₂ and noise is expected to improve over time, conventional engineering design indicates that there is a trade-off between cutting CO₂ emissions and reducing noise.

International noise management policy

Through our international trade body, ACI³ World, we engage with the United Nations, who regulate aviation through ICAO⁴, to support the strengthening of international noise certification standards.

ICAO requires countries around the world to adopt a 'balanced approach' to managing noise from aircraft based on:

- Reduction at source (quieter aircraft)
- Land use planning and management
- Noise abatement operational procedures
- Operating restrictions

This balanced approach forms the basis of Heathrow's approach to managing aircraft noise.

We contribute to the development of EU Directives for aircraft noise through our membership of ACI Europe.

One of these, the Environmental Noise Directive, requires European countries to map all transport noise and publish action plans to manage noise. Heathrow's Draft Noise Action Plan is outlined on page 3.

The UK Government permits airport operators to develop and implement financial incentives to encourage airlines to comply with noise abatement procedures and to encourage investment in quieter aircraft. Heathrow's approach to financial incentives is described on page 5.

The UK Government has also introduced legislation which shapes airports' schemes to mitigate and compensate communities affected by aircraft noise. Heathrow's schemes are described on page 6.

² The Advisory Council for Aeronautics Research in Europe
³ Airports Council International
⁴ International Civil Aviation Organization

How noise certification standards work

ICAO has set progressively tighter certification standards for noise from civil aircraft.

Noise measurements are taken at set points during the development of aircraft engines. The minimum standards they need to meet are described as Chapters, which set maximum permissible noise levels for aircraft during landing and take-off. Aircraft operating in states which are members of ICAO must conform to these.

Aircraft falling within Chapter 2 have been banned from operating in Europe since 2002. The majority of civil aircraft now fall within Chapters 3 and 4, i.e. they are quieter than Chapter 2.

Aircraft manufactured since 2006 must meet the requirements of Chapter 4, which has been set at 10 decibels below that of Chapter 3. During the development of Chapter 4 limits, BAA sought a stricter limit of 18 dBA below the Chapter 3 limit which would have reflected best available technology.

50%

The European Aviation Industry is committed to reducing perceived aircraft noise by 50% by 2020.



Managing noise at Heathrow

In this report, we describe our approach to managing the impact of noise at Heathrow using a model based on what we, as the airport operator, 'influence', 'guide' and 'control':

- BAA influences noise management activities at Heathrow by engaging with policy makers in the development of national noise management policy and local planning policy.
- BAA guides noise management activities at Heathrow by implementing procedures to ensure airline compliance with Government's noise management policy and through operating procedures used to manage aircraft noise on the airfield.
- BAA controls the way in which communities are informed about noise issues and the management of noise mitigation and compensation schemes.

Heathrow's Noise Action Plan

In 2009, we consulted on Heathrow Airport's five year draft Noise Action Plan, detailing how we intend to manage and, where possible, reduce the impacts of aircraft noise around Heathrow from 2010 – 2015. We await the formal Government adoption of the plan.

Following the consultation process we amended the plan, which now includes more than 65 actions, over 35 of which are new, to improve how we manage noise. These are structured around five themes:

- 1 Reduce noise impacts through:
 - quietest fleet practicable
 - quietest operations practicable
 - effective noise mitigation schemes
- 2 Engaging communities affected by noise to understand their concerns and reflect these in our noise strategies and communications
- 3 Influencing planning policy to reduce the number of noise sensitive properties near our airport
- 4 Organising ourselves to manage noise efficiently and effectively
- 5 Continuing to build on our understanding of aircraft noise

Once adopted, the Noise Action Plan will be available at www.heathrow.com

BAA influences, guides and controls the noise generated by aircraft at Heathrow and experienced by communities around the airport.			
	Influence	Guide	Control
Aircraft in flight, taking-off and landing	Government noise management policy	Implementing and improving adherence to noise abatement procedures Landing charges	
Aircraft on the ground		Auxiliary Power Units Testing pen location	
Communities around Heathrow	Land use planning policy		Community relations Noise mitigation and compensation schemes Managing noise complaints

19

After consultation, 19 new actions were added to Heathrow's noise action plan.



Noise management activities that Heathrow can influence

Government policy plays an important role in managing the impact of aircraft noise. As a major airport operator, we have an opportunity to influence the development of policy aimed at minimising noise experienced by local communities.

Government policy

As a designated airport, the UK Government is responsible for noise policy at Heathrow. Nevertheless, BAA plays an important role shaping UK Government aircraft noise management policy by providing input and feedback on the current and proposed measures set by the DfT⁵. BAA is represented on ANMAC⁶.

Runway use

BAA help shape the policy of runway alternation (switching the runway used for arrivals) which provides predictable periods of relief from aircraft noise, particularly for communities around West London.

Night time restrictions

The Government has set noise controls on night flights at Heathrow. Between 23.30 and 06.00, aircraft movements are limited to a specific number and noise level using a noise points quota system. Aspects of these requirements, such as the scheduling of 'QC4' aircraft (the noisiest aircraft permitted) have been developed as a result of BAA's input.

Departure procedures

The Government sets noise preferential routes (NPRs) to limit aircraft flying over populated areas. BAA's experience in managing the aircraft track-keeping system,

which monitors airlines' compliance with NPRs, has enabled the DfT to refine the NPRs and improve their effectiveness. Since 2007, 95% of aircraft departing from Heathrow have been on track.

Arrivals procedures

UK aviation policy requires aircraft to land using a continuous descent approach (CDA) wherever practicable. By avoiding sustained periods of level flight at lower altitude, CDA reduces noise disturbance. BAA worked with aviation partners to develop a common working definition for CDA, enabling standardised compliance monitoring.

Land use planning policy

In line with UK Government planning policy guidance, we engage with local authorities to ensure that aircraft operations are considered in planning applications for noise sensitive developments such as hospitals and schools.

Local authorities are invited to participate in Heathrow's noise forums and are provided with information on noise contours through our website and quarterly report.

⁵ Department for Transport

⁶ Air Noise Monitoring Advisory Committee, a body whose function is to advise the DfT on noise management policy, bringing together Government Departments, the Civil Aviation Authority, the National Air Traffic Service, airlines and the Heathrow Airport Consultative Committees.

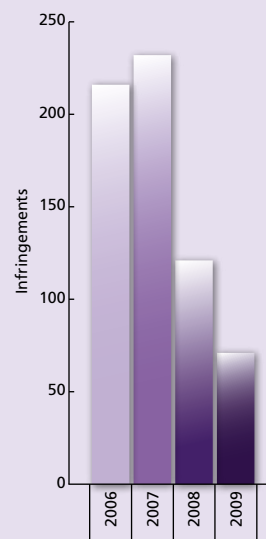
⁷ Civil Aviation Authority

Departure noise limits

The Government applies noise limits for aircraft departing from Heathrow. Noise limits vary from 94 decibels during the day to 87 decibels between 2330 and 0600 at night.

Noise monitors measure noise from departing aircraft. Working with the CAA⁷, BAA advises the DfT on the most suitable locations for noise monitors, which aim to measure noise 6.5km from the start of an aircraft's take-off roll.

Infringements of the departure limits have fallen significantly since 2006.



95%

Since 2007, approximately 95% of aircraft have been on track.



Noise management activities that Heathrow can guide

BAA implements procedures which guide airlines' compliance with noise management policy and implements a number of specific noise management tools which encourage airlines to reduce the impact of noise on communities around Heathrow.

Noise abatement procedures

Through Heathrow's network of noise monitors and state of the art track-keeping system, BAA is able to monitor airlines' compliance with Noise Preferential Routes (NPRs), Continuous Descent Approach (CDA), and departure noise limits as well as other aspects of the published noise abatement procedures.

Achievement of CDA is reported back to our noise management forums. To improve performance, a voluntary code of practice was developed for Heathrow in a partnership between airlines, BAA, NATs⁸, and the CAA. CDA achievement levels have remained over 80% since 2007 and continue to improve.

Aircraft which breach day or night noise limits are fined, with the funds invested in local community projects as part of Heathrow's community investment programme.

Landing charges

We charge noisier aircraft more to land at Heathrow and reduce the landing charge for the quietest aircraft using five categories⁹:

1. Aircraft that do not meet Chapter 3 standards - base charge plus 200%
2. Chapter 3 high aircraft - base charge plus 150%

3. Chapter 3 aircraft - base charge
4. Chapter 3 minus aircraft - base charge minus 10%
5. Chapter 4 aircraft - base charge minus 15%

Currently, approximately 94% of all aircraft landing at Heathrow are Chapter 4 and less than 1% are Chapter 3-high. Our goal is for 97% of aircraft using Heathrow to be Chapter 4 and a phase-out of Chapter 3 high aircraft by 2015.

Auxiliary power units

APUs are noisy jet engines in an aircraft that provide electrical power and air conditioning while on the ground.

We restrict the use of APUs and offer alternative power sources and pre-conditioned air at stands. 90% of stands are fitted with electricity connections and 21% provide pre-conditioned air.

Engine testing location

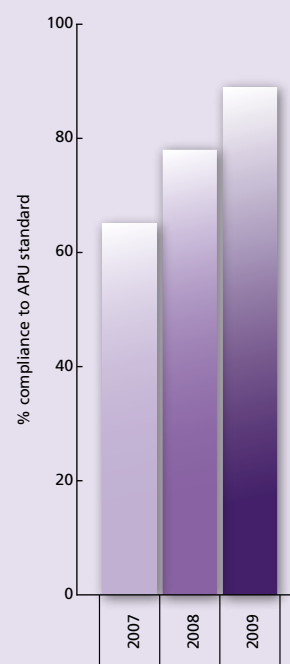
By providing engine test pens and restricting the location, duration and timing of engine testing, we support airlines to reduce the noise generated by aircraft on the ground.

⁸ National Air Traffic Service

⁹ Chapter 3 'high' and 'minus' reflect aircraft at the upper and lower end of the Chapter 3 standard noise range

Auxiliary Power Units

Heathrow has significantly increased airline compliance with the use of APUs by conducting weekly audits and engaging with non-compliant airlines.



94%

94% of all aircraft meet Chapter 4 noise standards and receive a 15% reduction in landing fees at Heathrow.

Noise management activities that Heathrow can control

There are only relatively few noise management activities that BAA can control alone, without working with other partners. These include the way in which we communicate with local communities, respond to noise complaints and invest in noise mitigation schemes.

Noise complaints and enquiries

We provide channels for people to make enquiries, complain or raise concerns about noise. We respond to every complaint and report the number of complaints to the Department for Transport and the Heathrow Airport Consultative Committee, an independent committee which includes representatives of airport users, local authorities and other local organisations.

We are successful in meeting our aim to respond to at least 95% of enquiries within five working days of being contacted. We have recently updated our leaflet and web site material to help improve the way in which our communications are received.

Support for communities affected by noise

We offer noise mitigation schemes that surpass Government requirements and were developed following consultation with local communities, with a total investment of £9 million per year.

We provide:

- Noise insulation for schools, hospitals and community buildings near the airport
- Financial assistance towards the cost of moving for people living in the most noise affected areas
- Noise insulation for dwellings in the airport vicinity

Our Community Buildings Noise Insulation Scheme provides up to £5 million each year to address noise insulation at Heathrow.

This scheme offers acoustic insulation to buildings where people spend long periods of time, or where there are vulnerable people. These include hospitals, schools and colleges, nurseries, nursing homes, libraries and community halls.

In 2010 we will conduct a review of our noise insulation schemes to ensure they are clear, effective and adequate.

Keeping communities informed

We want to demonstrate to communities that we are taking steps to manage noise and that we listen to their concerns.

We have a dedicated website for aircraft noise, which enables individuals to log complaints and enquiries. Our website also includes WebTrak, a flight-tracking feature that allows people to see and track flights using Heathrow airport. This also shows the aircraft type, flight number, speed and altitude they are flying at. For security reasons, the data is delayed between 24 and 48 hours.

We also publish noise information booklets online at www.heathrowairport.com/noise.



£9m

Heathrow invests £9 million each year on noise mitigation activities.

Working towards a sustainable Heathrow

We are proud of the services that Heathrow Airport provides and of the role it plays in connecting London and the UK to the world.

We recognise the contribution that aviation makes to economic, social and cultural development in the UK and worldwide. We also recognise the impact aviation can have on local communities and the environment.

We believe that both aviation and Heathrow Airport can expand sustainably, enhancing economic and social benefits while also respecting environmental limits.

Achieving a sustainable Heathrow is key to our vision for Heathrow to be 'Europe's hub of choice'.

This means creating a future Heathrow which:

- Is safe and secure for staff, passengers and the airport community
- Enables the achievement of positive social and economic effects
- Seeks to prevent, reduce or offset significant effects on communities and the environment
- Has surface access which limits congestion and other local effects

We have strategies and action plans to achieve these commitments which cover all aspects of our business:

- **What we design** – the design of our infrastructure, transport links and buildings
- **How we build** – how we construct and redevelop our airport
- **What we buy** – the products and services we buy, the organisations we do business with and the contracts we manage
- **How we operate** – the people, technology and processes in place to operate our airport
- **How we collaborate** – working with partners who are based at and around Heathrow Airport

About this briefing

This document is part of a series of bi-monthly briefings which outline our approach and our performance in delivering a sustainable airport at Heathrow.

The series replaces the annual Corporate Responsibility Report we have previously published and is designed to provide an accessible and more frequent insight into key sustainability issues. We will include a short annual summary of key performance data in the series.

The series will cover the following issues through 2010:

- 2009 Sustainability performance summary
- Climate change
- Noise
- Air quality
- Employment, training and skills
- Economy

Detailed information on the issues contained in these briefings as well as our wider sustainability programme is available at www.heathrow.com

About BAA

UK airports

BAA owns and runs Heathrow, Stansted, Southampton, Glasgow, Edinburgh and Aberdeen airports. We sold Gatwick Airport during 2009.

Rail

BAA owns and operates the public rail services Heathrow Express and are joint owners of Heathrow Connect.

Other interests

BAA has a 65% interest in and operates Naples Airport, and manages retail operations at Baltimore Washington International Airport, Boston Logan Airport and Pittsburgh International Airport.

Information relating to BAA and the airports it owns is available at www.baa.com

Contact us

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