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Plane Speaking

Air and noise pollution around a growing Heathrow Airport

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Foreword



The ongoing debate about aviation capacity in London and the South East wrongly assumes that Heathrow isn't expanding. Whilst Heathrow may have reached its upper limit of flight numbers to and from its runways, the actual numbers of passengers passing through its terminals is most certainly increasing. You only have to witness an A380 plane land at Heathrow, off-loading 500 plus passengers to realize that Heathrow expansion is a practical reality. If all aircraft passing through Heathrow were on the same scale, then it would be much easier to contemplate the extra tens of millions more passengers which could potentially use the airport. Currently, it can handle around 69 million passengers and once the redevelopment and construction of the five terminals are completed it will be able to cope with 90-95 million passengers a year.

One of my major concerns is the impact which this increasing capacity will have on the immediate local environment in terms of air quality and noise. After central London, Heathrow is the second major hot spot for poor air quality in London particularly with Nitrogen Dioxide. Poor air quality is leading to the early deaths of at least 4,300 Londoners a year, and the UK is already facing the risk of legal action and could face fines in the region of hundreds of million of pounds for its breaches of EU air pollution limits. While much attention is rightly given to this major public health issue in London, little is directed specifically at Heathrow. I want this report to redress this.

In this report we look at what effect bigger planes and more passengers will have on the area surrounding Heathrow. In particular, we examine the environmental impact on residents, not only for those living in the West London suburbs but also in other parts of London which are increasingly being affected by the activities of flights to and from Heathrow. Furthermore, in light of the Government's consultation on the current night flight regime at Heathrow, it is important for the Environment Committee at the London Assembly to use this opportunity to make representations and put forward practical recommendations on behalf of the many long suffering Londoners.

The environmental impact of Heathrow is not exclusive to west London. Although, it is acknowledged that 28 per cent of all people in Europe affected by aircraft noise live under the Heathrow flight paths, that's some 700,000 people; this does not account for those affected by operational freedom trials currently taking place in Heathrow, on places like Wandsworth, where some 500 plus noise complaints have been made since the start of the trials last November.

The flight noise problem has clearly spread across London, but before we begin to address these issues, there must be an honest and informed analysis of the status quo and the problems. Furthermore, this needs to be done before the Government's consultation on night flights concludes.

Surface transport in and around Heathrow is another major aspect of the debate. This will have to be improved otherwise increased passenger numbers will generate more road traffic which is a major source of the air pollution around the airport. This includes: making better use of the Piccadilly tube line connection; making sure Crossrail offers the service levels to take on the growing numbers of passengers coming into central London; that it's appropriately linked to the new planned high speed rail network and that the latter has links to the North in order to minimize long car journeys to the airport. Finally and fundamentally we must begin to accept that Heathrow is a major transport hub for modes other than air transport alone, attracting as much traffic from Thames Valley, further West as it does from central London. This clearly has knock-on effects for transport provision planning and infrastructure in London as well as consequences for the environment including air quality and road noise.

So while the current focus maybe on whether we should build new hubs in London & the South-East, we should not forget that with the advancement of technology and the steer towards bigger aircraft, in reality, Heathrow is expanding, carrying more passengers with all the side effects this brings. What we must do is work out how to manage the resulting air and noise pollution without further burdening Londoners living around the area and beyond in Greater London. One important way of achieving this is to ensure that any future noise mitigation scheme is consistent at both London airports with the noise threshold tolerance levels and geographical ranges being made equal. Currently Heathrow is respectively both higher and narrower than that of City Airport.

2012 will be a decisive year for aircraft noise sufferers with the publication of the Government consultation on the new night flight regime expected in the spring. My hope is that the timely recommendations in this report will be heeded



Murad Qureshi AM

Chair of the Environment Committee

Summary

The rise in aircraft numbers over the last 30 years has led to growing concern amongst Londoners, about poor air quality and increasing noise levels. Noise from aircraft traffic through Heathrow was previously considered to be a fairly contained problem, affecting residents to the west of London. But in just ten years it has spread to the south east and east of London affecting residents living up to 20 kilometres away from the airport.

While current government policy is firmly against runway expansion at Heathrow, the airport continues to grow. In 2011 Heathrow handled some 476,000 flights and 69 million passengers. From around 2014 onwards it will have the capacity to handle up to 95 million passengers a year. This will clearly have implications for local residents and communities, facing the probable prospect of increased road traffic, even poorer air quality and more noise.

This report follows on from the Committee's previous publication, *Flight of Fancy: can an expanded Heathrow meet its environmental targets?*¹ It reviews progress made by Heathrow Airport Limited (HAL) to address air and noise pollution around the airport, and in the context of growing passenger numbers considers what can be done to mitigate the impact of airport operations on air quality and how any increase in noise levels could be managed.

The report proposes that in seeking to address the airport's contribution to local air pollution, HAL should focus on:

- increasing the number of greener, quieter aircraft
- ensuring on-site vehicles meet the latest EU emissions standards, and
- reducing airport related road traffic

It urges HAL to consider further incentives to encourage airline operators to remove the most polluting aircraft from their fleets more quickly, and welcomes HAL's commitment to encouraging the use of low and zero emission vehicles on the airport.

The report highlights a range of issues that will need to be tackled to improve surface access to the airport and to encourage passengers

¹ Available at <http://www.london.gov.uk/who-runs-london/the-london-assembly/publications/environment/flights-fancy-can-expanded-heathrow-meet-its-environmental-targets>

and employees to use public transport more for their journeys to and from the airport. They include:

- considering more robust measures to reduce the level of drop-off and pick-up traffic;
- ensuring dialogue between the full range of partners such as Transport for London, government agencies, and rail network providers to develop a fully integrated solution to surface access to and around Heathrow and also across London;
- expediting the upgrade of the Piccadilly line and extending current operating hours by one hour at either end of the day to encourage more passengers and employees to use the service;
- boosting bus services through increased funding to enhance existing services and ensuring existing services are used to full potential.

The report suggests that a completed Crossrail will have an important part to play in addressing potential capacity shortfalls in the public transport infrastructure and in improving air quality across London and the South East. It also stresses the importance of ensuring that projected service provision from Crossrail matches capacity needs and is appropriately linked to high-speed rail.

To improve noise management at and around Heathrow, and properly understand its effects, the report calls for:

- Government to review its approach to measuring noise levels and to bring it in line with European Union Directive on assessing and managing environmental noise, so as to properly reflect the number of people affected by aircraft noise across London;
- A consistent approach to recognising and mitigating the impacts of aircraft noise across Greater London, and for HAL to adopt a lower threshold in its noise insulation scheme comparable to EU requirements and guidelines issued by the World Health Organisation;
- A strategic approach to noise mapping so that the full impact of aircraft noise nuisance for those Londoners who live under flight paths for Heathrow and London City Airports can be assessed and appropriately mitigated;
- Government jointly with HAL to commission a full independent health assessment of the airport's operations on local communities;
- The Government consultation on the current arrangement for night flights at Heathrow, Gatwick and Stansted airports to include a comprehensive review of the evidence on the adverse health

impacts of night aircraft noise and an objective analysis of the economic value of night flights.

1 Introduction

- 1.1 The rise in aircraft numbers over the last decade has led to growing concern amongst Londoners about poor air quality and increased noise, and the effect they are having on residents' health and their quality of life. Research commissioned by the Greater London Authority (GLA) found that poor air quality contributed to an equivalent of just over 4,000 premature deaths in London in 2008.²
- 1.2 Just ten years ago noise from aircraft traffic through Heathrow was considered to be a fairly localised problem, mainly affecting residents to the west of London. Anecdotal evidence now indicates that residents are affected by aircraft noise up to 20 kilometres away in areas such as Clapham, Vauxhall, Stockwell, Camberwell, Kennington Park and Blackheath.³ Residents to the east of London are increasingly affected by the combined effects of noise from aircraft serving both Heathrow and London City Airport.
- 1.3 Plans detailed by the previous Government in 2009, to expand runway capacity at Heathrow, created more uncertainty for Londoners. The emphasis placed on applying strict environmental conditions to any proposed expansion did little to assuage public concern.

Government aviation policy position

- 1.4 Since the 2010 General Election there has been a shift in government policy away from creating more runway capacity at Heathrow. The current Government has confirmed that it is:
- Opposed to a third runway at Heathrow, and to the proposals for expansion at Gatwick and Stansted airports that were set out in the Air Transport White Paper 2003.⁴
 - Committed to retaining runway alternation and to not approving the introduction of mixed mode operations at Heathrow.⁵
 - Committed to the previous Government's decision to end the Cranford agreement.⁶

² Report on the estimation of mortality impacts of particulate air pollution in London, June 2010, Greater London Authority <http://www.london.gov.uk/air-quality/health>

³ All Change, Aircraft noise is no longer just a West London problem, HACAN, December 2010 <http://www.hacan.org.uk/resources/briefings/hacan.briefing.no.longer.wl.problem.pdf>

⁴ Government announcement made on 11 May 2010

⁵ Aviation Minister's statement to Parliament 7 September 2010

⁶ See footnote 4. The basis of the decision is to distribute noise more fairly around the airport and extend the benefits of runway alternation to communities under the flight paths during periods of easterly winds.

- 1.5 The Government is conducting a review of aviation policy and the first-stage consultation ran from March to September 2011. The Government is to publish a draft national Aviation Policy Framework for further public consultation in March 2012 and intends to formally adopt the framework by March 2013. A separate consultation on night flights is planned to run alongside the main consultation exercise. The aim of the latter consultation is to create a more effective night flying regime at Heathrow, Gatwick and Stansted, where night controls are reviewed every five years.

The Committee's previous work

- 1.6 This update report sets out the Committee's views on progress made by Heathrow Airport Limited (HAL) to address air and noise pollution around Heathrow. The report picks up on three of the five recommendations made in the Committee's previous report published in January 2010 - *Flights of Fancy: can an expanded Heathrow meet its environmental targets?*⁷ Recommendation one called for a revised noise contour benchmark and for a revised method for measuring noise levels to determine the noise contour, in line with the EU requirement for noise action plans. Recommendations two and three focused on improving air quality. Recommendation two called for clarity on how EU standards on air quality will be met around Heathrow. Recommendation three called for HAL to set out a clear strategy with targets, for lowering emission and pollution concentrations and to incorporate the targets in its Surface Access Strategy. Appendix 1 sets out the three recommendations in full.
- 1.7 This report draws on discussions with HAL representatives and other expert guests at a public session in October 2011, and a further meeting with representatives from the airport's surface access team in December 2011.⁸ It provides a timely return to the Committee's discussions on air quality and noise pollution around Heathrow airport. HAL published a revised Air Quality Strategy in December 2011 which sets out proposals for action up to 2020, and a revised Noise Action Plan in June 2011 covering the next five years. The Committee was also informed that HAL is due to implement a revised Surface Access

⁷ Available at <http://www.london.gov.uk/who-runs-london/the-london-assembly/publications/environment/flights-fancy-can-expanded-heathrow-meet-its-environmental-targets>

⁸ The public session was held on 20 October 2011; a transcript of the meeting is available at <http://www.london.gov.uk/moderngov/ieListDocuments.aspx?CIId=143&MIId=4326>. The meeting with surface access officers was held on 6 December 2011. Summary notes of the meeting are published alongside this report.

Strategy in 2014, preceded by an interim strategy that will run from spring 2012. A significant proportion of Members' discussions with expert guests focused on the impact different modes of surface access to the airport have on air quality and how these impacts might be mitigated.

- 1.8 The Committee would like to acknowledge and thank expert guests who contributed to the public discussion on 20 October 2011, and HAL representatives who provided more detailed information on surface access issues, and technical input to the air quality section of this report.

A growing Heathrow Airport – passenger numbers going up

- 1.9 Air transport movements (ATMs) at Heathrow are capped at 480,000 per year, and the airport is operating close to capacity. In 2011, Heathrow reported just over 476, 000 ATMs representing 99 per cent of the annual limit. This is a notable increase on the previous years total of 449,000 ATMs, when the airport operated at around 93 per cent capacity.⁹
- 1.10 Around 69 million passengers pass through Heathrow last year, but the airport can potentially handle up to a third more. Once the current redevelopment and construction projects are completed (by around 2014), the airport's five terminals have the capacity to accommodate between 90 and 95 million passengers a year.¹⁰
- 1.11 According to HAL, the increase to the higher levels of passengers will come about through a combination of two things – “One would be higher load factors on aircraft at Heathrow so more passengers on each plane... (the second), ...through bigger planes... (aircraft) like the A380 superjumbo were designed exactly for capacity constrained airports like Heathrow...the existing permissions at the airport and the planning permissions allow for that level of movement and potential passenger capacity.”¹¹

⁹http://www.baa.com/portal/page/BAA%20Airports%5EMedia%20centre%5ENews%20releases%5EResults/a83de96f147c4310VgnVCM10000036821c0a_____/a22889d8759a0010VgnVCM200000357e120a____/

¹⁰ Heathrow Economics Study, Expansion of Heathrow Airport, GLA Sep 2006 http://www.london.gov.uk/mayor/economic_unit/docs/heathrow-economics-study-nov06.pdf

¹¹ Matt Gorman, BAA, Page 13, Environment Committee Transcript dated 13 October 2011

1.12 The direction of expansion expected to take place at Heathrow raises two key questions for the Committee: what can be done to mitigate the effect on air quality, and how will any increase in noise levels be managed?

2 Air quality at Heathrow Airport and its environs

- 2.1 The EU sets legally binding limit values for individual pollutants that should not be exceeded. The limit values are made up of a concentration value of the pollutant, an averaging time over which it is to be measured, the number of exceedences allowed per year, if any, and a date, known as an objective, by which the limit value must be achieved.
- 2.2 The two pollutants that are of particular concern around Heathrow are Nitrogen dioxide (NO₂) and particulate matter with a diameter of ten microns (PM₁₀). Appendix 2 sets out the EU limit values for these pollutants.
- 2.3 NO₂ is one of two main pollutants that make up oxides of nitrogen emissions (NO_x) in London. The other is nitric oxide (NO). Of the two, NO₂ is of most concern due to its impact on health. NO easily converts to NO₂ in the air – so to reduce concentrations of NO₂ it is essential to control emissions of NO_x.¹²

Compliance with EU limits

- 2.4 Greater London is one of 40 air quality zones that failed to meet the 1 January 2010 deadline for complying with EU limits for NO₂. The area plan drawn up for Greater London, as part of a UK plans package to support an application for an extension, failed to demonstrate that NO₂ levels could be brought within EU limits by the extended deadline of 1 January 2015. However the plan showed that compliance could be achieved before 2025.¹³
- 2.5 Considerable reliance is being placed on the measures set out in the Mayor's Air Quality Strategy to achieve a significant reduction in NO_x emissions and NO₂ concentrations within London. But according to modelling by the GLA, even with this affirmative action, areas of inner London, and around Heathrow will continue to exceed NO₂ limit values and are at risk of doing so in 2015.¹⁴

¹² Page 14 of the Mayor's draft Air Quality Strategy, *Clearing the Air*, for more information. <http://www.london.gov.uk/publication/mayors-air-quality-strategy>

¹³ The UK plans package consisted of individual area plans for each of the forty zones and an UK overview document. The Government consulted on the package during June to August 2011. Page 7 Air Quality Plans for the achievement of EU air quality limit values for nitrogen dioxide in the UK, UK Overview document, September 2011 <http://uk-air.defra.gov.uk/library/no2ten/>

¹⁴ Page 31, Air Quality Plans for the achievement of EU air quality limit values for nitrogen dioxide in the UK, UK Overview document, September 2011 <http://uk-air.defra.gov.uk/library/no2ten/>

- 2.6 The UK also applied for, and was granted an extension to the deadline to meet the EU daily mean limit value for PM₁₀ in 2010. The terms of the extension allowed for a 50 per cent margin of tolerance on the limit values to 11 June 2011, meaning that concentrations of up to 75 $\mu\text{g}/\text{m}^3$ do not count as exceedences prior to this date. Since then the PM₁₀ limit value has reverted to 50 $\mu\text{g}/\text{m}^3$.¹⁵

Air quality monitoring at Heathrow Airport

- 2.7 HAL monitors air quality at a total of 12 monitoring sites, four within the airport boundary and eight within a 2 km distance of the airport. The sites on the airport are located near the northern runway (known as LHR2), at Harlington, Green Gates and Oaks Road. The sites around the airport are located at Colnbrook, Harmondworth, Hillingdon, Sipson, Hayes, Oxford Avenue, Cranford and Hatton Cross. Appendix 3 sets out the locations of the sites.

- 2.8 Recorded PM₁₀ concentration levels have not exceeded the EU limit value since 2003.¹⁶ However, it is not unusual for daily mean PM₁₀ levels to exceed 50 $\mu\text{g}/\text{m}^3$, (the EU limit value). Up to 35 exceedences, equivalent to 35 days per year, can occur before the limit value is breached. The limit value was met in 2011 and is expected to be met again in 2012. Appendix 3 shows the trend in PM₁₀ exceedences since 1995.

Persisting NO₂ concentration levels around Heathrow

- 2.9 High NO₂ concentration levels have persisted despite the range of measures in place to reduce NO_x emissions. Measures include NO_x emission landing charges to encourage the use of cleaner quieter aircraft, the Clean Vehicle Programme incentive scheme to encourage airport fleet operators to clean up their fleets and a range of projects aimed at shifting passenger and employee mode share towards using public transport.
- 2.10 During 2011, exceedences were recorded at three of the twelve monitoring sites: at LHR2, Oxford Avenue and Hillingdon. There has been a marked increase in concentration at the Hillingdon site in recent years, with a more gradual increase at the Green Gates site.

¹⁵ Paragraph 3.2, report to Transport for London's Safety, Health and Environment Assurance Committee, 2 August 2011. The report noted that by August 2011 a small number of sites had reached 11 or 12 of the permitted 35 exceedences of the hourly mean limit value for PM₁₀ (taking into account the margin of tolerance to June).

¹⁶ Page 4 Heathrow Air Quality Strategy 2011 – 2020. Unfavourable weather conditions produced 38 breaches at LHR2 in that year, and also at other affected sites throughout the UK.

These increases are attributed to the rise in road traffic in the area. However, the Oxford Avenue site is of particular concern; concentrations have exceeded the limit value at this site since the monitor was installed in 2005.

- 2.11 The slow pace of progress in reducing NO₂ concentration levels is cause for concern. One expert told the Committee *“there does not seem to be any clear evidence that suggests we are going to definitely get below the legal limits on a consistent basis.”* Another expert confirmed *“It is a complex position. There is no straightforward way to bring down concentrations but it is clearly an issue where measures still need to be rigorously worked on to bring about improvements in air quality.”*¹⁷
- 2.12 There are a variety of sources contributing to persistently high NO₂ concentrations around Heathrow. The extent of the contribution can vary depending on the location. Background sources can contribute from just over a third to two-thirds of total NO_x emissions at various locations locally.¹⁸ The data in Appendix 4 shows that background sources are lowest at the LHR2 site (37 per cent), and highest at the Green Gates site (67 per cent). Of the four sites shown, background sources contribute the largest proportion of NO_x emissions. The data also shows that direct airport emissions are highest at LHR2 – approximately 30 per cent of measured NO_x concentrations, whereas at Hillingdon non-airport traffic makes up a significant proportion of overall NO_x concentrations – 38 per cent.
- 2.13 However, data set out in the Government’s air quality plan referred to earlier (see paragraph 2.4), notes that the largest contributions to total NO_x were from airport aircraft – 37 per cent, 14 per cent from off-road mobile machinery – 14 per cent (and also associated with airport activities), buses – 15 per cent, and cars 12 per cent.¹⁹ Airport related traffic currently represents up to 30 per cent of all traffic on major routes around Heathrow.²⁰

¹⁷ John Stewart, HACAN and Professor Duncan Laxen, Air Quality Consultants Page 2 Environment Committee transcript dated 20 October 2011

¹⁸ Background sources include local emissions from housing, minor roads and from London and the south east. Page 22, Heathrow Air Quality Strategy 2011 – 2020.

¹⁹ See Page 23, Air Quality Plan for the achievement of EU air quality limit values for nitrogen dioxide in Greater London Urban Area, September 2011 <http://uk-air.defra.gov.uk/library/no2ten/>

²⁰ Page 2, Towards a sustainable Heathrow – a focus on air quality, HAL 2010 http://www.heathrowairport.com/static/Heathrow/Downloads/PDF/HEATHROW_AIR_QUALITY_2010.pdf

- 2.14 Regardless of the source of NO_x emissions, the fact remains that *“We are struggling to reduce NO₂ concentrations in general...A large part of the problem is related to not succeeding in reducing emissions from road traffic as we expected to. Heathrow is clearly adding a significant contribution of to the atmosphere around Heathrow which is giving rise to the exceeding we are seeing in that area.”*²¹
- 2.15 In the Committee’s view two key elements – maintaining the right focus and increasing the pace of progress – will be crucial to HAL’s next phase of work. Focus on the areas that are likely to deliver an improved level of impact, such as boosting the use of public transport will be needed and HAL will need to look for ways to lower the airport’s contribution to pollution levels more quickly. We are also pressing for more ambitious targets, which will require greater co-ordination between partner bodies such as Transport for London (TfL), the Highways Agency, and rail operators, to help accelerate improvements to air quality around Heathrow. The Committee has previously received evidence supporting the creation of a ‘Clean Air Zone’ around Heathrow but has not formed a view at this time.

²¹ Professor Duncan Laxen, Air Quality Consultants. Page 2 Environment Committee Transcript dated 20 October 2011

3 Mitigating negative air quality impacts

- 3.1 Developing a comprehensive picture of the contribution airport operations make to air pollution around Heathrow has been challenging. HAL representatives told the Committee that comprehensive data on airport traffic in use up to 2011, dated back to 2002.²² HAL's latest full emissions inventory and dispersion model which informed the revised Air Quality Strategy (AQS), covers the 12-month period from April 2008 to March 2009.²³ Since then HAL has produced annual mini-emissions inventories each year to calculate emissions from aircraft. HAL has also updated its Road Traffic model for the local area and calculated these emissions in 2011. The Committee welcomes HAL's work to improve the accuracy of its emissions inventories and the recognition in its revised AQS to do so. The strategy sets a primary objective to *"accurately quantify the contribution from airport related sources to local air quality concentrations at all relevant local receptors to ensure we focus our management activity in areas with most significant impacts"*.²⁴ Resolving any data limitations will be crucial if HAL is to properly assess where its focus should lie over the next 5-10 years.
- 3.2 HAL's programme of work going forward will need to seek to mitigate air quality and noise impacts in the context of growing passenger numbers at Heathrow, potentially to 95 million. This, plus the growing recognition that Heathrow is fast becoming a transport hub for commuters from points west of Hounslow to Heathrow and then on across London, makes it imperative that HAL gets the focus right.
- 3.3 In the Committee's view, the focus should be on:
- Increasing the number of greener, quieter aircraft,
 - Ensuring on-site vehicles meet the latest EU emissions standards, and
 - Reducing airport related road traffic.

Larger greener planes

- 3.4 Emissions from aircraft are determined by the International Civil Aviation Organisation (ICAO), which through its Committee on Aviation Environmental Protection (CAEP), sets new emissions standards for aircraft engines – including for NO_x. The CAEP standards fix emissions

²² Informal meeting with representatives from HAL's surface access team, 6 December 2011

²³ This time frame was chosen, instead of the more common calendar year to coincide with the opening of Terminal 5.

²⁴ Page 2, Executive Summary, Heathrow Air Quality Strategy 2011 – 2020 http://www.heathrowairport.com/static/Heathrow/Downloads/PDF/air-quality-strategy_summary-document_LHR.pdf

at a specific threshold and, like vehicle Euro standards the mass of emissions is higher for larger aircraft. CAEP6 is the latest standard and came into force in 2008.²⁵

- 3.5 Over time, increasing stringency in determining the standards has meant aircraft have become quieter and cleaner. For example, a Boeing 747 is a well-established long haul, wide-bodied aircraft. First flown commercially in 1970, Boeing has developed a number of variants, which incorporate technologies to improve fuel efficiency and reduce pollution emissions. The Boeing 747-400 is now the most common passenger variant using Heathrow. Older 747-400 types with pre-CAEP engines can emit almost 100kg NO_x per movement (using ICAO's idealised landing and take-off cycle), whereas the newest CAEP8 equivalent models emit 42kg per movement. HAL's NO_x-based landing charge is structured to encourage airlines to fly their newer, lower - NO_x aircraft into Heathrow. In 2011, over 90 per cent of flights were made by aircraft of CAEP4 standard or better.
- 3.6 Airlines choose aircraft based on the markets they serve, as well as other factors including environmental ones. Considerations such as short or long haul destinations, number of passengers and frequency of trips will determine the proportion of small and large aircraft in a fleet. Noise and fuel consumption are other important parameters used by airlines.
- 3.7 The number of passengers travelling per aircraft is high at Heathrow and averaged 143 passengers across all aircraft types in 2010. The new A380 'double-deck' aircraft, which many airlines are choosing as a replacement for 747s, can carry over 530 passengers (35 per cent more than the 747). This means that NO_x emissions per passenger are lower. The A380 has 17 per cent less fuel burn per passenger and around a 20 per cent reduction in NO_x emissions per passenger.

Green slots principle

- 3.8 The green slots principle was developed by the previous Government and related to introducing new capacity at Heathrow. The then Secretary of State confirmed that any additional capacity would be allocated on a 'green slot' principle, to incentivise the use of the most

²⁵ The ICAO sets standards and regulations necessary for aviation safety, security, efficiency and regularity, as well as for aviation environmental protection. The Organisation serves as the forum for cooperation in all fields of civil aviation among its 191 Member States. Committee on Aviation Environmental Protection, See <http://www.icao.int/environmental-protection/Pages/default.aspx>

modern aircraft. The principle has not been taken forward by the current Government. However, HAL has confirmed that it has used an environmental weighting in relation to its landing charge structure for many years. Most recently, in 2011, HAL raised charges for the noisiest aircraft to £4,178 (almost double on the previous year) and lowered the charge for the quietest to £418. NO_x landing charges were increased from £2.73 per kg to £5.18 per kg.

- 3.9 The Committee welcomes HAL commitment to structure landing charges to encourage the use of cleaner, quieter aircraft. We would suggest that HAL consider further how it might incentivise airlines that continue to operate pre-CAEP aircraft, to opt for more environmentally friendly aircraft. While the proportion of ATMs made with pre-CAEP aircraft is small (just under 10 per cent in 2011), it has changed very little over the last six years. We would suggest that HAL's aim to ensure that 100 per cent of aircraft are CAEP/4 standard or above by 2020 could be improved on.²⁶ We would urge HAL to work with airline operators to develop a tighter timeframe within which all aircraft below the CAEP/4 standard are removed from existing fleets.

Recommendation 1

Heathrow Airport Limited, in consultation with airline operators, should seek to implement an earlier time frame within which aircraft below CAEP/4 standard are removed from existing fleets.

Cleaning up on-site vehicle fleets

- 3.10 Emissions for airside vehicles and stationary sources increased between 2002 and 2008-9. Although this may in part be due to better data collection methods for the 2008-9 inventory, it is right that HAL focus on reducing emissions from airside vehicles and plants.²⁷ Page 36 of the strategy contains eight actions to reduce emissions from the airside fleets. HAL is due to develop further actions and publish them

²⁶ Page 4, Environment Committee Transcript, dated 20 October 2011.

²⁷ This is one of four main focal areas set out in the revised Air Quality Strategy. See page 3, Executive Summary, Heathrow Air Quality Strategy 2011 – 2020 http://www.heathrowairport.com/static/Heathrow/Downloads/PDF/air-quality-strategy_summary-document_LHR.pdf

in a Vehicle Emission Action Plan this year. Actions include HAL working with:

- Its Clean Vehicle Programme and Sustainability Partnership members to help implement actions to reduce emissions from the airside fleets, including behavioural changes and vehicle technology (e.g. electric, hybrids, biofuels and hydrogen).
- Airport companies to ensure all vehicles with an airside license are compliant with the age regulation requirements of the current vehicle OSIs.

3.11 The Committee welcomes HAL's commitment to encourage the use of low and zero emission vehicles on the airport. HAL has committed to providing an adequate and appropriate fuelling infrastructure based on a cost-benefit approach, including safeguarding land for future use.

Changing the current surface access mode share

3.12 Higher passenger numbers will undoubtedly place considerably more strain on public access links to the airport; judging by current surface access mode share data it also has the potential to significantly increase air pollution levels. Private cars and taxis remain the most popular mode of travel to and from Heathrow (61 per cent). Around 25 per cent passengers use tube/rail and 13 per cent bus/coach.²⁸

3.13 Progress on increasing public transport mode share is slow; it has increased just five percentage points over a five-year period (2003-2008), up from 35.5 per cent in 2003 to 40.4 per cent in 2008.²⁹ Since then the mode share has increased approximately one percentage point each year, and is now around 42 per cent.³⁰ The Committee acknowledges HAL's early achievement of the target set in its Surface Access Strategy (SAS), to achieve 40 per cent of passengers travelling to and from the airport by public transport by 2012. It also notes the ten percentage point reduction in the number of staff travelling to work in single – occupancy vehicles. Presently 61.4 per cent of staff (less than the 65 per cent target set), travel to work in this way. However we remain concerned by the continuing slow trend in transfer to public mode share.

²⁸ According to CAA Passenger Survey Data based on 2007 stats

²⁹ Page 26, BAA Corporate Responsibility Report 2008
<http://www.heathrowairport.com/static/Heathrow/Downloads/PDF/baa-corporate-responsibility-report-2008.pdf>

³⁰ Updated data supplied to the Committee at the informal meeting with HAL representatives from the surface access team, 6 December 2011

3.14 The Committee recognises that the slow progress may in part be due to current constraints of the public transport infrastructure, and that these will need to be addressed. But there is scope to make changes that could have a noticeable impact even within the existing limitations. We would wish to see the Committee's observations and recommendations incorporated in the revised SAS.

Reducing car use for airport-related journeys

3.15 A more generous public transport mode share could be achieved by adopting alternative approaches such as introducing charges for dropping off and picking up passengers, if it can be demonstrated that such measures have been successful and would be applicable to Heathrow. This particular approach is directly in line with a potential intervention identified in the SAS – *"to identify ways in which to reduce the current level of 'kiss and fly' traffic"*, that is, passengers who are dropped off and picked up by car.³¹ Several other airports already charge people for using drop-off zones, including Belfast, Birmingham, Cardiff, East Midlands, Edinburgh and Liverpool. The most recent addition is Bristol Airport, which introduced a £1 charge in May 2011 for stays of up to 20 minutes at the drop-off and pick-up zone next to the airport's terminal building.

3.16 We would urge HAL to adopt a more ambitious target for public transport use, in the revised SAS, than is currently set for 2015. The current target for 45 per cent of passengers to use public transport when travelling to or from the airport, is not enough of a challenge when one considers that HAL comfortably met the 2012 target for 40 per cent in 2008. A target of 60 per cent is, in the Committee's view, more plausible.

Recommendation 2

We recommend that Heathrow Airport Limited adopts a more ambitious target of 60 per cent of its passengers to travel to and from the airport using public transport and that this target is incorporated in the revised Surface Access Strategy.

³¹ Page 7, BAA Heathrow Surface Access Strategy , Sustaining the transport vision:2008 - 2012

Recommendation 3

Heathrow Airport Limited should set out options for reducing the level of drop-off and pick-up traffic in the revised Surface Access Strategy.

The limitations of public transport infrastructure

- 3.17 Capacity constraints, limitations in service provision and funding restrictions will need to be overcome if more passengers and employees are to be encouraged to use public transport.

The need for an integrated rail service

- 3.18 As things stand capacity for modal shift to rail is limited. According to HAL's SAS, Crossrail and Heathrow Airtrack developments would allow a higher mode share target for public transport to be set. Crossrail intends to deliver a high frequency, high capacity service across London and the South East. When the service opens (in 2018), Crossrail trains will travel from Maidenhead and Heathrow in the west, to Shenfield and Abbey Wood in the east. It is currently unclear what level of modal shift a completed Crossrail is likely to provide, although a one per cent increase in mode share has been suggested.³²
- 3.19 Work on Heathrow Airtrack, the proposed railway link from Heathrow terminal 5 into central London and across south west London, had the potential to provide capacity for a 3.5 per cent modal shift to public transport; this equates to approximately one million cars off the road.³³ However, there were unresolved issues regarding feasibility and funding of the project that prevented it from going forward. HAL withdrew from the project in April 2011, confirming that, *"in the absence of securing additional funding in the current economic climate, Heathrow Airport is unable to justify meeting the full cost of the project."* Heathrow subsequently announced a new rail programme, the Wider Heathrow Integrated Rail Strategy, that will seek to build on its previous investments.³⁴

³² The 'Adding Capacity at Heathrow' consultation document advises that Crossrail would bring a one per cent increase in public transport mode share

³³ Paragraph 19, Environment Committee informal meeting with Heathrow personnel to discuss surface access issues, dated 6 December 2011.

³⁴ Heathrow press release, Heathrow's vision for future rail access, 11 April 2011

- 3.20 It has become clear from our discussions with representatives of HAL's surface access team, that a wider strategic approach will only be truly successful with the involvement of a range of partners. Partners such as Transport for London, government agencies and rail network providers will be needed to provide a fully integrated solution to surface access to, and around Heathrow, and also across London.
- 3.21 One example where this is evident is the projected capacity shortfall on Great Western Main Line outer suburban and long distance services from Reading and the outer Thames Valley. There is an estimated capacity shortfall of around 5,800 people during peak time travel; Network Rail proposes that it could be met by increasing the currently proposed four trains per hour Crossrail stopping service west of Paddington during peak time, to 10 per hour.³⁵ Under the proposal, the enhanced service on Crossrail would replace the Heathrow Express service, which currently services 5.5 million passengers per year. HAL estimate that withdrawal of the non-stopping Heathrow Express service would reduce the rail mode share by three per cent. We understand that an appraisal of the economic implications of this and other changes proposed by Network Rail is yet to be undertaken. We would urge that this is done at the earliest opportunity.
- 3.22 Given the levels of investment committed to Crossrail, and its long-term significance for public transport infrastructure development, and for improving air quality across London and the South East, it is crucial to ensure that projected provision will match capacity needs. The Committee welcomes the Government's plans for developing a high-speed rail network to connect London to the Midlands and north of England; it is imperative that Crossrail is appropriately linked to any resulting high-speed railway and that the environmental impacts are minimal. We would also recommend that continuing dialogue is maintained between all interested parties; developing a forum in which the full range of transport partners is represented and able to contribute to proposed solutions could help achieve that. HAL is committed to working with partners within this context to develop integrated sustainable rail solutions. The Department for Transport would be ideally placed to develop the forum.

³⁵ Pages 8 and 9, Network Rail London and South East Route Utilisation Strategy, July 2011

<http://www.networkrail.co.uk/browse%20documents/rus%20documents/route%20Utilisation%20strategies/rus%20generation%202/london%20and%20south%20east/london%20and%20south%20east%20route%20utilisation%20strategy.pdf>

Recommendation 4

The Committee recommends that Network Rail undertake a full economic appraisal of its proposal to address peak capacity shortfall in the Thames Valley region by increasing the planned Crossrail peak stopping service from four to ten trains per hour, at the earliest opportunity.

Recommendation 5

In the interests of developing a more sustainable approach to rail transport around Heathrow airport and affected areas within the South East, we recommend that the Department for Transport develop a Heathrow forum comprising of the full range of transport partners, specifically tasked with developing integrated rail transport solutions. We would wish to see the forum in place by September 2012.

Improving tube links

- 3.23 The Committee heard that Heathrow employees and passengers could be excluded from using the Piccadilly Line because of current restrictions to the service.³⁶ Extending current operating hours by one hour at each end of the day would allow more employees on early and late shifts to use this mode of transport. Passengers may also be likely to use the service more.
- 3.24 It is yet to be announced when the planned upgrades to the Piccadilly Line will take place. During the Committee's public session in October, a TfL officer confirmed that they are *"likely to be the first of the next generation of upgrades"*, but was unable to confirm when the upgrades might happen.³⁷ The Committee would urge the Government and TfL to prioritise this work as a matter of urgency, and would welcome some clarity on the timetable for completion of the work.

³⁶ Paragraph 24, Environment Committee informal meeting with Heathrow personnel to discuss surface access issues, dated 6 December 2011.

³⁷ Lucinda Turner, Transport for London; Page 20, Environment Committee transcript 20 October 2011

Making the most of bus services

- 3.25 Bus services could play a more significant role in achieving modal shift to public transport, but routes serving the airport are limited. Only 13 of the 31 bus services that serve Heathrow provide an early morning service to arrive at the airport by 4.00am, the start of the working shift for some employees.³⁸
- 3.26 There are two ways to boost bus services to Heathrow: increase funding to enhance existing services and ensure existing services are used to full potential.³⁹
- 3.27 It is likely that the funding provision to help address limitations to bus services will need to be reserved for medium to long term planning. TfL has confirmed that they do not have the funding to enhance existing services.⁴⁰ However, it is clear from our discussions with HAL, TfL and other stakeholders that noticeable improvements can be made in the short-term by addressing two closely related issues:
- Increasing dialogue between TfL and HAL to develop an approach to maximising available capacity through a range of behavioural measures and incentives; and,
 - Improving availability of information and increasing awareness about available services to encourage greater use
- 3.28 One practical example would be to incentivise HAL employees and those of its partners' employees at the airport who work shift patterns, to use underutilised services to the airport, such as the 285 and N9 bus routes. This will in turn make services more economically viable routes to run. Developing a product to provide discounted public transport would undoubtedly help. The Committee heard that the number of staff using the Heathrow Connect service each month tripled, jumping from 500 to 1,700, following the introduction of a 75 per cent staff discount.⁴¹

³⁸ Paragraph 9, Environment Committee informal meeting with Heathrow personnel to discuss surface access issues, dated 6 December 2011.

³⁹ Page 17, Environment Committee transcript 20 October 2011. Transport for London confirmed that bus services 285 and N9, which serve the airport are not used to capacity.

⁴⁰ Page 18, Environment Committee transcript 20 October 2011, Transport for London confirmed that they do not have the funding to enhance the orbital express service X26.

⁴¹ Paragraph 8, Environment Committee informal meeting with Heathrow personnel to discuss surface access issues, dated 6 December 2011.

3.29 Consideration will also need to be given to the size of the buses that are offered on individual routes, if passengers are also to be encouraged to use the services. HAL confirmed that while the 285 service from Staines now runs more frequently, the buses in use remain small (to some extent due to the nature of the route). In HAL's view, extra luggage space on the service would help. Such input from HAL would be useful during the procurement phase of buses used in routes serving the airport.

Recommendation 6

We recommend that Transport for London and Heathrow Airport Limited work together to establish a communications plan to increase awareness of available bus and coach services and to develop a range of behavioural measures and incentives to encourage more airport workers and passengers to use existing services, with a view to incorporating them in the revised Surface Access Strategy.

Recommendation 7

We recommend that Transport for London involve Heathrow Airport Limited, in the procurement process for buses used in routes serving the airport, by seeking their views on the appropriateness of the size and design of the vehicles.

4 Managing noise pollution

- 4.1 Airport noise remains a big area of concern for residents and communities around Heathrow, despite the fact that aircraft have become progressively quieter over the last 30 years. Arrivals and departures have increased considerably during that time, with annual ATMs rising from around 273,000 in 1980 to just over 476,000 in 2011. HAL statistics show a reduction in the number of people living within the airport's noise contour (as measured by the UK Government method), from two million to around 253,000. But when the European method is applied, an estimated 725,500 people remain affected.⁴²
- 4.2 For the Committee the key tension that needs to be addressed is the inconsistency in the methods used at national and European levels to determine noise contours. An accurate reflection of the number of people affected by significant levels of aircraft noise is crucial to enabling HAL to properly assess what mitigation and compensation measures are needed.

Responsibility for noise policy at Heathrow

- 4.3 The Department for Transport (DfT) has direct control over noise policy at Heathrow, and over the years, has established a range of operational controls and statutory objectives to manage and where possible reduce noise. HAL has for a number of years operated within the parameters of a noise management strategy influenced by the approach set by the DfT.
- 4.4 The Environmental Noise (England) Regulations 2006 require airport operators to develop action plans to manage the range of noise effects and issues that can arise from aircraft traffic.⁴³ These regulations implement the European Union Directive 2002/49/EC relating to the assessment and management of environmental noise from transport and industry. In June 2011, HAL published its action plan to manage aircraft noise impacts over a five-year period from 2010 to 2015.⁴⁴

⁴² Page 22, Heathrow Airport Environmental Noise Directive Noise Action Plan 2010-2015

http://noise.heathrowairport.com/assets/Internet/Heathrow_noise/Assets/Downloads/Statics/NAP_main.pdf

⁴³ A full copy of the regulations can be found at

<http://www.legislation.gov.uk/uksi/2006/2238/contents/made>

⁴⁴ Heathrow Airport Environmental Noise Directive Noise Action Plan 2010-2-15

http://noise.heathrowairport.com/assets/Internet/Heathrow_noise/Assets/Downloads/Statics/NAP_main.pdf

How noise levels are measured

- 4.5 A noise contour is a boundary drawn on a map to represent equal levels of noise exposure over a particular time period. Noise contours are used to inform Government policy and airport development planning decisions.
- 4.6 UK daytime aircraft noise is measured using the method LAeq, defined as equivalent continuous noise level. Individual plane noise is recorded in decibels (dB) and effectively averaged over 16 hours, between 7am and 11pm to arrive at a single daily figure, which is averaged out over the year. Using the LAeq method the UK Government suggests that communities become significantly annoyed by aircraft noise above 57dB LAeq.
- 4.7 As highlighted in the Committee's previous report, the main drawback to the LAeq method is that it is based on averages.⁴⁵ This means that it includes quiet periods when there are few planes, and excludes night time flights and the busiest period of the day when both runways at Heathrow are used for landing (6 to 7am). The use of averages also means that the recorded number of people affected by aircraft noise is substantially lower than anecdotal evidence suggests, and the alternative method for measuring noise levels – dB Lden indicates.
- 4.8 Under the European Directive airports are required to use the dB Lden method to develop the noise contours that inform their noise action plans. This approach takes the combined effect of noise levels during the day, evening and night and averages them over a 24-hour period. But crucially, it weights the evening and night noise levels by adding 5dB and 10dB respectively to reflect the greater nuisance of noise at those times.

Communities affected by aircraft noise

- 4.9 The Committee's discussions focused on the impacts of aircraft noise and the adequacy of existing mitigation and compensation schemes. The issues were considered from three perspectives: residents and communities within the two recognised noise contours – 57dB LAeq noise contour (within 127 km²) and 55dB Lden contour (within 244.7km²), and residents and communities who are clearly affected by aircraft noise, but do not fall within a recognised contour.

⁴⁵ Published January 2010, available at <http://www.london.gov.uk/who-runs-london/the-london-assembly/publications/environment/flights-fancy-can-expanded-heathrow-meet-its-environmental-targets>

The impact beyond west London

- 4.10 When the 55dB Lden threshold is applied, almost three times the number of people are affected by aircraft noise at Heathrow than if the Government-approved 57dB LAeq is used. *“The geographical difference is that the 57 Leq contour stops roundabout Barnes. The 55 Lden contour takes you to somewhere between Vauxhall and the Oval, so there is a significant difference.”*⁴⁶ Research commissioned by HACAN concludes over two and half million people would be affected in areas extending to the south east and north of London, and beyond Maidenhead to the West, if a 50 dB Lden threshold were applied.⁴⁷
- 4.11 The 50-55dbLden threshold range for triggering annoyance is in line with previously published research. The government-commissioned independent study published in 2007 recognised the shortcomings of the LAeq method.⁴⁸ Research by the World Health Organisation (WHO) indicated that the 57dB LAeq was outdated, noting that the thresholds of 50dB (for moderate annoyance) and 55dB (for serious annoyance) better reflected individuals’ experiences.⁴⁹
- 4.12 The Committee heard that applying the Lden contour also takes account of a problem that has emerged in recent years. Over time *“the joining point for aircraft has moved further east, which means that planes which used to join roundabout Barnes or Putney are now beginning to join their approach path (to Heathrow) further east: Vauxhall, Oval, Camberwell and there is a whole box there where planes are crisscrossing and joining and that is why this 55 Lden contour is showing little difference and it is also why the 57 Leq, because this joining point has moved, is now completely out of date.”*⁵⁰
- 4.13 In light of the growing recognition of the need to review the 57dB LAeq method of measuring noise, Government must take the opportunity to review the approach to measuring noise levels, and bring it in line with EU requirements.

⁴⁶ Environment Committee transcript dated 20 October 2011

⁴⁷ HACAN campaigns on aircraft noise impacts on behalf of residents in London and the South East. HACAN commissioned the research Aircraft Noise and London Heathrow Flight Paths, February 2007, Bureau Veritas, Acoustics and Vibration Group. Available at <http://www.hacan.org.uk/resources/reports/st06145.text.final.pdf>

⁴⁸ Attitudes to Noise from Aviation Sources in England, November 2007: <http://webarchive.nationalarchives.gov.uk/+http://www.dft.gov.uk/pgr/aviation/environmentalissues/Anase/>

⁴⁹ Guidelines for community noise, World Health Organisation 1999 <http://www.who.int/docstore/peh/noise/guidelines2.html>

⁵⁰ John Stewart, Chair HACAN Clearskies. Page 25 Environment Committee transcript dated 20 October 2011

Recommendation 8

We recommend that Government adopt the 55dB Lden threshold that airport operators are required to apply when developing noise action plans to manage the impacts of aircraft noise, and as set out in the Environmental Noise (England) Regulations 2006, to develop noise contours used to inform national policy and future airport development planning decisions.

A strategic approach to noise mapping

- 4.14 In recent years, residents in areas in east London, such as the Docklands, have begun to experience combined increased levels of noise from aircraft serving London City Airport and Heathrow. Yet the noise contours for both airports are drawn up separately. We understand that this situation may possibly apply to parts of south east London, such as Lewisham. We were told *“That is clearly not how people hear noise...for those areas where you get a significant number of both Heathrow and City aircraft there has to be joint contours, otherwise it completely underestimates the actual noise that people are hearing in the area.”*⁵¹ The Committee agrees with these conclusions and would urge the Department for Transport in conjunction with the Civil Aviation Authority to consider the scope for developing joint contours or other indicators, such as flight path density plots, or noise event-based measures, for those areas of London where residents and communities are affected by the joint impact of noise from aircraft flying to and from Heathrow and London City Airports.

Migration and compensation

- 4.15 HAL operates a number of noise insulation schemes, including a Community Buildings Noise Insulation Scheme (CBNIS), a Residential Day Noise Insulation Scheme and since 2007 a Night Noise Insulation Scheme. Noise sensitive community buildings eligible under the CBNIS include hospitals, schools, libraries and community halls; they can receive window replacement, mechanical ventilation or other forms of noise insulation provision. The day noise scheme provides acoustic insulation to residential buildings in the community, including free secondary glazing or half-price double-glazing plus loft insulation to

⁵¹ John Stewart, Chair HACAN Clearskies. Page 27 Environment Committee transcript dated 20 October 2011

external windows and doors. The night scheme provides noise insulation to bedrooms or bed-sitting areas.⁵²

- 4.16 The Committee welcomes HAL's commitment to base the new mitigation schemes on Lden noise contours, but is disappointed at the high threshold that has been set to qualify for noise insulation. The proposed 63dB Lden threshold is significantly higher than 55db Lden, the recognised level at which serious annoyance is triggered, and can only be considered a small step in the right direction. Other stakeholders share this disappointment; Hounslow told us that while they recognise *"the proposed scheme is more generous than the current one (they) believe the boundary is not wide enough to fully redress/ mitigate/ compensate the effects of aircraft noise upon the local community."*⁵³
- 4.17 The inconsistency in the thresholds applied across London is of particular concern to the Committee. The noise mitigation scheme at London City Airport is currently based on the 57dB LAeq contour, while at Heathrow it is 69dB LAeq. Heathrow's proposed changes will narrow the gap between the respective thresholds, but in the Committee's view, HAL should go further and seek to ensure that its noise insulation scheme provides a comparable level of mitigation. At Heathrow the 57 LAeq contour would equate to the 59dB Lden contour at any given point around the airport.⁵⁴
- 4.18 The Committee recognises that qualifying thresholds can vary considerably. A recently published comparative study of airport noise insulation grant schemes, highlights the wide variance in the thresholds identified by airports world-wide, at which residents can qualify for noise insulation.⁵⁵ However the Committee believes there is scope to develop a consistent approach to recognising and mitigating the impacts of aircraft noise across London. In the first instance we would urge HAL to apply a 59dB Lden threshold in its revised mitigation scheme. Over time HAL may look to developing a tighter

⁵² See pages 18 – 19 Heathrow Airport Environmental Noise Directive Noise Action Plan 2010 – 2015, for more information about the schemes
http://noise.heathrowairport.com/assets/Internet/Heathrow_noise/Assets/Downloads/Statics/NAP_main.pdf

⁵³ Cllr Corinna Smart, Lead Member for Environment, London Borough of Hounslow; Environment Committee transcript dated 20 October 2011

⁵⁴ Local Authorities' Aircraft Noise Council consultation response to Heathrow's review of its noise mitigation schemes, August 2011 available at www.laanc.org.uk

⁵⁵ Page 9, Comparison of Airport Noise Insulation Grant Schemes – An Update, by Bureau Veritas on behalf of London Borough of Hounslow, June 2011

contour area in line with EU Noise Directive requirements. An approach that would no doubt be welcomed by local communities.

- 4.19 Recognising developing inter-relationships between Heathrow and London City Airports, such as the overlapping of flight paths, and differences in approaches to mitigation and compensation, the Committee considers that there would be merit in enhancing arrangements for inter-airport liaison. Both airports have Consultative Committees which provide opportunities for monitoring issues and exchanging views between interested parties, including local authorities, stakeholders and the airport operator. Government guidelines for Airport Consultative Committees strongly encourage interaction between them. Periodic joint meetings of the Heathrow and London City Airport Consultative Committees could be trialled, on an annual or bi-annual basis.

Assessing the health impacts

- 4.20 The link between noise and health is becoming increasingly clear – ranging from mild annoyance at the lower end of the spectrum to added stress and serious manifest disorder at the higher end of the spectrum, for example, hypertension.⁵⁶
- 4.21 An Assessment of the health impacts of the airport's operations is crucial. It is not clear whether an independent health impact assessment has been undertaken to inform the revised trigger point of 63dB Lden; the Committee has previously called on Government to commission a full and independent health impact assessment on the affect of airport's operations on local communities, but this has not been taken up. We reiterate our call for an independent assessment to be undertaken and would urge that it is carried out at the earliest opportunity. Given HAL's proposed amendment to its noise mitigations schemes, HAL should also be involved in commissioning the assessment.

⁵⁶ Page 62, Good practice guide on noise exposure and potential health effects, European Environment Agency, November 2010
<http://www.eea.europa.eu/publications/good-practice-guide-on-noise>

Recommendation 9

In the interests of maintaining a consistent approach to noise insulation mitigation schemes across London's airports, we recommend that Heathrow Airport Limited set a 59dB Lden threshold at which local residents and communities can qualify for noise insulation in its revised scheme.

Recommendation 10

We recommend that Heathrow Airport Consultative Committee, and London City Airport Consultative Committee trial periodic joint meetings, annually or bi-annually, to consider matters of common concern.

Recommendation 11

We recommend that the Government jointly with Heathrow Airport Limited should commission a full independent health assessment of the impact of the airport's operations on local communities.

Runway use

Runway alternation

- 4.22 Runway alternation, introduced in the 1970s provides periods of relief from the noise of landing aircraft for communities under the final approach to the east of the airport. The pattern of alternation has been modified several times and in 1999 was extended to cover the night period. Under the current daytime pattern landing aircraft use one runway from 6 am to 3pm, at which point the runway arrangements change and the other runway is used by landing aircraft from 3pm until after the last departure, following which night-time rotation occurs.
- 4.23 The four-month trial introduced by HAL last year, effectively removed the benefit of a half-day's respite from aircraft noise for local residents. The trial ran from November 2011 to February 2012, and tested mixed use of the airport's runways to see whether it would help to reduce late-running flights and delays to flight services, and to

aircraft stacking times.⁵⁷ Many residents' quality of life appears to have suffered as a result of the operational change. There were 480 complaints in the first month of the trial, compared with 75 during November 2010.⁵⁸ The London borough of Wandsworth received over 100 complaints from residents in Putney and Battersea.⁵⁹ However, it would be worth noting that data published during November and December 2011 shows that the trial had not resulted in any appreciable change in the proportion of out-of-alternation arrivals compared with comparable pre-trial periods.⁶⁰

- 4.24 Runway alternation is a valuable way of providing relief from aircraft noise to residents in West London. The Committee would not wish to see HAL introduce an operational change that would deny residents such relief or that is likely to have a detrimental impact on their health. The Committee also heard that with the expansion of aircraft noise impacts further east to areas such as Clapham and Brixton (see paragraph 4.12), there is scope for HAL to consider runway alternation to provide relief for residents beyond west London.

Night time flights

- 4.25 The current arrangement for night time flights was introduced in 2006 and is due to end in October 2012. The Government will consult on new proposals for managing night time flights this spring. The timing for the consultation ties in with the Government's aviation policy review programme and anticipated publication of its aviation policy in 2013. It is likely that any revision to restrictions on night flights will take effect then.
- 4.26 Under the current regime, the night period runs from 11pm to 7am. During this time the noisiest types of aircraft cannot be scheduled to land or take-off. From 11.30pm to 6am, known as the 'night quota period', aircraft movements are restricted by movement limits and noise quotas. Quota-controlled night flights at Heathrow are limited to 15 or 16 long haul arrivals from the United States and the Far East, usually arriving after 4am.

⁵⁷ Press release 4 October 2011, *Mixed-use runway trial will cause even more disruption*

⁵⁸ <http://www.bbc.co.uk/news/uk-england-london-17006619>

⁵⁹ London Evening Standard article, date 22 December 2011.

⁶⁰ See <http://heathrowtrial.com>

Impacts of night flights

- 4.27 Historically, night flights at Heathrow have been justified on the basis of the alleged benefits they bring to the London and national economies. But many local authorities and residents groups across London, the Mayor and Assembly have previously supported a night aircraft ban. The UK Government defended its position to support night flights against legal action brought by campaigners at the European Court of Human Rights at the turn of the decade.⁶¹
- 4.28 A report published in January 2011, commissioned by HACAN from Dutch economists CE Delft, found that a night flight ban before 6am could benefit the national economy by as much as £860 million over a ten-year period.⁶² We heard from HAL representatives that while they continue to gather evidence on both the benefits of night flights and what is possible in terms of reducing their impact, as part of their response to the Government's review, they are "clearly interested to see the CE Delft report", and recognise it as "an important contribution to the debate."⁶³
- 4.29 A literature review of the effect of night time flights on health published in September 2011 indicated that "nocturnal aircraft noise exposure is potentially associated with considerable public health impact for residents living near major airports.", noting that "Evidence for an effect of nocturnal aircraft noise exposure on human health has strengthened over the past decade and there is good and robust evidence for an effect of nocturnal aircraft noise exposure on hypertension, sleep disturbance, and noise annoyance."⁶⁴

Reducing the impact of night flights

- 4.30 It is important that the forthcoming Government consultation includes a comprehensive review of the latest evidence on the adverse health impacts of night aircraft noise. This should include evidence of productivity losses associated with disturbed sleep, to set alongside an objective analysis of the economic value of such flights.

⁶¹ Hatton and Others v UK Government, no. 36022/97, 2/10/01 and 8/7/03. See <http://www.echr.coe.int/>

⁶² Ban on night flights at Heathrow Airport, A quick scan Social Cost Benefit Analysis <http://www.hacan.org.uk/resources/reports.php?id=273>

⁶³ Page 31 Environment Committee transcript dated 20 October 2011

⁶⁴ Page vii, The Effect of Nocturnal Aircraft Noise on Health: a review of recent evidence, Barts & the London School of Medicine, Queen Mary, University of London: report commissioned by the London Borough of Hounslow, September 2011.

- 4.31 The consultation should also take full account of the publication of the WHO Night Noise Guidelines for Europe in 2009.⁶⁵ For as long as any night flights continue, for example, during a phase-out period, consideration should be given to modifying the current night rotation scheme to change runway use/direction nightly, rather than on a weekly cycle, so that, if people's sleep is disturbed on one night, they may have a greater chance of catching up on the following night.

Recommendation 12

The Government consultation on the current arrangement for night flights at the Heathrow, Gatwick and Stansted airports, should include a comprehensive review of the latest evidence on the adverse health impacts of night aircraft noise, including any evidence on productivity losses associated with disturbed sleep. The review should be set alongside an objective analysis of the economic value of such flights.

⁶⁵ A copy can be downloaded at <http://www.euro.who.int/en/what-we-do/health-topics/environment-and-health/noise/publications/2009/night-noise-guidelines-for-europe>

5 Concluding comments

- 5.1 When the Committee carried out its initial investigation back in 2009, the setting was very different. The considerations of the impact of Heathrow's operations on air quality and noise were made in the context of the imminent expansion from a two to three runway airport. Our focus was on ensuring the stringent environmental conditions attached to expansion were fit for purpose, practical and achievable. It was clear then that urgent action would be needed to address air pollution levels and particularly, to reduce the high levels of NO_x emissions and resulting NO₂ concentrations. It was also clear that aircraft noise was a rapidly growing problem that would need to be managed and where possible, reduced.
- 5.2 The prospect of expansion at Heathrow remains very real, but this time in the context of increasing passenger numbers and the likely impact that could have locally. The key considerations for the Committee in this update review were to understand:
- What could be done to mitigate the effect on air quality, and
 - How any increase in noise levels could be managed

Air quality

- 5.3 A variety of sources contribute to persistently high NO_x emissions. The slower than anticipated progress in reducing emissions from road traffic is a notable aspect of pollution levels in the area. But we heard that operations at Heathrow are clearly adding to the overall problem.
- 5.4 HAL's next phase of work to improve air quality at and around the airport will need to focus on the right things and make greater impact quicker. We identified three areas for strategic intervention that could deliver the impact needed – introducing cleaner aircraft, cleaning up the airport's on-site vehicle fleets and reducing surface traffic. In some cases HAL will need to be more ambitious, for example implementing much tighter timeframes for ensuring a 100 per cent compliance with the CAEP/4 standard for aircraft and increasing passenger public transport mode share to 60 per cent by 2015 as opposed to a complacent 45 per cent. Other cases will require a more robust approach, such as measures to reduce the level of traffic for dropping off and picking up passengers.
- 5.5 Improvements to public transport, in the short and longer term will be key, as will increased dialogue and co-ordination between partner bodies including central Government and government agencies, Transport for London and rail operators, to develop an integrated solution to surface access.

Noise

- 5.6 The key tension to be addressed is the inconsistency in how noise is measured at national and European levels. Addressing this inconsistency will help to bring clarity for airport operators and the many Londoners affected by aircraft noise. The growth in the number of people affected by aircraft noise over the last 30 years calls for a strategic approach to mapping and mitigating its impact: an approach that will be appreciated particularly by Londoners coping with the combined effects of aircraft serving both Heathrow and London City Airport.
- 5.7 A full independent health impact assessment to identify the true effects of air and noise pollution on local residents and communities will be vital to ensuring the right focus for managing and mitigating their impacts. HAL's revised Surface Access Strategy presents a prime opportunity to address surface access challenges around the airport and make a notable contribution to the reduction in NO_x emission and NO₂ concentration levels.

Appendix 1 'Flights of Fancy' report recommendations

Recommendation 1

The method for measuring noise levels should be brought into line with the requirement for noise action plans and WHO guidelines, and in light of that the noise contour benchmark set out in the Government's Aviation White Paper 2003, should be revised along the lines set out in the 2007 "Attitudes to Noise from Aviation Sources in England" independent study. The base year of 2002 should also be revised to a more recent year in order to avoid the distorting effect of Concorde on the setting of noise limits.

Recommendation 2

There is a need for clarity on how European standards on air quality will be met around Heathrow. Before any expansion can even be considered, the Government and BAA must set out a joint plan of action with a clear and decisive strategy for improving air pollution levels around Heathrow, detailing what measures are needed, who will lead on them and the timescales for completion.

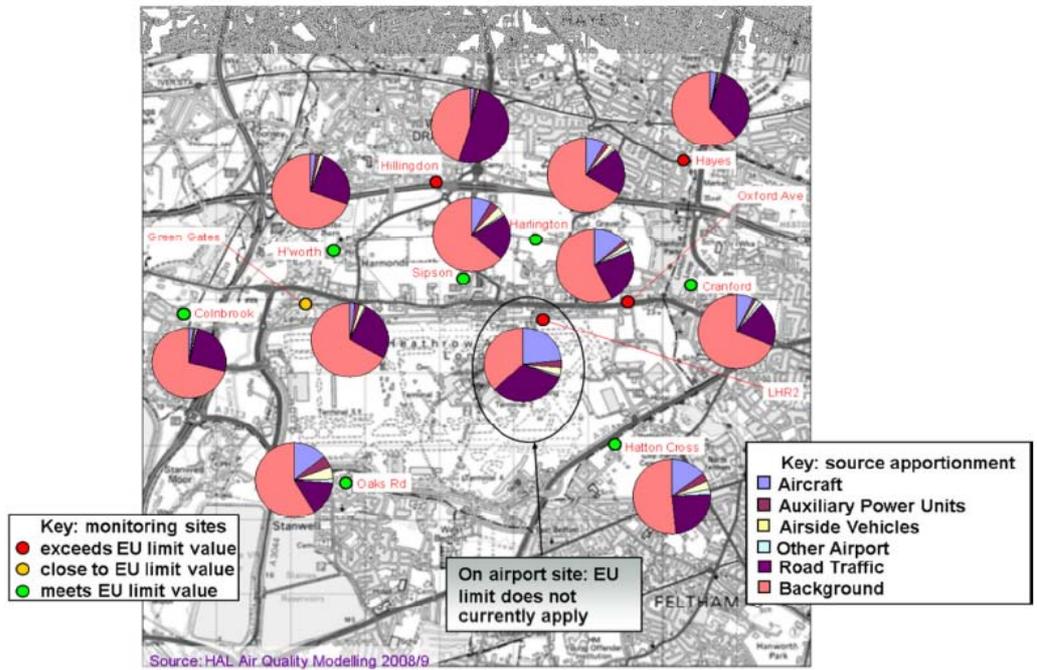
Recommendation 3

BAA should set out a clear strategy for lowering emission and pollution concentrations to improve air quality around Heathrow, setting targets where appropriate. BAA's surface access strategy should be amended to include detailed projections for how these new targets should be met, and detailed information on what contribution new technology will make to lowering nitrous oxide emissions and nitrogen dioxide concentrations should be included. BAA should seek to incorporate in its strategy, more innovative mitigation measures and approaches to reducing emissions, in line with the special measures outlined in the Mayor's draft Air Quality Strategy, to improve air quality in the short, medium and longer term.

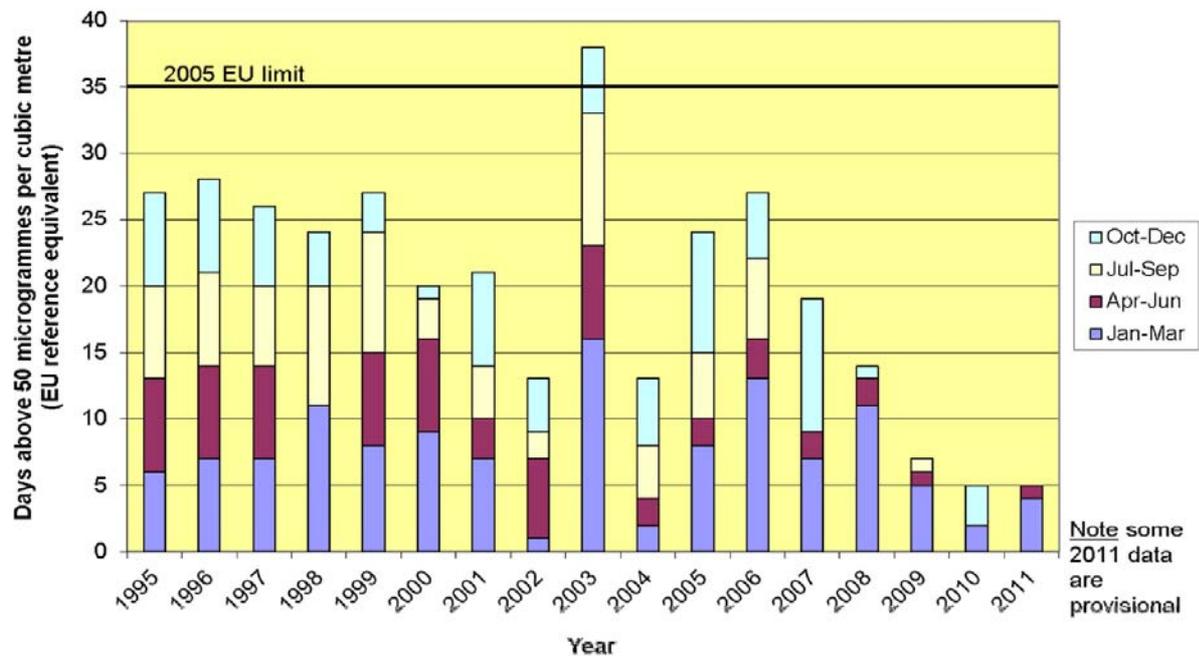
Appendix 2 EU Limit values NO₂ and PM₁₀

Pollutant	Standard	Criteria	Date to be achieved by and maintained thereafter
Nitrogen dioxide (NO₂)	Hourly limit value for the protection of human health	1 hour mean of 200ug/m ³ not to be exceeded more than 18 times a calendar year	1 Jan 2010
	Annual limit value for the protection of human health	Calendar year mean of 40 ug/m ³	1 Jan 2010
Particulate matter less than 10 microns (PM₁₀)	24-Hour limit value for the protection of human health	24-hour mean of 50ug/m ³ not to be exceeded more than 35 times a calendar year	1 Jan 2015
	Annual limit value for the protection of human health	Calendar year mean of 40ug/m ³	1 Jan 2005
Particulate matter less than 2.5 microns (PM_{2.5})	Annual limit value for the protection of human health	Calendar year mean of 25ug/m ³	1 Jan 2015
	Annual indicative limit value for the protection of human health	Calendar year mean of 20ug/m ³	1 Jan 2020
	Population exposure concentration obligation	Calendar year mean of 20ug/m ³	1 Jan 2015
	Population exposure reduction target at urban background sites relative to the national average	10 – 20 per cent reduction	2020
Nitrogen oxides (No_x)	Annual limit value for the protection of vegetation	Calendar year mean of 30ug/m ³	19 July 2001

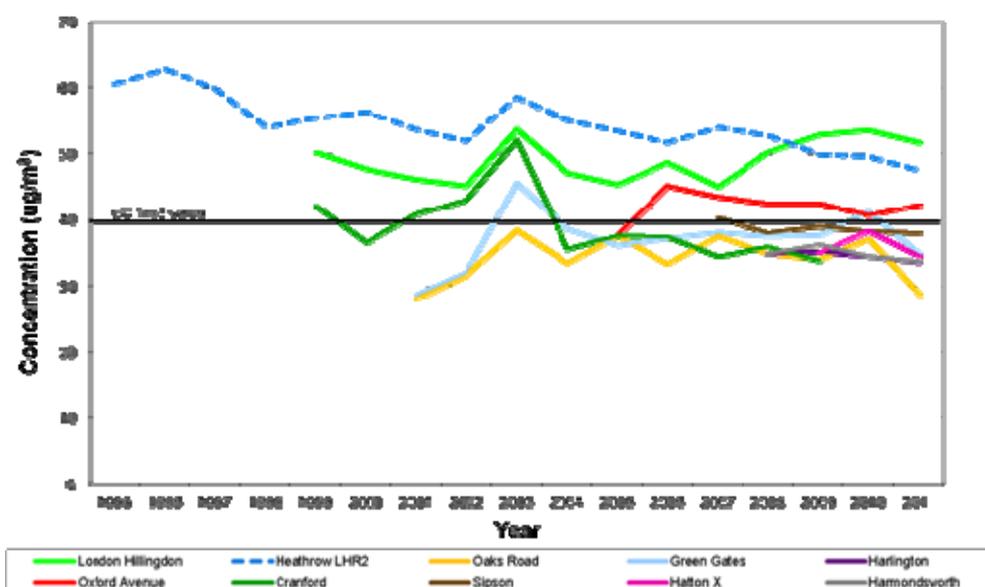
Appendix 3 Air quality monitoring sites around Heathrow



PM10 at LHR2 – Comparison with the 2005 EU limit value (number of days above 50 µg/m³)



Appendix 4 NO₂ annual average concentrations up to 2011



Note: The graph shows provisional annual average concentrations measured at selected sites around Heathrow Airport

Percentage NO_x emissions by source at selected sites around Heathrow 2011

	Direct airport	Airport-related road traffic	Non-airport traffic	Background sources	NO _x Conc. trend
Oxford Avenue	19	6	18	57	↑
Green Gates	7	5	21	67	↓
London Hillingdon	4	13	38	45	↓
LHR2	30	19	14	37	↓

Source: Heathrow Airport Limited (provisional data)

Appendix 5 Report recommendations

Recommendation 1

Heathrow Airport Limited, in consultation with airline operators, should seek to implement an earlier time frame within which aircraft below CAEP/4 standard are removed from existing fleets.

Recommendation 2

We recommend that Heathrow Airport Limited adopts a more ambitious target of 60 per cent of its passengers to travel to and from the airport using public transport and that this target is incorporated in the revised Surface Access Strategy.

Recommendation 3

Heathrow Airport Limited should set out options for reducing the level of drop-off and pick-up traffic in the revised Surface Access Strategy.

Recommendation 4

The Committee recommends that Network Rail undertake a full economic appraisal of its proposal to address peak capacity shortfall in the Thames Valley region by increasing the planned Crossrail peak stopping service from four to ten trains per hour, at the earliest opportunity.

Recommendation 5

In the interests of developing a more sustainable approach to rail transport around Heathrow airport and affected areas within the South East, we recommend that the Department for Transport develop a Heathrow forum comprising of the full range of transport partners, specifically tasked with developing integrated rail transport solutions. We would wish to see the forum in place by September 2012.

Recommendation 6

We recommend that Transport for London and Heathrow Airport Limited work together to establish a communications plan to increase awareness of available bus and coach services and to develop a range of behavioural measures and incentives to encourage more airport workers and passengers to use existing services, with a view to incorporating them in the revised Surface Access Strategy.

Recommendation 7

We recommend that Transport for London involve Heathrow Airport Limited, in the procurement process for buses used in routes serving the airport, by seeking their views on the appropriateness of the size and design of the vehicles.

Recommendation 8

We recommend that Government adopt the 55dB Lden threshold that airport operators are required to apply when developing noise action plans to manage the impacts of aircraft noise, and as set out in the Environmental Noise (England) Regulations 2006, to develop noise contours used to inform national policy and future airport development planning decisions.

Recommendation 9

In the interests of maintaining a consistent approach to noise insulation mitigation schemes across London's airports, we recommend that Heathrow Airport Limited set a 59dB Lden threshold at which local residents and communities can qualify for noise insulation in its revised scheme.

Recommendation 10

We recommend that Heathrow Airport Consultative Committee, and London City Airport Consultative Committee trial periodic joint meetings, annually or bi-annually, to consider matters of common concern.

Recommendation 11

We recommend that the Government jointly with Heathrow Airport Limited should commission a full independent health assessment of the impact of the airport's operations on local communities.

Recommendation 12

The Government consultation on the current arrangement for night flights at the Heathrow, Gatwick and Stansted airports, should include a comprehensive review of the latest evidence on the adverse health impacts of night aircraft noise, including any evidence on productivity losses associated with disturbed sleep. The review should be set alongside an objective analysis of the economic value of such flights.

Appendix 6 Orders and translations

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Vietnamese

Nếu ông (bà) muốn nội dung văn bản này được dịch sang tiếng Việt, xin vui lòng liên hệ với chúng tôi bằng điện thoại, thư hoặc thư điện tử theo địa chỉ ở trên.

Greek

Εάν επιθυμείτε περίληψη αυτού του κειμένου στην γλώσσα σας, παρακαλώ καλέστε τον αριθμό ή επικοινωνήστε μαζί μας στην ανωτέρω ταχυδρομική ή την ηλεκτρονική διεύθυνση.

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Punjabi

ਜੇ ਤੁਸੀਂ ਇਸ ਦਸਤਾਵੇਜ਼ ਦਾ ਸੰਖੇਪ ਆਪਣੀ ਭਾਸ਼ਾ ਵਿਚ ਲੈਣਾ ਚਾਹੋ, ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਇਸ ਨੰਬਰ 'ਤੇ ਫ਼ੋਨ ਕਰੋ ਜਾਂ ਉਪਰ ਦਿੱਤੇ ਡਾਕ ਜਾਂ ਈਮੇਲ ਪਤੇ 'ਤੇ ਸਾਨੂੰ ਸੰਪਰਕ ਕਰੋ।

Hindi

यदि आपको इस दस्तावेज का सारांश अपनी भाषा में चाहिए तो उपर दिये हुए नंबर पर फोन करें या उपर दिये गये डाक पते या ई मेल पते पर हम से संपर्क करें।

Bengali

আপনি যদি এই দলিলের একটা সারাংশ নিজের ভাষায় পেতে চান, তাহলে দয়া করে ফোন করবেন অথবা উল্লেখিত ডাক ঠিকানায় বা ই-মেইল ঠিকানায় আমাদের সাথে যোগাযোগ করবেন।

Urdu

اگر آپ کو اس دستاویز کا خلاصہ اپنی زبان میں درکار ہو تو، براہ کرم نمبر پر فون کریں یا منکورہ بالا ڈاک کے پتے یا ای میل پتے پر ہم سے رابطہ کریں۔

Arabic

الحصول على ملخص لهذا المستند بلغتك،
فرجاء الاتصال برقم الهاتف أو الاتصال على
العنوان البريدي العادي أو عنوان البريد
الإلكتروني أعلاه.

Gujarati

જો તમારે આ દસ્તાવેજનો સાર તમારી ભાષામાં જાણીતો હોય તો ઉપર આપેલ નંબર પર ફોન કરો અથવા ઉપર આપેલ ટપાલ અથવા ઇ-મેઇલ સરનામા પર અમારો સંપર્ક કરો.

Appendix 7 Principles of scrutiny page

An aim for action

An Assembly scrutiny is not an end in itself. It aims for action to achieve improvement.

Independence

An Assembly scrutiny is conducted with objectivity; nothing should be done that could impair the independence of the process.

Holding the Mayor to account

The Assembly rigorously examines all aspects of the Mayor's strategies.

Inclusiveness

An Assembly scrutiny consults widely, having regard to issues of timeliness and cost.

Constructiveness

The Assembly conducts its scrutinies and investigations in a positive manner, recognising the need to work with stakeholders and the Mayor to achieve improvement.

Value for money

When conducting a scrutiny the Assembly is conscious of the need to spend public money effectively.

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