Department for Transport

EQUALITIES IMPACT ASSESSMENT
CONSULTATION DOCUMENT

www.dft.gov.uk/heathrowconsultation

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ISBN 978-1-906581-28-2

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Executive Summary

1. Introduction

On 22 November 2007, the Government launched its consultation on 'Adding Capacity at Heathrow Airport'[1]. The consultation sought views on ways in which Heathrow airport could be developed over the next 20 years or more. It presented the results of work undertaken to consider whether, and how, the strict local conditions, which were set out in 'The Future of Air Transport' White Paper (2003), might be met. The conditions are:

- a noise limit – no increase in the size of the area significantly affected by aircraft noise (as measured by the 57dBA Leq noise contour in 2002);
- air quality limits – being confident of meeting European air quality limits around the airport, in particular for nitrogen dioxide (NO_2), which is the critical pollutant around Heathrow; and
- improving public transport access to the airport.

2. Views were invited on:

- a revised proposal for a third runway – 2,200 metres (operational length) compared with the original 2,000 metres proposal – and associated passenger terminal facilities north of the A4, and on the Government's assessment of how the conditions mentioned above could be met;
- a proposal to introduce 'mixed mode' on Heathrow's existing two runways, either with or without additional air traffic movements, as an interim measure ahead of a third runway, and the Government's assessment of how the same conditions could be met;
- the results of a review of operational procedures on the existing runways – 'westerly preference' (the preferred direction of operation) and the 'Cranford agreement' (which generally prohibits easterly departures off the northern runway) – irrespective of any further changes; and
- an assessment of the effects of night-time rotation between westerly and easterly preference, and of the current trial of runway alternation in the 0600 to 0700 period.

[1] 'Adding Capacity at Heathrow Airport' consultation document, Department for Transport, November 2007

3. Further information about the 'Adding Capacity at Heathrow Airport' consultation, which closed on 27 February 2008, including the consultation document and supporting technical annexes, may be found on the Department for Transport's ('the Department') website at www.dft.gov.uk/heathrowconsultation.

4. The November consultation document set out the impacts of future development options on the population in general around Heathrow, including schools in the area, and showed how the Government believes the strict conditions for noise and local air quality can be met. Work is underway to analyse the responses received (almost 70,000) and to update the Impact Assessment issued as part of the November consultation. As part of this Impact Assessment update process, and consistent with the Better Regulation Executive's Impact Assessment guidance, the Government is conducting an Equalities Impact Assessment (EqIA) to broaden its understanding of the potential impacts of Heathrow's development on individuals living within the 57dBA Leq noise contour, in terms of race, gender, disability, age and social deprivation. This EqIA is what the Department is now consulting on.

Scope

5. The EqIA has been conducted by an independent consultancy, Scott Wilson, and their assessment report can be found in Annex 3 of this document[2]. It records their views and preliminary assessments on the evidence currently available and this, together with the responses to the EqIA consultation, will be taken into account by the Secretary of State for Transport in making a decision on Heathrow.

6. This consultation document is divided into two main parts: the Executive Summary (pages 4 to 14) and Scott Wilson's assessment report (page 25 onwards). The remainder of the Executive Summary explains the scope of the EqIA (pages 5 to 6), the analytical approach taken by Scott Wilson in undertaking this work (pages 7 to 8) and their preliminary findings on which the Department is now seeking views (pages 8 to 12).

7. In order to take this work forward, Scott Wilson defined the range of equality groups that might be affected by the proposals to develop Heathrow, the geographical scope of those impacts and the extent to which they may be materially affected. For the purposes of this consultation, the term 'equality groups' is taken to mean the three statutory groups of race, gender and disability. However, in line with best practice, and following the initial screening exercise (as reported in Chapter 1 of the

[2] The disclaimer which prefaces the assessment report has been included by Scott Wilson with a view to ensuring that nobody (other than the Secretary of State for Transport) who suffers loss in reliance on the report will have a claim against Scott Wilson. This has no bearing on anything that consultees may choose to say to the Department in respect of this consultation.

assessment report, page 27) conducted by Scott Wilson, impacts on age, specifically children and older people, as well as the impact on low income groups have also been assessed.

8. The geographical scope of the impacts is assessed at the Local Authority ward level as this is the level at which Census data is collected. This includes all wards falling wholly or partly within the 57dBA Leq noise contour, which equates to a larger geographical area than the contour used in the November consultation document. The geography has been further widened to allow for possible air quality effects. Economic impacts are assessed primarily using local authority level data for the five local authorities within the 57dBA Leq noise contour.

9. Taken together, the wards within these areas are forecast to have a population of up to 521,600 in 2015 (484,000 in 2030). The lower population figures of 259,000 in 2015 (205,700 in 2030) quoted in the November consultation were calculated on the basis of households within the 57dBA Leq noise contour - which is the defined study area for the Heathrow development options - rather than on the basis of wards, some of which extend beyond the contour. The lower figures are therefore a more accurate representation of those, within the 57dBA Leq noise contour, most affected by noise.

10. The area around Heathrow is already notable for its high concentration of equalities groups - for example in seven wards in Hounslow, Black, Asian and Minority Ethnic (BAME) people represent between 63% and 72% of the total population (compared with a London average of 40%). Children aged 0-4 years and 5-16 years are also over-represented in many wards, compared with the London average.

11. The focus of this EqIA is to determine how far equality groups might be ‘differentially or disproportionately affected’ by the proposals put forward in the November consultation document. In Scott Wilson's assessment report, this is defined as being whether an equality group is potentially more or less affected by the proposals than the rest of the population. The assessment considers the impacts of proposals as compared to a 'do nothing' scenario (in other words no changes to how the airport currently operates today). The assessment does not identify the scale of any such impact, other than whether it is positive or negative. Nor does it take into account any action that might be, or has already been, taken to reduce the impacts, such as noise insulation in homes and community buildings. These aspects will be addressed in later stages. Scott Wilson’s analytical approach is summarised below and explained in more detail in the assessment report.

Analytical Approach

12. The 'Adding Capacity at Heathrow Airport' consultation document set out three possible sequencing options on how the airport operator might provide more capacity. For ease of presentation and analysis, and consistent with the Heathrow consultation Impact Assessment, the assessment report has recast those sequencing options as distinct development options, and assessed them against a 'base case'. The base case assumes that no changes are made to the airport's operating capacity between 2010 and 2030, and existing operating procedures and the current annual Air Transport Movements (ATMs) limit of 480,000 remain in place. The options are:

- **Option 1:** Existing two runways operating in mixed mode[3] in 2015, capped at 480,000 ATMs;
- **Option 2:** Existing two runways operating in mixed mode in 2015, with additional capacity at 540,000 ATMs; and
- **Option 3:** Third runway operating in mixed mode and existing two runways in segregated mode[4] in 2030, with additional capacity at 702,000 ATMs.

13. Scott Wilson's preliminary assessment report was triggered by the findings of an initial screening exercise. The methodology used is in line with the former Commission for Racial Equality (CRE) guidance for Race Equality Impact Assessments (REIA). The assessment report addresses impacts on black, Asian and minority ethnic (BAME) people, children, disabled people and low-income groups (referred to as 'income-deprived'). Impacts on women, lesbians, gay men, bisexuals and transgender people were not carried forward from the screening stage. Furthermore, limited information was available on young people (17-25), older people (60+) and disabled people for a thorough analysis of potential impacts for these groups. Although the study area has high levels of certain faith groups, particularly Hindus, Sikhs and Muslims, at this stage insufficient data was identified to indicate how far these groups might be differently impacted by the proposals. However, this consultation process will enable additional evidence on differential impacts on the grounds of age, disability and faith to be obtained.

14. The assessment report seeks to identify whether equality groups are likely to experience differential effects based on their disproportionate representation in areas affected by noise, air quality or economic impacts and on their particular sensitivity to such impacts. It considers direct, indirect and cumulative impacts (see paragraphs 2.4.3, page 40 of the assessment report). The assessment of noise and air quality

[3] Mixed mode means runways are used simultaneously for both arrivals and departures.
[4] Segregated mode means arriving aircraft are allocated to one runway and departing aircraft to another.

impacts involved analysis of maps (see Appendix 4 of the assessment report, page 86) identifying the wards within local authorities surrounding the airport and over-laying them with the projected noise and air quality contours for the three development options. These maps were cross-referenced with Census data and local authority data on the representation of equality groups. They were also cross-referenced with maps showing areas of low income households. The relative sensitivity of equality groups to the noise, air quality and economic impacts was identified from a review of published evidence. The approach is set out in detail in Chapter 2 of the consultation report (page 36 onwards).

Assessment of Impacts and Preliminary Conclusions

Summary

15. The assessment report represents the preliminary findings of Scott Wilson on the basis of their examination of relevant data and a literature review. Whilst airport expansion might be positive for equality groups in terms of job opportunities and access to air services, it would also have disbenefits in terms of noise and air quality. The report indicates that, within the overall limits on noise and air quality set by Government, different groups within the Heathrow area may experience different gains and losses depending on their precise location and the geographical impacts of the three main development options.

16. Using ward level data from the 2001 Census, around 195,000 BAME people and 103,100 children aged 0-16 years fall within the study area. The preliminary findings for noise impacts suggest that adding a third runway would affect, be it positively or negatively, approximately half of the total BAME population and nearly one third of children aged 0-16 years. For air quality the number of affected children (0-16 years) is roughly estimated to be around one-tenth of the total population of children within the study area.

17. The noise assessment in Scott Wilson's report is that mixed mode with additional capacity would affect (positively or negatively) around two-fifths of the BAME population and roughly one-tenth of children aged 0–16 years. The air quality assessment suggests one quarter of children aged 0–16 years would be affected as a result of mixed mode with additional capacity in 2015.

18. The air quality impacts of mixed mode within current capacity limits were not considered, on the basis that they would be unlikely to be significantly different from the base case.

19. There will be some overlap in these numbers, to the extent that a significant proportion of children aged 0-16 are also BAME.

20. Exposing this preliminary analysis to consultation, and engaging with representative groups in round-table discussions, will enable these views to be subject to detailed scrutiny and the Heathrow Impact Assessment to be completed as part of the work to support the Government's decisions on the future development of Heathrow, which are expected around the end of this year.

21. Chapter 3 of the assessment report (page 42) reviews the potential impacts of the three options on equality priority groups in respect of noise, air quality and economic impacts. These impacts are summarised below.

Noise Impacts

22. Under options 1 and 2, three wards within the Borough of Slough (Chalvey, Cipenham, Upton) could experience reduced noise impacts for BAME groups and children. Children in Heathfield (Richmond upon Thames) and Bedfont (Hounslow) are also likely to experience reduced noise impacts, as well as some areas within Cranford (Hounslow) and Eton and Castle wards (Windsor and Maidenhead). Option 3 would result in BAME groups in Hounslow West (Hounslow) and Chalvey (Slough) and children in Bedfont (Hounslow) and Eton and Castle (Windsor and Maidenhead) experiencing lower noise levels. Some areas in Cranford (Hounslow) would experience reduced noise levels which could benefit all priority groups.

23. Option 2 would result in six wards within Hounslow with disproportionately high levels of equality groups being affected. They are Heston Central, Heston East, Heston West, Hounslow Central, Hounslow West and Osterley and Spring Grove. Heston West ward is identified as likely to experience significant adverse impacts, due to its high proportion of BAME people, children and income deprivation.

24. Option 3 would result in significant increases in noise affecting equality groups in the London Boroughs of Hounslow, Ealing, Hillingdon, Windsor and Maidenhead and South Bucks

District. Within these areas there are four wards, Heston West (Hounslow), Pinkwell (Hillingdon), Southall Green and Southall Broadway (Ealing), that have disproportionate numbers of equality priority groups and that also have pockets of income deprivation. The combination of these factors has the potential to affect equality groups within these areas.

Air quality impacts

25. Air quality impacts from option 1 are considered unlikely to be significantly different from the base case.

26. Under option 2, improved air quality relative to the base case is expected in two wards where children are disproportionately represented, namely Bedfont (Hounslow) and Ashford North and Stanwell South (Spelthorne). Two pre schools and four primary schools are likely to be positively affected by NO_2 decreases under this option. Second round positive impacts may be experienced in Bedfont ward, which has areas amongst the 20% most income-deprived in England. On the basis of evidence indicating a linkage between deprivation and poor air quality, this option could contribute to reducing overall deprivation affecting children in this area.

27. Under option 2, worsened air quality relative to the base case, but still within the EU limits stipulated in the White Paper, is expected to affect twelve wards where children are disproportionately represented, namely Bedfont, Cranford, Heston West and Heston East wards (all Hounslow), Pinkwell, Botwell, Townfield and Yiewsley wards (all Hillingdon), Southall Broadway and Southall Green (both Ealing), Iver Village and Richings Park (South Bucks) and Ashford North and Stanwell South (Spelthorne). Furthermore, ten pre schools, twelve primary schools and two secondary schools are likely to be negatively affected by NO_2 increases under this option. In Pinkwell and Botwell wards, second round negative impacts of worsened overall deprivation may result, affecting children in low income households in these areas.

28. Option 3 is expected to result in improved air quality relative to the base case in Bedfont ward (Hounslow) where children are disproportionately represented. One pre school and three primary schools are likely to be positively affected by NO_2 decreases under this option. The differential benefits experienced by children in the affected wards are likely to be in terms of health, educational and development benefits. In Bedfont ward, second round positive impacts of reduced deprivation may be experienced by income-deprived people, including children in low income households.

29. Option 3 is expected to result in worsened air quality relative to the base case but still within the EU limits stipulated in the White Paper in Pinkwell, Botwell and Yiewsley (Hillingdon) where

children are disproportionately represented. Additionally, five pre schools, three primary schools and one secondary school are likely to be negatively affected by NO_2 increases under this option. These are likely to result in negative health, educational and development effects for children in the affected wards and schools. Negative second round impacts for overall deprivation levels may be experienced in Pinkwell and Botwell wards, affecting children living in low income households in these areas.

30. Other equality groups, including gender, sexual orientation, race and faith are thought and likely, on the basis of currently available evidence, to be differentially impacted by changes in air quality under any option.

Economic Impacts

31. The Heathrow consultation Impact Assessment assessed the extent to which additional capacity could generate economic benefits to the UK. In this report the analysis has now been extended by providing a more detailed assessment of the extent to which transport user benefits and employment creation benefits may be distributed geographically in the local areas. The following paragraphs summarise the conclusions drawn.

32. Additional capacity would lead to increases in transport user benefits for those travelling to or from the local area by promoting choice and opportunity for travel. The lack of detailed work in terms of differentiating air passenger users according to their race, gender, age and/or disability makes it difficult to reach definitive conclusions on the proportion of user benefits accruing to BAME or income-deprived groups. However, in general, the evidence suggests that it might be positive.

32. Analysis underpinning the Heathrow consultation Impact Assessment shows that additional capacity would lead to additional employment creation in the order of 8,000 jobs with a third runway, with the incremental impact significantly smaller when mixed mode is introduced as an intermediate step. The influence of technological improvements, specifically automation of manual jobs, however, might suggest that a greater proportion of these opportunities could be in higher-skilled jobs.

33. Additional capacity might bring employment benefits to deprived communities through, for example, construction jobs. It could also still be the case that low skilled people continue to rely on Heathrow airport to provide lower-skilled job opportunities.

34. These preliminary noise, air quality and economic conclusions form the basis for this consultation document.

Points for consideration

35. In considering and commenting on the findings, the following points should be borne in mind:

- The impacts of each option for Heathrow development are assessed by reference to the airport's current facilities and annual limit on the number of flights: i.e. Heathrow in 2015 without mixed mode, and in 2030 without a fully operating third runway. Any increase or decrease in noise or air quality is an assessment of whether equality priority groups would be differentially better or worse off as a result of any development. The assessments are a relative, not absolute, measure. Local air quality, for example, is set to improve over time as a result of tighter emission standards and technological improvements. For some people, adding capacity at Heathrow may slow this rate of improvement, whilst others may be newly affected by noise or air quality impacts, or may find that existing impacts are worsened.
- As explained in paragraphs 8 and 9 above, the 'study area' for this report includes the total population within wards wholly or partly within the 57dBA Leq noise contour. This has the effect of doubling the size of the population potentially affected by noise, compared with the numbers set out in the November consultation document.

- For the reasons explained at paragraph 1.5.3 (page 32) of the assessment report, the assessment of potential impacts takes no account of any measures taken to mitigate the effects – for example as a result of noise insulation measures. Noise insulation schemes have been in place in the Heathrow area for some time for households within the 69dBA Leq contour and, in line with Government policy, they have now been extended to include noise-sensitive buildings such as schools and hospitals exposed to medium levels of noise (63dBA Leq or more), assistance with relocation costs for households suffering high levels of noise (69dBA Leq or more) and additional provision for people newly affected by any future airport development. In addition, should a decision be taken to proceed with expansion at Heathrow, the Secretary of State will give due consideration as to how the impacts outlined in the consultation report could be further mitigated.
- On air quality, it remains the Government's firm commitment to ensure that the applicable limits – designed to protect human health – are respected, including the limit for nitrogen dioxide (NO_2) which is the critical pollutant of concern around Heathrow. The Heathrow consultation document last November showed how the Government believes this can be achieved in future development scenarios. Again, this report does not take into account any possible mitigation measures. However, views on how the impacts of air quality might be mitigated in the future are welcome as part of this consultation process.
- The data used to identify wards where equality groups are differentially represented in areas affected by air quality and noise impacts is drawn from 2001 Census data and so does not represent absolute numbers of people who would be affected by the potential impacts in 2015 or 2030. This data serves only to provide an indication of the representation of an equality group in an area. The assessment report recognises that the make-up of an area is likely to change over a fifteen to thirty year time period, in terms of ethnic diversity, age profile and numbers of other equality groups represented in the population.
- In compiling their report, Scott Wilson have reviewed a wide range of existing academic literature and research on noise and air quality impacts generally, although they acknowledge that not all of the findings are accepted within the scientific community.

Your Views and Next Steps

36. The Department will be engaging directly with representative organisations of equality groups to seek their views on the questions below. Individuals and other bodies are also welcome to respond.

37. The consultative process aims to address the following questions:

Q1. The equality groups identified in the assessment report are Black, Asian and minority ethnic (BAME) people, children, disabled people and low-income groups. Do you agree that the equality groups identified are comprehensive? If not, why?

Q2. Are the potential impacts of each of the three options identified correctly defined?

Q3. Are there any other potential direct or indirect impacts you think should be covered? If so, what are they and why should they be covered?

Q4. Are you able to identify additional evidence that you think needs to be considered, including, but not restricted to, the impacts of the proposals on disabled people, young people and older people? If so, what is the evidence?

Q5. Do the preliminary conclusions in the assessment report accurately reflect the potential benefits and adverse impacts for equality groups?

Q6. Do you have suggestions on how the impacts of the proposals on equality target groups might best be mitigated?

38. The Secretary of State will take full account of responses in reaching policy decisions on Heathrow and looks forward to the widest possible response to this consultation from interested parties. This will supplement other evidence, including that set out in the November consultation and the responses to it (now closed) and the updated Impact Assessment.

2 How to Respond

The consultation period runs from 15 September 2008 – 9 November 2008. When responding, please state whether you are responding as an individual or representing the views of an organisation. If responding on behalf of a larger organisation, please make clear who the organisation represents, and, where applicable, how the views of members were assembled.

The questions that the Department for Transport is seeking views on are listed on the previous page. Responses to these questions or any of the issues raised in this document should be clearly marked 'Heathrow Equalities Impact Assessment' and sent to:

heathroweqia@dft.gsi.gov.uk

or by post to:

Airports Policy Division
Department for Transport
1/26 Great Minster House
76 Marsham Street
London, SW1P 4DR

The email address above can also be used for general enquiries relating to the consultation. Please mark the subject field 'enquiry'. Alternatively, please call 020 7944 6597.

Copies of this consultation document, including a large print version, can be found at: www.dft.gov.uk/heathrowconsultation

Foreign language translations of the executive summary can be found on the Department's website: www.dft.gov.uk/heathrowconsultation. Alternatively, please write to the Department supplying your name and postal address and clearly stating the language that you require.

ডিপার্টমেন্টের ওয়েবসাইট: www.dft.gov.uk/heathrowconsultation- এ নির্বাহী সারসংক্ষেপের বিদেশী ভাষায় অনুবাদ পাওয়া যাবে। আরেকটি উপায় হল, আপনার নাম ও ঠিকানা দিয়ে যে ভাষা আপনি চান সেটি পরিস্কারভাবে উল্লেখ করে ডিপার্টমেন্টের কাছে অনুগ্রহ করে লিখুন।

"કાર્યકારી સાર – એકઝીકયુટી સમરીનું વિદેશી ભાષાઓમાં ભાષાંતર ડિપાર્ટમેન્ટની વેબસાઈટ:www.dft.gov.uk/heathrowconsultation પરથી મળી શકશે. અથવા, તમારું નામ અને સરનામું અને સ્પષ્ટ રીતે તમારી જરૂરિયાતની ભાષા દર્શાવી કૃપા કરી ડિપાર્ટમેન્ટને લખો."

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If you would like a Braille or audio version, please contact the Department using the details above.

A list of organisations and stakeholders that the Department has written to about this consultation is included at Annex 2. If you have any suggestions of others who may wish to be involved, please contact the Department.

The consultation has been produced in accordance with the Government's Code of Practice on Consultation (see Annex 1). With respect to criterion 1, we judge that a consultation period of 8 weeks is appropriate in this case because; this consultation supplements the original 14 week 'Adding Capacity at Heathrow Airport' consultation; it is based on the eveidence already presented in that consultation and seeks views on questions related only to potential equality impacts; it relies not just on written responses but includes direct engagement with representatives of equality groups; and it will help to meet public expectation that policy decisions will be made before the end of 2008 and so minimise the period of continuing uncertainty before such decisions can be reached.

A summary of responses to this consultation will be published on the Department's website after the consultation period has closed.

Freedom of Information

According to the requirements of the Freedom of Information Act (2000), all information contained in your response to this consultation may be subject to publication or disclosure. This may include personal information such as your name and address. If you want your response or your name and address to remain confidential, you should explain why confidentiality is necessary. Your request will be granted only if it is consistent with Freedom of Information obligations. An automatic confidentiality disclaimer generated by your email system will not be regarded as binding on the Department.

Annex 1 Code of Practice on Consultation

The Government has adopted a code of practice on consultations. The code of practice applies to all UK public consultations by government departments and agencies, including consultations on EU directives.

Though the code does not have legal force, and cannot prevail over statutory or other mandatory external requirements (e.g. under European Community Law), it should otherwise generally be regarded as binding unless Ministers conclude that exceptional circumstances require a departure from it.

The code contains six criteria. They should be reproduced in all consultation documents. There should be an explanation of any departure from the criteria and confirmation that they have otherwise been followed.

Consultation criteria

1. Consult widely throughout the process, allowing a minimum of 12 weeks for written consultation at least once during the development of the policy.
2. Be clear about what your proposals are, who may be affected, what questions are being asked and the time-scale for responses.
3. Ensure that your consultation is clear, concise and widely accessible.
4. Give feedback regarding the responses received and how the consultation process influenced the policy.
5. Monitor your department's effectiveness at consultation, including through the use of a designated consultation co-ordinator.
6. Ensure your consultation follows better regulation best practice, including carrying out an Impact Assessment if appropriate.

A full version of the code of practice is available on the Better Regulation Executive website at:

http://bre.berr.gov.uk/regulation/documents/consultation/pdf/code.pdf

If you consider that this consultation does not comply with the criteria or have comments about the **consultation process** please contact:

Lec Napal
Consultation Co-ordinator
Department for Transport
Zone 1/33 Great Minster House
76 Marsham Street
London, SW1P 4DR

email: consultation@dft.gsi.gov.uk

Annex 2 List of Consultees

The Department has written to representatives from the following organisations to inform them about this consultation:

A2 Housing Group

Acton MIND

Afghan Academy

African Caribbean Initiative

Africa Policy Research Network

Age Concern Feltham

Age Concern Hounslow

Ahmadiyya Muslim Association Age Concern

Airport Operators Association

Albert Square and St Stephens Association

All Afghan Association

Angolan Civic Communities Alliance

Arab Group in Hounslow and the suburbs

ASRA Greater London Housing Association

Association of County Councils

Association of District Councils

Association of London Authorities

Association of London Borough Planning Officers

Awaaz Youth Project

BAA

Bangladesh Welfare Association

Barnardo's Spectrum Project

Barnes Community Association

Bedfont, Cranford, Feltham, Hanworth and Hounslow West Children's Social Care

BME Community Help and Development Centre

Bracknell Forest Borough Council

Brentford Chamber of Commerce

Brentford Child and Family Centre

British Air Transport Association

Centre for Armenian Information and Advice

Centre for Nepalese and Gurkhas

Chiswick, Brentford, Isleworth, Heston and Central Hounslow Children's Social Care

Chiswick Protection Group
Colnbrook and Poyle Parish Council
Colnbrook Parish Council
Colnbrook Residents Association
Corporation of London
Cranford Cross Residents Association
CVS Hounslow
Datchet Parish Council
Department for Children, Schools and Families
Department for Culture, Media and Sport
Department of Work and Pensions
Disability Network Hounslow
Dituria
Ealing Aircraft Noise Action Group
Ealing Racial Equality Council
Ealing Somali Welfare and Cultural Association
East African Youth Group
Egham Riverside Residents' Association
Equalities and Human Rights Commission
Fawcett Society
Federation of Poles in Great Britain
Fulham Flight Path Community
Fulmer Parish Council
Glebe Estate Residents Association
Greater London Authority
Gurdwara Sri Guru Singh Sabha
Gurseva
HACAN Clearskies
HACAS
Hammersmith Bengali Association
Harmondsworth and Sipson Residents Association
Help the Aged
Heston Residents Association
Hillingdon MIND
Hindu Temple and Cultural Trust Centre
Horton and Wraysbury Parish Councils

Hounslow Afro-Caribbean Association
Hounslow Asian Community Advice Service
Hounslow Central Residents' Association
Hounslow Chinese Community Centre
Hounslow Federation of Tenants and Residents Associations
Hounslow Jamia Masjid and Islamic Centre
Hounslow PHAB
Hounslow Racial Equality Council
Hounslow Refugee Forum
Hounslow Somali Association
Hounslow Somali Community Group
Hounslow Synagogue
Hounslow Youth Service - Citizenship and Participation
Hounslow Youth Service - Connexions Team
Iranian Association
Iraqi Community Association
Irish Cultural Society
Iver Parish Council
Kenyan Society of London
Kingswood Creek Residents Association
Kingsdown Residents Association
Lawn Crescent Residents Association
Leonard Cheshire Disability
Local Government Association
London Borough of Ealing
London Borough of Hammersmith & Fulham
London Borough of Hillingdon
London Borough of Hounslow
London Borough of Lambeth
London Borough of Merton
London Borough of Richmond upon Thames
London Borough of Southwark
London Borough of Sutton
London Borough of Wandsworth
London Boroughs Association
London Councils

London Development Agency
Longford Residents Association
MENCAP
MIND
Mortlake Residents Anti Noise Association
National Children's Bureau
NoTRAG
Oakley Green, Fifield & District Residents Association
Old Chiswick Protection Society
Old Windsor Parish Council
Old Windsor Residents and Ratepayer's Association
Poyle Residents Association
Prince's Trust Regional Office
RADAR
RDA National Secretariat
RNIB
RNID
Royal Borough of Kensington and Chelsea
Royal Borough of Kingston upon Thames
Royal Borough of Windsor and Maidenhead
Runnymede Borough Council
SCOPE
SE England Development Agency
Slough Borough Council
South Bucks District Council
South East England Regional Assembly
Spelthorne Borough Council
Spring Grove Residents Association
St John Residents Association
St Margarets Estate Residents Association
Staines Town Society
Stanwell Moor Residents Association
Stanwell Residents' Association
Stanwell Village Hall Council
The Alberts Community Association
The Hammersmith Society

The Kew Society

The Putney Society

The Richmond Society

The Thorpe Ward Residents Association

The Windsor and Eton Society

West Windsor Residents Association

The Department has also written to the following individuals:

Adam Afriyie MP
Norman Baker MP
Dr Vincent Cable MP
Louise Ellman MP
Justine Greening MP
Dominic Grieve MP
Philip Hammond MP
Greg Hands MP
Alan Keen MP
Ann Keen MP
Martin Linton MP
John McDonnell MP
Rt Hon Andrew Mackay MP
Fiona Mactaggart MP
Rt Hon Theresa May MP
Stephen Pound MP
John Randall MP
Rt Hon Sir Malcolm Rifkind MP
Virendra Sharma MP
Andy Slaughter MP
Lord Soley of Hammersmith
Theresa Villiers MP
David Wilshire MP

Haqeeq Boston

Adding Capacity at Heathrow Airport

EQUALITIES IMPACT ASSESSMENT

ASSESSMENT REPORT

Prepared by

Scott Wilson

CONTENTS

1 Introduction

1.1.1 Earlier this year, the Department for Transport commissioned Scott Wilson, a multi-disciplinary consultancy, to undertake additional assessment of the impacts of the options set out in the 'Adding Capacity at Heathrow Airport' consultation document on various equality groups. This assessment report, the outputs of which will be used to inform the final Heathrow Impact Assessment, sets out the conclusions of that work. The Department is now seeking views on these assessments so that they can be used to inform final Ministerial decisions on Heathrow, which are due to be taken later this year.

1.1.2 'The Future of Air Transport' White Paper (2003) set out a strategic framework for the development of airport capacity in the United Kingdom over the next 30 years. It presented a sustainable approach to airport development that aimed to balance the economic benefits of such development with the need to protect the local and global environment. The White Paper recognised the important role that Heathrow plays in contribution to the UK economy and so supported, in principle, the addition of a third runway and making best use of the existing capacity provided the following conditions could be met:

- a noise limit – no increase in the size of the area significantly affected by aircraft noise (as measured by the 57dBA Leq noise contour 2002);
- air quality limits – being confident of meeting European air quality limits around the airport, in particular for nitrogen dioxide NO_2, which is the critical pollutant around Heathrow; and
- improving public transport access to the airport.

1.1.3 Following the 2003 White Paper, three options ('the options') for the possible expansion of Heathrow were proposed and included for consultation in the 'Adding Capacity at Heathrow Airport' consultation document. This consultation was launched on 22 November 2007. For the purposes of this report we focus on a variant of these options covering two mixed mode options and a new third runway as follows:

- Option 1: Existing two runways operating in mixed mode around **2015**, capped at 480,000 ATMs;
- Option 2: Existing two runways operating in mixed mode around **2015**, with additional capacity at 540,000 ATMs; and
- Option 3: Third runway operating in mixed mode and existing two runways in segregated mode around **2030**, with additional capacity at 702,000 ATMs. In all options, mixed mode would only be for the period preceeding the opening of a third runway, if approved.

1.1.4 The 'Adding Capacity at Heathrow Airport' consultation document presented modelling results on the environmental conditions set out above and, in line with Better Regulation

Executive Impact Assessment guidance, provided an assessment of the likely social, environmental and economic impacts of the three options. This was set out in the consultation-stage Impact Assessment (Annex B of the consultation document).

1.1.5 Throughout this report the options are compared to a 'do nothing'[5] base case scenario. This is to provide an effective and consistent comparative analysis with the consultation Impact Assessment. Figure 1.1 illustrates the 57dBA noise contours for the three options and the base case 'do-nothing' scenarios for their respective years.

1.1.6 The 'Adding Capacity at Heathrow Airport' consultation ended on 27 February 2008 and the responses are currently being analysed. This analysis is being conducted alongside work to update the Impact Assessment to reflect both responses to the consultation and the latest available evidence. The outputs of this assessment report will be used to inform the final Impact Assessment, which will be published in parallel with future Ministerial decisions on Heathrow.

1.2 EqIA Purpose and Aims

1.2.1 EqIAs are tools to support delivery of legal 'equality duties' on public bodies in terms of race, gender and disability, both general and specific. In particular, they provide a mechanism for assessing the impact of a body's public functions on equality for different groups.

1.2.2 EqIAs can add real value to the sustainability of major development programmes by facilitating a better understanding of the existing situation of specific groups and, through a systematic process, identifying measures that can maximise the equitable sharing of benefits and ensuring that mitigation measures are developed to avoid or minimise any adverse impacts.

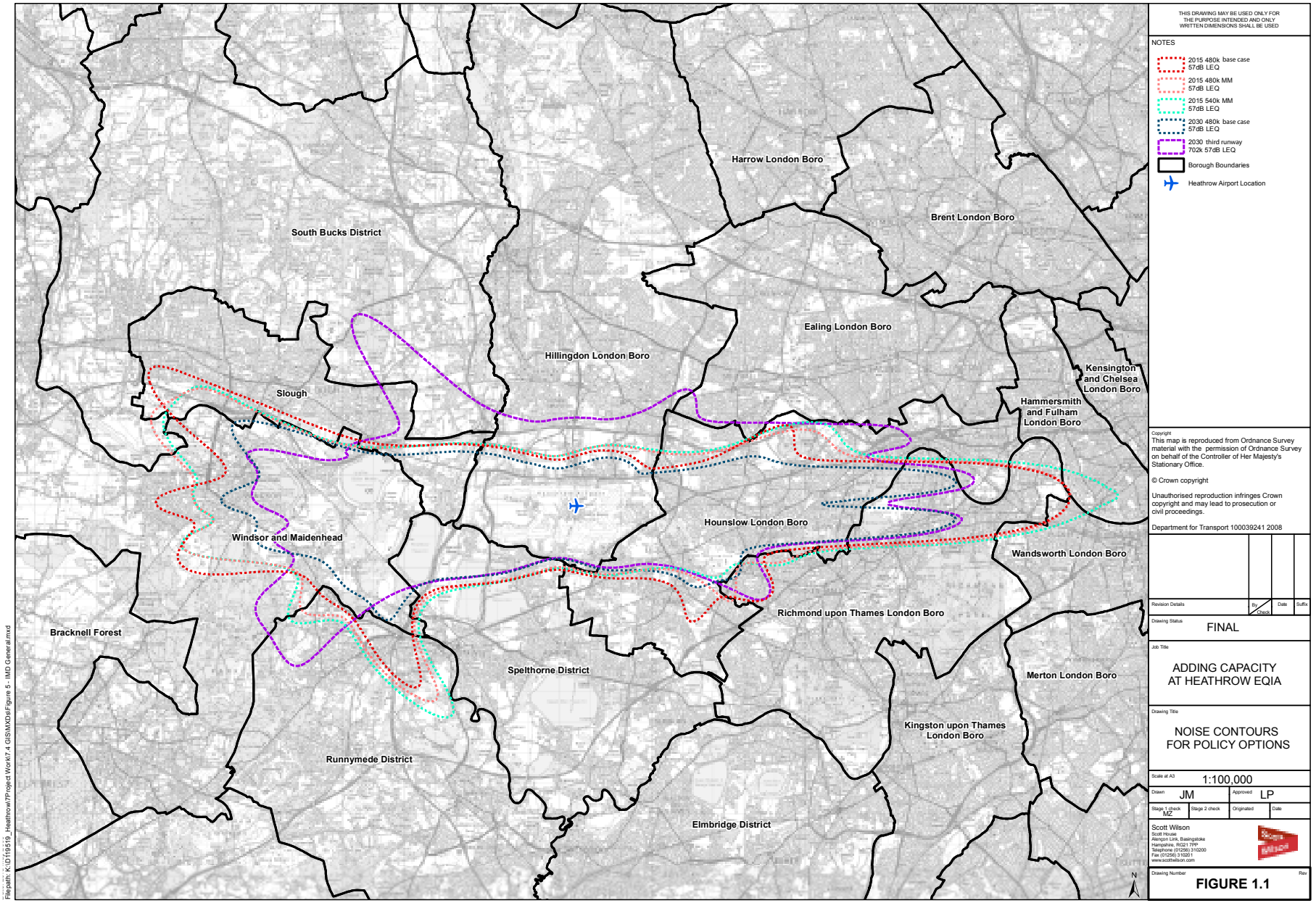
1.2.3 Through the EqIA process, the Department will be able to:

- fulfil its statutory obligations to consider impacts of the options on race, gender and those with disabilities;
- seek the views of equality groups (identified in section 1.7) on the potential impacts of the options for development of Heathrow; and
- provide a clear assessment of equalities impacts to inform Ministerial decisions on any further development.

1.2.4 Once a Ministerial decision has been made, and depending on what this decision is, an assessment of equality impacts may need to continue throughout the design, construction and operational life of the project.

[5] The Department's Transport Appraisal guidance requires that all options are assessed relative to a common 'base case', sometimes referred to as the 'do nothing' scenario. The 'base case' assumes no changes to Heathrow airport between 2010 and 2030. The existing operating procedures and current planning limit of 480,000 ATMS would remain.

Noise contours for policy options - Figure 1.1



1.3 Purpose of this document

1.3.1 This report forms part of the Department's 'Adding Capacity at Heathrow Airport' EqIA and documents the assessment conducted to date. The process for carrying out an EqIA is set out in section 1.5.

1.3.2 It follows an initial screening report stage (see Appendix 5) and provides an assessment of whether and how equality groups may be differentially affected, either positively or negatively on the basis of noise, air quality and economic impacts, by the three options. The impacts of surface access development have not been included in this report because the Impact Assessment in the 'Adding Capacity at Heathrow Airport' consultation showed that a surface access strategy would need to be developed in detail once a policy decision had been reached. For the purposes of this report, 'differentially affected' is defined as those impacts that potentially affect an equality priority group/s more than the rest of the population as opposed to an impact that affects everyone equally.

1.3.3 The Department is seeking views on the findings in this report so that these can be used to prepare the final EqIA. This, in turn, will inform the final Impact Assessment.

1.3.4 The identification of whether, and the assessment of how, equality groups are affected is based on selected responses to the 'Adding Capacity at Heathrow Airport' consultation, an analysis of existing quantitative and qualitative research and data gathered from local authorities.

1.4 Equality Policy and Legislation

1.4.1 The Department has statutory duties to promote equal treatment as well as to tackle discrimination in three areas - race, disability and gender. The statutory duties are defined by the following legislation:

- Race Relations (Amendment) Act 2000;
- Disability Discrimination Act 2005; and
- Equality Act 2006.

1.4.2 Currently there are no statutory duties to promote equal treatment and anti-discrimination on the basis of sexual orientation, age, or religion and belief. However, in line with best practice (IDEA 2007) and in recognition of the future intent to extend these duties across all equality strands in draft equality legislation, this assessment report recognises these additional groups.

1.4.3 Existing equality legislation provides a duty on all public bodies to have due regard to the need to promote equal treatment on the grounds of race, disability and gender, as well as the need to eliminate discrimination and to promote good relations between different racial groups.

1.4.4 In addition to legislation, the London Plan (2008) addresses the needs of London's diverse population in spatial planning. The London Plan recognises a number of equality priority groups: disabled and deaf people, older people, younger people, children, women, Black, Asian and minority ethnic groups (BAME), gay men, lesbians, bisexuals and transgender people. The London Plan also recognises the differing spatial needs of immigrants, refugees and asylum seekers, travellers and gypsies and people belonging to particular faith groups. However, there is currently insufficient evidence on how and whether these groups are differently affected to enable them to be considered at this stage of the assessment. If further evidence is identified during the consultation period, then this will be considered and incorporated as necessary into the final EqIA.

1.5 The EqIA Framework

1.5.1 The EqIA framework is based principally on the former Commission for Racial Equality (CRE) Race Equality Impact Assessment (REIA) guidelines. The framework sets out the recommended approach to enable consideration of all equality strands.

1.5.2 The full assessment procedure includes eight stages, shown below. This document addresses stages one to three and provides the basis for formal engagement, as required at stage five.

1. Identify all aims of the policy options
2. Consider the evidence
3. Assess likely impacts (screening report stage)
4. Consider alternatives
5. Engage formally
6. Decide whether to adopt the policy
7. Make monitoring arrangements
8. Publish assessment results

1.5.3 Stage four (consider alternatives) would normally be completed prior to consultation. The Department is keen, at this stage, to better understand the potential differential impacts on equality groups before it gives consideration as to how best to mitigate these impacts. However, the Department does welcome views on possible mitigation measures during this consultation process and will use any information it receives to inform the latter stages of the EqIA.

1.5.4 More information is provided in Chapter 2 on how each stage of the process within the EqIA framework has been conducted.

1.6 Potential Key Impacts Identified At The Screening Stage

1.6.1 This report identifies impacts on equality priority groups, defined in current equality legislation, most notably the Equality Act 2006, with socio-economically deprived people as an additional priority group. This group is identified using the Community and Local Government (CLG)'s Indices of Deprivation – Income Domain[6].

1.6.2 The screening stage (see Appendix 5) identified a number of possible disparities in the impacts for people from equality priority groups on the grounds that certain groups of people are more sensitive to the effects than others. These possible impacts were identified following an analysis of academic research and existing data (see Appendix 1 for a full list of the reference material considered). It is worth noting that some of the research findings referenced here may be disputed within the scientific community, including the threshold levels at which adverse noise impacts become significant. Table 1.1 summarises the outputs from this screening stage.

[6] This relates to the proportion of the population living in low income families i.e. those reliant on means tested benefits.

Table 1.1 Results of initial screening

Priority group	Members of group	Potential impact
Noise		
Age	Children and younger people	Possible adverse noise impacts on educational achievement, particularly reading comprehension, recognition memory and motivation, with possible long term impacts on employment. Some research suggests that a five dB difference in aircraft noise could be equivalent to a two month reading delay in the UK. Evidence also suggests that a loud-to-shouting voice is required by teachers in classrooms with noise levels above 55dBA (Stansfeld et al 2005, Vilatarsana 2004, Haines et al 2003). There is some evidence of possible negative impacts of high noise levels on children. However, the level at which this potentially becomes an issue is not stated in this research (Babisch 2006, Haines et al 2003).
Disability	People with existing mental heath conditions	Some research indicates that there could be adverse noise impacts on existing mental illness, but this was not a cause of the condition. The noise level at which this potentially becomes an issue is not stated in this research (POST 2003).
Race	BAME and asylum seekers	Some research indicates that there could be adverse noise impacts on speakers of English as an acquired language for speech communication and intelligibility. The noise level at which this potentially becomes an issue is not stated in this research (Lazarus 1998, Vilatarsana 2004).
Air Quality		
Age	Children	Possible adverse impacts on children at any locations where annual average concentrations of NO_2 are at 50 - 75 µg/m (WHO 2008).
Disability	People with asthma and other chronic lung conditions	Research indicates that there could be greater susceptibility to acute changes in lung function, airway responses and respiratory symptoms due to increased levels of nitrogen dioxide exposure (WHO 2008).
Socio-economic Deprivation	All 20% most deprived	Some research indicates that there could be adverse impacts on quality of life of low income groups, with a general increase in NO_2 concentration associated with increasing deprivation (Defra 2006; King & Stedman 2000).
Economy		
Race	BAME	Some research indicates that there could be potential positive impacts on employment over the medium term (BAA 2007a).

1.7 Selection of Equality Priority Groups

1.7.1 The equality priority groups identified as likely to be differentially impacted by the options have been determined from the screening stage. The following groups: women, gay men, lesbians, bisexuals and transgender people were not carried forward from the screening stage for consideration in this EqIA report because evidence suggests that they are not likely to be disproportionately affected under any of the options (see Appendix 5). The equality priority groups identified at the screening stage that are relevant to this assessment report are outlined in Table 1.2. Additional evidence is required to assess potential impacts on young people (aged 17-25) and older people (aged 60+) and it is envisaged that this information may be obtained during the consultation period.

Table 1.2 Priority groups assessed in this report

Priority Group	Definition
Race	Black, Asian and minority ethnic people (BAME). This includes people under the ONS Census Categories: Black or Black British; Asian or Asian British; Mixed; Chinese or Other.
Age	Children (0-4 and 5-16)
Disability	All disabled people, particularly those with learning difficulties or mental health issues
Socio-economic deprivation	20% most deprived, according to 2007 Indices of Deprivation - Income data

1.7.2 Some communities within the study area include high proportions of particular faith groups, as illustrated below:

- the Sikh population is over-represented in Southall Green (40%) and in Heston East (25%) as compared to a London regional average of 1.5%;
- the Hindu population is over-represented in Southall Green (16%) and in Heston Central (15%) and Hounslow Heath (18%), as compared to a London regional average of 4.1%; and
- the Muslim population is over-represented in Heston West (17%) and Hounslow Heath (17%) as compared to a London regional average of 8.5%.

Only a very small part of Southall Green falls within the 57dBA contour but we have shown the full BAME breakdown for completeness.

1.7.3 We have not, at this stage, been able to identify evidence to suggest that these faith groups would be differentially impacted as a result of the options. Nevertheless, there is a strong link between race and faith for the population living in the study area. It is anticipated that responses to this assessment report may provide more evidence on the specific impacts felt by these faith groups.

2 Methodology

2.1.1 The methodology used for this assessment is in line with the stages recommended in the former Commission for Racial Equality (CRE)[7] guidance for Race Equality Impact Assessments (REIA). The stages involved in this assessment are listed in the box below. The methods to complete Stages 1 to 3 are explained in more detail in this chapter. Stage 4 would normally be completed prior to consultation. However the Department would prefer to consult on impacts before proposing any mitigation measures, if necessary.

Stages of a Full EqIA

1. Identify the policy options
2. Consider the evidence
3. Assess likely impacts
4. Consider alternatives
5. Engage formally
6. Decide whether to adopt the policy
7. Make monitoring arrangements
8. Publish assessment results

2.1.2 The methodology has been designed to enable the assessment of potential positive and adverse impacts of the three options on the priority equality groups within the study area. For the purposes of this assessment and consistent with the Adding Capacity at Heathrow Airport consultation, the study area is defined as those households within the 57dBA noise contours (see Figure 1.1), which vary for the base case and the three options. Where air quality data extends beyond the 57dBA noise contour (see section 3.2.7), this has also been included in the analysis. Economic impacts are assessed primarily using borough level data for the five boroughs covering the 57dBA contour.

2.1.3 Borough and ward level data (Census data 2001) has been used to provide socio-economic and demographic data to identify the location and proportional representation of equality groups (compared to the London region average)[8].

[7] Other guidance regarding the methodology for carrying out an Equalities Impact Assessment is available, however REIA guidance has been applied here as it was considered the most relevant.
[8] The London region average was chosen as the comparator region, on the basis that the demographic profile of the area surrounding Heathrow more closely reflects the densely populated urban profile of London, rather than the overall profile of the South East region.

2.2 Stage 1: Identify the Policy Options

2.2.1 The options considered in this assessment are those outlined in Chapter 1.

2.3 Stage 2: Consider the Evidence

2.3.1 There are six strands of evidence that have informed this assessment: (1) Central and regional Government reports and data; (2) Local Authority discussions and documents; (3) Data specific to Heathrow airport (4) Commissioned new evidence; (5) General academic literature; and (6) other evidence. Full listings of these are contained in the Bibliography in Appendix 1.

2.3.2 Some key data sources were:

- DfT 'Adding Capacity at Heathrow Airport' consultation document
- CAA 'Revised Future Aircraft Noise Exposure Estimates for Heathrow Airport' report;
- Cambridge Environmental Research Consultants (CERC) air quality modelling data;
- The South East Plan;
- South East Regional Economic Strategy;
- West London Economic Development Plan;
- Data available from the 2001 ONS Census;
- Data available from the Indices of Deprivation-Income;
- Local Government Authority reports;
- Heathrow Staff and Airport Surveys;
- Oxford Economic Forecasting report; and
- CAA and BAA data and reports.

2.3.3 Census data provided information on the equality profile of the population within the study area around Heathrow. This enabled identification of areas with higher than average proportions of equality target groups, including BAME people, children, and income-deprived people compared to the London region average. This data could not be used for gender (as women comprise around half the population) nor for disabled people due to the limited definition of the term 'disabled' that was used in the Census. Data from the Census indicated that BAME and children are over-represented in some areas (see Figures 4.7-4.9, Appendix 4) within the 57dBA option contours.

2.3.4 Census data was complemented by data obtained from local authority sources following a round of telephone interviews with the relevant officers.

2.3.5 Local authority data was reviewed to develop a database of information on equality groups living within the area. This included data on groups where relatively limited or no information is captured in Census data. For example, some local authorities had undertaken or commissioned recent surveys of the BAME population in the area.

2.3.6 It was not possible to obtain equivalent levels of information from all affected local authorities. Comparable data was not available for equality groups from all local authorities, meaning that Census data became the key source, even though it is now seven years old.

2.3.7 The information obtained from local authorities indicated that the intake for schools in some local authorities within the 57dBA noise contours includes significant numbers of BAME children who live in boroughs outside the 57dBA noise contour area. This highlighted an additional group to be included for consideration of differential impacts.

2.3.8 Geographical information systems (GIS) technology was used to produce maps showing wards, overlaid with air quality or noise modelling contours that were taken from the Department's 'Adding Capacity at Heathrow Airport' consultation. These are provided in Appendix 4.

2.3.9 Ward level data for children, young people and BAME people was also analysed. In addition, maps were produced to show areas with above average representation of BAME people and areas with high levels of socio-economic deprivation (see Figure 4.6, Appendix 4).

2.3.10 It was necessary to commission additional work on noise and air quality to show relative changes in noise for various groups against the base case. This data was obtained respectively from the Civil Aviation Authority and Cambridge Environmental Research Consultants (CERC) who provided the original data on noise and air quality for the 'Adding Capacity at Heathrow Airport' consultation document. The Department's cost benefit analysis model was also used to disaggregate the transport user benefits set out in the Heathrow consultation Impact Assessment by geography, for areas within the 57dBA contour.

2.3.11 General academic literature on the impacts of air quality and noise, and economic impacts, was critically reviewed to identify evidence of the particular sensitivity or greater sensitivity of equality priority groups to these effects. The literature was identified using a range of online searches, including the Google Scholar search engine.

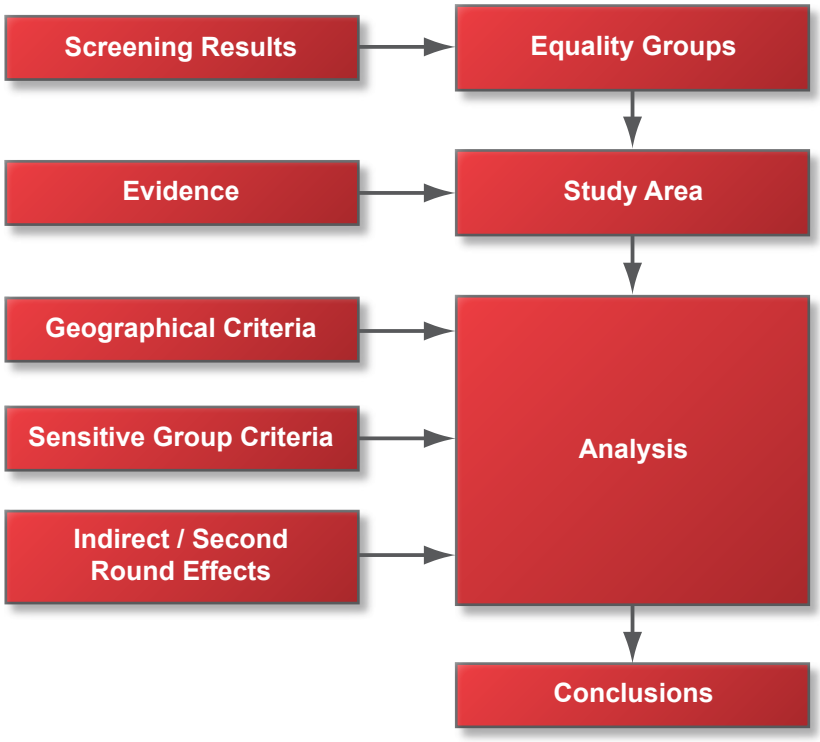
2.4 Stage 3: Assess Likely Impacts

2.4.1 The assessment of likely impacts was based on the systematic evaluation of whether any impact is likely to have a differential effect on any equality priority groups. This was assessed at a ward level for noise and air quality impacts, and at a local authority level for economic impacts. The report considers a range of case study wards within affected local authorities rather than reporting on all wards, in order to illustrate potential equality impacts.

2.4.2 The appraisal process has followed the framework identified in Diagram 1. The screening results identified those equality priority groups for further consideration and those groups for which it was felt no further consideration was needed. The analysis considered in turn:

- where equality priority groups were affected, according to geographical criteria, using maps to support this analysis;
- the evidence indicating that people from equality priority groups may be more sensitive to the effects than the rest of the population; and,
- what second round effects might result for equality priority groups, including in relation to existing deprivation.

Diagram 1: EqIA Analytical Framework



2.4.3 This evaluation was carried out using a number of key concepts as outlined below:

Differential effects are defined as those impacts that potentially affect an equality priority group more than the rest of the population as opposed to an impact that affects everyone equally.

Geographically distributive effects are defined as those which would lead to an area experiencing a change in noise, air quality or economic benefit relative to the base case.

Disproportionate representation is defined for equality priority groups where their proportional representation in an area is 10% or more than the London regional average. Assessment of geographically disproportionate effects was based on 2001 Census data, complemented by more recent local or regional data, where available.

Sensitivity differential effects apply to those belonging to a particular equality priority group which could be more sensitive to impacts than other people, on the basis of their individual status, their stage in life or their social or economic circumstances. Assessment of sensitivity effects has mainly been undertaken qualitatively, with reference to relevant published evidence and statistical data.

Indirect / second round impacts: Some impacts may not yet have been identified or may exist as secondary effects. Indirect impacts include factors such as impacts on educational achievement as a result of a loss of teaching time due to disturbance by aircraft noise. Second round impacts could include wider productivity effects or deepening levels of deprivation.

Cumulative Impacts: This is where an equality priority group may be affected by more than one positive or adverse impact. Cumulative impacts are identified in the following ways:

- where more than one impact is found to have an effect on the same equality priority groups;
- through the greater sensitivity of equality priority groups to the effects; or,
- where a number of impacts are experienced in the same geographical area and within this area where an equality priority group is over-represented.

2.4.4 The conclusions in this report were prepared following completion of the above analysis and are based on consideration of the findings in the screening report that indicated differential impacts.

2.4.5 Other effects may exist that have yet to be identified through this process. The consultative period allows for these to be considered.

3 Assessment of Impacts

3.1 Noise

Scope of the noise assessment

3.1.1 'The Future of Air Transport' White Paper (2003) noted that any future additional capacity would need to ensure no increase in the size of the area significantly affected by noise, as measured by the 57dBA noise contour in 2002 (127 sq km). The 'Adding Capacity at Heathrow Airport' consultation document predicts that this test can be met for mixed mode and runway development scenarios based on technological improvements and the likely make-up of the future aircraft fleet.

3.1.2 The Heathrow consultation Impact Assessment[9] assessed the extent to which additional capacity may result in negative impacts against the base case (maximum use 480,000 ATMs in segregated mode). This demonstrated that the various development options would result in the following changes:

- **Option 1:** Mixed mode within capacity (480k ATMs) would result in a 119.7 sq km, 57dBA noise contour around 2015. This represents a slightly beneficial change with respect to the 2015 base case (119.8 sq kms).
- **Option 2:** Mixed mode with additional capacity (540k ATMs) would result in a 125.5 sq km, 57dBA noise contour around 2015. This is equivalent to a 5% increase in the 57dBA noise contour compared to the 2015 base case (119.8 sq kms). It is worth noting that this is within the White Paper noise limit.
- **Option 3:** Heathrow third runway would result in a 112.9 sq km, 57dBA noise contour around 2030. This is equivalent to a 47% increase in area compared to the 2030 base case (77.0 sq kms), yet is 11% smaller than the position in 2002.

3.1.3 This equalities assessment takes the assessment above as given and seeks to present, as far as possible, a factual assessment of the potential impacts of possible development options which may be available to the airport operator, subject to the outcome of the Ministerial decision and future planning applications.

3.1.4 Using the methodology developed in Chapter 2, the areas were first identified which might be affected by additional capacity, both in terms of falling within a new 57dBA area and in terms of increases and decreases in the intensity and frequency of noise within those areas. Focusing on the key affected groups identified from the screening report, this chapter demonstrates how, within those affected areas, these different groups might be affected.

3.1.5 The assessment of impacts first focuses on the direct geographical impacts, then goes on to discuss how the identified key groups may be affected and finally outlines any second round effects. The first round effects would stem from general increases or decreases in noise levels e.g. improved

[9] Adding Capacity at Heathrow Airport consultation document , Annex B

or reduced intelligibility or reduced negative health impacts for certain sensitive groups. Second round effects could include impacts on deprivation.

Affected Groups

3.1.6 The initial screening study identified the following priority groups which are likely to be differentially impacted by aircraft noise:

- Age - Potential adverse impacts on educational achievement, motivation and cognition.
- Disability - Potential adverse impacts on people with existing mental health conditions.
- Race - Potential adverse impacts on people with English as a second language.

3.1.7 In addition to these groups, the screening report revealed that there may be secondary impacts on employment opportunities due to poorer educational achievements.

3.1.8 Sexual orientation, gender and faith were not carried through for analysis in this report due to insufficient evidence of noise impacts on these groups.

Affected Areas

3.1.9 Affected areas are identified based on the 57dBA noise modelling contours produced by the Civil Aviation Authority (see Figure 1.1). For each of the three options, the local authority areas and wards that fall within the 57dBA contours are identified. Local Authorities identified that fall partly within the contours include the London Boroughs of Hounslow, Hillingdon, Richmond upon Thames, Windsor and Maidenhead, and Ealing; the Districts of Runnymede, South Bucks and Spelthorne; and the Borough of Slough.

Analysis of Impacts

3.1.10 In line with the methodology in Chapter 2, the analysis of the disproportionate impacts has focused on the first round and second round impacts. The first round impacts focus on the geography and sensitive groups criteria. The second round effects focus on wider issues that emanate from first round impacts. These are now discussed in turn.

Geographical Effects

3.1.11 In assessing the geographical effects, we have used noise distribution data (see Figures 4.3-4.5, Appendix 4) to identify Local Authorities and wards that may experience a decrease or

increase in noise under the development options, relative to the base case. Wards are identified as affected if any part of the ward would experience a change in noise level. Some wards are included in this analysis even though only a small part of the ward is affected (e.g. Southall). For each affected ward, data on each priority group is assessed to identify, within that ward, if they are disproportionately represented.

3.1.12 An equality priority group is identified as being disproportionately represented if the difference between their proportional representation within the ward is equal to, or greater than, 10% of the proportional representation of the London region average. For example, if the London region average for an equality priority group is 10%, then a ward with 11% or more of that group (i.e. greater than or equal to the London region average), is considered to be disproportionately represented. A higher or lower percentage difference would result in fewer or more wards being affected and included within the analysis. In line with the results from the screening, the analysis is conducted for children aged 0-4, 5-16 and BAME groups. More detailed evidence of the impacts on disabled, young and older people is being sought through the consultation period.

3.1.13 All wards identified as experiencing a noise decrease, increase or both and having one or more disproportionately represented equality priority groups are included in Tables 3.1 to 3.3. The tables show the proportional representation of each priority group within each identified ward.

3.1.14 **Option 1**

- Mixed mode operations without additional capacity would be likely to result in reduced noise impacts within three wards in the Borough of Slough, benefitting BAME groups and children. Children in Heathfield (Richmond upon Thames) and Bedfont (Hounslow) are also likely to experience reduced noise impacts, as well as some areas (see table 3.1) within Cranford (Hounslow) and Eton and Castle wards (Windsor and Maidenhead).
- Mixed mode operations without additional capacity would be likely to result in increased noise in some deprived areas within the 57dBA study area, including areas where both children and BAME people are over-represented compared to the London average. Evidence that increased noise levels can adversely affect health, and learning and development, both generally, and for children or BAME people in particular, could mean that adverse equality impacts may result from this option. Heston West and Heston East (both Hounslow) are potentially adversely affected wards where both children and BAME people are over-represented. They both include areas which are amongst the 20% most deprived areas in the country (see Figures 4.6-4.9, Appendix 4).

3.1.15 Option 2

- Under mixed mode operations (540k ATMs), the three wards within the Borough of Slough, identified as affected, will experience reduced noise impacts for BAME groups and children (see Table 3.2). Children in Heathfield (Richmond upon Thames) and Bedfont (Hounslow) are also likely to experience reduced noise impacts, as well as some areas within Cranford (Hounslow) and Eton and Castle wards (Windsor and Maidenhead).
- Mixed mode operations with additional capacity would be likely to result in an overall increase in noise in six wards within Hounslow where BAME people are over-represented (see Figure 4.7, Appendix 4). Increases in noise levels of up to 6dBA in Heston West (Hounslow) could give rise to adverse differential equality impacts, affecting BAME people, children and income-deprived people, all groups that are over-represented in this ward.
- The evidence of any overall adverse equality effects of noise impacts on children is inconclusive, with children aged 0-4 or 5-16 over-represented in a similar proportion of both adversely and positively affected wards under this option (see Figures 4.6 and 4.7, Appendix 4).

3.1.16 Option 3

- Adverse equality impacts could be experienced by income-deprived people, BAME people and children in Heston West (Hounslow), Pinkwell (Hillingdon) and Southall Green and Southall Broadway (Ealing), where noise modelling indicates increases of up to and exceeding 9dBA (see Figures 4.5-4.9, Appendix 4). Income-deprived people, BAME people and children in Cranford (Hounslow) could benefit from reduced noise (see Table 3.3).

Table 3.1: Wards with areas of noise increases or decreases relative to the base case - Option 1

WARD NAME	BAME %	Children (0-4) %	Children (5-16) %
London Average	40.2	6.6	14.7
Hounslow			
Bedfont (10,106)			17
Cranford (10,936)	69	8	18
Heston Central (10,998)	70		
Heston East (10,780)	72		17
Heston West (11,333)	67	8	19
Hounslow Central (10,791)	63		
Hounslow Heath (11,117)	67		
Hounslow West (10,356)	70		
Osterley and Spring Grove (10,453)	48		
Richmond upon Thames			
Heathfield (9,541)			16
Slough			
Chalvey (7,411)	61		
Cippenham Meadows (9,295)		8	
Upton (7,423)	46		
Windsor and Maidenhead			
Clewer South (5,221)		8	
Eton and Castle (3,023)			34

Key:

Wards with areas of noise decrease
Wards with areas of noise increase and decrease
Wards with areas of noise increase

Ward populations in brackets (ONS 2001)

N.B. Only wards with a disproportionately represented equality priority group are included in the table.

Table 3.2: Wards with areas of noise increases or decreases relative to the base case - Option 2

WARD NAME	BAME %	Children (0-4) %	Children (5-16) %
London Average	40.2	6.6	14.7
Hounslow			
Bedfont (10,106)			17
Cranford (10,936)	69	8	18
Heston Central (10,998)	70		
Heston East (10,780)	72		17
Heston West (11,333)	67	8	19
Hounslow Central (10,791)	63		
Hounslow Heath (11,117)	67		
Hounslow West (10,356)	70		
Osterley and Spring Grove (10,453)	48		
Richmond upon Thames			
St Margarets and North Twickenham (9,945)		8	
Heathfield (9,541)			16
Slough			
Chalvey (7,411)	61		
Cippenham Meadows (9,295)		8	
Upton (7,423)	46		
Windsor and Maidenhead			
Clewer South (5,221)		8	
Eton and Castle (3,023)			34

Key:

Wards with areas of noise decrease
Wards with areas of noise increase and decrease
Wards with areas of noise increase

Ward populations in brackets (ONS 2001)

N.B. Only wards with a disproportionately represented equality priority group are included in the table.

Table 3.3: Wards with areas of noise increases or decreases relative to the base case - Option 3

WARD NAME	BAME %	Children (0-4) %	Children (5-16) %
London Average	40.2	6.6	14.7
Ealing			
Norwood Green (12,649)	73	7	19
Southall Broadway (13,050)	91	7	18
Southall Green (12,894)	88		20
Hounslow			
Bedfont (10,106)			17
Cranford (10,936)	69	8	18
Heston Central (10,998)	70		
Heston East (10,780)	72		17
Heston West (11,333)	67	8	19
Hounslow Central (10,791)	63		
Hounslow Heath (11,117)	67		
Hounslow West (10,356)	70		
Osterley and Spring Grove (10,453)	48		
Hillingdon			
Botwell (12,431)			18
Pinkwell (12,345)	49	8	19
Townfield (11,625)			18
Richmond upon Thames			
Heathfield (9,541)			16
South Bucks District			
Iver Village and Richings Park (4,674)			16
Slough			
Chalvey (7,411)	61		
Windsor and Maidenhead			
Eton and Castle (3,023)			34

Key:

Wards with areas of noise decrease
Wards with areas of noise increase and decrease
Wards with areas of noise increase

Ward populations in brackets (ONS 2001)

N.B. Only wards with a disproportionately represented equality priority group are included in the table.

Sensitive Groups Effects

3.1.17 The assessment of sensitive group effects focuses on identifying which groups may be more sensitive to noise than other groups. Literature provides some evidence that noise may affect some groups more than others:

- Aircraft noise has been suggested to raise blood pressure, increase levels of stress hormones and also raise annoyance levels (Babisch 2006, Haines et al 2003). This could be particularly problematic for those already suffering other health conditions or the elderly.
- Several studies identify that children, in the developmental stages of learning, are likely to experience greater differential effects. Aircraft noise is noted as a contributor to low educational achievement such as poorer reading comprehension, recognition memory and motivation (Stansfeld et al 2005, Vilatarsana 2004, Haines et al 2003).
- Children and adults with existing mental health conditions are identified as likely to be adversely impacted due to aircraft noise (POST 2003). Increased noise levels can also make it more difficult for people with speech and / or hearing problems to communicate easily.
- Research also identifies that noise impacts can potentially affect people with English as a second language in terms of communication and intelligibility (Lazarus 1998, Vilatarsana 2004) which is of importance in particular for BAME groups where English is not their first language.

3.1.18 The ‘Adding Capacity at Heathrow Airport' consultation document considers noise levels equal to or greater than 57dBA. The Government recognises that some people are annoyed at lower levels. This is in line with evidence identified at the screening stage. In addition, higher occurrences of exposure are noted as potentially more annoying even if the noise event is quieter (POST 2003). This implies that even with improvements in aircraft technologies resulting in lower noise levels, increased ATMs could potentially discount some of these benefits.

3.1.19 The majority of evidence identifies an adverse impact of noise on the priority groups, however, there are still uncertainties over the precise nature of its impacts. This report therefore demonstrates the available evidence on the extent to which development options could affect critical social receptors such as schools. It does not take account of the extent to which these effects might be mitigated by, for example, noise insulation measures such as those already offered by the airport operator. Noise impacts on hospitals are not included in this analysis as they would form part of a full health impact assessment as appropriate at the planning stage.

3.1.20 There is no data that identifies a threshold noise value or values above which equality target groups would be differentially impacted. There is evidence to suggest that a steady noise level of 55dBA necessitates a 'loud' speaking voice in order to have reliable speech intelligibility (when speaking four metres apart). A steady noise level of 60dBA would require 'shouting' in order to be intelligible (Vilatarasna 2004: 60). Using these estimations, internal noise levels of 55dBA or higher in a classroom with open windows would require a teacher to use a loud-to-shouting speaking level in order to be intelligible to a pupil sitting four metres away. The impact could be judged to be greater in the summer but some of this would be off-set by the school holiday period.

3.1.21 The number of schools within the vicinity of Heathrow that may experience either an increase or decrease in noise relative to the base case is included in Tables 3.4 to 3.6 for the three policy options (see also Figures 4.3 to 4.5, Appendix 4).

Table 3.4: Number of schools affected by noise increases and decreases - Option 1

	Noise decrease	Noise increase
Early Years and Nurseries (2005)	11	12
Primary Schools (2005)	11	10
Secondary schools and 16 plus establishments (2005)	3	4

Table 3.5: Number of schools affected by noise increases and decreases - Option 2

	Noise decrease	Noise increase
Early Years and Nurseries (2005)	11	15
Primary Schools (2005)	11	20
Secondary Schools and 16 plus establishments (2005)	3	6

Table 3.6 : Number of schools affected by noise increases and decreases - Option 3

	Noise decrease	Noise increase
Early Years and Nurseries (2005)	7	19
Primary Schools (2005)	7	20
Secondary schools and 16 plus establishments (2005)	1	4

3.1.22 All the development scenarios would be expected to result in more schools experiencing higher levels of noise compared to the number of schools experiencing lower levels of noise, except for primary schools under the mixed mode within capacity (option 1) scenario. These figures do not address the magnitude of noise increases or school demographics but it is likely, based on absolute school numbers, that options 2 and 3 may result in more children experiencing higher noise levels relative to the base.

3.1.23 Cumulative impacts on children from BAME groups are highlighted in several Boroughs around Heathrow. Eight out of nine wards in the London Borough of Hounslow that would experience increased noise are identified as having disproportionately high levels of BAME groups. Of these wards, Cranford, Heston East and Heston West also have disproportionately high numbers of children. Option 3 would, in addition, also adversely impact Pinkwell ward (London Borough of Hillingdon) and the wards of Norwood Green, Southall Broadway and Southall Green (London Borough of Ealing). In Ealing, Southall Green ward had 88% and Southall Broadway ward had 91% BAME population (ONS 2001).

3.1.24 The percentage of BAME residents in the London Borough of Ealing is projected to increase from 45% in 2006 to 51% in 2026. Southall Broadway and Southall Green wards disproportionately represent children aged 0-4 and 5-16. This proportion is projected to increase between 2006 and 2026 by over 10% (GLA 2007c). It is likely that these wards in particular could suffer adverse impacts due to Heathrow expansion.

3.1.25 The impact of noise can affect pupils who speak English as a second language (ESL). The proportion of such pupils attending maintained schools in Hillingdon has increased from 18% in 2001 to 24% in 2004. In primary schools, over 25% of pupils speak English as a second language. In some wards in the south east of Hillingdon, over 40% of pupils speak English as a second language (Hillingdon 2007a).

3.1.26 In Slough, GCSE results for 2002 identified that only 38% and 40% of Afro-Caribbean and Pakistani pupils respectively achieved good passes (A*-C) compared to White pupils who achieved 48%. Poor educational success directly relates to poorer job prospects. This is reflected in figures that show that 30% of people with BAME backgrounds are employed in lower-skilled jobs compared to 21% for White people (Slough 2005).

3.1.27 In the London Borough of Hillingdon, 30% of the school population are from an ethnic minority and 19% of pupils speak English as a second language (2001). Hillingdon Borough identified six schools as likely to be specifically affected by increased noise levels as a result of a third runway (Hillingdon 2007b - see Table 3.7).

Table 3.7: Hillingdon Schools subject to increased noise levels (Hillingdon 2007b) - Option 3

School	Two runways (2006)	Three runways
Harlington Primary (William Byrd)	< 57 dB	68 dB
Harmondsworth Primary	60 dB	63 dB
Cranford Park Primary	< 57 dB	63 dB
Cherry Lane Primary	< 57 dB	60 dB
Pinkwell Primary and Harlington Secondary	< 57 dB	58 dB
Longmead Primary	< 57 dB	57 dB

Second Round Effects

3.1.28 The secondary impacts of aircraft noise are likely to be experienced predominantly by people living within the vicinity of Heathrow, in areas which would experience the highest noise levels. The second round effects include social deprivation and the impact of noise blight on housing and social and community infrastructure, as well as the use of outdoor space.

3.1.29 Indices of Deprivation are used to provide an indication of areas that may be more susceptible to suffer second round effects associated with deprivation. This report identifies severely deprived areas as those within the 20% most deprived in England. Of those areas identified as within the most 20% deprived (see Figure 4.6), Heston West (Hounslow) is likely to experience increased noise under all three policy options. Heston West, as mentioned above, also has disproportionately higher levels of BAME people and children (see Table 3.1, Figures 4.7-4.9). Other areas with high income deprivation include Brentford ward (Hounslow) and West Drayton ward (Hillingdon). These would also suffer increased noise levels under the third runway proposal.

3.1.30 The secondary impacts of noise blight may compound and exacerbate existing social deprivation within areas that will experience increased noise levels. The geography of these secondary impacts is considered to be comparable to the direct impacts of noise. Where additional evidence becomes available on this issue, it will be included during the final stage of the EqIA.

3.1.31 The impact of noise blight is considered likely to cause adverse impacts for deprivation. Increased noise levels may result in those who can afford to do so, moving away, leaving behind people who either cannot afford to move away or who choose to remain, due to lower housing costs in the area. This might lead to increased concentrations of deprivation in the areas affected by high levels of noise. Noise blight can suppress house prices, making it difficult for people to sell their properties and move out of the affected area. People on low incomes who are least able to move away are likely to be most affected. However, these groups could also benefit from greater access to more affordable housing.

3.1.32 Low income households living in private rental accommodation may be able to move to a less noisy area. However, long waiting lists for council transfers may restrict council tenants' ability to move out of the area and strong social ties within the noise-affected area may reinforce the economic barriers to moving.

3.1.33 The use of social infrastructure, including schools, health facilities and community centres is likely to be adversely affected by increased noise levels, where the building insulation is insufficient to maintain an environment where people are able to communicate easily. Open spaces, such as parks, gardens and sports pitches in areas with high noise levels are similarly likely to be adversely affected. Priority groups who use these facilities, particularly where they are more reliant on the facilities or services provided compared to the rest of the population, are likely to experience adverse impacts on their quality of life.

Conclusions

3.1.34 This section has sought to assess the impacts of noise changes on various equality groups. Assessment of such impacts is difficult due to the inherent uncertainty of the long term effects. However, based on the existing evidence we can summarise, to some extent, the impacts between those likely to be positive and those likely to be negative.

Positive Impacts

3.1.35 Under options 1 and 2, the three wards within the Borough of Slough, identified as affected, could experience reduced noise impacts for BAME groups and children. Children in Heathfield (Richmond upon Thames) and Bedfont (Hounslow) are also likely to experience reduced noise impacts, as well as some areas within Cranford (Hounslow) and Eton and Castle wards (Windsor and Maidenhead). Option 3 would result in BAME groups in Hounslow West (Hounslow) and Chalvey (Slough) and children in Bedfont (Hounslow) and Eton and Castle (Windsor and Maidenhead) experiencing lower noise levels. Some areas in Cranford (Hounslow) would experience reduced noise levels which could benefit all priority groups.

Negative Impacts

3.1.36 Additional capacity may lead to negative impacts based on the geographical and sensitive groups criteria. Additional capacity through mixed mode would result in several wards with disproportionately high levels of equality priority groups being affected. Heston West ward is identified as likely to experience significant adverse impacts, due to its high proportion of BAME people, children and income deprivation.

3.1.37 A third runway would result in significant increases in noise of up to and exceeding 9dB affecting priority groups in the London Boroughs of Hounslow, Ealing, Hillingdon, Windsor and Maidenhead and South Bucks District. Within these areas there are several wards including Heston West (Hounslow), Pinkwell (Hillingdon) and Southall Green and Southall Broadway (Ealing) that have disproportionate numbers of equality priority groups and that also have pockets of income deprivation. The combination of these factors has the potential to affect equality priority groups within these areas.

3.2 Air Quality

Scope of the air quality assessment

3.2.1 'The Future of Air Transport' White Paper (2003) noted that any future additional capacity would need to ensure that European air quality limits, applicable from 2010, would be met. The 'Adding Capacity at Heathrow Airport' consultation document demonstrated that on the basis of latest fleet mix assumptions, the NO_2 limit can be met in the immediate vicinity of the airport for option 2, with a few exceedences around the M4, a situation that is not substantially different from the base case. With a third runway (option 3) the analysis suggests that there would be no exceedences by 2020 or 2030.

3.2.2 The Heathrow consultation Impact Assessment did not fully assess the incremental impacts of additional capacity on air quality, relative to the base case but within the strict limits set out in the White Paper. This report therefore has required additional comparative analysis of the mixed mode and Heathrow third runway development scenarios. The aim was to identify how changes from the base case may affect various equality groups. It is important to note that the reported impacts, whether positive or negative, are in comparison with the base case ('do nothing') option in each case i.e. without airport development. Air quality in particular is predicted to improve over time, so references to 'worsening' or 'decreasing' air quality as a result of airport development are to be read as compared with the future position without development, and not to imply a deterioration from the current position.

3.2.3 Using the methodology in Chapter 2, the areas were first identified which might be affected by additional capacity, both in terms of wider dispersion of air quality effects and increase or decreases in the intensity of NO_2 within those areas. Focusing on the key affected groups identified from the screening report, we demonstrate in this section how, within those affected areas, these different groups might be affected.

3.2.4 The assessment of impacts first focuses on the direct geographical impacts, then goes on to discuss how other sensitive groups may be affected and finally discusses any second round effects. The first round (or direct) effects would stem from general increases or decreases in NO_2, for example to improve or adversely affect health for sensitive groups. Second round effects might include impacts on income-deprived groups and changes in behaviour as a result of the direct effects on social receptors.

Affected Groups

3.2.5 An initial screening study identified the following equality priority groups as likely to be differentially impacted by air quality, specifically by NO_2 levels:

- Age - children; direct impacts on incidence of acute respiratory illnesses and indirect impacts on school absenteeism amongst children due to direct impacts of poor air quality on health.
- Disability - people with existing asthma or other chronic lung conditions, who are likely to experience adverse health impacts at lower levels of NO_2 pollution.

3.2.6 In addition to these groups, the screening report revealed that there may be second round effects associated with socio-economic deprivation. High nitrogen dioxide levels have been tentatively associated with higher levels of deprivation.

3.2.7 On the basis of currently available evidence, other equality priority groups, including gender, sexual orientation, race and faith are considered unlikely to be differentially impacted by changes in air quality.

Affected Areas

3.2.8 The study area for air quality impacts on affected groups goes beyond the 57dBA noise contour area used for assessing noise impacts. This is to ensure that the assessment area captures the potential significant air quality impacts around the airport but not necessarily caused by airport traffic (e.g. road traffic), based on air quality modelling contours. The analysis is conducted at ward level based on data provided by CERC, the consultants who carried out the air quality modelling for the Heathrow consultation (see Figures 4.1-4.2, Appendix 4).

Analysis of Impacts

3.2.9 Analysis of impacts focuses on options 2 and 3. Option 1 was not considered as the air quality impacts are unlikely to significantly change from the base case.

3.2.10 In line with the methodology in Chapter 2, the analysis of the differential air quality impacts on equality groups has focused on first and second round impacts. The first round impacts focuses on the geography and sensitive criteria. The second round effects focus on wider issues that emanate from first round impacts. These are now discussed in turn.

Geographical Effects

3.2.11 In assessing the geographical effects, we have used air quality distribution data provided by CERC to identify, at ward level, areas that may experience a decrease or increase in air quality from additional capacity, relative to the base case. Ward level data from the 2001 Census on children aged 0-4 and 5-16 is assessed to identify, within that ward, if they are disproportionately represented for the two development options considered.

3.2.12 To maintain consistency with the noise assessment, an equality target group is identified as being disproportionately affected at the geographical level if the difference between their proportional representation within the ward is equal to, or greater than, 10% of the London region average. In line with the screening process, this assessment was conducted for children aged 0-4 and 5-16 (see Figures 4.8-4.9, Appendix 4). The London regional average for children 0-4 is 6.60% of total population and for children aged 5-16 is 14.70%.

3.2.13 **Option 2:** Tables 3.8 and 3.9 set out the positive and negative equality impacts of mixed mode, identifying affected wards for which children aged 0-4 or 5-16 formed a disproportionately large proportion of the ward population in 2001. The tables additionally identify those wards which include areas which are amongst the 20% most income-deprived areas in England, according to the Indices of Deprivation.

Positive impacts

3.2.14 Wards that would experience the greatest benefit from this option include: Bedfont ward (Hounslow), and Ashford North and Stanwell South (Spelthorne). Children aged 5-16 formed a disproportionately large proportion of the population of Bedfont ward and Ashford North and Stanwell South ward in 2001 (see Table 3.8).

Negative impacts

3.2.15 Wards in the study area that would experience adverse impacts from this option include Bedfont, Cranford, Heston West and Heston East wards (all Hounslow), Pinkwell, Botwell, Townfield and Yiewsley wards (all Hillingdon), Southall Broadway and Southall Green (Ealing), Iver Village and Richings Park (South Bucks) and Ashford North and Stanwell South (Spelthorne). Children aged 0-4 formed a disproportionately large number of the population of Cranford, Heston West, Pinkwell, Yiewsley and Southall Broadway wards in 2001. Children aged 5-16 formed a disproportionately large number of the population of Bedfont, Cranford, Heston West, Heston East, Pinkwell, Botwell, Townfield, Southall Broadway, Southall Green, Iver Village and Richings Park and Ashford North and Stanwell South wards in 2001 (see Table 3.9).

Table 3.8 - Mixed Mode 540k ATMs (2015): wards benefitting from improved air quality which have high proportions of children and income-deprived people

Affected Area – ward name, (total population, 2001 Census)	Children (0-4) as % of total population (2001 Census)	Children (5-16) as % of total population (2001 Census)	Includes areas amongst 20% most income-deprived in England (CLG 2008)
Hounslow			
Bedfont ward (10,106)		17	Yes
Spelthorne			
Ashford North and Stanwell South ward (7,552)		16	

Table 3.9 - Mixed Mode 540k ATMs (2015): wards adversely affected by worsened NO_2 levels which have high proportions of children

Affected Area – ward name, (total population, 2001 Census)	Children (0-4) as % of total population (2001 Census)	Children (5-16) as % of total population (2001 Census)	Includes areas amongst 20% most income-deprived in England (CLG 2008)
Hounslow			
Bedfont ward (10,106)		17	Yes
Cranford ward (10,936)	8	18	Yes
Heston West ward (11,333)	8	19	Yes
Heston East ward (10,780)		17	
Hillingdon			
Pinkwell ward (12,345)	8	19	Yes
Botwell ward (12,431)		18	Yes
Townfield ward(11,625)		18	Yes
Yiewsley ward (11,055)	7		
Southall			
Southall Broadway ward (13,050)	7	18	Yes
Southall Green ward (12,894)		20	Yes
South Bucks			
Iver Village and Richings Park ward (4,674)		16	
Spelthorne			
Ashford North and Stanwell South ward (7,552)		16	

3.2.16 **Option 3:** Tables 3.10 and 3.11 set out the positive and negative equality impacts of a third runway, identifying affected wards where children aged 0-4 or 5-16 formed a disproportionately large proportion of the ward population in 2001. The tables additionally identify those wards which include areas which are amongst the 20% most income-deprived areas in England. The NO_2 levels are not identified as at risk of equalling or exceeding the annual limit in the 2030 base case scenario for any of the wards identified in Tables 3.10 and 3.11.

Positive impacts

3.2.17 For option 3 the effects are as follows:

- The ward that would experience the greatest benefit from this option is Bedfont (Hounslow). Children aged 5-16 formed a disproportionately large proportion of the population of the Bedfont ward in 2001.

Negative impacts

- Wards in the study area that would experience the most adverse impacts from this option include Pinkwell, Botwell and Yiewsley (Hillingdon). Children aged 0-4 formed a disproportionately large proportion of the population of Pinkwell and Yiewsley ward in 2001. Children aged 5-16 formed a disproportionately large number of the population of the Pinkwell and Botwell wards in 2001.

Table 3.10 – Third Runway 702k ATMs (2030): wards benefitting from improved air quality which have high proportions of children

Affected Area	Children (0-4) as % of total population (2001 Census)	Children (5-16) as % of total population (2001 Census)	Includes areas amongst 20% most income-deprived in England (CLG 2008)
Hounslow			
Bedfont Ward (10,106)		17	Yes

Table 3.11 Third Runway 702k ATMs (2030): wards adversely affected by worsened NO_2 levels which have high proportions of children

Affected Area – ward name, (total population, 2001 Census)	Children (0-4) as % of total population (2001 Census)	Children (5-16) as % of total population (2001 Census)	Includes areas amongst 20% most income-deprived in England (CLG 2008)
Hillingdon			
Pinkwell ward (12,345)	8	19	Yes
Botwell ward (12,431)		18	Yes
Yiewsley ward (11,055)	7		

3.2.18 Air quality impacts on children are likely to affect not only children residing in the affected area, but also children from outside the area attending school in an affected area. The number of schools within the vicinity of Heathrow that experience either an increase or decrease in NO_2 levels relative to the base case is included in Tables 3.12 and 3.13 below. For option 2, 24 schools will be affected by increased NO_2 levels compared to six schools benefitting from decreased NO_2 levels within the study area.

Table 3.12: Number of schools affected by NO_2 increases and decreases - Option 2

	NO_2 decrease	NO_2 increase
Early Years and Nurseries (2005)	2	10
Primary Schools (2005)	4	12
Secondary Schools and 16 plus establishments (2005)	0	2

3.2.19 For option 3, nine schools will be affected by increased NO_2 levels compared to four benefitting from decreased NO_2 levels within the study area. Heathrow Primary School is not included in this, as under proposals for a third runway the school would be closed.

Table 3.13: Number of schools affected by NO_2 increases and decreases - Option 3

	NO_2 decrease	NO_2 increase
Early Years and Nurseries (2005)	1	5
Primary Schools (2005)	3	3
Secondary schools and 16 plus establishments (2005)	0	1

Sensitive Groups Effects

3.2.20 This focuses on identifying which groups may be more sensitive to air quality changes than other groups. Reviewed literature provided some evidence that air quality changes may affect some groups more than others:

- Increased morbidity and mortality from acute lower respiratory infections in children is attributable to outdoor air pollution (Valent et al 2004: pp 10-17).
- One report suggests that children living in the proximity of busy roads have an increased risk of around 50% of suffering from respiratory diseases. (Tamburlini, von Ehrenstein and Bertollini 2002: 33).
- A WHO report identifies that air pollution has been associated with asthma and allergies in children, rates of infection in smaller children, deficits in neurobehavioural development and development of lung function (WHO 2005).
- A more recent WHO report identifies NO_2 as contributing to increased reports of respiratory symptoms (e.g. cough, phlegm and wheeze), with effects most evident among children, particularly girls (WHO 2008).

- In 1996 the then Department of the Environment's expert panel on nitrogen dioxide acknowledged the existence of evidence of increased sensitivity amongst asthma sufferers to NO_2. This acknowledgement formed the basis for their recommendations of the hourly limit for NO_2 (DoE 1996a and 1996b).
- A secondary effect identified for people with existing asthma chronic lung conditions is change in their outdoor activity levels, because they thought the outdoor air quality was bad (Potter and Perveen 2006: 5).
- There are higher proportions of children in the 20% most deprived communities in England, where higher concentrations of NO_2 tend to be observed (Defra 2006).
- In London, there is tentative evidence for a positive correlation between air pollution (NO_2 and PM_{10}) and social deprivation, indicating that targeted policies to reduce pollution concentrations in areas with the worst air pollution could impact more beneficially in the more deprived communities (King and Stedman 2000).

3.2.21 The uncertainty of evidence and data regarding the sensitive group effects makes it more difficult to show the full geographical extents of the impact. However, we have attempted to show not only where children are over-represented in the areas affected by air quality impacts, but also to identify schools, where children who live outside the study area, may also be affected.

Second Round Effects

3.2.22 Second round effects of air quality may be experienced by people living in areas of existing deprivation. In London, a tentative link between air pollution and social deprivation has been identified. King and Stedman (2000) conclude that policies to reduce pollution concentrations in areas with the worst air pollution could impact more beneficially in the more deprived communities. This would be a positive second round effect where options reduce air pollution levels. On the other hand, the correlation may also mean that where policies result in increased air pollution, this could be felt most strongly in deprived communities. Second round effects specific to children may be experienced where the health impacts of air quality on children result in an increased rate of school absenteeism amongst children, who take time off due to illness. Second round effects may also be experienced where people's

perceptions of poor air quality on a given day result in them altering their outdoor activity levels, an effect to which people with asthma or other chronic lung conditions are likely to be more sensitive.

3.2.23 Both the mixed mode with additional capacity option (option 2) and the third runway (option 3), are predicted to result in a lowering of NO_2 levels in Bedfont ward (Hounslow), an area with existing pockets of high level income deprivation (see Figure 4.6, Appendix 4), and may as a consequence result in second round positive effects of reduced deprivation in the area.

3.2.24 Option 2 is predicted to result in an increase of NO_2 levels across eleven wards which include small areas amongst the 20% most income-deprived areas in the country. This may give rise to second round negative impacts of worsened deprivation in these areas. For option 3, second round impacts for worsened deprivation may result in Botwell and Yiewsley, both of which include areas identified as amongst the 20% most income-deprived areas in the country (see Figure 4.6, Appendix 4).

3.2.25 Second round effects of school absenteeism for children are likely to reflect the geography of the wards affected by direct impacts for children as well as schools affected by worsened or improved air quality.

3.2.26 For second round effects relating to disabled people, adequate geographical evidence was not available to identify whether there is likely to be a disproportionate effect on this group.

Conclusions

3.2.27 This section has sought to assess the impacts of air quality changes on various equality groups. The effects are uncertain, as they are based on modelling, which is based on assumptions about future fleet mix and future technological improvements.

Positive Impacts

3.2.28 Under option 2, improved air quality relative to the base case is expected in two wards (see Figure 4.1, Appendix 4) where children are disproportionately represented, namely Bedfont (Hounslow) and Ashford North and Stanwell South (Spelthorne). Two pre schools and four primary schools are likely to be positively affected by NO_2 decreases under this option (see Figures 4.1 and 4.2, Appendix 4). Second round positive impacts may be experienced in Bedfont ward, which has areas amongst the 20% most income-deprived in England. On the basis of evidence indicating a linkage between deprivation and poor air quality, this option could contribute to reducing overall deprivation affecting children in this area.

3.2.29 The third runway option is expected to result in improved air quality relative to the base case in Bedfont ward (Hounslow) (see Figure 4.2, Annex 4) where children are disproportionately represented. One pre school and three primary schools are likely to be positively affected by NO_2 decreases under this option (see Figures 4.2 and 4.5, Appendix 4).

3.2.30 The differential benefits experienced by children in the affected wards are likely to be in terms of health, educational and development benefits.

3.2.31 In Bedfont ward, second round positive impacts of reduced deprivation may be experienced by income-deprived people, including children in low income households.

Negative Impacts

3.2.32 Under option 2, worsened air quality relative to the base case, but still within the EU limits stipulated in the White Paper, is expected to affect twelve wards where children are disproportionately represented, namely Bedfont, Cranford, Heston West and Heston East wards (all Hounslow), Pinkwell, Botwell, Townfield and Yiewsley wards (all Hillingdon), Southall Broadway and Southall Green (both Ealing), Iver Village and Richings Park (South Bucks) and Ashford North and Stanwell South (Spelthorne). Furthermore, ten pre schools, twelve primary schools and two secondary schools are likely to be negatively affected by NO_2 increases under this option (see Figures 4.1 and 4.2, Appendix 4).

3.2.33 In Pinkwell and Botwell wards, second round negative impacts of worsened overall deprivation may result, affecting children in low income households in these areas.

3.2.34 The third runway option is expected to result in worsened air quality relative to the base case but still within the EU limits stipulated in the White Paper in Pinkwell, Botwell and Yiewsley (Hillingdon) where children are disproportionately represented. Additionally, five pre schools, three primary schools and one secondary school are likely to be negatively affected by NO_2 increases under this option (see Figures 4.2 and 4.5, Appendix 4). These are likely to result in negative health, educational and development effects for children in the affected wards and schools. Negative second round impacts for overall deprivation levels may be experienced in Pinkwell and Botwell wards, affecting children living in low income households in these areas.

3.3 Economy

Scope of Economic Assessment

3.3.1 The Heathrow consultation Impact Assessment set out the economic impacts of additional capacity for various development options. Analysis focused on monetised and non-monetised impacts. The monetised benefits relied on the Department's appraisal methodology of transport user benefits and delay reduction calculations (for mixed mode options). Non monetised assessments included discussion of resilience, employment impacts and other wider economic impacts (e.g. tourism expenditure and productivity benefits).

3.3.2 The methodology for calculating transport user benefits is explained more fully in the UK Air Passenger Demand and CO_2 Forecasts report[10]. In the context of the current assessment, additional capacity may be interpreted as leading to increased choice and opportunity for local communities. Additional capacity at Heathrow would contribute to promoting greater choice and opportunities for people to benefit from air travel. In particular, it may lead to the following:

- New destinations may be created from Heathrow airport as new carriers enter and compete for passengers due to availability of additional landing slots. Heathrow is a diverse area with many passengers travelling to long haul destinations. Expanding the route choice in long haul travel may bring significant local benefits.
- More frequent flights allowing local passengers to plan their journeys and access flights at the most convenient time for them.
- Reducing delays allowing new and existing local passengers to save time and use that time for more productive activities.
- Greater capacity that may translate into greater competition for certain routes (e.g. long haul routes to Africa, India and China) which may lead to cheaper fares.

3.3.3 In addition to welfare benefits to local passengers, additional capacity may lead to other benefits associated with greater economic activity. A key element of these benefits is employment. Assessment of employment impacts focused on direct employment and income generated from airport operations. However, the analysis also noted that indirect employment and income were generated from the chain of suppliers of goods and services. This includes jobs in the retail and catering industry (providing airline meals and in airport retail outlets), energy sector (dependent upon airline purchases of fuel) and jobs in the construction sector related to the building of additional facilities at airports. It also includes induced

[10] UK Air Passenger and Demand and CO2 Forecasts, Department for Transport, November 2007

employment and income generated in the economy by the multiplier effect of the expenditures of those directly and indirectly employed in the aviation sector, for example local shops and services; and catalytic employment and income effects[11].

3.3.4 This report focuses on these two aspects and seeks to assess the extent to which additional capacity may increase travelling and employment opportunities for equality groups in the area.

Affected Groups

3.3.5 The screening report identified BAME as being positively differentially affected by expansion in terms of the economic opportunities associated with additional capacity. This was partly due to race being the most dominant equality group in the area. It is likely that all equality groups would benefit from increased travel and employment opportunities.

3.3.6 This report also considers, as part of the second round effect, any economic impact of additional capacity on social deprivation.

Affected Areas

3.3.7 In assessing the economic benefits on equality priority groups, it is necessary to identify the areas which are affected. The 57dBA area is assumed to be the main area of consideration in order to be consistent with the work on noise and air quality. Based on that definition, the following areas are identified as relevant for the assessment (data based on 2001 Census):

- Hounslow: 44% of Hounslow's population is from an ethnic minority group, significantly higher than for London (29%) and Greater London (25%) averages. The largest group is Indian, accounting for 17.33%. Within the Borough, the central Hounslow and Heston/Cranford areas have the largest percentage of non-White residents at 53% and 63% respectively. 59% of pupils are from an ethnic minority.
- Ealing: 55% of Ealing's population is BAME.
- Slough: 42% of Slough's population is BAME. It has the highest percentage of Muslim and Hindu residents in the South East and the highest percentage of Sikh residents in England. One-third of the population was born outside the UK.

[11] These include effects generated by the wider role of the airport in improving the productivity of businesses.

- Hillingdon: A high proportion of Hillingdon's population is from a BAME group (27%), although this is significantly less than Hounslow and Ealing.
- Spelthorne: Unlike Hounslow, Ealing and Hillingdon, a low proportion of Spelthorne's population is from a BAME group. Spelthorne is not very diverse ethnically. BAME groups are located more in the northern part of the Borough.

Analysis of Impacts

3.3.8 The analysis of impacts has focused on the methodology in Chapter 2. For clarity we have assessed the two main effects separately, with additional assessment of the second round effects.

Transport User Benefits to Equality Groups

3.3.9 In order to assess the transport user benefits for the affected areas, exploratory analysis was based on the outputs of the DfT cost benefit analysis model.

3.3.10 The analysis involved estimating the share of 'generated users' and 'existing users' benefits that might accrue to passengers travelling to or from the local area. Generated users are the additional new passengers able to use the airport who would otherwise have used other airports or not travelled at all. Existing user benefits accrue to those passengers who would have used the existing airport, but who would enjoy higher frequencies of travel as a result of the development. These two benefits comprise approximately half of the total benefits and almost all of the direct passenger benefits.

3.3.11 The assessment showed the following results for the various development options:

- **Option 1**: Mixed mode within capacity would not significantly increase passenger numbers or service frequencies above the base case, so there are no additional existing or new passenger benefits to be estimated.
- **Option 2**: Mixed mode with increased capacity would provide local delay reduction benefits which are slightly higher than in mixed mode capped at 480,000 ATMs because of the additional passengers using the airport from 2015. If the local share of Heathrow traffic remained the same over the period as in the base case, then local users who also use Heathrow might accrue £95 million of the total delay reduction benefits between 2010-2019.
- **Option 3**: In total, passengers travelling to or from the five local districts neighbouring Heathrow might accrue benefits of £419 million between 2020-2080, representing 4.7% of generated user benefits nationally.

3.3.12 Although no data is available to determine the generated user and existing user benefits on equality groups (given that the results are not broken down by ethnicity), in so far as BAME is significantly represented in these areas, we would expect some of the benefits to accrue mainly to them. However, the extent to which these benefits accrue to BAME groups would depend on the extent to which they already use the airport and are able to afford air travel in general.

Employment Benefits to Equality Groups

3.3.13 In order to assess the employment benefits, data on employment was taken from the BAA Staff Survey and modelling previously conducted by Tribal for the HESAM model[12].

3.3.14 Additional capacity at Heathrow may generate greater economic activity and associated employment, both on-site and in the South East as a whole, as a result of benefits to other businesses in the region. The employment impacts may be classified as follows:

- Direct employment and income that is wholly or largely related to the operation of an airport;
- Indirect employment and income generated in the economy in the chain of suppliers of goods and services;
- Induced employment and income generated in the economy by the spending of incomes by the direct and indirect employees; and
- Catalytic employment and income generated in the economy by the wider role of airports in improving the productivity of

[12] HESAM is BAA's Heathrow Employees Surface Access Model.

businesses and in attracting economic activities, such as inward investment and inbound tourism.

3.3.15 Nevertheless, it should be noted that focusing solely upon employment presents a partial picture of the economic contribution of Heathrow to the UK economy at present, and this may be potentially misleading. For example, employment in all sectors will result in indirect, induced and catalytic employment effects, and this may introduce the risk of double counting when considered alongside transport user benefits.

3.3.16 Despite the potential dangers of overstating employment impacts, there is no doubting the importance of the employment Heathrow currently provides: in some local boroughs such as Hounslow, as many as one in every ten people in the Borough that are currently in employment work at Heathrow. The Equalities Impact Assessment report takes as its starting point for consideration the current on-airport employment.

- It is currently estimated that Heathrow directly employs approximately 72,000 people (Heathrow 2006), of whom over 40% live in the five boroughs surrounding the airport (Heathrow 2004). Of these, boroughs that are home to more than 5,000 Heathrow staff include Hounslow (11,300), Hillingdon (8,000), Ealing (5,200) and Spelthorne (5,200) (DfT 2007a).
- According to BAA, an "estimated 34% of Heathrow's workforce are drawn from black and minority ethnic (and particularly Indian and other Asian) communities which broadly reflects the profile of Heathrow's neighbouring boroughs" (BAA 2007a).
- There is a high proportion of BAME people in the five boroughs mentioned according to the 2001 Census.
- There is also evidence that in several boroughs in the catchment area, the BAME population is expected to increase. For example, in Hounslow and Hillingdon, that proportion is expected to grow by between 10 to 20% from 2002 to 2026 (GLA 2007c).

3.3.17 It should be noted that the employment effects generated from additional capacity will accrue to BAME groups differently. For example, Slough's current employment rate is 78%, however when this figure is analysed on the basis of ethnicity, large disparities between different ethnic communities exist. 78% of White, 82% of Indian and 77% of Black people were employed in Slough in 2005. Yet in the same year, only 53% of Pakistani/Bangladeshi people were employed (Slough 2005b). In Hounslow, the unemployment rate among Black African people was 16% in 2001. Whereas the unemployment rate of Indian people averaged 5.2%, very similar to White groups (Census 2001). In this context, there is likely to be considerable variation in terms of how different groups will be able

to access new employment opportunities.

3.3.18 This report has assessed the employment effects of mixed mode with additional capacity (option 2) and a third runway (option 3). No assessment has been undertaken for mixed mode within capacity since no capacity changes take place. The assessment of the direct employment effects for the various development scenarios are set out below.

3.3.19 The base case scenario was outlined in the Heathrow consultation Impact Assessment. In the future, direct on-site employment at Heathrow is expected to fall under all policy options due to the increased application of technology and automation, which will increase labour productivity while off-setting employment levels. For instance, under the base case outlined in the consultation document, total employment at Heathrow was estimated at 67,300 in 2004 (not including 5,000 construction workers). Without additional capacity (i.e. at 480k ATMs) total employment at Heathrow is predicted to decline to 63,000 jobs in 2010, and 52,400 jobs by 2030, representing a fall in employment of around 22% from actual levels in 2004.

3.3.20 The direct employment changes against the base case are:

- Option 2 would lead to an 11% increase of employment from 56,400 in the base case scenario to 62,800.
- Option 3 would lead to increased employment from 52,400 in the base case scenario to 60,400. Of the 8,000 (15%) additional direct jobs created by Heathrow's possible development by 2030, 3,600 jobs would be generated in the 57dBA noise area, assuming in 2030 the same proportion of jobs are held by people in this area as there are today. If it is conservatively assumed that the proportion of BAME groups employed at Heathrow remains constant up until 2030 at 34% (BAA 2007a), it can be projected that 2,720 additional jobs would be generated that could benefit BAME people. However, it is not known how much of this employment would occur within the impact area, nor the skills composition of BAME groups within this area.

3.3.21 It should be noted that for option 3, the additional jobs created against the base case may be significantly smaller than 8,000 if mixed mode has been introduced in the interim, creating jobs against the base case.

3.3.22 In addition to the impacts discussed, analysis from the SERAS[13] study suggests that direct off-site employment related to Heathrow airport currently generates around 10,000 additional jobs. This would potentially increase to around 12,000 by 2030 with Heathrow's possible development, representing a net increase of around 2,000 off-site direct jobs (SEERA 2005).

3.3.23 Induced and catalytic employment from the possible development of Heathrow is also likely to be significant, although these impacts are more difficult to measure. One attempt to measure this was made in the SERAS forecasts mentioned above. Assuming a multiplier effect of two, then estimates for the creation of 8,000 direct jobs by 2030 relative to the base case scenario would lead to another 8,000 indirect and induced jobs, also by 2030. It is not known how much of this additional employment would accrue to BAME groups within the impact area[14].

3.3.24 The total additional employment created by the possible development of Heathrow would go some way to compensate for the technology-related job losses of 14,900 between 2004 and 2030, as noted above.

Second Round Effects

3.3.25 In addition to the first round impacts discussed above, there are likely to be second round effects associated with economic impacts on social inclusion. A formal social inclusion analysis is outside the scope of this assessment. However, using Indices of Deprivation (ID) 2007 data, particular pockets of income and employment deprivation have been identified. Using this information, some preliminary conclusions have been reached on the extent to which additional capacity may stimulate greater economic activity in these areas through employment creation.

3.3.26 Despite reasonably strong employment rates and generally low proportions of working-age people claiming Job Seekers' Allowance (JSA) within the five boroughs (Nomis 2006), ID data (see Figure 4.6, Appendix 4) indicate that there are 'pockets' of deprivation and higher unemployment within the Heathrow catchment area, particularly in urban areas. For example, 16% of areas in Ealing are within the top 20% most deprived in England; 5% are within the 10% most deprived.

3.3.27 Table 3.14 illustrates that over a third of Heathrow employees live in Hounslow, Hillingdon and Ealing, all of which are in the lower 20% most income-deprived Local Authorities according to the 2007 Indices of Deprivation (ID) rankings published by the CLG. On employment, Hounslow and Ealing are amongst the 20% most deprived, with Hillingdon just outside.

[13] South East and East of England Regional Air Services study, Department for Transport 2003
[14] These numbers should be treated with some caution as they were based on different capacity assumptions.

Table 3.14: Heathrow Employees in Boroughs Ranked According to ID[15]			
Local Authority	**Number of employees, 2007**	**ID income**	**ID employment**
Hounslow	11,300	53	69
Hillingdon	8,000	59	71
Ealing	5,200	22	35
Spelthorne	5,200	286	299
Slough	3,300	103	140

(Rank 1 = most deprived out of 354 Local Authorities)

3.3.28 Within the five boroughs, approximately one third are 'economically inactive', meaning people who are neither in work nor currently seeking employment (Nomis 2006). This is significantly higher than the Great Britain average of 24% and substantially outweighs the number of borough residents claiming Job Seekers' Allowance (JSA).

3.3.29 In this context, there is likely to be considerable variation in terms of how income-deprived groups will benefit from new employment opportunities. In large part, this depends on how the skills profile of employment generated by Heathrow's possible development matches the skills profile of income-deprived groups who are also actively seeking employment.

3.3.30 Although the exact breakdown of the existing skills mix of direct employment at Heathrow is unknown, it is likely to have a skills mix as indicated in the following table from the SERAS study (Table 3.15).

[15] Source: Indices of Deprivation, Communties and Local Government, 2007

Table 3.15: Airport Employment Skills Mix[16]

Class	Definition	% Employed
A	Higher managerial, administrative or professional	8.5%
B	Intermediate managerial, administrative, professional	14%
C1	Supervisory clerical and junior management	18%
C2	Skilled manual workers	28.5%
D	Semi or manual workers	31%

3.3.31 Since Heathrow and its associated hospitality and retail infrastructure have a high demand for people with entry-level qualifications and skills, expansion proposals are likely to increase demand for lower-skilled jobs which might benefit disadvantaged groups with low levels of qualifications.

3.3.32 Expansion could also increase the local business demand for higher-skilled labour which could exacerbate the disjunction between skill level demand and skill level availability within the local labour force. There is evidence to suggest that businesses in the five Boroughs surrounding Heathrow are having difficulty recruiting skilled staff and managers, which is viewed as an impediment to economic growth (Hillingdon 2005).

3.3.33 This is generally supported by skills and qualifications data obtained at Borough level:

- Academic attainment in Hillingdon's schools is below the London average and Hillingdon has a disproportionate number of young people in the NEET category (Not in Education, Employment or Training) (Hillingdon 2005).
- Hounslow has a considerable number of adult residents with low level qualifications. The four wards in the whole of the London West area with the highest proportion of adults with low level qualifications are in Hounslow, around 54% compared to 36.7% in London. According to the Basic Skills Agency Statistics from 2001, 23.6% of Hounslow adults have low level qualifications, with Cranford and Hanworth the most affected wards, at 33% and 30% respectively (Hounslow 2007).

[16] Source: Halcrow Group Ltd Airport Employment Forecasting Stage Two, January 2002

- In Slough, the percentage of people with poor literacy (27.1%) and poor numeracy (27.3%) is higher than the national average (24%) and significantly higher than in surrounding boroughs (Slough 2007).
- In Spelthorne, 24.9% of the population has no qualifications (Census 2001).
- In Ealing, there is a wide range of skills. Ealing residents are highly qualified, being in the top twenty local authorities in the country with people qualified to degree level or above (35%). Yet approximately one-fifth of people aged 16-74 (22%) have no qualifications (Census 2001).

3.3.34 Option 3 would create short term lower skilled employment, particularly as a result of construction related activities. This is likely to offer short term lower-skilled employment gains to certain disadvantaged/deprived groups in the impact area.

3.3.35 In the long term, a shift in the composition of direct employment at Heathrow from lower to higher-skilled jobs is expected. Of the 8,000 additional jobs created and remaining by 2030, it can be expected that many of these may be in the higher skills category, given that technology-related job losses would be mostly concentrated in lower-skilled manual jobs that may eventually become automated. Therefore, short term lower-skilled job creation would gradually erode over time.

3.3.36 Although the disjunction between skill level demand and skill level availability within the local labour force is indicative of broad structural problems, and not necessarily due to Heathrow as a key local employer, the additional low-skilled employment generated by the development proposals may provide incentives to young people from disadvantaged communities to leave full-time education in order to take advantage of a sudden abundance of low-skilled employment in the area.

Conclusions

3.3.37 The Heathrow consultation Impact Assessment assessed the extent to which additional capacity could generate economic benefits to UK. In this report the analysis has now been extended by providing a more detailed assessment of the extent to which transport user benefits and employment creation benefits may be distributed geographically in the local areas. The following conclusions are drawn:

- Additional capacity would lead to increases in transport user benefits for the those travelling to or from the local area by promoting choice and opportunity for travel. The lack of detailed work in terms of differentiating air passenger users according to their race, gender, age and/or disability makes it difficult to reach definitive conclusions on the proportion of user benefits accruing to BAME or income-deprived groups. However, in general, the evidence suggests that it might be positive.

- Analysis underpinning the Heathrow consultation Impact Assessment shows that additional capacity would lead to additional employment creation in the order of 8,000 jobs with a third runway, with the incremental impact significantly smaller when mixed mode is introduced as an intermediate step. The influence of technological improvements, specifically automation of manual jobs, however, might suggest that a greater proportion of these opportunities could be in higher-skilled jobs.
- Additional capacity might bring employment benefits to deprived communities, through, for example, construction jobs. It could also still be the case that low skilled people continue to rely on Heathrow airport to provide lower-skilled job opportunities.

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Appendix 3 Equality Legislation

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Disability Discrimination Amendment Act 2005

Employment Act 1989

Employment Equality (Age) Regulation 2006

Employment Equality (Religion or Belief) Regulation 2003

Employment Equality (Sex Discrimination) Regulations 2005

Employment Equality (Sexual Orientation) Regulation 2003

Employment Rights Act 1996

Equal Pay Act 1970 (Amended)

Equality Act (Sexual Orientation) Regulations 2007

Equality Act 2006

Gender Recognition Act 2004

Protection from Harassment Act 1997

Race Relations (Remedies) Act 1994

Race Relations Act 1976

Race Relations Act 1976 (Amendment) Regulation 2003

Race Relations Amendment Act 2000

Racial and Religious Hatred Act 2006

Sex Discrimination Act 1975

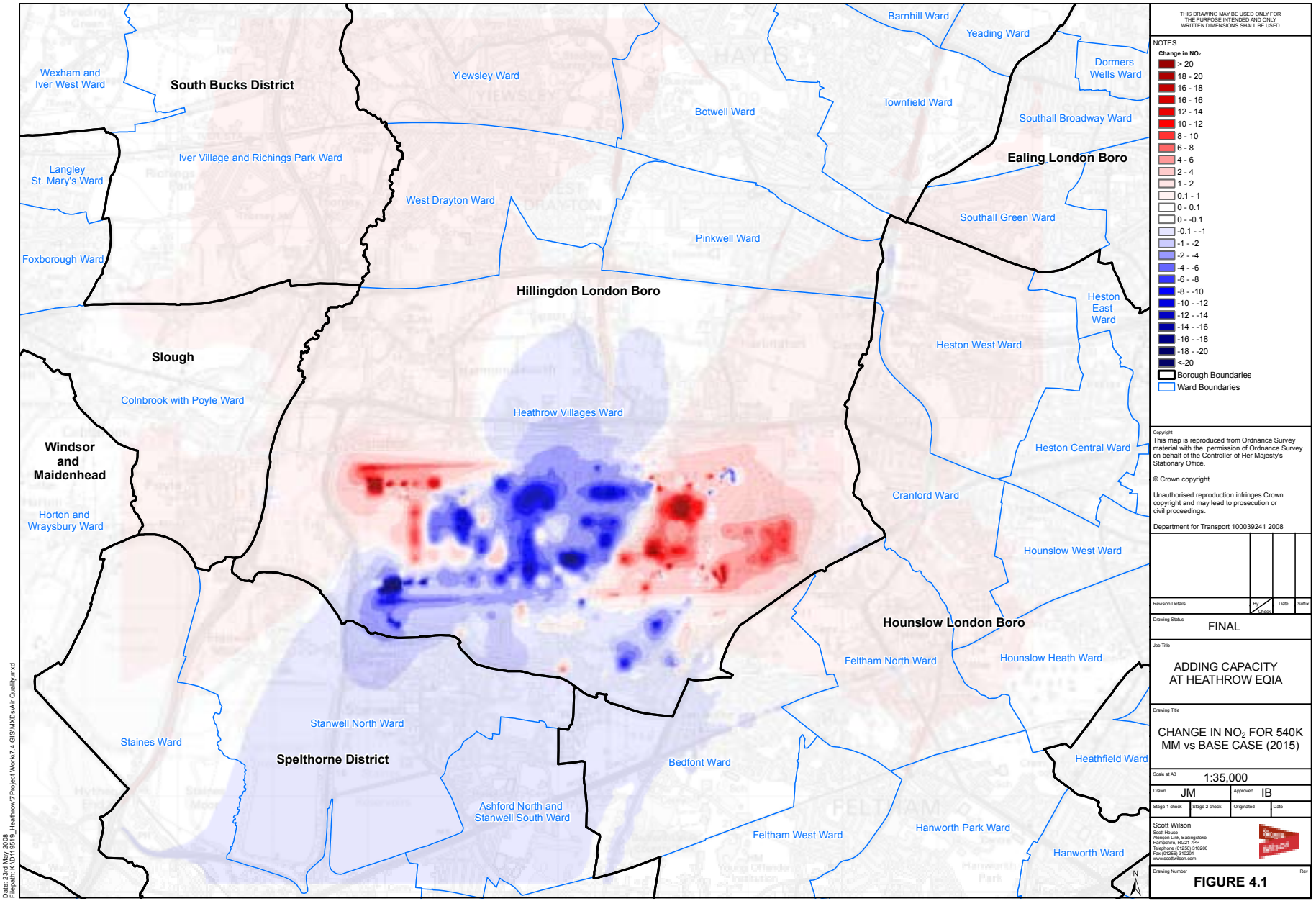
The Disability Discrimination (Public Authorities) (Statutory Duties) Regulations 2005 [SI 2005/2966]

The Disability Discrimination Act 1995

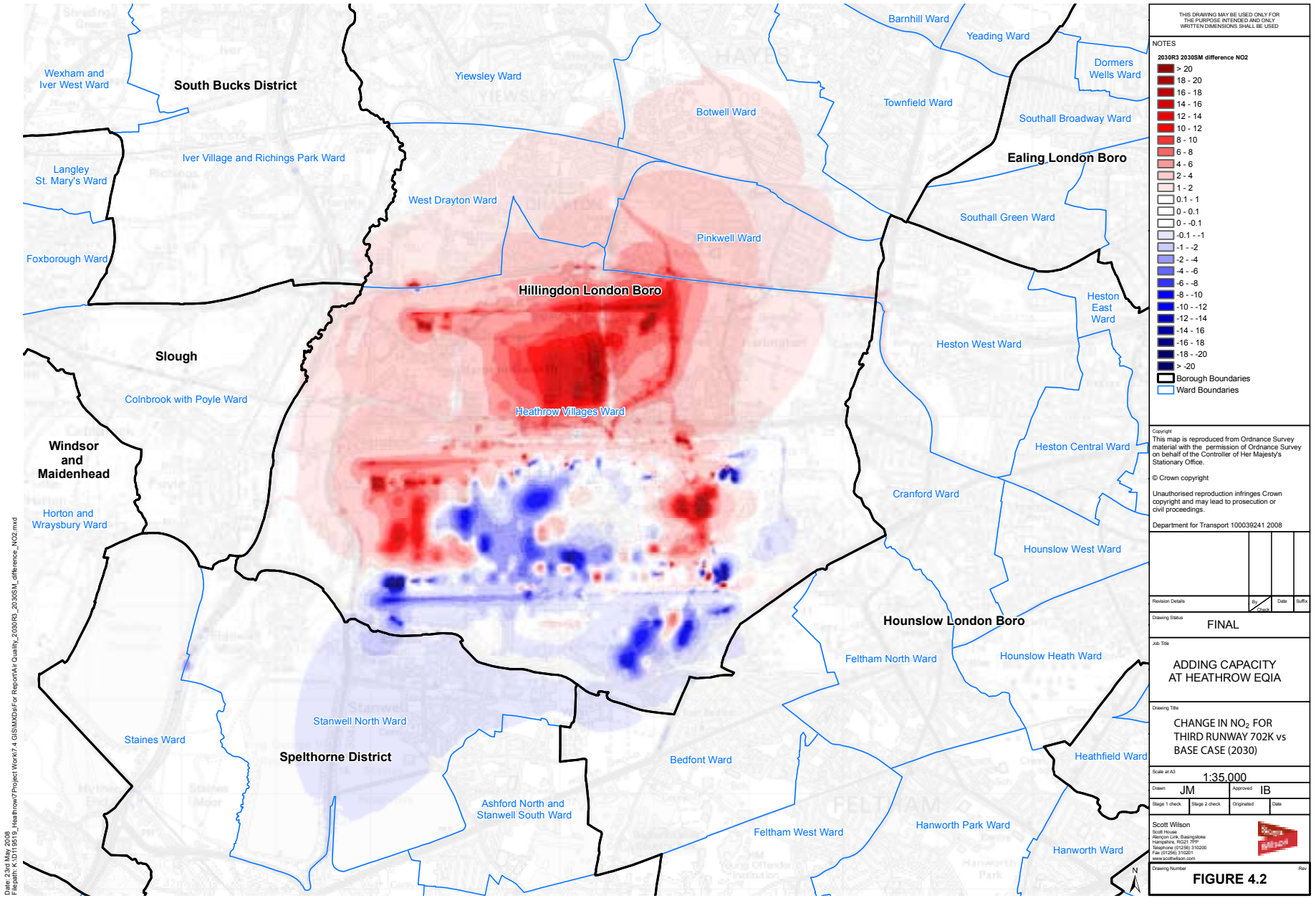
The Human Rights Act 1998

The Sex Discrimination (Gender Reassignment) Regulations 1999

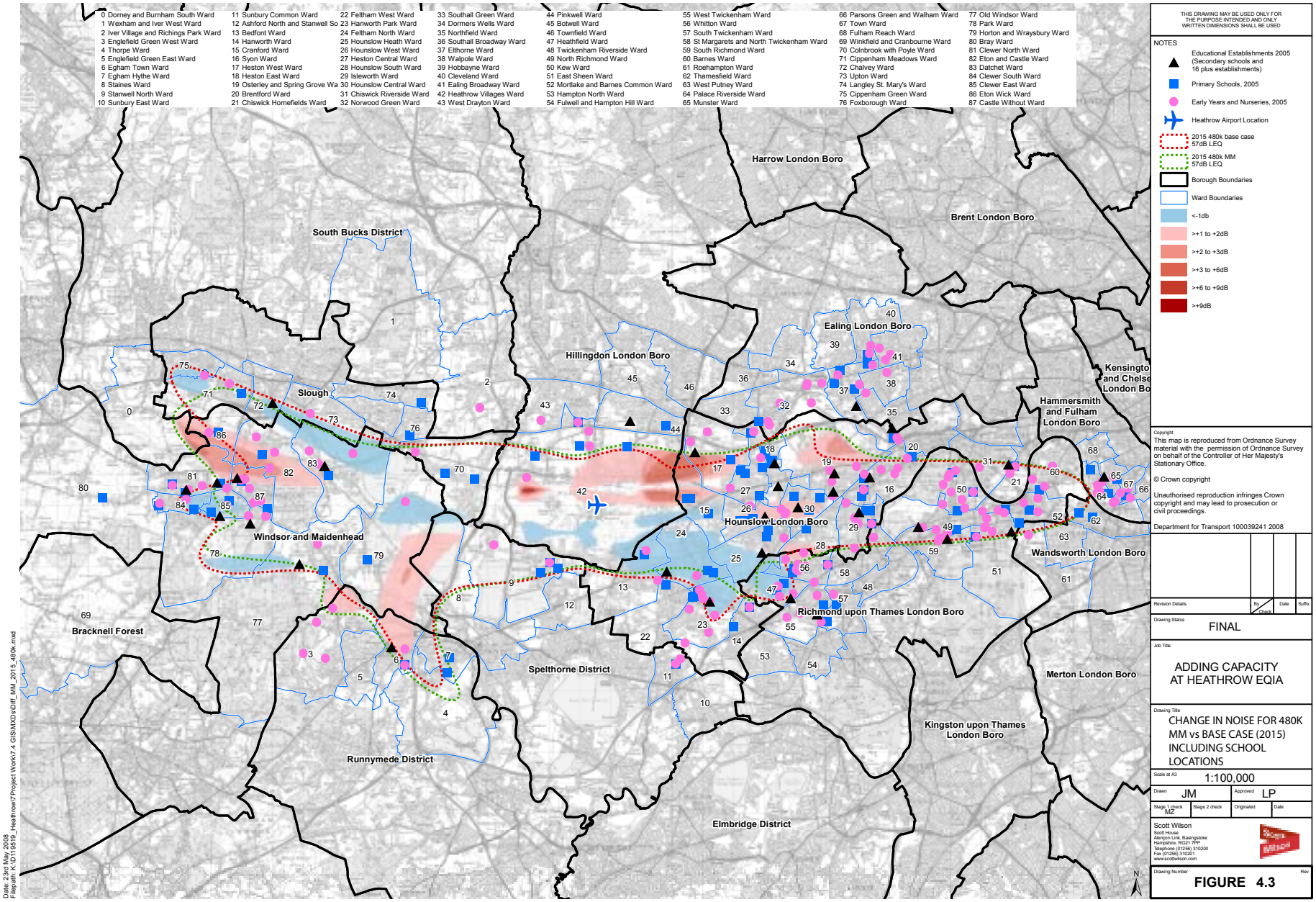
Appendix 4 Maps and Figures - Air Quality 4.1



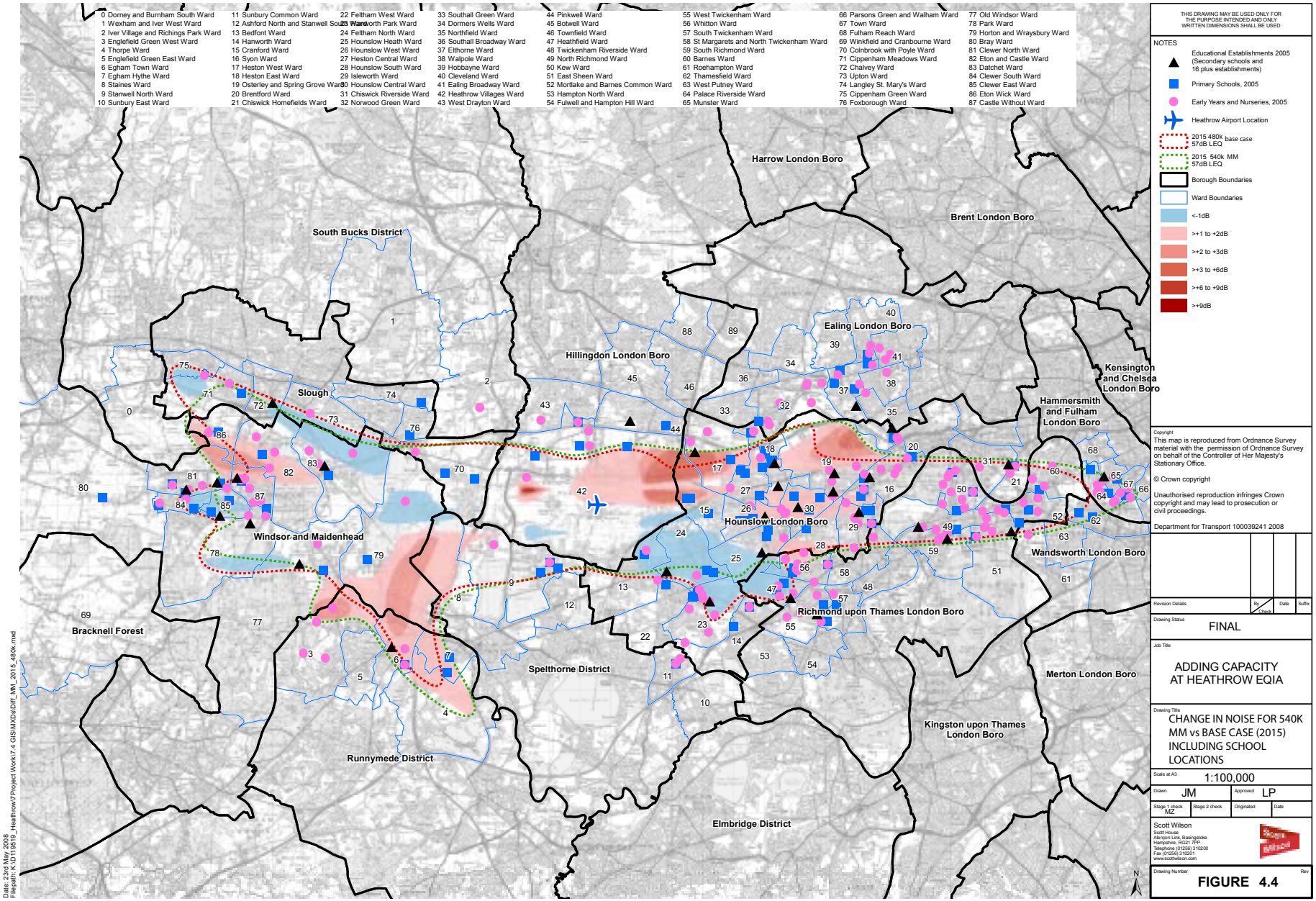
Appendix 4 Maps and Figures - Air Quality 4.2



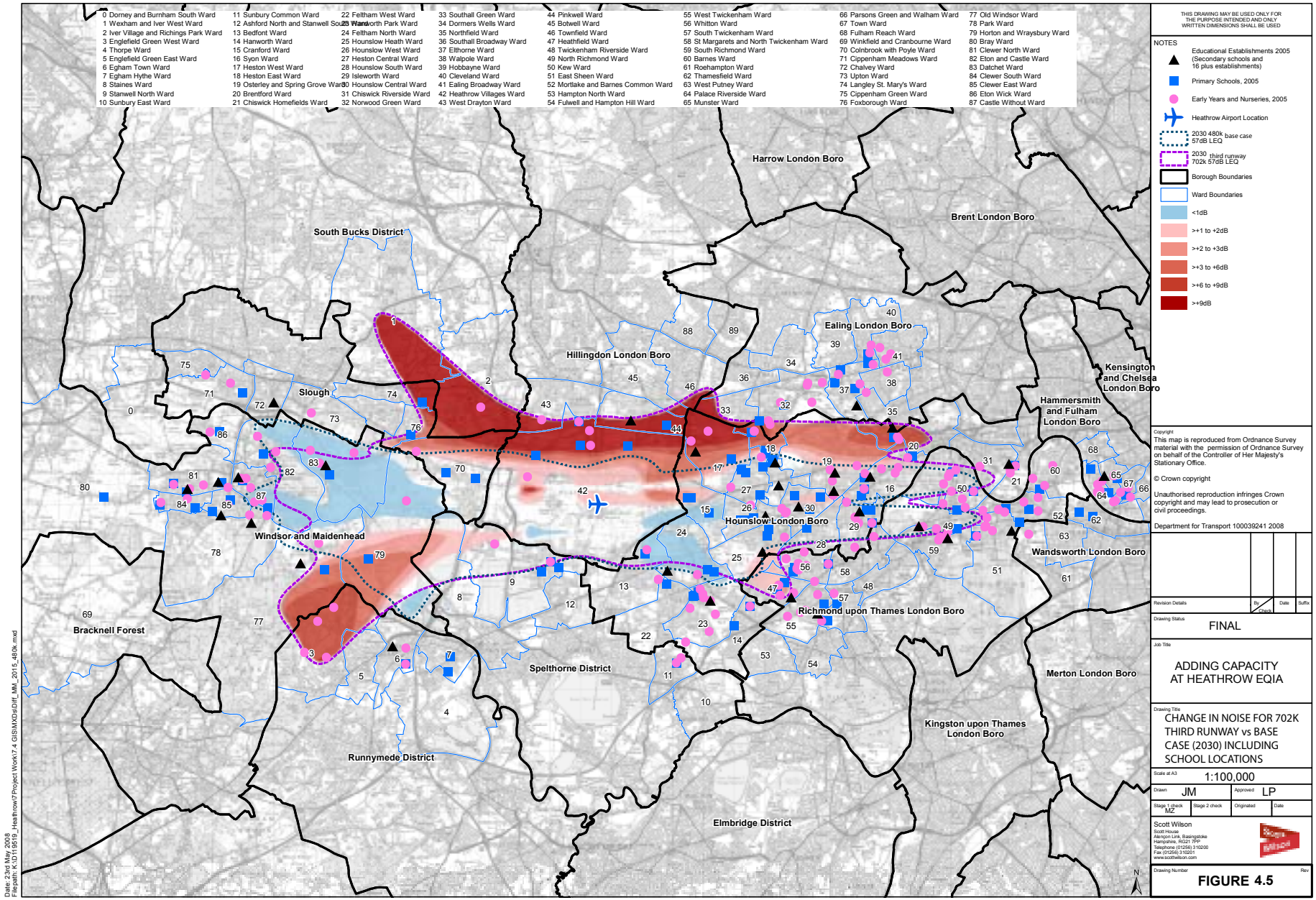
Appendix 4 Maps and Figures - Noise contours for policy options - Figure 4.3



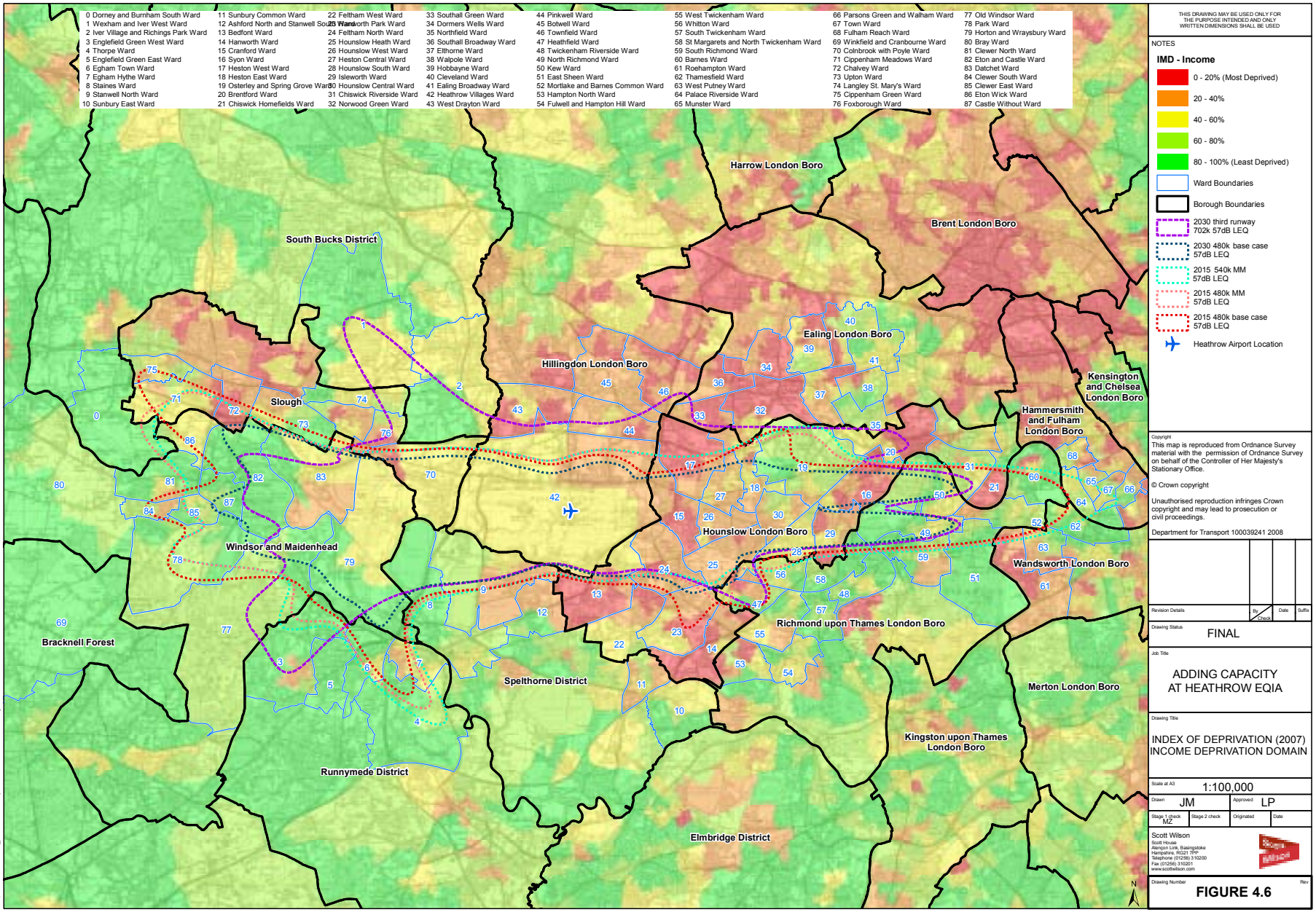
Appendix 4 Maps and Figures - Noise contours for policy options - Figure 4.4



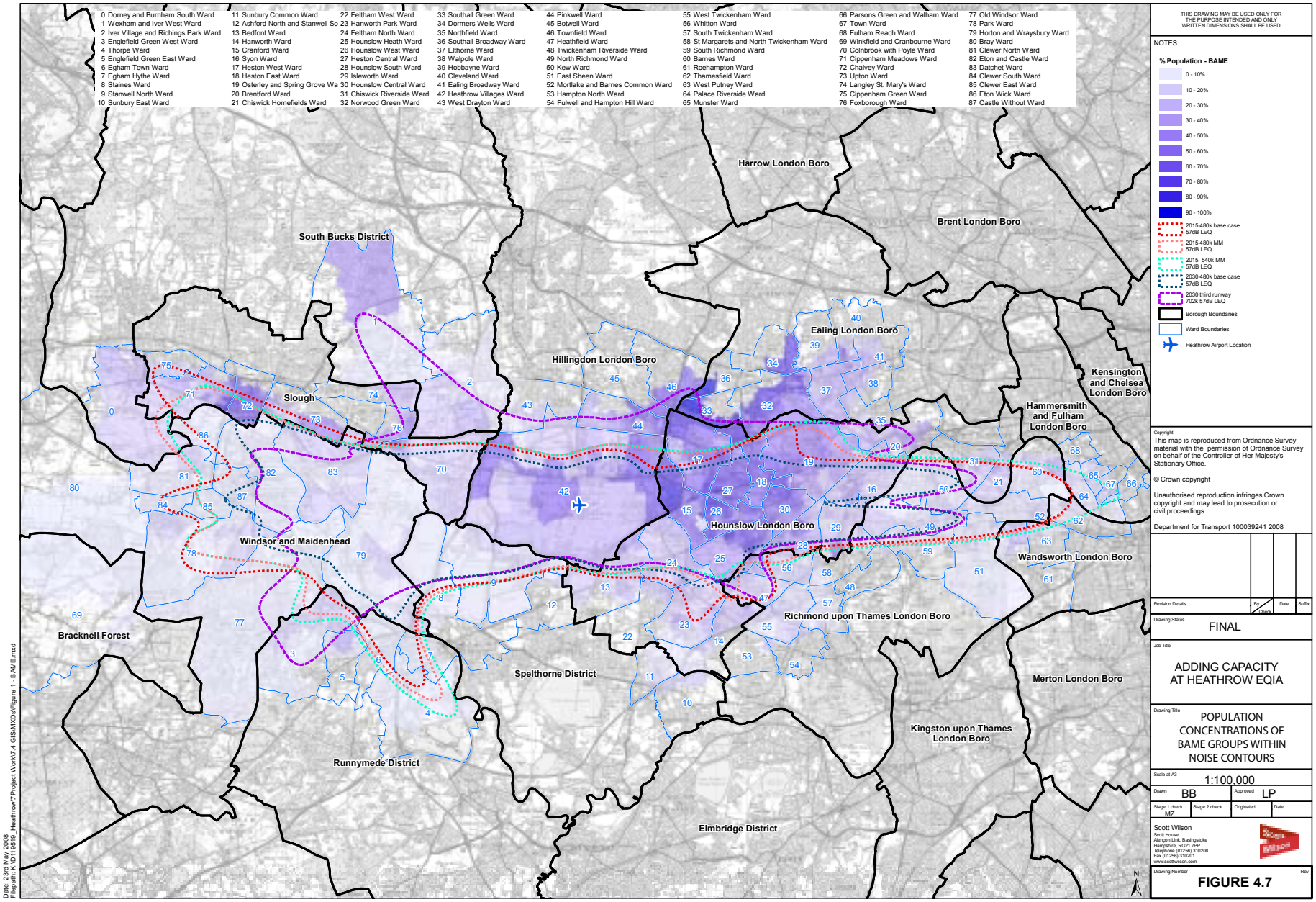
Appendix 4 Maps and Figures - Noise contours for policy options - Figure 4.5



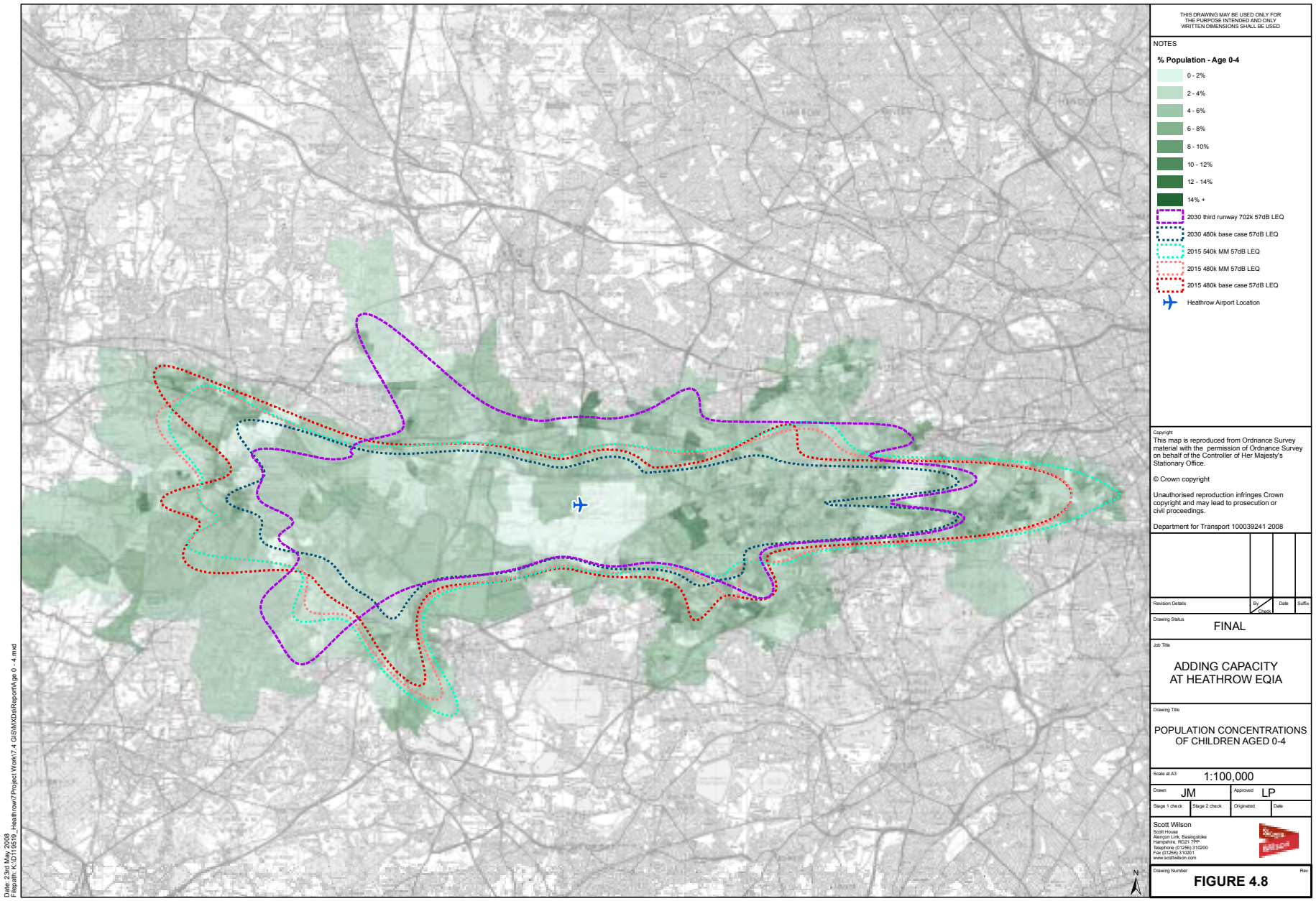
Appendix 4 Maps and Figures - Indices of deprivation: income - Figure 4.6



Appendix 4 Maps and Figures - Noise contours for policy options - Figure 4.7



Appendix 4 Maps and Figures - Population concentrations of children aged 0-4 - Figure 4.8



Appendix 4 Maps and Figures - Population concentrations of children aged 5-16 - Figure 4.9

Appendix 5 Executive Summary of Screening Report

A5.1 Context and Methodology

A5.1.1 The Screening Report forms part of the Equalities Impact Assessment (EqIA) for the Adding Capacity at Heathrow Airport consultation. Its purpose was to:

(a) assess, based on available evidence and in line with published guidance, whether or not equality groups would be differentially affected by the development proposals contained in the consultation document; and

(b) enable a decision on whether a full EqIA was required.

A5.1.2 Information gained from the EqIA will be used to update the Impact Assessment for the Adding Capacity at Heathrow Airport consultation.

A5.1.3 The EqIA is undertaken to fulfil the Department for Transport's statutory obligations to promote equal treatment and to tackle discrimination across three areas - race, disability and gender. In line with best practice (LGA/IDEA 2007 – The Equality Standard for Local Government) the Screening Report also acknowledges other categories recognised in current anti-discrimination legislation, including sexual orientation, age, and faith.

A5.1.4 The Adding Capacity at Heathrow Airport consultation document defines three Heathrow development options. These are in addition to the 'do nothing' base case[17].

- **Option 1**: Existing two runways operating in mixed mode in **2015**, capped at 480,000 Air Transport Movements (ATMs);
- **Option 2**: Existing two runways operating in Mixed Mode in **2015**, with additional capacity at 540,000 ATMs; and
- **Option 3**: Third runway operating in Mixed Mode and existing two runways in segregated mode in **2030**, with additional capacity at 702,000 ATMs.

A5.1.5 The screening process followed a five stage methodology:

- Stage A: This defined the options for consideration and identified the relevant equality groups;
- Stage B: This identified what changes may occur as a result of the options compared against the appropriate base case;
- Stage C: This identified which geographical areas are likely to be affected as a result of the options relative to the base case;
- Stage D: This identified whether any equality priority groups are disproportionately represented in those areas identified as affected as a result of the options; and
- Stage E: This identified the grounds on which any equality priority group/s may be differentially affected as a result of the options on grounds of geographically disproportionate

[17] Airport continues to operate as now with two runways in segregated mode capped at 480,000 ATMs.

effects and/or on grounds of greater sensitivity of a group to the effects of an impact relative to other people.

A5.1.6 Direct and indirect effects were used for two key impacts – noise and economy (focussing on areas within the 57dBA noise contour of the development options). Relevant air quality data for option 3 was not available at the time of undertaking the screening report. The department conducted an initial review of equality impacts although this was not explicitly stated in the consultation document.

A5.1.7 The equality strands identified for this screening report were based on existing legislation and from this equality priority groups were identified. The equality strands and priority groups are outlined in Table A5.1 below.

Table A5.1: Equality Strands and Priority Groups

Equality Strand	Equality Priority Group
Gender	Women
Race	Black, Asian and Minority Ethnic people (BAME)
Disability	Disabled people with a physical or mental impairment that has a long term effect on their ability to undertake day to day activities
Age	Children (0-16) Young People (17-25) Older people (60+) and Very Old People (75+)
Faith	People belonging to different faith and belief groups
Sexual Orientation and Gender Identity	Lesbians, gay men, bisexual people and trans gender people
Socio-economic	Most deprived local authorities using Indices of Deprivation – Income Domain

A5.2 Impacts of Options

Noise Impacts

A5.2.1 Figure 2.1 in chapter 2 shows how the 57dBA contour would change and indicates those areas that could experience a decrease or increase in noise if the development options were taken forward. The Adding Capacity at Heathrow Airport consultation document suggests the following overall impacts:[18]

- Base case: If none of the development options were taken forward, there would be a 39% decrease in the size of 57dBA noise contour and a 45% decrease in the number of households affected within the 57dBA between 2002 and 2030.
- Option 1: would result in approximately 12,300 households experiencing an increase in noise of at least 6dBA and 7,700 households experiencing noise increases of at least 9dBA in 2030, relative to the base case (2030). Noise modelling estimates predict a 46% increase in the size of the 57dBA noise contour and a 45% increase in the affected population relative to the base case, with the majority of the additional noise burden experienced by residents in the northern part of Hounslow, (particularly the community of Heston), areas just north of Heathrow Airport, communities in the south east of South Bucks District, and a number of households living in the East of Slough.
- Option 2: would result in a decrease in the number of households affected by noise in 2015, relative to the base case. Mixed mode operations would result in areas in the London Boroughs of Windsor and Maidenhead and Hounslow experiencing the greatest additional noise burden. Ultimately, with a third runway the same number of households would be affected in 2030 as in Option 1.
- Option 3: would result in 6,400 more households being subject to noise exceeding 57dBA compared to the base case. Similar to Option 1, noise increases relative to the base case would be experienced predominantly in the London Boroughs of Windsor and Maidenhead and Hounslow. Ultimately, with a third runway the same number of households would be affected in 2030 as in Options 1 and 2.

A5.2.2 The screening exercise considered a wide range of information regarding the potential impacts of noise. The report concluded that the potential direct impacts of noise on equality groups are difficult to evaluate as individuals experience noise differently. However, potential impacts on the priority groups identified in the Screening Report is shown in Table A5.2. This also summarises, where possible, the air quality and economic impacts. It should be noted that the information available to support these assessments at the time was less detailed than that for noise

[18] In this context the options are those described in the November Consultation Document.

Table A5.2 Results of initial screening

Priority group	Members of group	Potential impact
Noise		
Age	Children and younger people	Possible adverse noise impacts on educational achievement, particularly reading comprehension, recognition memory and motivation, with possible long term impacts on employment. Some research suggests that a five dB difference in aircraft noise could be equivalent to a two month reading delay in the UK. Evidence also suggests that a loud-to-shouting voice is required by teachers in classrooms with noise levels above 55dBA (Stansfeld et al 2005, Vilatarsana 2004, Haines et al 2003). There is some evidence of possible negative impacts of high noise levels on children. However, the level at which this potentially becomes an issue is not stated in this research (Babisch 2006, Haines et al 2003).
Disability	People with existing mental heath conditions	Some research indicates that there could be adverse noise impacts on existing mental illness, but this was not a cause of the condition. The noise level at which this potentially becomes an issue is not stated in this research (POST 2003).
Race	BAME and asylum seekers	Some research indicates that there could be adverse noise impacts on speakers of English as an acquired language for speech communication and intelligibility. The noise level at which this potentially becomes an issue is not stated in this research (Lazarus 1998, Vilatarsana 2004).
Air Quality		
Age	Children	Possible adverse impacts on children at any locations where annual average concentrations of NO_2 are at 50 - 75 µg/m (WHO 2008).
Disability	People with asthma and other chronic lung conditions	Research indicates that there could be greater susceptibility to acute changes in lung function, airway responses and respiratory symptoms due to increased levels of nitrogen dioxide exposure (WHO 2008).
Socio-economic Deprivation	All 20% most deprived	Some research indicates that there could be adverse impacts on quality of life of low income groups, with a general increase in NO_2 concentration associated with increasing deprivation (Defra 2006; King & Stedman 2000).
Economy		
Race	BAME	Some research indicates that there could be potential positive impacts on employment over the medium term (BAA 2007a).

A5.2.3 Scrutiny of the demography of those smaller scale census data areas within the local authorities surrounding Heathrow indicated that some areas and equality priority groups would benefit under the options whilst others would experience a potentially adverse impact. These findings are summarised below:

- There is a possibility that relative increases in noise could have adverse impacts on young children, especially during the early developmental stages, particularly in Hounslow and Hillingdon, given the projected noise increases in these areas and the higher proportion of children of pre-school age represented in these local authorities. Further detailed analysis at ward level is required in order to determine the significance of this impact.
- A third runway would impact upon several areas in the surrounding local authorities with large BAME populations compared to the London average. Sizeable BAME populations particulary in the northwest of Hounslow and Hillingdon could experience increases in noise. A third runway option could also affect a number of areas which currently experience high levels of income deprivation, particularly in Hounslow and Hillingdon. It could also disproportionately affect older people in South Buckinghamishre and Runnymede, where this group is over-represented compared to London and South East averages.

Economic Impacts

A5.2.4 The Adding Capacity at Heathrow Airport consultation document indicates that additional capacity at Heathrow would attract foreign investment into the area, support the tourism industry, contribute to the productivity and competitiveness of business in the South East, and generate employment. Net benefits are estimated to range between £4.4 billion to £6.2 billion. Economic impact analysis for equality groups focussed on direct and indirect employment and income generated from airport operations; induced employment and income generated in the economy by the multiplier effect; and employment and income generated by the wider role of the airport in improving the productivity of businesses and in attracting economic activities.

A5.2.5 According to BAA survey data, Heathrow directly employs around 72,000 people, of whom 40% come from five boroughs surrounding the airport. The Adding Capacity to Heathrow Airport consultation document indicates that direct on-site employment is expected to fall, relative to the base case, to 63,000 in 2010 and to 52,400 by 2030 due to increased technology and innovation. Option 3 would increase employment by 8,000 in 2030, generating an estimated total of 60,400 jobs. There is some evidence that higher productivity levels could adversely impact employment levels for lower wage manual workers. Although indirect, induced and other employment is more difficult

to assess, there could be short term increases in demand for lower-skilled jobs, with longer term demand likely to be mainly for higher-skilled labour. Low income groups, including where this is due to low skills levels may benefit from the increased short term demand for lower-skilled jobs, but could bear a disproportionate impact of the longer term shrinkage in demand for lower-skilled jobs.

A5.3 Conclusions of the Screening Report

A5.3.1 The screening of noise and economic impacts indicated that a full EqIA should be undertaken due to potential impacts of noise on age groups (particularly children and young people) and areas with a high proportion of BAME (compared to the London or South East average). Potential economic impacts on those areas most affected by multiple forms of deprivation also required further analysis. Further information on air quality (particularly for Option 3) should also be reviewed once more data became available.

A5.3.2 The screening identified no differential impact was likely on grounds of sexual orientation or gender (including for trans gender people) and so, in line with published guidance, groups within these equality categories were not taken forward for further analysis in a full EqIA.

www.dft.gov.uk/heathrowconsultation

Department for Transport. United Kingdom. 2008.
ISBN 978-1-906581-28-2