Appendix A

TOPIC BASED SCHEMES ASSESSMENT: AoS FOR AIRPORTS NPS

A-1 COMMUNITY

June 2018

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1 COMMUNITY

1.1 INTRODUCTION

1.1.1 This topic based assessment considers each airport expansion scheme under the Community topic. These are London Heathrow Extended Northern Runway (LHR-ENR), London Heathrow Northwest Runway (LHR-NWR) and London Gatwick Second Runway (LGW-2R) (together the shortlisted schemes).

1.1.2 By law, before designating an Airports National Policy Statement (NPS) an Appraisal of Sustainability (AoS) must be carried out. This AoS is a strategic level assessment. It is based on the contents of the Airports NPS. The AoS considers alternatives to the Government's preferred scheme as set out in the Airports NPS, including the outline masterplans supplied to the Airports Commission for the three shortlisted schemes. This AoS considers the impacts of expansion without the benefits of the mitigation package put forward by scheme promoters, unless stated otherwise. The Government has outlined that it expects a significant mitigation package to be put in place by the promoter of its preferred scheme to ensure that wherever possible significant effects are avoided, reduced or offset.

1.1.3 Further project-level design will be required which will inform an environmental impact assessment carried out by the promoter. This would include an assessment, which is likely to include effects identified in the AoS as well as more detailed mitigation developed as detailed design progresses. This will also be developed through consultation with both affected communities and other stakeholders.

1.1.4 This assessment is based partly upon the previous assessment undertaken as part of the Airports Commission's (AC) Sustainability Appraisal but also responds to the AoS Appraisal Framework. The Framework addresses Community issues which have been identified through a review of plans, policies and programmes, and also the baseline experienced by communities in the vicinity of each expansion scheme.

1.1.5 Each expansion scheme is considered against the AoS Appraisal Framework Objectives and Questions. The Objectives and Questions which are addressed within this assessment are:

- **AoS Objective 1:** To avoid or minimise negative effects on community viability, including housing, facilities and indirect effects.
  - **AoS Question 1**. Will it lead to a loss of housing and community facilities?
  - **AoS Question 2.** Will it lead to increasing demand for housing and community facilities?
  - **AoS Question 3.** Will there be indirect effects on community viability?
- **AoS Objective 2:** To avoid or minimise disproportionate impacts on any social group.
  - **AoS Question 4.** Will it minimise disproportionate negative effects on particular regions, users or vulnerable social groups?

1.1.6 For the purpose of this AoS the term 'community viability' refers to the achievability of the following objectives:

- To create employment opportunities;
- To encourage the development of sustainable communities;

- To avoid adverse impacts on the function and efficiency of the strategic transport infrastructure;
- To avoid disruption to basic services, community facilities and transport infrastructure; and
- To avoid adverse impact on property and land values and avoid planning blight.

1.1.7 If a community is considered to achieve highly in these objectives, this community can be seen as 'viable'. If a community fails to provide these opportunities to members within the community, the viability will reduce.

1.1.8 Within this AoS, the term 'disproportionate effects' refers to when there is a proportionately greater effect on a certain area / certain members of a population, than compared to other areas / members of the general population.

1.2 POLICY AND LEGISLATION

1.2.1 The following policy and legislation relevant to this assessment are summarised below and their context and applicability is explained as appropriate in the relevant sections of the assessment. Existing legislation and policy aims to protect and promote healthy communities; give power to individuals, communities and local councils; to promote equal treatment on the grounds of race, disability and sex; and to eliminate discrimination and to promote good relations between different groups:

Race Relations (Amendment) Act 2000

1.2.2 This places a duty on public authorities when carrying out their functions to consider the need to:

- Eliminate unlawful racial discrimination;
- Promote equality of opportunity; and
- Promote good relations between people of different racial groups.

Disability Discrimination Act 2005

1.2.3 This is the main disability discrimination law. It bans disability discrimination by employers against disabled job-seekers and employees and by service providers against disabled service-users.

Equality Act 2010

1.2.4 This introduces a public sector equality duty which requires public organisations and those administering public functions to show due regard to the need to eliminate unlawful discrimination, harassment, victimisation; to advance equality of opportunity; and to foster good relationships between communities.

Localism Act 2011

1.2.5 This is an Act of the UK Parliament that changes the powers of local government in England. The aim of the act is to facilitate the devolution of decision-making powers from central Government control to individuals and communities.

National Planning Policy Framework 2012 (NPPF)

1.2.6 The NPPF was published in March 2012 and is a key part of the reforms to ensure the planning system focuses on sustainable development as the basis of every plan and every decision. The assessment of potential effects upon communities should consider the principles of sustainable development, and any mitigation should be sustainable.

1.3 BACKGROUND TO THE ASSESSMENT

1.3.1 This assessment of effects on Community is a desk-based assessment. This assessment is based on the following reports:

- Airports Commission, 2015. *Airports Commission: Heathrow Airport North West Runway: Business Case and Sustainability Assessment*[1];
- Airports Commission, 2014. *Airports Commission: Heathrow Airport Extended Northern Runway: Business Case and Sustainability Assessment*[2];
- Airports Commission, 2014. *Airports Commission: Gatwick Airport Second Runway: Business Case and Sustainability Assessment*[3];
- Airports Commission, 2015. *Final Report*[4];
- Jacobs, 2014. *10. Place: Baseline*[5];
- Jacobs, 2014. *10. Place Assessment*[6];
- Airports Commission, 2015. *Local Economy: Impacts Assessment post consultation updates*[7];
- Airports Commission, 2015. *Quality of Life: Equalities Impacts Report*[8];
- Jacobs, 2015. *Module 6: Air Quality Local Assessment*[9];
- Jacobs, 2014. *Module 5: Noise : Local Assessment*[10];
- Airports Commission, 2014. *Local Economy Impacts: Assessment*[11]
- Airports Commission, 2014. *Community: Impact Assessment*[12]; and
- Office for National Statistics, 2011. *Census Data*[13].

1.3.2 This is an assessment of the direct and indirect effects which are likely to be experienced by those communities closest to shortlisted schemes. The study areas have been used as they contain the communities which are closest to each airport (ie into which, and close to which, the extended airports will physically impact). Specific technical assessments, for example noise or air quality, have their own study areas, and are assessed in their respective appendices.

1.3.3 In addition to considering the effects on communities and wards closest to the expansion schemes, a wider study area has been considered for identifying areas where the potential indirect impacts on community viability arising from each shortlisted scheme has been considered.

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[1] Airports Commission, 2015. *Airports Commission: Heathrow Airport North West Runway: Business Case and Sustainability Assessment*. [online] Accessed 24/12/2015.
[2] Airports Commission, 2014. *Airports Commission: Heathrow Airport Extended Northern Runway: Business Case and Sustainability Assessment*. [online] Accessed 24/12/2015.
[3] Airports Commission, 2014. *Airports Commission: Gatwick Airport Second Runway: Business Case and Sustainability Assessment*. [online] Accessed 24/12/2015.
[4] Airports Commission, 2015. *Final Report*. [online] Accessed 24/12/2015.
[5] Jacobs, 2014. *10. Place: Baseline*. [online] Accessed 24/12/2015.
[6] Jacobs, 2014. *10. Place Assessment*. [online] Accessed 24/12/2015.
[7] Airports Commission, 2015. *Local Economy: Impacts Assessment post consultation updates*. [online] Accessed 24/12/2015.
[8] Airports Commission, 2015. *Quality of Life: Equalities Impacts Report*. [online] Accessed 24/12/2015.
[9] Jacobs, 2015. *Module 6: Air Quality Local Assessment*. [online] Accessed 24/12/2015.
[10] Jacobs, 2014. *Module 5: Noise: Local Assessment*. [online] Accessed 24/12/2015.
[11] Airports Commission, 2014. *Local Economy Impacts: Assessment*. [online] Accessed 24/12/2015.
[12] Airports Commission, 2014. *Community: Impact Assessment*. [online] Accessed 24/12/2015.
[13] Office for National Statistics, 2011. *Census Data*. [online] Accessed 23/11/2016.

1.3.4 Table 1.1 shows the study area, and the wider study area, identified for each shortlisted scheme.

Table 1.1: Study areas for each shortlisted scheme

Scheme	Study Area	Wider Study Area (indirect impacts on community viability only)
LGW-2R	→ Crawley Borough → Langley Green Ward → Northgate Ward → Pound Hill North Ward → Rusper and Colgate Ward → Horley Central Ward	→ Crawley District; → Horsham District; → Reigate and Banstead District; → Surrey County; → Mole Valley District; → Tandridge District; and → West Sussex County.
LHR-ENR	→ Slough Borough → Colnbrook with Poyle Ward → The London Borough of Hillingdon → The London Borough of Hounslow	→ Runnymede District; → Slough Borough; → South Bucks District; → Spelthorne Borough; → The London Borough of Ealing; → The London Borough of Hounslow; → The London Borough of Hillingdon; → The London Borough of Richmond upon Thames; → The Royal Borough of Windsor and Maidenhead; and → The London Borough of Hammersmith and Fulham.
LHR-NWR	→ Slough Borough → Heathrow Villages Ward (namely Harmondsworth Village, Sipson Village, Longford Village and Harlington Village as well as an area of West Drayton and the Bath Road) → The London Borough of Hillingdon → The London Borough of Hounslow	→ Runnymede District; → Slough Borough; → South Bucks District; → Spelthorne Borough; → The London Borough of Ealing; → The London Borough of Hounslow; → The London Borough of Hillingdon; → The London Borough of Richmond upon Thames; and → The Royal Borough of Windsor and Maidenhead.

1.4 INTERACTION WITH OTHER TOPICS

1.4.1 The Community topic has interdependencies with the Quality of Life, Economy, Noise and Air Quality, Resources and Waste, Landscape and Historic Environment topics as set out in Table 1.2:

Table 1.2: Interaction of the Community topic with other topics

TOPIC	INTERACTION
Quality of Life	Quality of Life is linked to community viability whereby increases in noise, traffic and deterioration of air quality, alongside the direct impacts (loss of housing and community facilities) need to be considered.
Economy	Interaction with local economy in terms of inward migration for potential jobs associated with airport expansion which may affect community cohesion.
Noise and Air Quality	Effects such as noise and air quality will have indirect effects on communities (i.e. Quality of life) and community facilities.
Resources and Waste	The transportation of resources to, and waste from, construction and operational sites has the potential to adversely impact neighbouring communities. Dust, vibration, noise, visual and congestion impacts from haulage are all potential impacts on roadside / local residents and businesses.
Landscape and Historic Environment	Heritage assets and landscapes have a cultural, educational and recreational value for communities. A number of open recreational spaces will be lost which may affect community viability.

1.5 ASSESSMENT CRITERIA

1.5.1 The general criteria used for assessing the significance of effects within the AoS are set out in the methodology in Section 3 of the AoS to which this appendix is attached. It should be noted that schemes are assessed individually against the requirements of the SEA Regulations and presented together for comparison. This means that although the nature of effects can vary between schemes, the significance may be the same. Identification of significance is set out in Table 1.3.

Table 1.3: Identification of Significant Effects in the AoS

++	*Significant positive effect*
+	*Positive effect*
-	*Negative effect*
--	*Significant negative effect*
+/-, ++/--	*Mixed positive and negative effect*
?	*Uncertain effect*
0	*No relationship / neutral effect*

1.6 SUMMARY OF BASELINE AND ISSUES

LOCAL BASELINE

1.6.1 The baseline outlined in previous reports[14,15,16,17] has been used to inform the assessment, and has been updated with recent Census Data[18].

1.6.2 Gatwick Airport is situated in a largely rural area, with the urban centre of Crawley to the south. The airport site sits in the Langley Green and Pound Hill North wards of Crawley. The expanded airport would require land take in these two wards as well as Crawley's Northgate ward, plus the Rusper and Colgate ward within the district of Horsham. There is no direct land take in Horley to the north, but the Horley Central ward (within Reigate and Banstead district) is included in the study area.

1.6.3 Heathrow Airport lies in an urban area on the edge of West London. The current airport site is situated within the Heathrow Villages ward of the London Borough of Hillingdon. In the case of LHR-NWR, Harmondsworth, Longford and Sipson would be directly affected by land take, as might Harlington due to road diversion. The village of Stanwell and Stanwell Moor on the southern boundary could lose land to facilitate rail access. The Colnbrook with Poyle ward of Slough, situated to the west, would be affected by the provision of a new access road from the diverted A4. In the case of LHR-ENR, the main impact would be in the village of Poyle, situated to the west within the borough of Slough.

1.6.4 Table 1.4 presents a summary of the existing baseline within the study area, together with an indication of the potential impacts that the baseline informs.

[14] Airports Commission, 2015. *Final Report*. [online] Accessed 23/11/2016.
[15] Airports Commission, 2014. *Community: Impact Assessment*. [online] Accessed 24/12/2015.
[16] Airports Commission, 2015. *Final Report*. [online] Accessed 23/11/2016.
[17] Airports Commission,, 2014. *Community: Impact Assessment*. [online] Accessed 24/12/2015.
[18] Office for National Statistics, 2011. *Census Data*. [online] Accessed 23/11/2016.

Table 1.4: Summaries of Baseline and Potential Impacts

LGW-2R	LHR-ENR	LHR-NWR	POTENTIAL IMPACTS
The percentage of women in the English population is 49%. Rusper and Colgate, Horley Central and Crawley all have slightly higher female populations (between 49.6% and 51.2%).Of Crawley females aged 16 to 74, almost 60% work either full time or part time, compared to just over 52% nationally.	The percentage of women in the English population is 49%. Colnbrook and Poyle, Hillingdon, Hounslow and Slough all have slightly higher female populations (between 50.2% and 51.7%). Of females aged 16 to 74, almost 60% work either full time or part time, compared to 53% in Slough and 52% nationally.	The percentage of women in the English population is 49%. Heathrow Villages, Hillingdon, Hounslow and Slough all have slightly higher female populations (between 50.5% and 51.7%). Of females aged 16 to 74, almost 57% work either full time or part time, compared to 52% in Hillingdon and 52% nationally.	As community services, such as schools or nurseries are lost, community severance may occur and travel times to such places may be affected. Loss of housing can cause stress on local residents and community severance may occur.
Northgate, Poundhill, Crawley, Rusper and Colgate and Horley Central have over 10% more Christians than the London average. Langley Green and Northgate have over 10% more Hindus than the London region. Langley Green has over 10% more Muslims than the London region.	Concentration of Christians in Colnbrook and Poyle and Hillingdon are similar to the London region (48.4), while Slough and Hounslow Christian populations are slightly lower (42%). Hindu and Sikh populations are more than 10% higher than the London region throughout the study area. Muslim populations are more than 10% higher than the London region in Slough and Hounslow.	The London region has a higher percentage of Christians than the study area. Heathrow Villages, Slough, Hillingdon and Hounslow have over 10% more Hindus than the London region. Heathrow Villages, Slough and Hounslow have over 10% more Muslims than the London Region. The study area has a much higher proportion of Sikhs than the regional and national averages.	Loss of housing can cause stress on local residents and community severance may occur. As places of worship are lost and / or relocated, community severance may occur and travel times to such places may be affected.
Almost 80% of Crawley residents are white; this is higher than the regional London average, but lower than the national average. There is variation in the proportion of residents from Black and Minority Ethnic (BAME) communities across local wards: 40% in Langley Green against 3% in Rusper and Colgate. BAME populations are 10% higher than the national average in Langley Green, Northgate, Pound Hill and Crawley.	Slough and Hounslow have more than 10% higher BAME populations than the London region. In Colnbrook and Poyle and Hillingdon, white populations are similar to the London region (59.8%).	In Heathrow Villages and Hounslow, approximately 50% of the population are white, which is lower than regional (59.8%) and national (85.5%) averages. BAME populations are more than 10% higher in Heathrow Villages, Slough and Hounslow than the London region.	Loss of housing can cause stress on local residents and community severance may occur. Positive impacts on training and employment if opportunities are created.

LGW-2R	LHR-ENR	LHR-NWR	POTENTIAL IMPACTS
The population of the study area tends to be younger than regional and national averages with 19.6% to 22% of its residents being less than 16 years old. Similarly, only 12.6% to 15.5% of residents are aged 65 and over, which is slightly lower than regional and national averages.	The population of the study area tends to be slightly younger than regional and national averages with 18.4% to 20.8% of its residents being less than 16 years old. Similarly, only 9.4% to 16.3% of residents are aged 65 and over, which is lower than regional (17.1%) and national (16.4%) averages.	The population of the study area tends to be slightly younger than regional and national averages with 18.4% to 20.8% of its residents being less than 16 years old. Similarly, only 9.4% to 16.3% of residents are aged 65 and over, which is lower than regional (17.1%) and national (16.4%) averages.	Loss of housing can cause stress on local residents and community severance may occur. Air quality changes from increased traffic and emissions have the potential to impact on the health of all people across the local area, but there are also populations particularly sensitive to these impacts namely those under 16, over 65 and those of any age with pre-existing conditions and/or disabilities.[19] Raised bronchitis symptoms in children have been associated with long term NO_2 exposure[20]. Aircraft noise impacts may impact upon children's learning and development.[21]
18.3% to 26.5% households in the study area have at least one person with a long-term health problem or disability, which is similar to regional (23.6%) and national (25.6%) averages.	17.1% to 27% households in the study area have at least one person with a long-term health problem or disability, which is similar to regional (22.4%) and national (25.6%) averages.	20.6% to 27% households in the study area have at least one person with a long-term health problem or disability, which is similar to regional (22.4%) and national (25.6%) averages.	Loss of housing can cause stress on local residents and community severance may occur. NO_x / particulate emissions can be harmful to human health. Small particulate pollution at low concentrations has health impacts and no threshold has been identified below which no damage to health is observed. Reduced lung function has been associated with long term exposure to NO_2[22].

[19] Airports Commission, 2015. *Quality of Life: Equalities Impacts Report*. [online] Accessed 24/12/2015.
[20] World Health Organisation, 2016. *Ambient (outdoor) air quality and health: Fact sheet*. [online] Accessed 23/11/2016.
[21] Airports Commission, 2014. *Quality of Life: Assessment*. [online] Accessed 23/11/2016.
[22] World Health Organisation, 2016. *Ambient (outdoor) air quality and health: Fact sheet.* [online] Accessed 23/11/2016.

LGW-2R	LHR-ENR	LHR-NWR	POTENTIAL IMPACTS
			Those with existing mental illnesses may be more susceptible to aircraft noise impacts. [23]. As community services are lost, community severance may occur and travel times to such places may be affected. Sleep disturbance associated with aircraft noise can result in negative effects on mental health. Positive impacts on training and employment if opportunities are created.
Deprivation is generally lower than the national average. According to the English IMD 2015[24], where an 'average rank' score of 1 is the most deprived, and the rank of 326 is given to the least deprived, Crawley has an average score of 151; Reigate and Banstead has an average rank of 292; and Horsham has an average rank of 295. None of these districts are within the 10% most deprived nationally. The unemployment rate in the study area is noticeably above the national rate, except in Crawley where it is approximately the same.	Whilst deprivation is generally lower than the national average, according to the English IMD 2015[25], where an 'average rank' score of 1 is the most deprived, and the rank of 326 is given to the least deprived, Slough has an average score of 79, Hillingdon has an average rank of 153, and Hounslow has an average rank of 86. Both Slough and Hounslow are within the 30% most deprived districts within the UK. The unemployment rate in the study area is noticeably above the national rate.	Whilst deprivation is generally lower than the national average, according to the English IMD 2015[26], where an 'average rank' score of 1 is the most deprived, and the rank of 326 is given to the least deprived, Slough has an average score of 79, Hillingdon has an average rank of 153, and Hounslow has an average rank of 86. Both Slough and Hounslow are within the 30% most deprived districts within England. The unemployment rate in the study area is noticeably above the national rate.	Potential positive impacts on training and employment if opportunities are created.

[23] University of the West of England/European Commission Directorate-General Environment, 2015. *Noise Impacts on Health: Science for Environment Policy*, Issue 47. [online] Accessed: 23/11/2016.
[24] Department of Communities and Local Government, 2015. *English Indices of Deprivation 2015*. [online] Accessed 06/01/2017.
[25] Department of Communities and Local Government, 2015. *English Indices of Deprivation 2015*. [online] Accessed 06/01/2017.
[26] Department of Communities and Local Government, 2015. *English Indices of Deprivation 2015*. [online] Accessed 06/01/2017.

FUTURE BASELINE AND ISSUES

1.6.5 Communities will be subject to pressure from urban development in future years. Development which is likely to take place in areas around Gatwick and Heathrow, regardless of the runway expansion proposals, would have potential to generate both direct (physical impact on communities such as loss of housing) and indirect (eg effects of increased traffic or noise) effects on communities.

1.7 MITIGATION INCLUDED IN ASSESSMENT

1.7.1 The assessment findings take into account mitigation proposed through the AC Community Impact Assessment[27] as outlined in Tables 1.5, 1.6 and 1.7.

Table 1.5: Mitigation Options for LGW-2R

POTENTIAL IMPACT	PROPOSED MITIGATION
168 residential properties likely to be demolished for airport expansion	Financial compensation
Up to 37 residential properties could be demolished for surface access, since they fall within the buffer zone for construction works	Financial compensation
Potential secondary impacts of relocated households on existing communities	Provision of community services to meet additional demand
Loss of Trent House Care Home	Financial compensation and relocation
Loss of industrial/employment land	Financial compensation and relocation
Loss of places of worship – a church used by Seventh Day Adventists, and a Hindu temple	Financial compensation and relocation
Loss of one charity facility, Outreach 3 Way, which helps people with learning difficulties	Financial compensation and relocation
Loss of five pre-schools/nurseries	Financial compensation and relocation
Loss of Crawley rugby club, with its sporting and social facilities	Financial compensation and relocation
Loss of the northern part of Rowley Wood	Financial compensation or provision of alternative community facilities
Loss of public rights of way	Provision of new links to maintain connectivity
Loss of cycle routes	Provision of new cycle routes once airport operational
Impacts on local journey times, either from severance or increased traffic	Re-alignment of roads and traffic management measures, and improved public transport access

Table 1.6: Mitigation Options for LHR-ENR

POTENTIAL IMPACT	PROPOSED MITIGATION
242 residential properties likely to demolished for airport expansion	Financial compensation
Up to 165 residential properties could be demolished for surface access, since they fall within the potential buffer zone for construction works	Financial compensation
Potential secondary impacts of relocated households on existing communities	Provision of community services to meet additional demand
Loss of industrial/employment land	Financial compensation and relocation
Loss of three pubs during construction	Financial compensation and provision of alternative community facility during construction
Noise implications for Pippins Primary School	Provision of suitable noise insulation
Loss of part of the Colne Valley Regional Park	Relocation
Loss of Public Rights of Way	Provision of new links to maintain connectivity

[27] Airports Commission, 2014. *Community: Impact Assessment*. [online] Accessed 24/12/2015.

POTENTIAL IMPACT	PROPOSED MITIGATION
Loss of cycle routes	Provision of new cycle routes once airport operational
Severance of section of the Colne Valley way running from Colnbrook to Horton	Diversion
Severance of Poyle Road, which currently links Poyle and Colnbrook with Wraysbury and Horton	Traffic diverted via Horton Road instead
Severance of route to Poyle from the west along Bath Road	Provision of alternative route

Table 1.7: Mitigation Options for LHR-NWR

POTENTIAL IMPACT	PROPOSED MITIGATION
783 residential properties likely to be demolished for airport expansion	Financial compensation
Up to 289 residential properties could be demolished for surface access, since they fall within the potential buffer zone for construction works	Financial compensation
Potential secondary impacts of relocated households on existing communities	Provision of community services to meet additional demand
Loss of industrial/employment land	Financial compensation and relocation
Loss of Harmondsworth Primary School	Relocation (assuming replacement facilities possible)
Loss of Harmondsworth Community Hall (including the Wonderland Day Nursery)	Relocation (assuming replacement facilities possible)
Loss of Sipson Community Centre	Relocation
Loss of Heathrow special needs centre in Longford	Relocation
Loss of Nursery schools in Longford, Sipson and Harmondsworth	Relocation
Loss of White Horse Pub and Kings Arms Pub at Longford	Financial compensation and/or relocation assistance
Loss of Sipson recreation ground and facilities	Relocation
Loss of other formal and informal recreation sites	Relocation/re-provision
Severance of section of the Colne Valley Way	Diversion
Loss of Public Rights of Way	Provision of new links to maintain connectivity
Loss of cycle routes	Provision of new cycle routes once airport operational
Loss of part of the Colne Valley Regional Park	Relocation
Impacts on local journey times and severance from A4/M25/ southern rail access works	Traffic management measures during construction realignment of roads to segregate locals from airport and other through traffic, and improved public transport access

1.8 APPROACH TO ASSESSMENT OF COMMUNITY

1.8.1 Impacts at the strategic level have been assessed for both construction and operational phases. For instance during construction, effects covered under communities arise from earthworks and construction activities resulting in displacement. During operation, effects would include presence of new infrastructure, buildings, traffic and effects from flight paths which may cause issues of severance and reduction in amenity value. This is addressed through the consideration of the duration of the impact (short, medium and long term[28]) within the assessment.

1.8.2 The assessment carried out by the AC to determine the impact of the three schemes has considered impacts during both the construction phase (2020-2025) and the operational phase in 2030[29]. This is an assessment of the effects which are likely to be felt by communities which live in wards within close proximity to the schemes during the construction and operation phases of each scheme. Direct effects are considered to be those caused within the footprint of a scheme, such as direct loss of services or housing. Indirect effects are considered to be those experienced outside of the footprint of a scheme, such as effects caused by increased noise or traffic.

1.8.3 Airport expansion and development of associated infrastructure will physically impact communities, with implications for housing, facilities, community viability, and protected social groups.

1.8.4 The materials published by the AC for the schemes included a review of the community impacts of each scheme in terms of their consequences for the loss of housing and community facilities.

1.8.5 The published materials have been reviewed, and an assessment of sustainability has been undertaken taking the design of each scheme into consideration. Both positive and negative sustainability issues have been identified and discussed which may affect different priority groups (in this assessment, the concise term used to refer to persons, or groups of persons, sharing a protected characteristic under the Equality Act 2010), and further mitigation measures have been recommended to reduce the magnitude of effects.

1.8.6 A complete summary of assessment and conclusions drawn from this work are discussed in Section 1.9 and Section 1.12.

[28] As defined in Section 3 of the Main Report Short-term is 0 – 5 years (e.g. Construction period); Medium-term is 5 - 10 years (e.g. beyond construction or for part of operational period) and Long-term is 10+ years (e.g. Operation period, 60 year design life).

[29] 2026 was assumed to be the opening year, although 2030 is used for assessment due to requirement for additional capacity by this date.

1.9 ASSESSMENT OF SHORTLISTED SCHEMES

AoS Objective 1: To avoid or minimise negative effects on community viability, including housing, facilities and indirect effects

LGW-2R

1.9.1 According to the *Place Assessment*[30], the number of existing residential properties within the airport land take area is estimated to be 168. The majority of this housing loss would be seen in rural areas between Gatwick and Crawley and between Gatwick and the M23, located within Crawley Borough. An additional 37 residential properties are within the 100m buffer around proposed transport infrastructure and could potentially be lost to the surface access improvements depending on detailed route and construction design. A total of five children's nurseries or crèche's will be lost as a result of LGW-2R as well as two places of worship, Trent care home, one charity facility, Crawley Rugby Club, Public Rights of Way and part of Rowley Wood.

1.9.2 Mitigation includes financial compensation for residential property and financial compensation and relocation for other facilities including: provision of new or alternative community services to meet additional demand; provision of new links to maintain connectivity between the community; provision of new cycle routes once the scheme is operational; and realignment of roads and traffic management measures and improved public transport access.

Loss of Housing and Community Facilities

1.9.3 The project will involve a substantial loss of housing and community facilities that cannot be reversed, however the numbers of housing and the facilities affected should only be significant in a local context, and the effects are restricted to the local vicinity of the airport. Although mitigation is provided, there remains a high probability of direct impacts on community viability. These impacts are expected to start during the construction phase.

Increased Demand for Housing and Community Facilities

1.9.4 LGW-2R could generate demand for up to 19,000 households to 2030, being an upper end or worst case estimate. Taking this as evenly spread across the 14 local authorities and phased across a ten year timeframe, this would mean additional housing in total as a result of airport expansion is on average 1,900 homes within each, or up to 136 additional housing units per local authority per year. Worst-case scenario figures are considered to be deliverable within this time frame as land availability is unlikely to be affected by issues such as greenbelt designations. The assessment undertaken by the AC suggests that provision of additional housing will need to be supported by the provision of additional spaces in local schools and two additional GPs per local authority to 2030[31]. If additional healthcare services and schools are provided, there may be benefits for the local community in terms of reduced waiting times at GP surgeries, and increased resources for teaching. It is government practice to only increase the number of these facilities as and when the need arises. There is also likely to be an increase in demand for existing parks or open spaces.

[30] Jacobs, 2014. *10. Place Assessment*. [online] Accessed 24/12/2015.
[31] Airports Commission, 2014. *Local Economy Impacts: Assessment*, p. 99. [online] Accessed 24/12/2015.

1.9.5 The potential for additional demand for housing and community infrastructure may be associated directly with both employees of the airport and from increased housing demand associated with economic activity stimulated by the development and operation of the airport, and also pressures from those in relocated housing. Indirect and cumulative effects are anticipated to arise due to increasing demand for housing and other community infrastructure due to natural population growth both attracted by development associated with airport expansion, but also by commercial and residential development brought about to support the growth plans of local authorities in their local development plans. Increased demand for housing and community infrastructure is expected to occur throughout the operational life of the airport.

1.9.6 The scale of the housing required is unlikely to significantly increase the housing pressures across the entire region but will see some increase in pressures on current local authority plans across London and the South East. Overall the demand will be spread and is low in comparison to existing planned housing.

Indirect Effects upon Community Viability

1.9.7 Indirect and cumulative effects are expected to be experienced in terms of additional traffic movements during construction and operation, which may lead to issues of severance, loss of sense of place, breakdown in community cohesion, and a reduction in the quality of amenity within the community.

1.9.8 With increased airport capacity, cumulative effects may be experienced in terms of noise and air quality which may affect community viability and house prices. LGW-2R is considered to have a negative effect on the local population due to increased exposure to air quality issues, and a predominantly significant negative effect on aircraft noise exposure of the local population. 51,328 people will experience a rise in annual mean NO_2 levels. No exceedances of UK air quality objectives are anticipated. With opening prior to 2030 there is a low risk of worsened exceedance of the air quality objectives. However actions by government to improve air quality reduces this risk. There is a predicted increase of 16,200 people exposed to airspace noise exceeding 54dB $L_{Aeq16\ hr}$ by 2030, which increases further to 21,300 by 2050 (compared with the single-runway do minimum)[32], although total exposure rates remain much lower than those forecast at an expanded Heathrow airport. Furthermore, increases in exposure to levels of noise >63 dB $L_{Aeq,16hr}$ (400 in 2030, 200 in 2040 and 400 in 2050) are expected to be much smaller than LHR-ENR or LHR-NWR Overall, the assessment identifies the LGW-2R scheme as being the scheme with the least negative effects.

1.9.9 No allocated strategic development land is expected to be lost as a result of airport expansion. However, housing allocations close to the edge of the airport site in Crawley and on the northern edge of Horsham may be affected by noise effects[33].

1.9.10 The potential for noise associated with the airport to affect the future community viability of new development which is planned has been considered by undertaking a review of the adopted and draft development plans in the wider study area, namely:

[32] As described in Appendix A-4 Noise. Predicted changes in population exposures in the do something scenario, relative to the do minimum, for central scenario assumptions.
[33] Airports Commission, 2014. *Noise: Assessment*. [online] Accessed 23/11/2016.

- Crawley Borough;
- Horsham District;
- Reigate and Banstead District;
- Surrey County;
- Mole Valley District;
- Tandridge District; and
- West Sussex County.

1.9.11 Apart from large housing sites on the northern edges of Crawley and Horsham, the noise effects for Gatwick are generally experienced over areas and local authorities which are rural, within the London Green Belt and where large scale residential development is not planned at this time.

Cumulative Effects

1.9.12 As described in Section 3 of the AoS, cumulative effects on community viability may arise in combination with other plans, policies or programmes (PPPs).

1.9.13 Noise and air quality effects may arise during the construction phases of major infrastructure projects where these projects are being constructed concurrently and in close proximity to the airport expansion. Nearby projects which have been identified include improvements to various sections of the M25 near to Gatwick and M23 junctions 8-10 smart motorway improvements.

1.9.14 Cumulative effects are also anticipated to arise due to increasing demand for housing and other community infrastructure due to a growing population both attracted by development associated with airport expansion, but also by commercial and residential development brought about to support the growth plans of local authorities in their local development plans.

LHR-ENR

1.9.15 A total of 242 residential properties lie within the airport land take and are likely to need to be demolished. An additional 165 residential properties are within the 100m buffer either side of the proposed transport infrastructure and could potentially be lost to the surface access improvements depending on detailed route and construction design. Loss of the Punch Bowl Pub and industrial / employment land is expected, in addition to noise implications for Pippins Primary School.

1.9.16 Mitigation includes financial compensation and relocation assistance for Poyle residents[34,35,36,37]. Much of this local area is designated as London Green Belt and within a flood risk area. Mitigation could also include provision of community services during construction and operation to meet additional demand as well as transport diversions and provision of alternative routes.

[34] Airports Commission, 2015. *Final Report*. [online] Accessed 23/11/2016.
[35] Jacobs, 2014. *10. Place: Baseline*. [online] Accessed 24/12/2015.
[36] Jacobs, 2014. *10. Place Assessment*. [online] Accessed 24/12/2015.
[37] Airports Commission, 2015. *Airports Commission: Heathrow Airport Extended Northern Runway: Business Case and Sustainability Assessment*. [online] Accessed 24/12/2015.

Loss of Housing and Community Facilities

1.9.17 The project will involve a substantial loss of housing and community facilities that cannot be reversed, however the numbers of housing and the facilities affected should only be significant in a local context, and the effects are restricted to the local vicinity of the airport. Although mitigation is provided, there remains a high probability of direct impacts on community viability. Furthermore, cumulative effects, for example from noise or disturbance from construction activities taking place in close proximity, may be experienced by the community as a result of other infrastructure projects such as Crossrail. These impacts are expected to start during the construction phase.

Increased Demand for Housing and Community Facilities

1.9.18 LHR-ENR could generate demand for an additional 450 homes per year per local authority to be constructed to meet demand under the scheme. Provision of additional housing is likely to require support by the provision of additional schools, two additional health centres (14 GPs) and two primary care centres per local authority to 2030. If additional healthcare services and schools are provided, there may be benefits for the local community in terms of reduced waiting times at GP surgeries, and increased resources for teaching. However, it is government practice to only increase the number of these facilities as and when the need arises. There is also likely to be an increase in demand for existing parks or open spaces.

1.9.19 Additional demand for housing and community infrastructure may be associated directly with employees of the airport, but also from increased housing demand associated with economic activity stimulated by the development and operation of the airport, and also pressures from those in relocated housing. Indirect and cumulative effects are anticipated to arise due to increasing demand for housing and other community infrastructure due to population growth both attracted by development associated with airport expansion, but also by commercial and residential development brought about to support the growth plans of local authorities in their local development plans, and from infrastructure such as Crossrail. Increased demand for housing and community infrastructure is expected to occur throughout the operational life of the airport.

1.9.20 The scale of the change is unlikely to significantly increase the housing pressures across the whole London region but it is anticipated that the housing required will increase pressures on local authority plans, although overall the demand will be spread and is low in comparison to existing planned housing.

Indirect Effects upon Community Viability

1.9.21 Indirect and cumulative effects may be experienced in terms of additional traffic movements which may lead to more traffic and increased journey times and could lead to issues of severance, loss of sense of place, breakdown in community cohesion, and a reduction in the quality of amenity within the community.

1.9.22 Furthermore, with increased airport capacity, cumulative effects may be experienced in terms of noise and air quality which may impact on community viability. Air quality effects are expected to be significant negative. 100,392 people will experience a rise in annual mean NO_2 levels. No exceedances of UK air quality objectives are anticipated. With opening prior to 2030 there is a low risk of worsened exceedance of the air quality objectives. However actions by government to improve air quality reduces this risk. In terms of noise, the effects of changes in airspace noise exposure on the local population from the LHR-ENR scheme are considered to be predominantly significant negative. There is a predicted increase of 27,200 people exposed to airspace noise exceeding 54dB $L_{Aeq16hr}$ by 2030, which reduces steadily over time until an overall (beneficial) reduction in population exposure to levels >54 dB $L_{Aeq,16hr}$ of 18,200 people is expected by 2050 (compared with the two-runway do minimum)[38]. Exposure to noise >63 dB $L_{Aeq,16hr}$ is expected to increase by 41,600 in 2030, reducing to 22,400 by 2050. Overall, the assessment concludes that the LHR-ENR scheme would have predominant significant negative effects in terms of noise, and would negatively affect a larger population than LGW-2R..

1.9.23 The potential for noise associated with the airport to affect the future community viability of new development which is planned has been considered by undertaking a review of the adopted and draft development plans in the wider study area, namely:

- Runnymede District.
- Slough Borough;
- South Bucks District;
- Spelthorne Borough;
- The London Borough of Ealing;
- The London Borough of Hammersmith and Fulham;
- The London Borough of Hillingdon;
- The London Borough of Hounslow;
- The London Borough of Richmond upon Thames; and
- The Royal Borough of Windsor and Maidenhead.

1.9.24 Several of the listed local authorities have adopted or have drafted development plans which either allocate or propose to allocate housing sites within areas subject to noise effects[39]. People living in proposed new developments in these areas may experience disturbance, or increased disturbance from that experienced currently. The areas within which noise effects are experienced correspond to the flight path directions, as described below:

- To the east of Heathrow, affected housing sites are located in the London boroughs of Hammersmith and Fulham, Hounslow, and Richmond upon Thames;
- To the west of Heathrow, the largest concentrations of housing sites are generally located outside of the areas affected by noise. This includes sites located in neighbouring local authorities including Slough Borough, South Bucks District, Spelthorne Borough and Runnymede District, however, several large housing sites on the periphery of Windsor may be affected; and

[38] As described in Appendix A-4 Noise. Predicted changes in population exposures in the do something scenario, relative to the do minimum, for central scenario assumptions.
[39] Airports Commission, 2014. *Noise: Assessment*. [online] Accessed 23/11/2016.

- Generally housing sites which are located to the north and south would be subject to fewer noise effects as these would not be under the flight path. These include sites in South Bucks District, Slough Borough, Spelthorne Borough, and the London boroughs of Ealing and Hillingdon.

1.9.25 Undeveloped land in the areas surrounding Heathrow is highly constrained by the London Green Belt and other designations. Increases in noise effects may act as an additional constraint to current housing allocations or to future housing proposals, potentially restricting the ability of the affected local authorities to meet housing delivery targets.

Cumulative Effects

1.9.26 As described in Section 3 of the AoS, cumulative effects on community viability may arise in combination with other PPPs.

1.9.27 Noise and air quality effects may arise during the construction phases of major infrastructure projects where these projects are being constructed concurrently and in close proximity to the airport expansion.

1.9.28 From a review of PPPs such as the National Networks National Policy Statement, London Plan and Mayor's Transport Strategy and major projects (Table 6-5 of the AoS) potential sources of cumulative effects include:

- HS2;
- Crossrail,
- Western Rail Access, and
- Great Western Electrification Programme.

1.9.29 Cumulative effects are also anticipated to arise due to increasing demand for housing and other community infrastructure due to a growing population both attracted by development associated with airport expansion, but also by commercial and residential development brought about to support the growth plans of local authorities in their local development plans.

LHR-NWR

1.9.30 According to the Place Assessment[40], the number of existing residential properties within the airport land take area is estimated to be 783. The majority of this housing loss would be seen in Hillingdon, Hounslow and Slough. Harmondsworth primary school is expected to be lost, along with Harmondsworth Community Hall, Sipson Community Centre, Heathrow Special Needs Centre in Longford, nursery schools in Longford, Sipson and Harmondsworth, the White Horse and Kings Arms pubs in Longford, and a number of recreational facilities and spaces such as Sipson Recreation Ground.

1.9.31 Mitigation assumes financial compensation and relocation assistance, and re-provision of Harmondsworth primary school and community hall. Compensation for lost homes is being offered at 125% of market value. Traffic management measures are also proposed during construction, and realignment of roads to segregate local from airport and other through traffic, and improved public transport.

[40] Jacobs, 2014. *10. Place Assessment*. [online] Accessed 24/12/2015.

Loss of Housing and Community Facilities

1.9.32 The project will involve a substantial loss of housing and community facilities that cannot be reversed, however the numbers of housing and the facilities affected would only be significant in a local context, and the effects are restricted to the local vicinity of the airport. Although mitigation is provided, there remains a high probability of direct impacts on community viability.

Increased Demand for Housing and Community Facilities

1.9.33 Between 300 and 500 additional homes per local authority per year could need to be constructed to meet demand under the LHR–NWR scheme. Provision of additional housing is likely to require support by the provision of additional schools, two additional health centres (14 GPs) and two primary care centres per local authority to 2030[41]. If additional healthcare services and schools are provided, there may be benefits for the local community in terms of reduced waiting times at GP surgeries, and increased resources for teaching. However, it is government practice to only increase the number of these facilities as and when the need arises. There is also likely to be an increase in demand for existing parks or open spaces.

1.9.34 The potential for additional demand for housing and community infrastructure may be associated directly with employees of the airport, and from economic activity stimulated by the development and operation of the airport, and from those in relocated housing.

1.9.35 The scale of housing required will increase pressures on current local authority plans across London and the South East although overall the demand is spread and is low in comparison to existing planned housing. However, the scale of the change is unlikely to significantly increase the housing pressures across the entire London region.

Indirect Effects upon Community Viability

1.9.36 Indirect effects are expected to be experienced through additional traffic movements and increased journey times. This may also lead to issues of severance, loss of sense of place, breakdown in community cohesion, and a reduction in the quality of amenity within the community. Furthermore, with increased airport capacity, cumulative effects may be experienced in terms of noise and air quality which may impact on community viability and house prices. Air quality effects are expected to be significant negative. 121,377 people will experience a rise in annual mean NO_2 levels. No exceedances of UK air quality objectives are anticipated. With opening prior to 2030 there is a low risk of worsened exceedance of the air quality objectives. However actions by government to improve air quality reduces this risk. In terms of noise the effects of changes in airspace noise exposure on the local population from the LHR-NWR scheme are considered to be predominantly significant negative. There is a predicted increase of 92,700 people exposed to airspace noise exceeding 54dB $L_{Aeq16\ hr}$ by 2030, which reduces over time to an increase of 36,800 in 2050 (compared with the two-runway do minimum)[42]. Exposure to noise >63 dB $L_{Aeq,16hr}$ is expected to increase by 21,700 in 2030, reducing to 2,600 by 2050. The assessment also shows that LHR-NWR affects a larger population than LGW-2R.

1.9.37 The potential for noise associated with the airport to affect the future community viability of new development which is planned has been considered by undertaking a review of the adopted and draft development plans in the wider study area, namely:

- Runnymede District.
- Slough Borough;
- South Bucks District;

[41] Airports Commission, 2014. *Local Economy Impacts: Assessment*. [online] Accessed 24/12/2015.

[42] As described in Appendix A-4 Noise. Predicted changes in population exposures in the do something scenario, relative to the do minimum, for central scenario assumptions.

- Spelthorne Borough;
- The London Borough of Ealing;
- The London Borough of Hillingdon;
- The London Borough of Hounslow;
- The London Borough of Richmond upon Thames; and
- The Royal Borough of Windsor and Maidenhead.

1.9.38 Several of the local authorities have drafted or adopted development plans which either allocate or propose to allocate housing sites within areas where residents could be subject to noise effects[43]. The areas within which noise effects are experienced correspond to the flight path directions, as described below:

- To the east of Heathrow, affected housing sites are located in the London boroughs of Hounslow and Richmond upon Thames;
- To the west of Heathrow, the largest concentrations of housing sites are generally located outside of the areas affected by noise, this includes sites located in neighbouring local authorities including Slough Borough, South Bucks District, Spelthorne Borough and Runnymede District. However, several large housing sites on the periphery of Windsor may be affected, although the Royal Borough of Windsor and Maidenhead's emerging Local Plan is at a draft stage; and
- Generally housing sites which are located to the north and south would be subject to fewer noise effects as these would not be under the flight paths. These include sites in South Bucks District, Slough Borough, Spelthorne Borough, and the London boroughs of Ealing and Hillingdon.

1.9.39 Undeveloped land in the areas surrounding Heathrow is highly constrained by the London Green Belt and other designations. Increases in noise effects may act as an additional constraint to current housing allocations or to future housing proposals, restricting the ability of the affected local authorities to meet housing delivery targets.

Cumulative Effects

1.9.40 As described in Section 3 of the AoS, cumulative effects on community viability may arise in combination with other plans, policies and other major projects. Noise and air quality effects may arise during the construction phases of major infrastructure projects where these projects are being constructed concurrently and in close proximity to the airport expansion. From a review of PPPs such as the National Networks National Policy Statement, London Plan and Mayor's Transport Strategy and major projects (Table 6-5 of the AoS) potential sources of cumulative effects include:

- High Speed 2;
- Crossrail,
- Western Rail Access, and
- Great Western Electrification Programme.

1.9.41 Indirect and cumulative effects are anticipated to arise due to natural population growth both attracted by the proposed scheme and associated commercial and residential development brought about to support the growth plans of local authorities in their local development plans. Increased demand for housing and community infrastructure is thus expected to occur throughout the operational life of the airport.

[43] Airports Commission, 2014. *Noise: Assessment*. [online] Accessed 23/11/2016.

AoS Objective 2: To avoid or minimise disproportionate impacts on any social group

LGW-2R

1.9.42 With the loss and relocation of housing and of some community facilities such as day-care and nurseries, Trent House Care Home and the Outreach 3 Way facility, additional journey times may disproportionately affect mothers travelling to nurseries with their children, elderly people and their families, and could lead to disruption and additional journey times for those with disabilities. This may also lead to severance impacts for disabled people, and potentially impact on mothers' employment access due to changes in care service access.

1.9.43 Two places of worship would be lost with this scheme: a Hindu temple and a church used by Seventh Day Adventists with differential impacts on these two religious groups as they lose their places of worship and the community cohesion which they offer. Northgate, Poundhill, Crawley, Rusper and Colgate and Horley Central have over 10% more Christians than the South East average. Similarly, Langley Green and Northgate have over 10% more Hindu and Muslim population than the South East average. Due to the high proportion of diverse religions present in the areas surrounding the scheme, and due to the loss of two religious facilities, disproportionate effects may be felt more strongly as a result of development of this scheme. However, there are alternative facilities nearby which may reduce the severity of disproportionate effects.

1.9.44 The population around Crawley is predominantly white but there is also a significant BAME community across local wards, particularly at Langley Green. Therefore, due to the disproportionate representation of BAME residents surrounding Gatwick airport, this priority group is likely to experience greater negative effects resulting from the scheme. However, Gatwick airport's on-site workforce has a higher than average proportion of BAME staff, with 8% Asian and 6% Black. This compares to a UK average of 4.4% Asian (defined as Indian, Pakistani and Bangladeshi) and 2.5% Black. As Gatwick airport's current on-site workforce has a higher than average proportion of BAME staff, members of the community within deprived groups and / or BAME populations, may be well placed for future employment opportunities, including apprenticeships offered by the airport, as a result of the scheme.

1.9.45 Cumulative effects may arise as a consequence of the construction phase of the airport running concurrently with other major infrastructure projects, in particular major road and rail projects such as those described for Objective 1 above. Increased noise and decreased air quality may disproportionately affect communities which are located in close proximity to two or more schemes. However, due to the dispersed nature of different sensitive communities they are unlikely to arise over wide geographical areas.

LHR-ENR

1.9.46 With regard to place and community, young people, those with disabilities, mothers and the elderly could be particularly impacted by the loss of community facilities. For example, the Punch Bowl Pub, which is informally used as a community meeting facility by these groups, would be lost which may cause disproportionate effects upon these groups as they may have to travel further to find similar facilities. Noise implications are also expected for Pippins Primary School, which may affect children in the area disproportionately.

1.9.47 Air quality impacts from increased air and road traffic and emissions could more strongly affect children (aged under 16) and older people (aged 65+), and disproportionate effects may be experienced by residents in Colnbrook and Poyle due to the population being younger than the national average.

1.9.48 There are higher than average BAME communities around the airport, with a particularly high proportion of BAME populations in the local authority areas surrounding Heathrow. These communities would experience the negative impacts of expansion, but would also be well-placed to benefit from its positive effects. For example, the unemployment rate in Colnbrook and Poyle is above the national rate, and Heathrow airport's current on-site workforce has a higher than average proportion of BAME staff. Members of the community within deprived groups and / or BAME populations may be well placed for future employment opportunities as a result of the scheme.

1.9.49 Each scheme promoter has set out commitments to provide a variety of jobs and apprenticeships which will be available to local residents. In particular for LHR-NWR 5,000 additional apprenticeships have been offered and for LGW-2R 2,500 additional apprenticeships have been offered. For the purpose of this assessment it is assumed that the offer of 5,000 additional apprenticeships would be extended to the LHR-ENR proposal. The relatively high unemployment rate in areas such as Hillingdon and Ealing, along with the possibility of the relatively strong match between the new jobs which could be created and the current skills of the population and current trends for on airport direct employment, suggest that there is capacity for some of these new jobs to be filled by unemployed people from these areas[44]. However, there remains significant uncertainty for the residents of Poyle, who at this stage do not know whether their home and/ or job will be relocated.

1.9.50 Cumulative effects may arise as a consequence of the construction phase of the airport running concurrently with other major infrastructure projects, in particular major road and rail projects. Increased noise and decreased air quality may disproportionately affect communities which are located in close proximity to two or more schemes. However, due to the dispersed nature of different sensitive communities they are unlikely to arise over wide geographical areas.

LHR-NWR

1.9.51 The relocation of housing, a primary school, three nursery schools (in Harmondsworth, Longford and Sipson) and other community facilities is likely to lead to significant disruption, difficulties finding appropriate child-care, potentially impacting on mothers' employment, and/or additional journey times to relocated/new nurseries. The relocation of the Heathrow Special Needs Centre in Longford, could lead to disruption and additional journey times for those with disabilities. Furthermore, there could be severance impacts for disabled people which should be taken into account.

1.9.52 This scheme includes for the greatest loss of housing, and therefore, disproportionate effects are more likely as an increased number of people are expected to experience direct effects.

1.9.53 There are higher than average BAME communities around the airport, with a particularly high proportion of BAME populations in the local authority areas surrounding Heathrow in Heathrow Villages, Slough and Hounslow. These communities would experience the negative impacts of expansion, but would also be well-placed to benefit from its positive effects. For example, the unemployment rate in Heathrow Villages is above the national rate, and Heathrow airport's current on-site workforce has a higher than average proportion of BAME staff. Members of the community within deprived groups and / or BAME populations may be well placed for future employment opportunities as a result of the scheme.

[44] The job mix at Heathrow Airport is predominantly low skilled and are accessible to those without having studied for higher level qualifications such as university degrees. 19% of Heathrow Villages ward residents have Level 4 or above qualifications, lower than the national average of 27%, and the authorities surrounding Heathrow have a high proportion of non-skilled workers compared to the national average of 9. 3%.

1.9.54 Each airport has discussed commitments to provide a variety of jobs and apprenticeships which will be available to local residents. The scheme promoters for LHR-NWR has promised 5,000 additional apprenticeships, the scheme promoter for LGW-2R (it is assumed for this study that this offer would be extended by the promoter to LHR-ENR) has promised 2,500 additional apprenticeships. The relatively high unemployment rate in the boroughs surrounding Heathrow, along with the possibility of the relatively strong match between the new jobs which could be created and the current skills of the population, and current trends for on airport direct employment, suggest that there is capacity for some of these new jobs to be filled by unemployed people from these areas.

1.9.55 Cumulative effects may arise as a consequence of the construction phase of the airport running concurrently with other major infrastructure projects, in particular major road and rail projects. Increased noise and decreased air quality may disproportionately affect communities which are located in close proximity to two or more schemes. However, due to the dispersed nature of different sensitive communities they are unlikely to arise over wide geographical areas.

Objective 1: To Avoid or Minimise Negative Effects on Community Viability, Including Housing, Facilities and Indirect Effects

Question 1: Will it lead to a Loss of Housing and Community Facilities?

SEA Criteria	LGW-2R	LHR-ENR	LHR-NWR
Description of Impact (including receptor)	The loss of the following housing and community facilities[45]: → 168 residential properties likely to be required for airport expansion; → up to 37 residential properties could be required for surface access, since they fall within the buffer zone for construction works; → potential secondary impacts of relocated households on existing communities; → Trent House care home; → loss of industrial/employment land → two places of worship (a church used by Seventh Day Adventists, and a Hindu temple); → one charity facility - Outreach 3 Way, which helps people with learning difficulties; → five pre-schools/ nurseries; → Crawley Rugby club, with its sporting and social facilities; → the northern part of Rowley Wood; → other formal and informal recreation sites; → public rights of way; → cycle routes; and → impacts on local journey times, either from severance or increased traffic. Mitigation has been recommended.	The loss of the following housing and community facilities[46]: → 242 residential properties likely to be required for airport expansion; → up to 165 residential properties could be required for surface access, since they fall within the potential buffer zone for construction works; → potential secondary impacts of relocated households on existing communities; → loss of industrial/employment land; → loss of three pubs during construction; → noise implications for Pippins Primary School; → part of the Colne Valley regional park; → other formal and informal recreation sites; → public rights of way; → cycle routes; → severance of section of the Colne Valley Way running from Colnbrook to Horton; → severance of Poyle Road, which currently links Poyle and Colnbrook with Wraysbury and Horton; and → severance of route to Poyle from the west along Bath Road. Mitigation has been recommended.	The loss of the following housing and community facilities[47]: → 783 residential properties likely to be required for airport expansion; → up to 289 residential properties could be required for surface access, since they fall within the potential buffer zone for construction works; → potential secondary impacts of relocated households on existing communities; → loss of industrial/employment land → Harmondsworth Primary School; → Harmondsworth Community hall (including the Wonderland day nursery); → Sipson community centre; → Heathrow special needs centre in Longford; → Nursery schools in Longford, Sipson and Harmondsworth; → White Horse pub at Longford; → Sipson recreation ground and facilities; → other formal and informal recreation sites; → public rights of way; → cycle routes; → part of the Colne Valley Regional Park; and → impacts on local journey times and severance, particularly from

[45] Airports Commission, 2014. *Community: Impact Assessment*, pp. 9-10. [online] Accessed 24/12/2015.
[46] Airports Commission, 2014. *Community: Impact Assessment*, pp. 9-10. [online] Accessed 24/12/2015.
[47] Airports Commission, 2014. *Community: Impact Assessment*, pp. 9-10. [online] Accessed 24/12/2015.

SEA Criteria	LGW-2R	LHR-ENR	LHR-NWR
			A4/M25/Southern Rail Access works. Mitigation has been recommended.
Direct/ Indirect/ Cumulative	**Direct and Cumulative** Direct loss of housing and community facilities listed above. Cumulative effects on communities may arise from airport expansion in combination with other major infrastructure development (see Table 6.5 of the AoS Report).	**Direct and Cumulative** Direct loss of housing and community facilities listed above. Cumulative effects on communities may arise from airport expansion in combination with other major infrastructure development such as Crossrail (see Table 6.5 of the AoS Report).	**Direct and Cumulative** Direct loss of housing and community facilities listed above. Cumulative effects on communities may arise from airport expansion in combination with other major infrastructure development such as Crossrail (see Table 6.5 of the AoS Report).
Probability (High, Medium, Low, Very Low)	**High** The community facilities and housing are within the airport development envelope, therefore these impacts are all considered to be certain.	**High** The community facilities and housing are within the airport development envelope, therefore these impacts are all considered to be certain.	**High** The community facilities and housing are within the airport development envelope, therefore these impacts are all considered to be certain.
Phase, Duration (Long-term, Medium-term, Short-term), Frequency	**Construction, Operation, Long-term, One-off and Continued** The project will involve a substantial loss of housing during construction although effects are estimated to be reduced over time by re-provision of housing and facilities.	**Construction, Operation, Long-term, One-off and Continued** The project will involve a substantial loss of housing and community facilities that cannot be reversed, however the numbers of housing and the facilities affected should only be significant in a local context, and the effects are restricted to the local vicinity of the airport. Effects on communities will occur both during construction and operation. However, effects are estimated to be reduced in significance over time by re-provision of housing and facilities, along with other mitigation measures such as compensation.	**Construction, Operation, Long-term, One-off and Continued** The project will involve a substantial loss of housing and community facilities that cannot be reversed, however the numbers of housing and the facilities affected should only be significant in a local context, and the effects are restricted to the local vicinity of the airport. Effects on communities will occur both during construction and operation. However, effects are estimated to be reduced in significance over time by re-provision of housing and facilities, along with other mitigation measures such as compensation.
Permanent/ Temporary **Irreversible/ Reversible**	**Permanent and Irreversible** The impacts will be permanent and although replacement housing and community facilities can be provided elsewhere, the loss cannot be reversed.	**Permanent and Irreversible** The impacts will be permanent and although replacement housing and community facilities can be provided elsewhere, the loss cannot be reversed.	**Permanent and Irreversible** The impacts will be permanent and although replacement housing and community facilities can be provided elsewhere, the loss cannot be reversed.
Magnitude and Spatial Extent, incl. Transboundary	**High, Local** The project will involve a substantial loss of housing and community facilities, however the numbers of housing and the facilities affected are only significant in a local context, and the	**High, Local** The project will involve a substantial loss of housing and community facilities, however the numbers of housing and the facilities affected are only significant in a local context, and the	**High, Local** The project will involve a substantial loss of housing and community facilities, however the numbers of housing and the facilities affected are only significant in a local context, and the

SEA Criteria	LGW-2R	LHR-ENR	LHR-NWR
	effects are restricted to the local vicinity of the airport.	effects are restricted to the local vicinity of the airport.	effects are restricted to the local vicinity of the airport.
Assumptions and Limitations	Use of existing data, baseline conditions and predictions[48,49,50]. A desk based assessment only has been undertaken at this stage.	Use of existing data, baseline conditions and predictions[51,52,53]. A desk based assessment only has been undertaken at this stage.	Use of existing data, baseline conditions and predictions[54,55,56]. A desk based assessment only has been undertaken at this stage.
Significance	**Significant Negative effect (--)**	**Significant Negative effect (--)**	**Significant Negative effect (--)**
	Direct and cumulative effects on housing and community facilities are high probability, occur during construction but with lasting effects into operation; permanent and irreversible, high magnitude and local extent.	Direct and cumulative effects on housing and community facilities are high probability, occur during construction but with lasting effects into operation; permanent and irreversible, high magnitude and local extent.	Direct and cumulative effects on housing and community facilities are high probability, occur during construction but with lasting effects into operation; permanent and irreversible, high magnitude and local extent.

[48] Airports Commission, 2015. *Final Report*. [online] Accessed 23/11/2016.
[49] Jacobs, 2014. *10. Place: Baseline*. [online] Accessed 24/12/2015.
[50] Jacobs, 2014. *10. Place Assessment*. [online] Accessed 24/12/2015.
[51] Airports Commission, 2015. *Final Report*. [online] Accessed 23/11/2016.
[52] Jacobs, 2014. *10. Place: Baseline*. [online] Accessed 24/12/2015.
[53] Jacobs, 2014. *10. Place Assessment*. [online] Accessed 24/12/2015.
[54] Airports Commission, 2015. *Final Report*. [online] Accessed 23/11/2016.
[55] Jacobs, 2014. *10. Place: Baseline*. [online] Accessed 24/12/2015.
[56] Jacobs, 2014. *10. Place Assessment*. [online] Accessed 24/12/2015.

Question 2: Will it lead to Increasing Demand for Housing and Community Facilities?

SEA Topic	LWG-2R	LHR-ENR	LHR-NWR
Description of Impact (including receptor)	High demand scenarios indicate 8,200-19,000 homes would be required up to 2030. Additional housing expected to be required is 136 additional housing units per local authority per year. Additional spaces in local schools are likely to be required and two additional GPs per local authority to 2030[57]. There is also likely to be a need for additional parks or open spaces.	High demand scenarios indicate 42,400 - 61,300 homes would be required up to 2030. Up to 450 homes would be required per local authority per year. Additional spaces in local schools are likely to be required and two additional GPs and two primary care centres per local authority to 2030[58]. There is also likely to be a need for additional parks or open spaces.	High demand scenarios indicate 42,400 – 69,300 homes would be required. Between 300 and 500 additional homes would be required per local authority per year. Additional spaces in local schools are likely to be required and two additional GPs and two primary care centres per local authority to 2030[59]. There is also likely to be a need for additional parks or open spaces.
Direct/ Indirect/ Cumulative	**Direct, Indirect and Cumulative** Potential for additional demand for housing and other community infrastructure may be associated directly with employees of the airport, but also from increased housing demand associated with economic activity stimulated by the development and operation of the airport. Indirect and cumulative effects anticipated to arise due to increasing demand for housing and other community infrastructure due to a growing population both attracted by development associated with airport expansion, but also by commercial and residential development brought about to support the growth plans of local authorities in their local development plans.	**Direct, Indirect and Cumulative** Potential for additional demand for housing and other community infrastructure may be associated directly with employees of the airport, but also from increased housing demand associated with economic activity stimulated by the development and operation of the airport. Indirect and cumulative effects anticipated to arise due to increasing demand for housing and other community infrastructure due to a growing population both attracted by development associated with airport expansion, but also by commercial and residential development brought about to support the growth plans of local authorities in their local development plans.	**Direct, Indirect and Cumulative** The potential for additional demand for housing and other community infrastructure may be associated directly with employees of the airport, but also from increased housing demand associated with economic activity stimulated by the development and operation of the airport. Indirect and cumulative effects anticipated to arise due to increasing demand for housing and other community infrastructure due to a growing population both attracted by development associated with airport expansion, but also by commercial and residential development brought about to support the growth plans of local authorities in their local development plans.
Probability (High, Medium, Low, Very Low)	**High** There is a high probability that the predicted increases in demand for housing and community facilities will occur, however the assessment is based on various assumptions and limitations.	**High** There is a high probability that the predicted increases in demand for housing and community facilities will occur, however the assessment is based on various assumptions	**High** There is a high probability that the predicted increases in demand for housing and community facilities will occur, however the assessment is based on various assumptions

[57] Airports Commission, 2014. *Local Economy Impacts: Assessment*. [online] Accessed 24/12/2015.
[58] Airports Commission, 2014. *Local Economy Impacts: Assessment*. [online] Accessed 24/12/2015.
[59] Airports Commission, 2014. *Local Economy Impacts: Assessment*. [online] Accessed 24/12/2015.

SEA Topic	LWG-2R	LHR-ENR	LHR-NWR
		and limitations.	and limitations.
Phase, Duration (Long-term, Medium-term, Short-term), Frequency	**Construction, Operational, Long-term, ongoing** Effects on housing demand are estimated to occur in the context of decreased demand for housing in terms of desirability due to reduced air and noise quality; however, increased demand is also estimated to occur due to increase in jobs as a result of the scheme. The effects are expected to occur during the construction phase of development, and likely to be ongoing throughout the operational life of the airport.	**Construction, Operational, Long-term, ongoing** Effects on housing demand are estimated to occur in the context of decreased demand for housing in terms of desirability due to reduced air and noise quality; however, increased demand is also estimated to occur due to increase in jobs as a result of the scheme. The effects are expected to occur during the construction phase of development, and likely to be ongoing throughout the operational life of the airport.	**Construction, Operational, Long-term, ongoing** Effects on housing demand are estimated to occur in the context of decreased demand for housing in terms of desirability due to reduced air and noise quality; however, increased demand is also estimated to occur due to increase in jobs as a result of the scheme. The effects are expected to occur during the construction phase of development, and likely to be ongoing throughout the operational life of the airport.
Permanent/ Temporary **Irreversible/ Reversible**	**Permanent and Reversible** Demand is likely to fluctuate in accordance with the economy, other developments and job creation.	**Permanent and Reversible** Demand is likely to fluctuate in accordance with the economy, other developments and job creation.	**Permanent and Reversible** Demand is likely to fluctuate in accordance with the economy, other developments and job creation.
Magnitude and Spatial Extent, incl. Transboundary	**Low, Regional** As is indicated, it is anticipated that the scale of housing required will increase pressures on current local authority plans. Impacts on housing demand will affect local authorities across London and the South East although overall the demand will spread and is low in comparison to existing planned housing.	**Low, Regional** As is indicated, it is anticipated that the scale of housing required will increase pressures on current local authority plans. Impacts on housing demand will affect local authorities across London and the South East, although overall the demand will spread and is low in comparison to existing planned housing.	**Low, Regional** As is indicated, it is anticipated that the scale of housing required will increase pressures on current local authority plans. Impacts on housing demand will affect local authorities across London and the South East, although overall the demand will spread and is low in comparison to existing planned housing.
Assumptions and Limitations	Use of existing data, baseline conditions and predictions[60,61,62.] A desk based assessment only has been undertaken at this stage. The scenario which has been considered is a 'worst case' scenario[63], and is	Use of existing data, baseline conditions and predictions[64,65,66]. A desk based assessment only has been undertaken at this stage. The scenario which has been considered is a 'worst case'	Use of existing data, baseline conditions and predictions[68,69,70]. A desk based assessment only has been undertaken at this stage. The scenario which has been considered is a 'worst case'

[60] Airports Commission, 2015. *Final Report*. [online] Accessed 23/11/2016.
[61] Jacobs, 2014. *10. Place: Baseline*. [online] Accessed 24/12/2015.
[62] Jacobs, 2014. *10. Place Assessment*. [online] Accessed 24/12/2015.
[63] Airports Commission, 2015. *Final Report*. [online] Accessed 23/11/2016.
[64] Airports Commission, 2015. *Final Report*. [online] Accessed 23/11/2016.
[65] Jacobs, 2014. *10. Place: Baseline*. [online] Accessed 24/12/2015.
[66] Jacobs, 2014. *10. Place Assessment*. [online] Accessed 24/12/2015.

SEA Topic	LWG-2R	LHR-ENR	LHR-NWR
	based on various assumptions of population growth, net migration, unemployment and commuting. The calculation of provision for schools places assumes that all students go to state schools, that South East schools are the size of the national average and that none of the places will be available in current schools. The calculation also assumes that it will remain government practice to only increase the number of these facilities as and when the need arises.	scenario[67], and is based on various assumptions of population growth, net migration, unemployment and commuting The calculation of provision for schools places assuming that all students go to state schools, that South East schools are the size of the national average and that none of the places will be available in current schools. The calculation also assumes that it will remain government practice to only increase the number of these facilities as and when the need arises.	scenario[71], and is based on various assumptions of population growth, net migration, unemployment and commuting. The calculation of provision for schools places assuming that all students go to state schools, that South East schools are the size of the national average and that none of the places will be available in current schools. The calculation also assumes that it will remain government practice to only increase the number of these facilities as and when the need arises.
Significance	**Negative effect (-)**	**Negative effect (-)**	**Negative effect (-)**
	Direct, indirect and cumulative effects on demand for housing and facilities are of high probability; occur during construction but continue into operation; are permanent and reversible; effects are low magnitude and regional extent.	Direct, indirect and cumulative effects on demand for housing and facilities are of high probability; occur during construction but continue into operation; are permanent and reversible; effects are low magnitude and regional extent.	Direct, indirect and cumulative effects on demand for housing and facilities are of high probability; occur during construction but continue into operation; are permanent and reversible; effects are low magnitude and regional extent.

[68] Airports Commission, 2015. *Final Report*. [online] Accessed 23/11/2016.
[69] Jacobs, 2014. *10. Place: Baseline*. [online] Accessed 24/12/2015.
[70] Jacobs, 2014. *10. Place Assessment*. [online] Accessed 24/12/2015.
[67] Airports Commission, 2015. *Final Report*. [online] Accessed 23/11/2016.
[71] Airports Commission, 2015. *Final Report*. [online] Accessed 23/11/2016.

Question 3: Will There be Indirect Effects on Community Viability?

SEA Topic	LGW-2R	LHR-ENR	LHR-NWR
Description of Impact (including receptor)	**Traffic movements -** may lead to more traffic and increased journey times. This may lead to issues of severance, loss of sense of place, breakdown in community cohesion, and a reduction in the quality of amenity within the community. **Air Quality -** 51,328 people will experience a rise in annual mean NO_2 levels. With opening prior to 2030 there is a low risk of worsened exceedance of the air quality objectives. However actions by government to improve air quality reduces this risk.[72] **Noise –** There is a predicted increase of 16,200 people exposed to airspace noise exceeding 54dB $L_{Aeq16\ hr}$ by 2030, which increases further to 21,300 by 2050[73]. Increases in exposure to levels of noise >63 dB $L_{Aeq,16hr}$ are expected to be 400 in 2030, 200 in 2040 and 400 in 2050. **Strategic development-** No allocated housing sites will be lost as a result of airport expansion. However, housing allocations close to the edge of the airport site in Crawley and on the northern edge of Horsham may be subject to noise effects.	**Traffic movements-** may lead to more traffic and increased journey times. This may lead to issues of severance, loss of sense of place, breakdown in community cohesion, and a reduction in the quality of amenity within the community. **Air Quality-** 100,392 people will experience a rise in annual mean NO_2 levels. With opening prior to 2030 there is a low risk of worsened exceedance of the air quality objectives. However actions by government to improve air quality reduces this risk.[74] **Noise –** There is a predicted increase of 27,200 people exposed to airspace noise exceeding 54dB $L_{Aeq16hr}$ by 2030, which reduces steadily over time until an overall (beneficial) reduction in population exposure to levels >54 dB $L_{Aeq,16hr}$ of 18,200 people is expected by 2050. Exposure to noise >63 dB $L_{Aeq,16hr}$ is expected to increase by 41,600 in 2030, reducing to 22,400 by 2050. **Strategic Development** No allocated housing sites will be lost as a result of airport expansion, however housing allocations to the east and west of Heathrow will be subject to noise effects, particularly around Windsor. Undeveloped land in the areas surrounding Heathrow is highly constrained by the London Green Belt and other designations. Increases in noise effects may act as an additional constraint to current housing allocations or to future housing proposals,	**Traffic movements -** may lead to more traffic and increased journey times. This may lead to issues of severance, loss of sense of place, breakdown in community cohesion, and a reduction in the quality of amenity within the community. **Air Quality –** 121,377 people will experience a rise in annual mean NO_2 levels. With opening prior to 2030 there is a low risk of worsened exceedance of the air quality objectives. However actions by government to improve air quality reduces this risk.[75] **Noise –** There is a predicted increase of 92,700 people exposed to airspace noise exceeding 54dB $L_{Aeq16\ hr}$ by 2030, reducing to 36,800 in 2050. Exposure to noise >63 dB $L_{Aeq,16hr}$ is expected to increase by 21,700 in 2030, reducing to 2,600 by 2050. **Strategic Development -** No allocated housing sites will be lost as a result of airport expansion, however housing allocations to the east and west of Heathrow will be subject to noise effects, particularly around Windsor. Undeveloped land in the areas surrounding Heathrow is highly constrained by the London Green Belt and other designations. Increases in noise effects may act as an additional constraint to current housing allocations or to future housing proposals, restricting the ability of the affected local authorities to meet housing delivery targets.

[72] Airports Commission, 2015. *Quality of Life: Equalities Impacts Report*. [online] Accessed 24/12/2015.
[73] All noise figures are predicted changes in population exposures in the do something, relative to the do minimum for central scenario assumptions.
[74] Airports Commission, 2015. *Quality of Life: Equalities Impacts Report*. [online] Accessed 24/12/2015.
[75] Airports Commission, 2015. *Quality of Life: Equalities Impacts Report*. [online] Accessed 24/12/2015.

SEA Topic	LGW-2R	LHR-ENR	LHR-NWR
		restricting the ability of the affected local authorities to meet housing delivery targets.	
Direct/ Indirect/ Cumulative	**Indirect and Cumulative** Communities within Crawley and Horsham are most likely to be affected by indirect effects due to increases in noise, reduction in air quality and increased traffic. Cumulative effects on communities may arise from airport expansion in combination with other major infrastructure development.	**Indirect and Cumulative** Communities within Colnbrook and Poyle, Hornton, Slough and Hillingdon are most likely to be affected by indirect effects due to increases in noise, reduction in air quality and increased traffic. Cumulative effects on communities may arise from airport expansion in combination with other major infrastructure development.	**Indirect and Cumulative** Communities within Harmondsworth, Longford, Sipson, Hillingdon and Slough are most likely to be affected by indirect effects due to increases in noise. Cumulative effects on communities may arise from airport expansion in combination with other major infrastructure development.
Probability (High, Medium, Low, Very Low)	**High** The probability of effects which may cause severance and effects on community viability are high.	**High** The probability of effects which may cause severance and effects on community viability are high.	**High** The probability of effects which may cause severance and effects on community viability are high.
Phase, Duration (Long-term, Medium-term, Short-term), Frequency	**Construction and Operational, Long-term, ongoing** Effects on community viability are estimated to occur due to indirect effects caused by reduced air quality and increased noise levels. The effects are expected to occur during the construction phase of development, and likely to be ongoing throughout the operational life of the airport. These effects are currently predicted up until 2030, but will continue beyond that date.	**Construction and Operational, Long-term, ongoing** Effects on community viability are estimated to occur due to indirect effects caused by reduced air quality and increased noise levels. The effects are expected to occur during the construction phase of development, and likely to be ongoing throughout the operational life of the airport. These effects are currently predicted up until 2030, but will continue beyond that date.	**Construction and Operational, Long-term, ongoing** Effects on community viability are estimated to occur due to indirect effects caused by reduced air quality and increased noise levels. The effects are expected to occur during the construction phase of development, and likely to be ongoing throughout the operational life of the airport. These effects are currently predicted up until 2030, but will continue beyond that date.
Permanent/ Temporary **Irreversible/ Reversible**	**Permanent and potentially reversible** The impacts of potential effects are expected to be mostly permanent. Some potential effects could be reversible in the medium to long term with the provision of new facilities and careful planning, amongst other mitigation measures that could be implemented to improve air quality and reduce noise levels. However noise effects will remain irreversible despite mitigation measures.	**Permanent and potentially reversible** The impacts of potential effects are expected to be mostly permanent. Some potential effects could be reversible in the medium to long term with the provision of new facilities and careful planning, amongst other mitigation measures that could be implemented to improve air quality and reduce noise levels. However noise effects will remain irreversible despite mitigation measures.	**Permanent and potentially reversible** The impacts of potential effects are expected to be mostly permanent. Some potential effects could be reversible in the medium to long term with the provision of new facilities and careful planning, amongst other mitigation measures that could be implemented to improve air quality and reduce noise levels. However noise effects will remain irreversible despite mitigation measures.

SEA Topic	LGW-2R	LHR-ENR	LHR-NWR
Magnitude and Spatial Extent, incl. Transboundary	**Low, Local, Regional** Potential effects such as reduction in air quality are likely to be experienced at a local level. However, impacts may also be experienced by those outside of the local area who use homes, facilities and infrastructures of the local area. These may also benefit from new facilities, or experience increased noise or traffic effects.	**High, Local, Regional** Potential effects such as reduction in air quality are likely to be experienced at a local level. However, impacts may also be experienced by those outside of the local area who use homes, facilities and infrastructures of the local area. These may also benefit from new facilities, or experience increased noise or traffic effects.	**High, Local, Regional** Potential effects such as reduction in air quality are likely to be experienced at a local level. However, impacts may also be experienced by those outside of the local area who use homes, facilities and infrastructure of the local area. These may also benefit from new facilities, or experience increased noise or traffic effects.
Assumptions and Limitations	Use of existing data, baseline conditions and predictions[76,77,78.79]. A desk based assessment only has been undertaken at this stage.		
Significance	**Negative effect (-)**	**Significant Negative effect (--)**	**Significant Negative effect (--)**
	Indirect and cumulative effects on community viability; high probability, occurring during construction and operation; long-term; permanent and reversible; low magnitude and local extent.	Indirect and cumulative effects on community viability; high probability, occurring during construction and operation; long-term; permanent and reversible; low magnitude and local extent.	Indirect and cumulative effects on community viability; high probability, occurring during construction and operation; long-term; permanent and reversible; low magnitude and local extent.

[76] Airports Commission, 2015. *Final Report*. [online] Accessed 23/11/2016.
[77] Jacobs, 2014. *Module 5: Noise: Local Assessment*. [online] Accessed 25/11/2016.
[78] Jacobs, 2015. *Module 6: Air Quality Local Assessment*. [online] Accessed 25/11/2016.
[79] Jacobs, 2014. *10. Place Assessment*. [online] Accessed 24/12/2015.

Objective 2: To Avoid or Minimise Disproportionate Impacts on any Social Group

Question 4: Will it Minimise Disproportionate Negative Effects on Particular Regions, Users or Vulnerable Social Groups?

SEA Criteria	LGW-2R	LHR-ENR	LHR-NWR
Description of Impact (including receptor)	With the loss and relocation of housing and of some community facilities such as day-care and nurseries, Trent House Care Home, the Outreach 3 Way facility, a Hindu temple and a church used by Seventh Day Adventists, recreational ground and transport links, disproportionate effects may be experienced by vulnerable social groups within the area. Furthermore, indirect effects due to increased traffic, reduced air quality and increased noise effects may be experienced disproportionately by such groups. The population around Crawley is predominantly white but there is also a significant BAME community across local wards, particularly at Langley Green. There is potential for BAME groups to therefore experience disproportionate effects.	With the loss and relocation of housing and community facilities such as the Punch Bowl Pub and primary school, recreational ground and transport links, disproportionate effects may be experienced by vulnerable social groups within the area. Furthermore, indirect effects due to increased traffic, reduced air quality and increased noise effects may be experienced disproportionately by such groups. There are higher than average BAME communities around the airport, with a particularly high proportion of BAME populations in the local authority areas surrounding Heathrow in Heathrow Villages, Slough and Hounslow. There is potential for BAME groups to therefore experience disproportionate effects.	With the loss and relocation of housing and community facilities such as primary schools, community centres, nurseries, recreational ground and transport links, disproportionate effects may be experienced by vulnerable social groups within the area. Furthermore, indirect effects due to increased traffic, reduced air quality and increased noise effects may be experienced disproportionately by such groups. There are higher than average BAME communities around the airport, with a particularly high proportion of BAME populations in the local authority areas surrounding Heathrow. There is potential for BAME groups to therefore experience disproportionate effects.
Direct/ Indirect/ Cumulative	**Direct, Indirect and Cumulative** Some vulnerable groups may experience more than one effect at a disproportionate scale, which will lead to cumulative effects being experienced. Cumulative effects on communities may arise from airport expansion in combination with other major infrastructure development.	**Direct, Indirect and Cumulative** Some vulnerable groups may experience more than one effect at a disproportionate scale, which will lead to cumulative effects being experienced. Cumulative effects on communities may arise from airport expansion in combination with other major infrastructure development.	**Direct, Indirect and Cumulative** Some vulnerable groups may experience more than one effect at a disproportionate scale, which will lead to cumulative effects being experienced. Cumulative effects on communities may arise from airport expansion in combination with other major infrastructure development.
Probability (High, Medium, Low, Very Low)	**High** The probability of disproportionate effects on priority groups is high.	**High** The probability of disproportionate effects on priority groups is high.	**High** The probability of disproportionate effects on priority groups is high.
Phase, Duration (Long-term, Medium-term, Short-term), Frequency	**Construction and Operational, Long-term, ongoing** Direct effects such as loss of community facilities are expected to occur from construction, however, severity may be reduced over time with re-provision of facilities and homes. Direct effects such as increased traffic	**Construction and Operational, Long-term, ongoing** Direct effects such as loss of community facilities are expected to occur from construction, however, severity may be reduced over time with re-provision of facilities and homes. Direct effects such as	**Construction and Operational, Long-term, ongoing** Direct effects such as loss of community facilities are expected to occur from construction, however, severity may be reduced over time with re-provision of facilities and homes. Direct effects such as

SEA Criteria	LGW-2R	LHR-ENR	LHR-NWR
	and changes in noise and air quality are expected to occur at the construction phase and continue through operation.	increased traffic and changes in noise and air quality are expected to occur at the construction phase and continue through operation.	increased traffic and changes in noise and air quality are expected to occur at the construction phase and continue through operation.
Permanent/ Temporary **Irreversible/ Reversible**	**Permanent and potentially reversible** The impacts will be permanent, however, may be reversible with provision of new facilities and careful planning to reduce the potential effects of severance and disproportionate negative effects. For example, Gatwick airport's on-site workforce has a higher than average proportion of BAME staff, with 8% Asian data and 6% Black. This compares to a UK average of 4.4% Asian (defined as Indian, Pakistani and Bangladeshi) and 2.5% Black. As Gatwick airport's current on-site workforce has a higher than average proportion of BAME staff, members of the community within deprived groups and / or BAME populations, may be well placed for future employment opportunities as a result of the scheme. The impacts are estimated to be permanent, however, mitigation measures, community enhancements, provisions of new facilities and careful planning to reduce potential effects of severance are likely to be undertaken to reduce disproportionate effects.	**Permanent and potentially reversible.** The impacts will be permanent, however, may be reversible with provision of new facilities and careful planning to reduce the potential effects of severance and disproportionate negative effects. For example, the unemployment rate in Colnbrook and Poyle is above the national rate, and Heathrow airport's on-site workforce has (2009 data[80]) a higher than average proportion of BAME staff, at 18.7% Asian (defined as Indian, Pakistani and Sri Lankan) and 3.1% Black. This compares to a UK average of 4.4% Asian (defined as Indian, Pakistani and Bangladeshi) and 2.5% Black. Members of the community within deprived groups and / or BAME populations, may be well placed for future employment opportunities as a result of the scheme. The impacts are estimated to be permanent, however, mitigation measures, community enhancements, provisions of new facilities and careful planning to reduce potential effects of severance are likely to be undertaken to reduce disproportionate effects.	**Permanent and potentially reversible** The impacts will be permanent, however, may be reversible with provision of new facilities and careful planning to reduce the potential effects of severance and disproportionate negative effects. For example, the unemployment rate in Heathrow Villages is above the national rate, and Heathrow airport's on-site workforce has (2009 data[81]) a higher than average proportion of BAME staff, at 18.7% Asian (defined as Indian, Pakistani and Sri Lankan) and 3.1% Black. This compares to a UK average of 4.4% Asian (defined as Indian, Pakistani and Bangladeshi) and 2.5% Black. Members of the community within deprived groups and / or BAME populations, may be well placed for future employment opportunities as a result of the scheme. The impacts are estimated to be permanent, however, mitigation measures, community enhancements, provisions of new facilities and careful planning to reduce potential effects of severance are likely to be undertaken to reduce disproportionate effects.
Magnitude and Spatial Extent, incl. Transboundary	**Low, Local, Regional** Impacts may be experienced by those outside of the local area who are impacted by changes in routes, effects of increased traffic and loss of some facilities.	**Low, Local, Regional** Impacts may be experienced by those outside of the local area who are impacted by changes in routes, effects of increased traffic and loss of some facilities.	**Low, Local, Regional** Impacts may be experienced by those outside of the local area who are impacted by changes in routes, effects of increased traffic and loss of some facilities.
Assumptions and	Use of existing data, baseline conditions and predictions[82, 83]		

[80] Heathrow Airport Limited, 2010. *Heathrow Employment Survey 2008/09, Summary Report.* [online] Accessed 09/01/2017.
[81] Heathrow Airport Limited, 2010. *Heathrow Employment Survey 2008/09, Summary Report.* [online] Accessed 09/01/2017.
[82] Jacobs, 2014. *10. Place: Baseline*. [online] Accessed 24/12/2015.

SEA Criteria	LGW-2R	LHR-ENR	LHR-NWR
Limitations	A desk based assessment only has been undertaken at this stage. Quantum of lost housing and community facilities is based on 'worst-case scenarios'[84]. Data and analysis of populations for this assessment has been based upon data contained within the 2011 Census. There has been opportunity for population changes to have occurred which may not be captured due to the time elapsed since the Census. However, more recent data is not available. It is acknowledged that effects experienced by community members may extend beyond the study area, particularly indirect effects generated by surface or aviation traffic. Further information is required with regard to specific operational airspace and surface access arrangements, including those remote from site. The assessment is based on data provided by the AC as set out in Section 1.3. The flight routes and therefore noise contours used in this assessment are considered as indicative only.		
Significance	**Negative effect (-)**	**Negative effect (-)**	**Negative effect (-)**
	Direct, indirect and cumulative effects on vulnerable groups; high probability; occurring during construction and operation; long-term; permanent and reversible; low magnitude and local to regional extent.	Direct, indirect and cumulative effects on vulnerable groups; high probability; occurring during construction and operation; long-term; permanent and reversible; low magnitude and local to regional extent.	Direct, indirect and cumulative effects on vulnerable groups; high probability; occurring during construction and operation; long-term; permanent and reversible; low magnitude and local to regional extent.

[83] Jacobs, 2014. *10. Place Assessment*. [online] Accessed 24/12/2015.
[84] Airports Commission, 2015. *Final Report*. [online] Accessed 23/11/2016.

1.10 MITIGATION

1.10.1 This section outlines additional options for mitigation recommended by the AC and as part of this assessment of schemes:

- Clear and independent monitoring of performances against financial commitments to spend money on community compensation, including property purchase offers and further support;
- At Heathrow, a new Community Engagement Board (CEB) with real influence over spending on compensation and community support could be set up under an independent chair;
- With regard to noise effects on the community, there may be the opportunity to implement further measures which could potentially reduce the predicted noise exposures. For example noise preferential operation at night and incentives to attract a quieter fleet mix (see Appendix A.4 Noise[85]). These measures are not currently incorporated in the modelling undertaken. If aviation companies do not adhere to these measures, they should be committed to paying the external costs their activities impose on society;
- In terms of reducing effects on vulnerable groups, these groups can be identified at the planning stage in a number of environmental assessments to ensure they are considered throughout the design process. For example, needs of equality priority groups could be specifically assessed in Health, Economic and Transport Assessments, to ensure their specific needs are considered to reduce the likelihood of disproportionate effects being experienced. Furthermore, there could be improved and continuous consultation and engagement with these vulnerable groups;
- Where acoustic insulation cannot provide an appropriate or cost-effective solution to noise, it is recommended that alternative mitigation measures are provided such as environmental grants, the provision of quiet rooms, or funding for school trips away from the noisy environment, especially where the loss of amenity outdoors may be severe;
- Any future development planned around each airport, is advised to use land-use planning and management measures, such as avoiding new housing developments in areas exposed to high levels of noise, to reduce the effects of each scheme on future residents; and
- Commitments to reducing emissions and vehicle volumes associated with the airport, and therefore reducing severance and other community issues in the local area, through the development of new public or shared transport networks.

1.11 ASSUMPTIONS AND LIMITATIONS

1.11.1 A desk-based assessment has been undertaken. No additional consultation has been undertaken within local communities to determine the effects of each of the proposed schemes, other than that already undertaken by the AC[86,87].

1.11.2 Data and analysis of populations for this assessment has been based upon data contained within the 2011 Census. There has been opportunity for population changes to have occurred which may not be captured within this assessment. However, more recent data is not available.

1.11.3 It is acknowledged that effects experienced by community members may extend beyond the study area, particularly indirect effects generated by surface or aviation traffic. Therefore, a precautionary principle has been applied to this assessment.

[85] WSP, 2017. AoS Appendix 4, Noise, published as part of the Airports NPS documentation.
[86] Airports Commission, 2014. *Consultation Document*. [online] Accessed 23/11/2016.
[87] Airports Commission, 2015. *Analysis of the Airports Commission's Consultation Responses: associated appendices* [online] Accessed: 23/11/2016.

1.11.4 Further information is required with regard to specific operational airspace and surface access arrangements, including those remote from site. The assessment is based on data provided by the AC as set out in Section 1.3. The flight routes and therefore noise contours used in this research are considered as indicative only. They have been produced as a result of a workshop between AC, Civil Aviation Authority (CAA), NATS and the scheme promoters for noise modelling purposes. They should not be considered definitive route indications.

1.12 CONCLUSIONS

Objective 1: To avoid or minimise negative effects on community viability, including housing, facilities and indirect effects

1.12.1 **Housing and community facilities –** Each scheme will result in the relocation of housing, and industrial/employment land, which may have a negative effect on community viability. LGW-2R is expected to require the relocation of 168 residential properties, LHR-NWR the relocation of 783 residential properties and LHR-ENR the relocation of 242 residential properties. Each of the three schemes will also result in the loss of community facilities, which could also have a negative effect on community viability. In the case of LGW-2R, five children's nurseries or crèche's, two places of worship, Trent House care home, one charity facility, Crawley Rugby Club, Public Rights of Way and part of Rowley Wood are also likely to be lost. In the case of LHR-ENR, the loss of three pubs, Public Rights of Way, cycle paths, recreational space and open space is expected, in addition to noise implications for Pippins Primary School. In the case of LHR-NWR, Harmondsworth Primary School is expected to be lost, along with Harmondsworth Community Hall, Sipson Community Centre, Heathrow Special Needs Centre in Longford, nursery schools in Longford, Sipson and Harmondsworth, the White Horse and Kings Arms pubs in Longford, Public Rights of Way, cycle paths and a number of recreational facilities and spaces such as Sipson Recreation Ground. Although some mitigation is provided in terms of financial compensation and other measures, each of the three schemes is likely to result in a substantial loss of housing and community facilities that cannot be reversed. Furthermore, cumulative effects may be experienced by the community as a result of infrastructure projects such as Crossrail, in both Heathrow schemes. As a result, the overall effects on community viability caused by loss of housing and community facilities as a result of each scheme are considered to be significant and negative.

1.12.2 **Demand for facilities –** For each of the three schemes, an additional runway is expected to generate additional demand for households and community facilities. LGW-2R is likely to generate demand for 136 additional housing units per local authority per year, which are likely to require support from additional spaces in local schools and two additional GPs per local authority to 2030. LHR-ENR is likely to generate demand for up to an additional 450 homes per year, which are likely to require support from additional schools, two additional health centres (14 GPs) and two primary care centres per local authority to 2030. LHR-NWR is likely to generate demand for 300 to 500 additional homes per local authority per year as well as the support from additional schools, two additional health centres (14 GPs) and two primary care centres per local authority to 2030. Overall, impacts on housing demand will affect local authorities across London and the South East although the demand will spread and is low in comparison to existing planned housing. However, the scale of the change is unlikely to significantly increase the housing pressures across the entire London region. As a result, the overall effects on community viability caused by increased demand for housing and community facilities as a result of each scheme are considered to be negative.

1.12.3 **Indirect effects on community viability -** For all three schemes, additional effects on community viability are expected to be experienced in terms of additional traffic movements which may lead to more traffic and increased journey times. This may also lead to issues of severance, loss of sense of place, breakdown in community cohesion, and a reduction in the quality of amenity within the community. Furthermore, with increased airport capacity, cumulative effects may be experienced in terms of noise and air quality which may affect community viability and house prices. For LGW-2R, it is estimated that 51,328 people will experience a rise in annual mean NO_2 levels, which is half of what is expected for either LHR scheme. With opening prior to 2030 there is a low risk of worsened exceedance of the air quality objectives for all schemes. However actions by government to improve air quality reduces this risk. Similarly, the noise assessment (Appendix A-4) concludes with the LGW-2R scheme as being the scheme with the least negative noise effects (although still significant). Both Heathrow schemes are also expected to have predominant significant negative effects for the noise topic, but with larger populations negatively affected than LGW-2R. LHR-ENR may offer less negative effects than LHR-NWR due to reductions in population exposure by 2050. The overall indirect effects on community viability as a result of the LGW-2R scheme are considered to be negative while the indirect effects as a result of both LHR-ENR and LHR-NWR schemes are considered to be significant negative.

Objective 2: To avoid or minimise disproportionate impacts on any social group

1.12.4 **Religious groups -** The LGW-2R may have a disproportionate effect on the religious groups in the area selected for expansion. Northgate, Poundhill, Crawley, Rusper and Colgate and Horley Central have over 10% more Christians than the London average. Langley Green and Northgate have over 10% more Hindus than the London average. Langley Green has over 10% more Muslims than the London average. With the relocation of housing and of some community facilities, it has been considered that the additional journey times may disproportionately affect members of certain faith groups travelling to places of worship. The Hindu and Sikh populations throughout the LHR-NWR and LHR-ENR study areas, and Muslim populations in Slough and Hounslow, are more than 10% higher than the regional proportions. These schemes will not require any relocation of religious buildings. However, the relocation of housing may differentially and disproportionally affect members of certain faith groups travelling to places of worship.

1.12.5 **BAME communities -** In each of the three scheme's study area, BAME populations tend to be 10% higher or more than regional and national averages. The loss of community facilities and housing may have a disproportionate effect on BAME residents. BAME communities are also likely to experience indirect disproportionate effects, in particular noise and air quality impacts. However, both Gatwick and Heathrow airports on-site workforces have a higher than average proportion of BAME staff when compared to the national average. Therefore all three schemes could have a positive disproportionate effect on BAME communities within the study area, creating employment opportunities matching the current skills of the population.

1.12.6 **Age -** In each of the three scheme's study area, the population tends to be younger than regional and national averages. Therefore, there may be disproportionate effects on younger people in the area due to housing and community facilities loss and severance. LGW-2R will require the loss of one park. LHR-NWR will require the relocation of Harmondsworth Primary School as well as the loss of five playgrounds and four public open spaces, including open space within Harmondsworth Moor and the Colne Valley Regional Park. LHR-ENR will not require any relocation of community facilities specifically for children but will require the loss of three public open spaces, including two playgrounds, and sections of the Colne Valley Regional Park.

1.12.7 **Deprivation -** In each of the three scheme's study area, deprivation levels are lower than the national average but unemployment rates are noticeably above the national rate. It is expected that areas of relatively high unemployment could benefit from the additional resulting jobs from the expansion, resulting in a positive disproportionate effect on low-income groups. The jobs mix both at Gatwick and Heathrow is predominantly low skilled and accessible to those without having studied for higher-level qualifications. Therefore, there is the possibility of a relatively strong match between the new jobs which could be created and the current skills of the population. Moreover, current trends as regards airport direct employment suggest that there is capacity for some of these new jobs to be filled by unemployed people from the study areas. The number of jobs expected to be created, and the current rates of unemployment are generally higher around Heathrow than Gatwick.

1.12.8 Overall, both positive and negative effects of a similar nature are likely to be experienced by the communities surrounding all three airports. As a result, the potential effects of disproportionate impacts on any social group surrounding LGW-2R, LHR-ENR and LHR-NWR are considered to be negative.