Department for Transport

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THE AIRPORTS NATIONAL POLICY STATEMENT

Post Adoption Statement

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Post Adoption Statement

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List of Abbreviations	
ATMS	Air Transport Movements
AoS	Appraisal of Sustainability
AC	Airports Commission
APUs	Auxiliary Power Units
AA	Appropriate Assessment
BEIS	Department of Business, Energy and Industry Strategy
CAA	Civil Aviation Authority
CEMP	Construction Environmental Management Plan
DCLG	Department for Communities and Local Government
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
EIA	Environmental Impact Assessment
EA	Equalities Assessment
EA	Environment Agency
EU	European Union
EfW	Energy from Waste
FEGP	Fixed Electrical Group Power
GPUs	Ground Power Units
HE	Historic England
HARR	Heritage at Risk Register
HRA	Habitats Regulations Assessment
HIA	Health Impact Analysis
LHR-ENR	London Heathrow Extended Runway
LHR-NWR	London Heathrow Northwest Runway
LGW-2R	London Gatwick Second Runway
LHR	London Heathrow

MMP	Code of Practice Materials Management Plan
NATS	National Air Traffic Service
NPPF	National Planning Policy Framework
NN NPS	National Networks National Policy Statement
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
NE	Natural England
PPP	Policies, Plans and Programmes
PHE	Public Health England
PCA	Provision of pre- conditioned air
PDL	Previously Developed Land
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems
SEA	Strategic Environmental Assessments
TOC	Total Organic Carbon
WFD	Water Framework Directive

1 INTRODUCTION

1.1 THE NATIONAL POLICY STATEMENT FOR AIRPORTS

1.1.1. The Airports National Policy Statement (NPS) sets out:

- The Government's policy on the need for new airport capacity in the South East of England;
- The Government's preferred location and scheme to deliver new capacity; and
- Particular considerations relevant to a development consent application to which the Airports NPS relates.

1.1.2. It sets out planning policy in relation to applications for any airport nationally significant infrastructure project (NSIP) in the South East of England, and its policies will be important and relevant for the examination by the Examining Authority, and decisions by the Secretary of State in relation to such applications.

1.1.3. The Secretary of State will use it as the primary basis for making decisions on any development consent application for a new Northwest Runway at Heathrow Airport. The scheme has a runway length of at least 3,500m and enables at least 260,000 additional Air Transport Movements (ATMs)[1]. It will also have effect in relation to terminal infrastructure at Heathrow Airport including and the reconfiguration of terminal facilities in the area between the two existing runways at Heathrow Airport. Under section 104 of the Planning Act 2008, the Secretary of State must decide a development consent application in accordance with any relevant NPS unless he or she is satisfied that to do so would:

- Lead to the UK being in breach of its international obligations;
- Be unlawful;
- Lead to the Secretary of State being in breach of any duty imposed by or under any legislation;
- Result in adverse impacts of the development outweighing its benefits; or
- Be contrary to legislation about how the decisions are to be taken.[2]

1.2 THE APPRAISAL OF SUSTAINABILITY

1.2.1. The Planning Act 2008 requires that an Appraisal of Sustainability (AoS) must be carried out before an NPS can be designated. The main purpose of an AoS is to examine the likely social, economic and environmental effects of designating the NPS. If potential significant adverse effects are identified, the AoS recommends options for avoiding or mitigating such effects. In this way, the AoS helps inform the preparation of the NPS to promote sustainable development.

1.2.2. Strategic Environmental Assessments (SEA) are required by European Directive EC/2001/42 (SEA Directive), which was transposed into UK law by the Environmental Assessment of Plans and Programmes Regulations 2004 (SEA Regulations). The AoS Report combines the functions of an AoS under the Planning Act 2008 and an Environmental Report under the SEA Regulations. The AoS Report examines the likely environmental, social and economic effects of the Airports NPS, considers and compares reasonable alternatives to the preferred scheme, identifies any potential significant adverse effects the Airports NPS may have at a strategic level, and puts forward measures for avoiding or mitigating any such effects when the Airports NPS is applied at a project level.

1.2.3. The AoS for the Airports NPS was undertaken at the same time as the drafting and consideration of the Airports NPS. This ensured that findings from the AoS were taken into account and influenced the Airports NPS, including further assessment and mitigation where practicable.

1.3 RELATIONSHIP WITH OTHER PROCESSES

1.3.1. As part of a development consent application under this NPS, an Environmental Impact Assessment (EIA) will be required, under the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 to

[1] The Airports NPS stipulates the length of the new runway to ensure that the new infrastructure can accommodate the largest commercial aircraft, as they operate many of the long haul flights that support the UK's position as a major aviation hub

[2] Planning Act 2008 Section 104 – decisions in cases where National Policy Statement has effect.

accompany any applications for development consent. This process will be undertaken alongside project design of the proposed scheme and describes likely significant effects and the measures envisaged for avoiding or mitigating those effects of the scheme in further detail.

1.3.2. A strategic level **Habitats Regulations Assessment (HRA)** was undertaken for the Airports NPS. The assessment was undertaken under the Conservation of Habitats and Species Regulations 2010[3] (The Habitats Regulations) to consider whether the Airports NPS may have significant impacts upon areas of nature conservation importance that are designated to be of European importance. These sites are referred to as Natura 2000 sites or European sites.

1.3.3. The strategic level HRA[4] concluded that the potential for the preferred scheme to have adverse effects on the integrity of European sites for the purposes of Article 6(3) of the Habitats Directive[3] could not be ruled out. This is because more detailed project design information and detailed proposals for mitigation are not presently available and inherent uncertainties exist at this stage. The Airports NPS has thus been considered in accordance with Article 6(4) of the Habitats Directive. Consideration has been given to alternative solutions to the preferred scheme, and the conclusion has been reached that there are no alternatives that would deliver the objectives of the Airports NPS in relation to increasing airport capacity in the South East and maintaining the UK's hub status. In line with Article 6(4) of the Directive, the Government considers that meeting the overall needs case for increased capacity and maintaining the UK's hub status, as set out in chapter two, amount to imperative reasons of overriding public interest supporting its rationale for the designation of the Airports NPS. At detailed design stage, and insofar as it may be necessary, the matters set out in the Airports NPS will be relevant to determining whether there are alternative solutions and imperative reasons of overriding public interest, provided that the design remains consistent with the objectives of the Airports NPS.

1.3.4. Any development brought forward through an Airports NPS that was likely to have a significant effect on a European site, either alone or in combination with other plans or projects, would be subject to a project-level Habitats Regulations Assessment at the detailed design stage. If it could not be concluded that there would be no adverse effects on site integrity, the project would not receive development consent on this basis, unless (a) there were no alternative solutions, (b) there were imperative reasons of overriding public interest in support, and (c) necessary compensatory measures in respect of affected habitat were secured.

1.3.5. An **Equality Assessment (EA)** under the Equality Act 2010 was also undertaken for the Airports NPS. Public bodies have a duty to assess the impact of their policies on different population groups to ensure that discrimination does not take place and, where possible, to promote equality of opportunity.

1.3.6. The EA considered the potential equalities implications of airport expansion, including the effect on persons or groups of persons who share certain characteristics protected by the Equality Act 2010. The Equality Assessment concludes that all of the shortlisted schemes will have effects on these groups, but that such effects can be managed and can ultimately be within appropriate limits. The Airports NPS requires that final impacts on affected groups should be the subject of a detailed review, carefully designed through engagement with the local community, and approved by the Secretary of State. It should be possible to fully or partially mitigate negative equalities impacts through good design, operations and mitigation plans.

1.3.7. A **Health Impact Analysis (HIA)** was undertaken for the Airports NPS. Although health considerations are a requirement of the SEA Regulations, undertaking a separate HIA process is not a statutory requirement. However, due to the potentially significant effects arising from an airport expansion scheme, in this case a separate HIA was undertaken.

1.3.8. The HIA identified impacts which would affect the population's health, including noise, air quality and socio-economic impacts. In order to be compliant with the Airports NPS, a further project level Health Impact Assessment is required. The application should include and propose health mitigation, which seeks to maximise the health benefits of the scheme and mitigate any negative health impacts.

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[3] 'The Habitats Regulations 2010 transpose the requirements of the European Council Directive 92/43/EEC 'The Habitats Directive' and the Council Directive 79/409/EEC 'The Wild Birds Directive'.

[4] WSP, June 2018, Airports National Policy Statement, Habitats Regulations Assessment: Statement to Inform Appropriate Assessment [online]

1.4 PURPOSE OF THE POST ADOPTION STATEMENT

1.4.1. Part 4 of the SEA Regulations sets out information as to adoption of a plan or programme[5]. It requires, that as soon as reasonably practicable after the adoption of the Airports NPS, the following information is provided:

- how environmental considerations have been integrated into the plan or programme;
- how the environmental report has been taken into account;
- how opinions expressed in response to consultation have been taken into account;
- the reasons for choosing the plan or programme as adopted, in the light of the other reasonable alternatives dealt with; and
- the measures that are to be taken to monitor the significant environmental effects of the implementation of the plan or programme.

1.4.2. This Post Adoption Statement is designed to fulfil these requirements, and therefore is formatted as follows:

- Section 2: How environmental considerations have been integrated into the Airports NPS;
- Section 3: AoS Report, and how its recommendations have been taken into account in the designated Airports NPS;
- Section 4: How comments received at consultation have been taken into account;
- Section 5: Reasons for choosing the Airports NPS as designated, in light of reasonable alternatives; and
- Section 6: How significant effects arising from the Airports NPS will be monitored.

[5] http://www.legislation.gov.uk/uksi/2004/1633/contents/made

2 HOW ENVIRONMENTAL CONSIDERATIONS HAVE BEEN INTEGRATED

2.1 INTRODUCTION

2.1.1. The AoS process was integral to drafting the Airports NPS. The work undertaken by the AC, including the Sustainability Appraisal for each scheme and the recommended mitigation, formed the basis for the development of the Airports NPS. The Airports NPS was then developed alongside the AoS in relation to key areas set out in Table 1 below.

2.1.2. The appraisal is an iterative process where drafts of the AoS have informed the Airports NPS and as the Airports NPS has developed it has informed the AoS assessment. A Steering Group has also provided feedback which has been taken into account throughout the development of the AoS (see para 2.3.2 below). This has also informed the Airports NPS.

Table 1. Relationship between the Airports NPS and the AoS

AoS Process	Airports NPS
Scoping: Identification of plans, policies and programmes (PPPs) and sustainability issues (summarised in Section 2 of the AoS).	Introductory sections of sustainability topics in Chapter 5 of the Airports NPS set out key sustainability issues and relationship with policy and/or key environmental legislation.
Development of the policy and reasonable alternatives (summarised in Section 5 of the AoS).	Chapter 2 of the Airports NPS sets out the need for the policy and Chapter 3 sets out the justification for the preferred scheme.
Evaluation of the likely effects of the reasonable alternatives and preferred scheme (summarised in Sections 6 and 7 of the AoS).	Chapter 3 of the Airports NPS summarises the environmental, health and community impacts of alternative schemes. Chapter 5 of the Airports NPS describes the main impacts of the policy.
Consideration of mitigating negative effects and maximising positive effects (Section 7 of the AoS)	Chapter 5 of the Airports NPS sets out policy relating to the applicant's assessment and mitigation considered.

2.1.3. This section sets out in more detail how scoping, engagement with stakeholders and the AoS process ensured environmental considerations contributed to the development of the Airports NPS.

2.2 SCOPING

2.2.1. The DfT commenced the AoS process prior to developing the Airports NPS to ensure that sustainability principles were embedded in the emerging Airports NPS. The scoping stage of the AoS process commenced in spring 2015. The purpose of this stage was to identify sustainability issues associated with development of the Airports Commission's short-listed options for expanding aviation capacity and this was prior to the announcement by the Airports Commission in July 2015 on their recommended preferred option for addressing aviation capacity. In December 2015 the Government accepted the AC's case for airport expansion in the South East, the shortlisted options for expansion and the need to prepare an Airports National Policy Statement. A Scoping Report was then issued to the statutory consultation bodies in March 2016.

2.2.2. The scoping stage of the AoS included a review of relevant existing policies, plans and programmes (PPPs) and a review of environmental, social and economic baseline data, in addition to predicted future trends. The reviews identified sustainability issues which would be relevant to an Airports NPS. The sustainability issues were used to develop an AoS Framework. The AoS Framework is formed of AoS Objectives and Appraisal Questions, which were then used to appraise the policy contained in the emerging Airports NPS. The AoS Framework is set out in Table 2 below.

Table 2. AoS Framework

AoS Topic (SEA Topic[6])	Key issues from policy review and baseline	AoS Objectives	Appraisal Questions
Community (Population, Material Assets)	Loss of, or increased demand for housing and community services and facilities, including recreational facilities. Indirect effects on the future viability of communities, for example due to loss of community services, facilities and housing.	1. To avoid or minimise negative effects on community viability, including housing, facilities and indirect effects.	1. Will it lead to a loss of housing and community facilities? 2. Will it lead to increasing demand for housing and community facilities? 3. Will there be indirect effects on community viability?
	The potential for disproportionate effects on certain social groups.	2. To avoid or minimise disproportionate impacts on any social group.	4. Will it minimise disproportionate negative effects on particular regions, users or vulnerable social groups?
Quality of Life (Population, Human Health)	Adverse changes to quality of life in communities affected by airport expansion.	3. To maintain and where possible improve the quality of life for local residents and the wider population.	5. Will it help to maintain and improve quality of life?
Economy	Need for strong and sustainable national economic growth and for sustainable growth in employment. Need to increase the UK's international competitiveness and to promote sustainable growth of visitor numbers in the UK.	4. To maximise economic benefits and to support the competitiveness of the UK economy.	6. Will it enhance economic benefits? 7. Will it contribute to sustainable growth in employment? 8. Will it support the productivity of the UK economy?
	Need for sustainable local economic growth.	5. To promote employment and economic growth in the local area and surrounding region.	9. Will it incorporate accessibility improvements, particularly with key local employment centres and areas of high unemployment?

[6] Listed in Schedule 2 (6), *Regulation 12(3) Information For Environmental Reports Requirements of the SEA Regulations*, where applicable to the AoS Topic

AoS Topic (SEA Topic[6])	Key issues from policy review and baseline	AoS Objectives	Appraisal Questions
			10. Will it contribute to growth in the local economy?
Noise (Human Health)	Potential for noise to adversely affect communities. Main sources of noise include construction, aviation and surface transport.	6. To minimise and where possible reduce noise impacts on human receptors.	11. Will it avoid or reduce the harmful effects including annoyance due to exposure to noise?
Biodiversity (Biodiversity, flora and fauna)	Potential for loss and/or damage to designated sites for nature conservation and their interest features.	7. To protect and enhance designated sites for nature conservation.	12. Will it affect internationally, nationally and locally designated biodiversity sites?
	Potential for loss and/or damage to habitats, including ancient woodlands and wetlands and the species they support. Potential for indirect effects, including from surface transport and aviation. Loss of ecosystem services.	8. To conserve and enhance undesignated habitats, species, valuable ecological networks and ecosystem functionality.	13. Will it conserve and enhance undesignated habitats, internationally and nationally protected species and valuable ecological networks, such as priority habitats and priority species? 14. Will it increase the exposure of wildlife to transport noise, air pollution, and water pollution?
Soil (Soil)	Potential for loss of geodiversity.	9. To protect sites designated for geodiversity.	15. Will it preserve, protect and improve geodiversity?
	Potential for loss and damage to soil productivity from sealing (urban development), erosion, contamination and degradation.	10. To minimise loss of undeveloped soils and of Best and Most Versatile agricultural land, and protect soil against erosion, contamination and degradation.	16. Will it maximise construction on previously developed land, minimise use of greenfield and Best and Most Versatile agricultural land? 17. Will it lead to the disturbing, harm, contamination or loss of soil resources?
Water (Water)	Impacts on 'good status' and 'potential' water quality and ecological status under the Water Framework Directive. Potential for over-consumption of available water resources.	11. To protect the quality of surface and ground waters, and use water resources sustainably.	18. Will proposals have adverse effects on the achievement of the environmental objectives established under the Water Framework Directive? 19. Will it result in the modification of watercourses?

AoS Topic (SEA Topic[6])	Key issues from policy review and baseline	AoS Objectives	Appraisal Questions
			20. Will it result in the loss in productivity of fisheries? 21. Will it lead to an increase in the consumption of available water resources?
Water (Water, Climatic Factors)	An increase in flood risk and reduced risk of resilience to water related effects of climate change.	12. To minimise flood risk and ensure resilience to climate change.	22. Will it increase flood risk through increased run off? 23. Will it increase area of development within areas at risk of flooding? 24. Will it be able to adapt to climate change?
Air Quality (Air)	Increase in emissions (nitrogen oxides and particulate matter), particularly from aviation and surface transport emissions, affecting local communities, wildlife and the built environment.	13. To improve air quality and reduce emissions consistent with EU, national and local standards and requirements.	25. Will it support compliance with local, national and European air quality requirements or legislation? 26. Will it reduce the exposure to air quality for local communities and sites designated for nature conservation?
Carbon (Climatic Factors)	Increase in carbon emissions, particularly from aviation and surface transportation sources.	14. To minimise carbon emissions in airport construction and operation.	27. Will the approach to the development be consistent with overall carbon requirements? 28. Will the approach minimise carbon emissions associated with surface transportation?
Resources and Waste (Material Assets)	Consumption of natural resources during construction and operation.	15. To minimise consumption of natural, particularly virgin non-renewable, resources.	29. Will it be possible to minimise the consumption of natural resources?
	Generation of waste during construction and operation. Direct and indirect effects from off-site and on-site management of materials and waste (including separation of biodegradable and residual waste) during construction and operation.	16. To minimise the generation of waste in accordance with the principles of the resource efficiency hierarchy.	30. Will it be possible to minimise waste generated during construction and operation?

AoS Topic (SEA Topic[6])	Key issues from policy review and baseline	AoS Objectives	Appraisal Questions
Historic Environment (Cultural Heritage)	Loss or harm to the significance of designated heritage assets and their settings, from physical works or indirectly, e.g. through surface transport or aviation noise. Loss or harm to the significance of non-designated heritage assets and their settings, from physical works or indirectly e.g. through surface transport or aviation noise. Potential to conserve and enhance the significance of heritage assets. Potential direct and indirect effects on the historic landscape and townscape.	17. Conserve and where appropriate enhance heritage assets and the wider historic environment including buildings, structures, landscapes, townscapes and archaeological remains.	31. Will it affect the significance of internationally and nationally designated heritage assets and their settings? 32. Will it affect the significance of non-designated heritage assets and their settings? 33. Will it conserve or enhance heritage assets and the wider historic environment including landscapes, townscapes, buildings, structures, and archaeological remains? 34. Will it harm the significance of heritage assets for example from the generation of noise, pollutants and visual intrusion?
Landscape (Landscape)	Effects on nationally or locally designated landscapes, townscapes or waterscapes from new development. Effects on local landscape, waterscape and townscape character and quality. Loss of tranquillity and increase in light pollution.	18. To promote the protection and improvement of landscapes, townscapes, waterscapes and the visual resource, including areas of tranquillity and dark skies.	35. Will it protect and enhance nationally and locally designated landscape, townscape and waterscape? 36. Will it lead to impact on sensitive views? 37. Will it lead to a loss of tranquillity and increase in light pollution?

2.3 ENGAGEMENT WITH STAKEHOLDERS

2.3.1. Consultation has been integral to the AoS process, as engagement with stakeholders has helped to ensure that consideration has been given to environmental and sustainability issues during the formulation of the Airports NPS. Public consultation that informed both the AoS process and development of the Airports NPS is summarised in Table 3 below.

Table 3. Summary of Consultation on the AoS and Airports NPS

Consultation	Date	Description of consultation
		Consultation relating to Sustainability Appraisal undertaken by the Airports Commission
Discussion Papers	July 2013	In July 2013 the AC published discussion papers[7] on various topics, including aviation noise, aviation and climate change, and aviation connectivity and the economy. This was to encourage public and stakeholder engagement to inform assessment of the UK's airport capacity needs.
Aviation Capacity in the UK: emerging thinking	December 2013	In December 2013 the AC published a wide range of stakeholder consultation outcomes. The AC's emerging thinking set out a number of key arguments made against expanding aviation capacity in the UK. This process elicited 85 technical and 23 non-technical consultation responses.
Delivering new runway capacity: call for evidence	July-August 2014	This discussion paper called for evidence (between 1 July 2014 to 15 August 2014) on issues which the AC had identified as being of interest to the delivery of new runway capacity.
Inner Thames Estuary	July-September 2014	The environmental impacts study was published for consultation on 04/07/2014, and the remaining 3 studies in relation to surface access impacts, socio-economic impacts and operational feasibility and attitudes to moving to a new airport were published on 10/07/2014. Consultation closed on 08/08/2014 and a decision was issued on 02/09/2014 not to add the inner Thames estuary airport proposal to the shortlist of schemes for providing new airport capacity by 2030[8].
Appraisal Framework	January-April 2014	The AC published its 'draft appraisal framework' for use as the basis of its assessments of the 3 shortlisted schemes and this was consulted on between 16/01/2014 – 28/02/2014. The finalised 'appraisal framework' was published in 02/04/2014[9].
Short-listed Schemes Appraisal	November 2014-February 2015	Consultation on the AC's assessment of proposals for additional runway capacity at Gatwick and Heathrow airports including sustainability appraisal ran from 11/11/2014 - 03/02/2015[10].
Air quality assessment	May 2015	This consultation sought views on new evidence relating to the air quality assessment of the 3 short-listed schemes, with consultation running from 08/05/2015 – 29/05/2015.

[7] Airports Commission, 2013. *Discussion papers.* [online]
[8] Airports Commission, 2014. *Airports Commission announces inner Thames estuary decision.* [online]
[9] Airports Commission, 2014. Airports Commission: appraisal framework [online]
[10] Airports Commission, 2014. *Increasing the UK's long-term aviation capacity*. [online]

Consultation	Date	Description of consultation
		Consultation for the Airports NPS and AoS
AoS Scoping Report	March 2016- April 2016	Consultation with the Consultation Bodies (Natural England, Historic England and the Environment Agency) ran from 09/03/16-18/04/16 on the scope of the AoS.
Draft Airports NPS and AoS Report	February 2017- May 2017	Consultation on the draft Airports NPS and AoS was undertaken 02/02/17-25/05/17[11]. Additional documents including interim EA, HIA, HRA and Air Quality Re-Analysis; Airport Capacity in the South East Appraisal Report; Carbon policy sensitivity test: sensitivity analysis were also published for consultation. On publishing the draft Airports NPS, the Government made a commitment to continue updating its evidence base on airport capacity, including revised passenger demand forecasts and the impact of publication of the final Air Quality Plan (the UK plan for tackling roadside nitrogen dioxide concentrations).
Revised draft Airports NPS and AoS Report	October 2017- December 2017	The updated evidence base was held back due to the general election in June 2017 and therefore consultation was also undertaken 24/10/17-19/12/17 on a revised draft Airports NPS, AoS and supporting documents as set out above which included an updated evidence base and responses to the previous consultation[12], [13].

2.3.2. The development of the AoS was overseen by a Steering Group set up by DfT. In addition to policy leads from within DfT, the Steering Group comprised representatives from other Government Departments (Department for Environment, Food & Rural Affairs (Defra), Department for Business, Energy and Industrial Strategy (BEIS), Ministry of Housing, Communities and Local Government (MHCLG)) and Agencies in an advisory capacity (Environment Agency, Natural England, Historic England, Public Health England). Engagement with the Steering Group has been undertaken throughout the process, from scoping to subsequent assessment and reporting.

2.3.3. Stakeholder engagement has provided the opportunity for environmental considerations raised to be included within the content of the AoS and the Airports NPS (see Section 2.4. below)

2.4 HOW THE AOS WAS TAKEN INTO ACCOUNT IN THE DEVELOPMENT OF THE AIRPORTS NPS

2.4.1. The assessment of alternatives for the AoS (set out in Appendix A) was developed in advance of selection of a preferred scheme for the Airports NPS (also see Section 5 below). Therefore, principles for assessment and mitigation for the preferred schemes, when selected, formed the basis of the emerging Airports NPS.

2.4.2. Section 4 of the Airports NPS sets out assessment principles including principles relevant to the AoS:

- Criteria for good design of airports infrastructure – these aim to produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction, and matched by an appearance that demonstrates good aesthetics as far as possible.
- Climate change adaptation – recognises that in addition to climate change mitigation through greenhouse gas emissions, adaptation is also necessary to deal with the potential impacts of these changes that are already happening (risk of flooding, drought, heatwaves, intense rainfall events and other extreme events).

[11] DfT, 2017, Draft Airports National Policy Statement [online]
[12] DfT, 2017, Revised draft Airports National Policy Statement [online]
[13] OPM, 2017, Consultation on draft Airports National Policy Statement [online]

- Pollution control and other environmental protection regimes – recognises that changes to air quality, water quality, land quality and noise, may be subject to separate regulation under the pollution control framework or other consenting and licensing regimes and relevant permissions must be obtained.
- Nuisance – recognises that consideration will need to be given to sources of nuisance under section 79(1) of the Environmental Protection Act 1990 and under sections 76 and 77 of the Civil Aviation Act 1982.
- Health – requires the assessment of the direct and indirect effects on health within the Environmental Impact Assessment.
- Accessibility – recognises the importance of an accessible and inclusive transport network.

2.4.3. Chapter 5 of the Airports NPS includes the assessment and mitigation required from the applicant. Much of the content for these requirements and considerations are a result of the topics-based assessment in the AoS. The following sections in the Airports NPS have been informed by the assessment in the AoS:

- Air quality
- Noise
- Carbon emissions
- Biodiversity and ecological conservation
- Land use including open space, greenspace and Greenbelt
- Resource and waste management
- Flood risk
- Water quality and resources
- Historic environment
- Landscape and visual effects
- Dust, odour, artificial light, smoke and steam
- Community compensation
- Community engagement
- Skills

2.4.4. Section 3 of this report sets out how mitigation proposed by the AoS has been incorporated into these sections of the Airports NPS.

3 HOW THE RECOMMENDATIONS OF THE AOS HAVE BEEN TAKEN INTO ACCOUNT

3.1.1. The AoS makes a number of recommendations in relation to further assessment and mitigation, a number of which are within the text of the Airports NPS. The Airports NPS recognises that there is insufficient information in relation to the baseline and detailed design to prescribe all mitigation. However, it sets out expectations for project specific mitigation which will need to be developed once further information on the nature of the impact is available. The AoS also sets out further options for mitigation that can be considered at the project development stage. Mitigation put forward by the applicant for a Development Consent Order will need to meet the requirements of the Airports NPS.

3.1.2. Table 4 below describes how impacts identified in the AoS have been incorporated through mitigation in the Airports NPS.

3.1.3. Options for mitigation were identified where significant effects or uncertainties have been identified as part of the AoS process. In addition, mitigation measures have been proposed for the potential minor effects identified specifically to deal with issues raised by the statutory bodies. Measures have been also identified to enhance positive effects.

3.1.4. It is anticipated that proposals put forward by the promoter will be undertaken as a minimum, but these will be re-evaluated throughout project design where further mitigation or enhancement is identified. Reference to text included within the Airports NPS is made where specific mitigation is set out within the Airports NPS. Options for mitigation are also presented in the topic based assessments in Appendix A of the AoS.

Table 4. Mitigation for Significant Effects for London Heathrow Northwest Runway (LHR-NWR)

Topic	Summary of Significant Effect	Summary of Mitigation	Residual Effect
Community	Loss of residential property, industrial/employment land, community facilities; formal and informal recreation sites, relocation effects upon vulnerable groups; Indirect effects from traffic, air quality and noise.	The promoter has proposed a package of financial compensation, help with relocation and provision of alternative community facilities. This has been referred to within the Airports NPS (5.245): ▪ To pay 125% of market value plus taxes and reasonable moving costs for all owner occupied homes within the compulsory acquisition zone; ▪ To pay 125% of market value plus taxes and reasonable moving costs for all owner occupied homes within an additional voluntary purchase/acquisition zone incorporating the area known as the "Heathrow Villages"; ▪ Following a third party assessment, to provide full acoustic insulation for residential property within the full single mode easterly and westerly 60dB LAeq (16 hr) noise contour of an expanded airport; ▪ Following a third party assessment to provide a contribution of up to £3,000 for acoustic insulation for residential property within the full single mode easterly and westerly 57dB LAeq (16hr) or the full 55 dB Lden noise contours of an expanded airport, whichever is the bigger; and ▪ To deliver a programme of noise insulation and ventilation for schools within the 60dB LAeq (16 hr) contour. Additional mitigation incorporated into the Airports NPS for communities includes: ▪ Community Engagement Board - the applicant must engage constructively with a community engagement board throughout the planning process (5.257). ▪ Community compensation fund – the Government expects that the size of the fund will be proportionate to the environmental harm caused by expansion of the airport. In its consideration of a noise levy the AC considered that a sum of £50m per annum could be an appropriate amount at an expanded Heathrow and that over a 15 year period a	Some mitigation has been provided by the applicant. There are a number of additional options for mitigation which would reduce the magnitude of the effect on communities. Nonetheless, the Airports NPS is likely to result in a substantial loss of housing and community facilities that cannot be reversed, the overall effects on community viability caused by loss of housing and community facilities as a result of the proposed LHR-NWR scheme are considered to be significant negative.

Topic	Summary of Significant Effect	Summary of Mitigation	Residual Effect
		community compensation fund could therefore distribute £750m to local communities (5.247). The Government agrees with the AC's recommendation of no fourth runway at Heathrow Airport. An application for a fourth runway in the vicinity of Heathrow Airport would not be supported in policy terms, and should be seen as being in conflict with the Airports NPS (5.275). The Government will require the applicant to provide details of how plans will improve access on and around the airports with schemes that take account of the accessibility needs of all those who use, or are affected by, surface access infrastructure, including those with physical and /or mental impairments as well as older users (4.76). The applicant would need to set out measures to minimise or mitigate expansion of surface access arrangements, including targets to reduce car use (5.15-5.20). Additional mitigation is also covered under the noise and air quality topics.	
Quality of Life	Effects on quality of life from traffic, air quality, noise, displacement and employment.	There are a number of options proposed for mitigation measures to reduce the magnitude of effects from the AoS topics which comprise quality of life indicators. These are listed in respective appendices to the AoS, including the assessment on Communities (A-1), Noise (A-4), Biodiversity (A-5), Air Quality (A-8), Landscape (A-11) and Historic Environment (A-12). No additional measures have been proposed specifically for quality of life because it is recognised that these measures apply to significant effects on wellbeing.	Although many of the measures proposed are likely to be effective in reducing magnitude of negative effects, the exact package of mitigation would need to be determined for a preferred scheme. The overall effectiveness on reducing negative effects or enhancing positive effects on quality of life is likely to be complex and again should be addressed as part of an assessment for detailed design. For this assessment the residual effects on quality of life

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			remain as assessed, significant negative.
Economy	Direct benefits to the economy and wider economic impacts and productivity.	Significant positive effects have been identified within the AoS. The Airports NPS includes the following policy to enhance these effects: Skills - Heathrow Airport has publically committed to ensuring 5,000 additional apprenticeships by 2030, this will double the number previously pledged to 10,000. Plans will need to be provided setting out timetable, skills, where the opportunities are offered and other information (5.263).	Policy measures would be expected to enhance significant effects. Residual effects remain significant positive.
Noise	Noise effects on human receptors from exposure to aviation noise.	The mitigation measures proposed by the scheme promoter for the LHR-NWR scheme include[14]: ▪ Incentives to promote incorporation of quieter aircraft in fleet mixes; ▪ Designing airport infrastructure to be as quiet as possible through positioning of a third runway; ▪ Compensation and noise insulation schemes for dwellings and community buildings; ▪ Displacement of runway landing thresholds; ▪ Development of quieter operating procedures, including steeper approach slopes (discussed further below), and night fleet management; ▪ Provision of pre-conditioned air (PCA) and fixed electrical group power (FEGP) or ground power units (GPUs) for all aircraft stands to reduce use of auxiliary power units (APUs); ▪ Reduced taxi and holding times; and ▪ Use of modern airside equipment such as electric vehicles and clatter-resistant baggage trolleys, maintained using enhanced procedures to avoid excessive noise.	It is acknowledged that effective mitigation strategies can reduce magnitude of noise effects. Likely significant effects depend on project design. At the policy level the assessment remains significant negative.

[14] Jacobs, 2014. *5. Noise: Local Assessment.* p. 205. [online]

Topic	Summary of Significant Effect	Summary of Mitigation	Residual Effect
		In their Final Report, the AC made a number of further recommendations on mitigation measures for the LHR-NWR scheme which are referenced in the AoS, including[15]: ■ Clear and legally-binding noise performance targets, in the form of a 'noise envelope'; ■ Periods of predictable respite to be more reliably maintained (discussed further below). The airport operator to work with local communities to determine how respite would best be provided; ■ A ban on all scheduled flights during the 6½-hour 'core' night period 2330-0600hrs (discussed further below); ■ Holding the applicant for LHR-NWR to its public commitment to deliver a compensation package valued at more than £1bn, including £700m for noise insulation, and significant investment in noise insulation and other support for schools; ■ Introduction of a noise levy at major UK airports; and ■ Creation of an Independent Aviation Noise Authority and Community Engagement Board under an independent Chair. Suggestions made by the AC in their Final Report for ways in which airports can reduce noise at source include[16]: ■ Preferential routing over areas with lower population densities (discussed further below); ■ Steeper descent angles (discussed further below); ■ Displaced runway landing thresholds (discussed further below); ■ Limiting sharp turns; ■ Keeping landing gear up as long as possible;	

[15] Airports Commission, 2015. *Final Report*, chapter 14, pp. 275-310. [online]
[16] Airports Commission, 2015. Final Report, p. 277, paragraph 14.12. [online]

Topic	Summary of Significant Effect	Summary of Mitigation	Residual Effect
		▪ New aircraft technology; ▪ Incentives for airlines to optimise noise performance (eg fines); ▪ Air traffic movement limits; and ▪ Noise-preferential routing, steeper descent angles and displaced landing thresholds have been investigated as part of the AC's assessment work[17,18,19,20] . In addition to the measures listed under the Communities section above, the Airports NPS provides for developing a package of mitigation measures (5.54-5.65) in consultation with communities including: ▪ Noise envelope – this should be tailored to local priorities and include clear noise performance targets. The design of the envelope should be defined in consultation with local communities and relevant stakeholders with suitable review periods; ▪ Night flight restrictions – the Government expects a ban on scheduled night flights of six and a half hours between 23.00 and 07.00. The operation and timing of such a ban should be defined in consultation with local communities and relevant stakeholders in line with EU Regulation 598/2014. In addition, outside the hours of a ban, the Government expects particular efforts to be made to incentivise the use of the quietest aircraft at night; and ▪ Predictable respite – a runway alternation scheme, to provide communities with predictable periods of respite. The timings, duration and scheduling should be defined in consultation with communities and relevant stakeholders.	

[17] Multiple references, Jacobs, 2014. 5. *Noise: Local Assessment.* [online]
[18] Jacobs, 2015. 5. *Noise: Local Assessment Addendum,* pp. 1-35. [online]
[19] Jacobs, 2014. 5. *Noise: Local Assessment*, pp. 187-196. [online]
[20] Jacobs, 2015. *5. Noise: Local Assessment Addendum,* pp. 36-40. [online]

Topic	Summary of Significant Effect	Summary of Mitigation	Residual Effect
		In addition, mitigation measures at the construction stage should be provided and draw on best practice from other major construction schemes, including during the procurement of contractors.	
Biodiversity	Potential adverse effects on internationally, nationally and locally designated biodiversity sites	Mitigation for European sites has been considered in the HRA Appropriate Assessment (AA). A range of mitigations were considered in the AA to reduce the effects of air quality impacts on biodiversity including (but not limited to): ▪ Implementation of a Construction Environmental Management Plan (CEMP) to reduce dust and construction emission impacts; ▪ Effective application of sustainable transport plans, in particular the use of carbon-efficient and non-road transport; ▪ Congestion charges and improved infrastructure for Ultra Low Emission Vehicles for passengers; and ▪ Development and application of appropriate air quality management plans and independently certified offsetting options (including for example, renewable energy and fuel-switching). For habitat loss it is considered likely that at the detailed design stage the impacts could reasonably be avoided through a review of the detailed alignment that avoids encroachment into the designated sites or the immediately adjacent habitats. Indirect impacts from works affecting the River Colne could be avoided through the design of channel diversions and minimising culverting requirements. Direct and indirect impacts to a Site of Special Scientific Interest (SSSI) from habitat loss, air and water will require detailed assessment. Mitigation measures would be as per those for water and air below. Subsequent to detailed assessment where mitigation cannot reduce significant effects compensation measures would need to be considered.	Some mitigation has been provided by the applicant. It was recognised that the efficacy of such mitigation proposals could not be substantiated, residual adverse effects were assumed on the integrity of the interest features of the European sites. Through maintaining water quality, volume and flow rate to such an extent that adverse effects are avoided, impacts to the River Colne, downstream should be prevented. These measures are considered to be viable and robust to prevent adverse effects to integrity. Mitigation measures could reduce residual effects to being not significant. However where compensation is required residual effects would be likely in the short to midterm until compensation is fully established and functional. It was recognised that the efficacy of mitigation proposals could not be substantiated at

Topic	Summary of Significant Effect	Summary of Mitigation	Residual Effect
		Loss of locally designated sites will require further consideration at detailed design stage. Impacts are likely to extend to a range of legally protected / species of importance residing within the sites. Compensation measures will need to be considered on a landscape scale and potentially implemented well in advance of loss to provide functional alternative habitat at the time of impact. Given that the potential for adverse effects on the integrity of European sites cannot be ruled out for the policy, in addition to further tests under the Habitats Regulations at this stage, the Airports NPS sets out provisions for HRA at the project stage (1.31-1.33). The Airports NPS sets out the requirements for the applicant: in taking decisions, the Secretary of State should ensure that appropriate weight is attached to designated sites of international, national and local importance, protected species, habitats and other species of principal importance for the conservation of biodiversity, and to biodiversity and geological interests within the wider environment. (5.97). The Airports NPS sets out provisions for further assessment under the Habitats Regulations as part of project design (5.99), and processes for determining consent for development which affects SSSIs (5.101) and regional and local sites (5.102).	this time; residual adverse effects were assumed on the integrity of the interest features of the European sites. Further consideration at the detailed design stage will be required, including any compensation measures, in the event that compensation is required (subject to meeting the tests under Stages 3 and 4 of the HRA process).
Biodiversity	Negative effects on undesignated habitats, species, valuable ecological networks and ecosystem functionality.	The mitigation hierarchy comprises 4 tiers and is essential for all development projects aiming for No Net Loss or Net Positive Impact or for adopting a Net Positive Approach. It is based on a series of sequential steps that must be taken throughout a project's life cycle in order to limit any negative impacts on biodiversity. It was identified that a default precautionary multiplier of 2 has been proposed by the applicant to compensate for losses of habitats, and a detailed, quantified list is provided of proposed habitat creation actions. In summary this list prescribes provision of 18ha of species-rich neutral	A number of mitigation and compensation measures have been put forward by the promoter which reduce the magnitude of biodiversity impacts. However, it may not be possible to fully mitigate nor compensate for some losses. Project level

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		grassland, 40ha of fen, 4ha of swamp/wet grassland, 8.2ha of wetland including wet woodland, 26ha of ponds/lakes, 32.4ha of deciduous woodland, 1ha of traditional orchard, 17.2ha of lowland meadow and 6.0km of ditch. These measures give totals of 146ha of habitat and 6km of linear watercourse. Consideration of the potential requirement for areas greater than those proposed has also been made, to compensate for the possibility of adversely impacting the biodiversity resource of the proposed compensation sites themselves. Parcels of land totalling an area of 217ha have been identified by the applicant as possible compensation sites. This area would largely accommodate the 146ha requirement above plus 6ha of scrub and up to 70ha of pasture/rough grassland to compensate for the loss of these less important (not of Principal Importance) habitats. An additional requirement for 248.8ha of compensatory habitat which is greater (by 63ha) than the applicant's recommendation of 217ha, was recommended by the AC due to inclusion of surface access impacts and precautionary allowances for potential indirect effects and protected species. The scheme contains a commitment to mitigation for lost habitat as well as improvement of existing habitat for wildlife, creation of new habitat and development of outdoor leisure opportunities around the airport. The proposals include creation of wetlands, flood meadows, woodland, open water and marginal habitats. All of these areas have the potential to attract hazardous birds to the area or to change the behaviour patterns of birds that are already present and thus create an additional bird strike risk. The need to manage the birdstrike risk is acknowledged. Any mitigation that involves large scale bird dispersal from e.g. a reservoir has the potential to adversely impact on non-hazardous birds of conservation concern that currently use the site.	information is required to better understand impacts. A landscape scale strategy will need to be developed during project design to better determine mitigation and compensation requirements and evaluate the residual effects. At the strategic level the residual effect remains significant negative.

Topic	Summary of Significant Effect	Summary of Mitigation	Residual Effect
		All mitigation and compensation proposals should be reviewed as further details become available at the project level and in the context of biodiversity no net loss/net gain. The Airports NPS includes the following mitigation, along with other information for the applicant and for decision-making: The applicant's proposal should address the mitigation hierarchy (which supports efforts to conserve and enhance biodiversity), which is set out in the NPPF[21]. Compensation ratios relating to the effects of the preferred scheme should be considered in more detail during the design. The application of 2:1 compensation ratio is considered to represent the minimum requirement. However, other mechanisms for establishing compensation ratios exist such as Defra's biodiversity offsetting metric. Equally it is important to note that habitat ratios form only one part of potential compensation which should be considered and the location and quality of any compensation land is of key importance. In this regard habitat creation, where required, should be focused on areas where the most ecological and ecosystems services benefits can be realised.(5.95).The Airports NPS also acknowledges the importance of ancient woodland and veteran trees (5.103) in addition to opportunities for building in beneficial biodiversity as part of good design (5.104).	
Soil	Loss of soils, including greenfield and agricultural land from land-take.	Mitigation set out in the AoS includes: As a consequence of the site locations of all schemes, a high proportion of the land take required is from agricultural land, and a low proportion is from Previously Developed Land (PDL). The loss of agricultural land would typically be financially compensated for rather than mitigated	No mitigation is possible for the permanent loss of soils, including agricultural land. Whilst it would be possible to compensate for the financial

[21] Department for Communities and Local Government, 2012. *National Planning Policy Framework*, paragraph 118. [online]

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		against, though in some cases land uses may be relocated to alternative sites. Further Agricultural Impact Assessment surveys could be required to determine the value of agricultural land, and to identify Best and Most Versatile agricultural land in accordance with the guidelines and criteria for grading the quality of agricultural land. This could feed into a strategy to provide mitigation or compensation for this loss. However, it is acknowledged that financial compensation will not mitigate the loss of the resource. Use of best practice means that agricultural and greenfield land take for temporary use during construction would be minimised wherever possible. A strategy for further increasing use of PDL as a means of minimising loss of agricultural land could be substantiated at detailed design. The ecosystem services approach can also be used to consider the environment in terms of the benefits it brings to people, including food production. The contamination of soils should be mitigated through the EIA process and managed through the possible implementation of Environmental Management Plans. Appendix A-6 provides more information on these management plans. The Airports NPS sets out a number of measures to be taken into account during assessment. This includes taking into account economic and other benefits of Best and Most Versatile agricultural land (5.108), minimising the direct effects of a project on the existing use of the proposed site, or proposed uses near the site by the application of good design principles, including the layout of the project and the protection of soils during construction (5.118).	loss of agricultural land, this would not address the effects associated with this loss of resource for food and other benefits. The residual effects remain significant negative.
Water	Change in status of surface and/or	The mitigation measures proposed by the applicant include:	Measures to reduce water consumption can be effective,

Topic	Summary of Significant Effect	Summary of Mitigation	Residual Effect
	ground waters through alteration of waterbodies and impacts on water quality/quantity through the discharge of contaminants, such as de-icer and hydrocarbons and changes in water resource use.	▪ Runoff would be directed from the petrol interceptor via an online Total Organic Carbon (TOC) quality monitoring to detect the presence of de-icers. Runoff contaminated with de-icers would be diverted to treatment whereas non-contaminated water would be discharged to the normal attenuation storage; ▪ Groundwater will be appropriately managed during the construction and operation with consideration given to surface water – groundwater interactions; ▪ Runoff attenuation SuDS and interceptors to provide storage for major spills; and ▪ A Sustainable Drainage Strategy will include dedicated areas for de-icing aircraft and a glycol recovery procedure to reduce the concentration of glycol within surface water runoff and separate storage tanks for 'clean' and 'first flush' surface water. There is also the possibility of a new Sewage Treatment Works with some of the treated water to be re-used for non-potable purposes within the airport. The applicant will need to assess the impacts of the scheme design, on and off site mitigation in relation to how it will interlink as a whole and how it links to the wider water environment and water dependent features (including designated sites across the offsite catchment). The Airports NPS includes the following statements: ▪ The impact on local water resources can be minimised through planning and design for the efficient use of water, including water recycling. The project should adhere to any National Standards for sustainable urban drainage systems. The risk of impacts on the water environment can be reduced through careful design to adhere to good pollution practice (5.178-5.181). The proposal would also need to have regard to the Thames River Basin Management Plan and the requirements of the WFD and its daughter Directives, including those on priority substances and groundwater. In terms of WFD compliance, the overall aim of development should be to prevent deterioration in status of water bodies to support the achievement of the	however given the predicted passenger increase, and until further design and assessment are undertaken, the effects on water resources are significant negative. Design can also minimise effects on watercourse modifications and can include enhancement. However, considering the scale of the effects it is unlikely to fully mitigate or compensate for modifications. Until detailed design is undertaken the assessment remains significant negative. Despite mitigation at the airport, contaminants such as de-icers do reach receiving watercourses at certain times as no water quality treatment solution is 100% effective. Depending on quantity and frequency of such discharges there is a potential for an adverse residual effect on WFD physico-chemical status despite mitigation commitments. Under such conditions it may be necessary to offset the deterioration in quality with

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		objectives in the Thames River Basin Management Plan and not to jeopardise the future achievement of good status for any affected water bodies. If the development is considered likely to cause deterioration of water body status or to prevent the achievement of good groundwater status or of good ecological status or potential, compliance with Article 4.7 of the Water Framework Directive must be demonstrated. The Secretary of State will need to consider the interactions of the proposed project with other plans such as water resources management plans. Consideration will also be given to impacts on water quality / resources.	quantitative improvement measures. The impact is currently such that it is likely that the impact will be required to progress through the exemption provisions of Article 4.7 of the WFD.
Water	Change to flood risk and resilience to climate change.	Design to date has taken into account flood risk through design. The scheme will need to be developed during detailed design to ensure that it is safe from flooding and will not increase flood risk elsewhere from all sources. Detailed hydraulic modelling will be required to understand the interaction between surface and groundwater needed to develop appropriate mitigation. The Airports NPS includes the following statements: Mitigation measures will need to be developed as part of the applicant's development consent application to ensure that it is safe from flooding, and will not increase flood risk elsewhere for the development's lifetime, taking into account climate change. To satisfactorily manage flood risk and the impact of the natural water cycle on people, property and ecosystems, good design and infrastructure may need to be secured using requirements or planning obligations. This may include the use of sustainable drainage systems but could also include vegetation to help to slow runoff, hold back peak flows and make landscapes more able to absorb the impact of severe weather events.	It is acknowledged that flood risk assessment and design can be effective in reducing flood risk. As detailed flood risk assessment and design has not yet been undertaken, the assessment remains significant negative.

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		Site layout and surface water drainage systems should be able to cope with events that exceed the design capacity of the system, so that excess water can be safely stored on or conveyed from the site without adverse impacts. The surface water drainage arrangements for any project should be such that the volumes and peak flow rates of surface water leaving the site are no greater than the rates prior to the proposed project, unless specific off-site arrangements are made and result in the same net effect. The sequential approach should be applied to the layout and design of the project. Vulnerable uses should be located on parts of the site at lower probability and residual risk of flooding. Applicants should seek opportunities to use open space for multiple purposes such as amenity, wildlife habitat and flood storage uses. Opportunities can be taken to lower flood risk by improving flow routes, flood storage capacity and using sustainable drainage systems (5.158-5.165).	
Air Quality	Reduced air quality and increased emissions with effects on local communities and sites designated for wildlife.	A number of measures have been incorporated into design by the applicant including a CEMP, Construction Logistics Plan, high level of public transport provision, congestion free access, concentrating airside activities as far as possible from receptors, aircraft engine shut-down (no idling), and cleaner aircraft. The Airports NPS states that the promoter should continue to strive to meet its public pledge that aims to have landside airport related traffic no greater than today (5.38) and set out and regularly review plans to meet mode share targets (5.17). The final package of mitigations should be subject to consultation with local communities and relevant stakeholders to ensure the most effective measures are taken forward. Other mitigation measures listed in the Airports NPS could include, but are not limited to: ▪ Landing charges structured to reward airlines for operating cleaner flights (e.g. NOx emissions charging);	These mitigation measures are predicted (based on a number of assumptions) to have the potential to reduce concentrations of pollutants. However, the mitigation measures will have greatest effect in the immediate vicinity of the airport whilst the primary air quality impact of the scheme relates to worsened exceedances of the EU Directive limit values in central London. Reduction in compliance risks primarily relies on actions taken by national, London and local government

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		▪ Zero or low-emission hybrid or electric vehicle use (ultra-low emission vehicles), charging and fuel facilities; ▪ Reduced or single engine taxiing (improved taxiing efficiency); ▪ Reducing emissions from aircraft at the gate (e.g. installation of fixed electrical ground power and pre-conditioned air to aircraft stands to reduce the use of auxiliary power unit); ▪ Modernised heating supplies in airport buildings; ▪ Changes to the layout of surface access arrangements; ▪ Traffic restrictions and/or traffic relocation around sensitive areas; ▪ An emissions-based access charge; and ▪ Physical means including barriers to trap or better disperse emissions and speed control on roads. Mitigation measures at the construction stage should also be provided and draw on best practice from other major construction schemes, including during the procurement of contractors. Specific measures could include but are not limited to: ▪ Development of a construction traffic management plan (which may include the possible use of rail and consolidation sites or waterways); ▪ The use of low emission construction plant/fleet, fitting of diesel particulate filters and use of cleaner engines; ▪ The use of freight consolidation sites; ▪ Active workforce management / worker transport scheme; ▪ Construction site connection to grid electricity to avoid use of mobile generation; and ▪ Selection of construction material to minimise distance of transport. (5.39-5.40)	to reduce emissions on the wider road network, including those in the 2017 Plan. As a result of this uncertainty, the residual effect is assessed as significant negative.
Carbon	Carbon emissions from a number of sources: Increased airport capacity leading to a	Potential mitigation measures in Appendix A of the AoS include: ▪ Airside Ground Impacts: efficient runway and taxiway design and use, use of fixed electrical ground power and pre-conditioned air, reduced engine use during taxiing;	There is potential to significantly reduce carbon emissions through project design, construction and operation.

Topic	Summary of Significant Effect	Summary of Mitigation	Residual Effect
	net change in air travel; Airside ground movements and airport operations; Changes in non-aviation transport patterns brought about by a schemes surface access strategy; and Construction of new facilities and surface access infrastructure.	▪ Surface Access: Surface Access Strategy to incentivise modal shift towards public transport, improve infrastructure for and incentivise the use of electric and alternatively-fuelled vehicles; ▪ Energy and Fuel Use: use of energy efficient design and construction techniques, specification of high efficiency plant and equipment, including energy efficient baggage handling systems, including LED lighting, incorporation of low carbon and renewable energy technologies such as combined heat and power, heat pumps, solar PV and biomass boilers where technically feasible, use of biogas and alternative energy sources for ground vehicle fleet, regular monitoring of energy use through metering system; and ▪ Construction: Construction Environmental Management Plan (CEMP). The Airports NPS states that mitigation measures at the construction stage should also be provided and draw on best practice from other major construction schemes, including during the procurement of contractors (5.80). Specific measures could include but are not limited to: ▪ Development of a construction traffic management plan (which may include the possible use of rail and consolidation sites); ▪ Transport of materials to site by alternative modes to road (i.e. by rail or water); ▪ Increased efficiency in use of construction plant, for example through no-idle policies; ▪ Use of energy efficient site accommodation; ▪ Reduction of waste, and the transport of waste, for example through increasing on-site recycling; ▪ Construction site connection to grid electricity to avoid use of mobile generation; ▪ Smart energy management practices; ▪ Select construction material to utilise low carbon options, such as carbon-negative cement; and ▪ Select construction material to minimise distance of transport.	As these measures have not yet been specified during detailed project design, the assessment remains significant negative.

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		The applicant is expected to take measures to limit the carbon impact of the project, which may include, but are not limited to (5.78): ▪ Zero or low-emission hybrid or electric vehicle use (ultra-low emission vehicles), charging and fuel facilities; ▪ Reduced or single engine taxiing (improved taxiing efficiency); ▪ Reducing emissions from aircraft at the gate; ▪ Reduced emissions from airport buildings (for example lower carbon heating); ▪ Changes to the layout of surface access arrangements; and ▪ Encouraging increased use of public transport by staff and passengers.	
Resources and Waste	Consumption of natural resources, particularly non-renewable. This is anticipated to be greatest during construction period.	Two main management / mitigation strategies for minimising construction waste arisings were proposed for LHR-NWR. These strategies included: ▪ development of a Masterplan to take into account potential waste impacts on communities and the natural environment; and ▪ Development of a Site Waste Management Plan (SWMP) which would seek to minimise the volume of waste disposed to landfills, and increase recycling rates of arisings generated during the construction phase. At the next stage of scheme development, there are a number of mechanisms considered appropriate for minimising impacts associated with resource consumption and waste. All of the following measures should be adopted and associated opportunities maximised to ensure the preferred scheme is exemplar: ▪ Adverse effects during construction and operation should be managed by operating in the highest tiers of the waste management hierarchy.	Adoption of measures that align with the highest tiers of the Waste Management (Resource Efficiency) Hierarchy[22] have the potential to significantly reduce the magnitude of the consumption of virgin materials and waste disposed of during construction and operation. However, due to the scale of the infrastructure, measures are unlikely to fully mitigate negative effects. As the positive effects (potential success) of

[22] Article 4 of the revised EU Waste Framework Directive (Directive 2008/98/EC) sets out the 'waste hierarchy' with five steps for dealing with waste, ranked according to environmental impact.

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		This could require the adoption of the principles of resource efficiency, with opportunities maximised by designing for re-use and recovery, resource optimisation, off-site construction, resource efficient procurement, and designing for the future[23] (design); ▪ Establishing a Proximity Principle Strategy, to ensure arisings generated are handled, stored and managed as close as possible to the point of origin (design); ▪ On-site good practice behavioural incentives and training schemes (construction); ▪ (As stated previously) development of a WMP to forecast (design) and verify (construction) arisings. The WMP would include guidance on waste prevention, segregation, storage, handling, transportation, reuse, recycling, treatment and – where necessary – disposal of specific waste streams; ▪ Preparation of a CL:AIRE Code of Practice Materials Management Plan (MMP) (construction); ▪ Loss on Ignition testing is used to ensure that all wastes identified as qualifying for the lower rate of landfill tax (inert, £2.65 per tonne) are effectively segregated and diverted from landfill (construction); ▪ Segregation, bulking and secure storage of construction and excavation arisings to enhance the potential for on- and off-site re-use and recycling; reclamation and processing of demolition materials to encourage on-site re-use (construction); ▪ Re-use of excavated topsoil and agricultural subsoil as fill, as close to the point of excavation as practicable (construction); ▪ Re-use of surplus excavated material from other developments in London and South East for fill applications (construction);	proposed mitigation measures are yet to be specified, the residual effect is assessed as significant negative.

[23] WRAP, 2015. *Designing for Resource Efficiency, The Five Principles*. [online] Accessed 24/12/2015.

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		▪ Re-use of construction materials, incorporation of recycled / secondary content in products, and deployment of materials with other sustainability credentials (construction); ▪ Development and implementation of a Resource (including waste) Management Strategy, including a Passenger Behavioural Change Programme and accompanying waste segregation facilities (operational); and ▪ Organisational commitments to reduce waste arisings per passenger, endorsed by senior management (operational). Specific operational mitigation measures e.g. decreasing newspapers and magazines at gates, collaborations with retail owners to reduce waste at source (operational). The Airports NPS states that the applicant should seek to ensure that all wastes arising from the site are subject to the principles of the waste hierarchy and are dealt with at the highest possible level within the hierarchy. The effects of removing the Lakeside EfW plant upon capacity for treatment of waste will require assessment if not reprovided. (5.134-5.142).	
Historic Environment	Loss and harm to the significance of heritage assets and the wider historic environment including buildings,	The following mitigation for the LHR-NWR scheme are proposed within the ACs reports[24]: ▪ Scheduled monuments flight sequencing and noise respite measures; ▪ Listed buildings to be subject to building recording prior to demolition; relocation following recording and some instances of flight sequencing and noise respite measures; and	Although mitigation strategies would be developed by the applicant at project level, it should be noted that these would not fully mitigate effects, particularly in the event of total

[24] Jacobs, November 2014, 10. *Place: Assessment*, Section 4. [online].

Topic	Summary of Significant Effect	Summary of Mitigation	Residual Effect
	structures, landscapes, townscapes and archaeological remains and the setting of the assets.	▪ Non-designated archaeological remains to be subject to a programme of archaeological research investigations, post-excavation analysis and public dissemination. At EIA level the mitigation proposed should be reviewed and revised following an assessment of the significance of the historic environment including the setting of assets. This will need to be undertaken in accordance with the National Planning Policy Framework (NPPF) so the cultural heritage significance of the assets can be determined prior to a mitigation strategy being applied at project level. This assessment will apply the NPPF heritage values: artistic, architectural, archaeological and historic to each of the designated assets. For non-designated assets including archaeological remains their level of importance will be determined i.e. local, neighbourhood, county regional and national. Following determination of significance a hierarchy of mitigation should be applied: ▪ The first course of mitigation for all statutory designated heritage assets or those non-designated assets of proven similar significance is avoidance. ▪ The next stage is assessment, no detailed mitigation can be proposed until a full investigation of the cultural heritage significance of the assets and the contribution made by their setting has been undertaken. This should be applied using the NPPF heritage values (artistic, architectural, archaeological and historical) along with the appropriate form of fieldwork investigation. Principles that can apply to the assessment are set out in Appendix A-11. ▪ Should substantial public benefits of the scheme outweigh the harm or loss to the assets then the next course of action would be mitigation through design and/or enhancement. Possibilities for maximising the enhancement of the heritage assets and their settings should be explored. This can include public engagement and interpretation. ▪ Should the impacts of the scheme be physical, i.e. the demolition of a building, then following assessment of significance, and assuming that relocation of the building to an appropriate museum is not an option, a	destruction and impact on setting. As mitigation strategies have yet to be further developed and given that they would not fully mitigate loss and harm identified, the assessment remains significant negative.

Topic	Summary of Significant Effect	Summary of Mitigation	Residual Effect
		Historic Building investigation should be undertaken. At this stage the HARR and listed building designation should be updated. Where preservation or archaeological remains is not an option then there is a need to assess the archaeological significance in the context of a 'research strategy' to identify appropriate mitigation investigation strategies. ▪ Where appropriate, seek to encourage opportunities to enhance the significance of heritage assets through the design, planning and implementation of a proposal. Individual proposals would need to be covered in the design stage as stated. The Airports NPS notes that where the proposed development will lead to substantial harm to or the total loss of significance of a designated heritage asset, the Secretary of State should refuse consent unless it can be demonstrated that the substantial harm or loss of significance is necessary in order to deliver substantial public benefits that outweigh that loss or harm, or alternatively meet a number of conditions. Where the proposed development will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use (5.203 -5.206). The applicant should look for opportunities for new development within Conservation Areas and WHSs, and within the setting of heritage assets, to enhance and better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to or better reveal the significance of the asset should be treated favourably. (5.208). Provisions are also made for recording of heritage assets, adherence to written scheme of investigation and treatment of undiscovered heritage assets (5.209-5.212).	
Landscape	Effects on designated and undesignated	Continued development of landscape mitigation proposed by the applicant to provide multiple environmental objectives, including those relating to	Measures proposed for LHR-NWR would provide higher

Topic	Summary of Significant Effect	Summary of Mitigation	Residual Effect
	landscape/townscape /waterscape (including historic landscape) and character, sensitive views and indirect effects from lighting and loss of tranquillity.	biodiversity, noise and the setting of heritage assets, whilst contributing positively to the wider green infrastructure. The promoter for LHR-NWR proposes to minimise impacts on existing landscape character and heritage assets.[25] The proposed mitigation would reduce the effects of the proposals on water, biodiversity, landscape and recreational features and would redevelop part of the Colne Valley Regional Park. Measures would include habitat creation areas, a diversion of the Colne Valley Way and improvements to recreational areas runway. The Airports NPS includes the following: ▪ Adverse landscape and visual effects may be minimised through appropriate design (including choice of materials), and landscaping schemes. Materials and designs for the airport should be given careful consideration (5.217); ▪ Where green infrastructure is affected, the applicant should aim to ensure the functionality and connectivity of the green infrastructure network is maintained and any necessary works are undertaken, where possible, to mitigate any adverse impact and, where appropriate, to improve that network and other areas of open space, including appropriate access to National Trails and other public rights of way (5.119); and ▪ Public rights of way, National Trails and other rights of access to land are important recreational facilities for walkers, cyclists and equestrians. The applicant is expected to take appropriate mitigation measures to address adverse effects on National Trails, other public rights of way and open access land and, where appropriate, to	quality, more accessible open space than exists at present, which could be of greater benefit in terms of landscape character, recreation and amenity, and will include ecological compensation habitat areas and river flood alleviation mitigation proposals. Impacts on landscape character would be relatively contained, given the limited land take and present levels of low tranquillity. Overall, the impact of the scheme on existing landscape character would be adverse. Mitigation has the potential to reduce potential landscape and visual impacts. However, given the scale of infrastructure proposed and nature of indirect effects such as lighting and noise, residual negative effects are likely. As mitigation strategies have yet to be further developed and given that they would not fully mitigate loss and harm

[25] Runway Innovations Ltd, 2014. *Heathrow Expansion Updated Scheme Design – Executive summary of submission to the Airports Commission* by Runway innovations Ltd and Heathrow Hub Ltd, pp. 14-15. [online]

Topic	Summary of Significant Effect	Summary of Mitigation	Residual Effect
		consider what opportunities there may be to improve access. In considering revisions to an existing right of way, consideration needs to be given to the use, character, attractiveness and convenience of the right of way (5.123)	identified, the assessment remains significant negative.

4 HOW OPINIONS EXPRESSED DURING CONSULTATION HAVE BEEN TAKEN INTO ACCOUNT

4.1.1. This section sets out how consultation on both the AoS and the Airports NPS set out in Table 3 in this report was taken into account in the final Airports NPS.

4.2 AOS SCOPING CONSULTATION

4.2.1. The Scoping Report[26] was sent to the Consultation Bodies (Natural England, Historic England and the Environment Agency) as required by the SEA Regulations. Responses from the Consultation Bodies are set out in Appendix C of the AoS Report. A separate document was produced to show how comments have been addressed and was published as part of the Airports NPS consultation in February 2017[27].

The main areas of comments from the Consultation Bodies related to:

- Environmental policies, plans and programmes (PPPs) including use of the National Planning Policy Framework (NPPF).
- Recommended changes to key sustainability issues identified during baseline review.
- Recommended changes to the Appraisal Framework (now incorporated in Table 2 above)
- Additional sources of guidance and information for use in the AoS.
- Identification of potential impacts and mitigation to be considered in the AoS.

4.3 CONSULTATION ON THE AIRPORTS NPS AND AOS

DRAFT AIRPORTS NPS AND AOS CONSULTATION (FEB – MAY 2017)

4.3.1. The initial consultation on the Airports NPS ran between 2 February 2017 and 25 May 2017 and a total of 72,239 responses were received. A report which summarises the responses was published alongside the consultation on the revised Airports NPS in October 2017[28].

REVISED DRAFT AIRPORTS NPS AND AOS CONSULTATION (OCT - DEC 2017)

4.3.2. Consultation on the revised draft Airports NPS ran between 24th October 2017 and 19th December 2017 and received a total of 11,028 responses. A report which summarises the responses was published in June 2018[29]. A combined Government Response to both consultations has been published[30].

4.4 GOVERNMENT RESPONSE TO CONSULTATION

4.4.1. Question 7 of the February 2017 consultation asked: *The Appraisal of Sustainability (AoS) sets out the Government's assessment of the Heathrow Northwest Runway scheme and considers alternatives. Please tell us your views*. Responses to the October 2017 consultation provided further comments on this issue and they are included here.

GENERAL SUPPORT AND CRITICISMS OF THE AOS

4.4.2. Support for the AoS is generally caveated with the request for consideration of further topics, such as new technology, or for the case for the Heathrow Northwest Runway scheme to be more clearly presented. Other comments, while supportive of the AoS in principle, made suggestions for the implementation of the recommendations set out in the AoS. Some respondents suggested widening the geographic area of assessment in order to make the AoS more comprehensive.

4.4.3. A common criticism of the AoS is its complexity; a number of respondents argue that the AoS is too complex to understand, time-consuming and too expensive to implement without revision.

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[26] WSP, March 2016, Appraisal of Sustainability Scoping Report: Airports NPS [online]
[27] WSP, February 2017, Scoping Consultation Responses Report [online]
[28] OPM, October 2017, Summary Report of Consultation Responses [online]
[29] OPM, June 2018, Consultation on revised draft National Policy Statement [online]
[30] DfT, 2018, Government Response the Consultations on the Airports National Policy Statement [online]

4.4.4. Some respondents suggest that aviation is inherently unsustainable in the first instance and therefore the AoS recommendations are insufficient. The World Wide Fund for Nature UK (WWF-UK) argues that the AoS shows that Heathrow Airport expansion would be unsustainable, with four significant positive effects and four neutral or mixed effects against 29 negative or significant negative effects.

Government response

4.4.5. An AoS is undertaken at a strategic level, in this case for an NPS. The topics in the AoS are defined by potentially significant social, economic and environmental impacts identified at the scoping stage of the process, at which time Natural England, Historic England and the Environment Agency were consulted. It should be noted that in addition to the statutory scoping stage, the development of the AoS has been overseen by a cross-government Steering Group set up by the Department for Transport (the Department). The Steering Group included representatives from other government departments and government agencies in an advisory capacity. The topics also reflect the range of topics required by the Strategic Environmental Assessment Regulations 2004[31].

4.4.6. As mentioned in the AoS, further project-level design would be required which would inform an environmental impact assessment carried out by an applicant. 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 be developed through consultation with both affected communities and other stakeholders. The topic appendices to the AoS reflect the environmental factors to be considered and information required by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017[32].

4.4.7. The Airports NPS establishes the policy framework for implementing mitigation measures recommended by the AoS analysis, either for specific measures or for provisions for any applicant to further develop mitigation measures and assess their efficacy. These will be required as part of the subsequent application for development consent.

4.4.8. The study area is based on information available at this stage of assessment including flight path scenarios and footprints of the proposed Masterplan[33]. At a policy level, there are a number of assumptions and limitations which need to be made and these are set out within the AoS Report. The Government anticipates that as part of an application for development consent, any applicant would need to refine the study area through further project design, collection of baseline information – including surveys, modelling and prediction of impacts – in addition to public and stakeholder consultation.

4.4.9. The Government has been clear on the assessment framework used to consider the sustainability of the shortlisted schemes and considers that the economic and strategic benefits of expanding Heathrow Airport via the Northwest Runway scheme outweigh, at a national level, the environmental impacts.

COMMUNITY

4.4.10. Many respondents, including the London Borough of Hammersmith and Fulham and other local authorities, describe existing issues facing local communities, such as traffic congestion and overcrowded public transport. They argue that any expansion at Heathrow will exacerbate these negative impacts on the community, and will be fundamentally unsustainable.

4.4.11. Several respondents believe that the impacts of the Government's preferred scheme are being understated in the AoS, particularly with regard to the effects of closing primary schools in Harmondsworth and Sipson and the subsequent impact on other local schools and additional travel time for young children. There were also concerns that the AoS does not include a position on tenants, and that the measures proposed to mitigate the effects on communities are unsatisfactory.

Government response

4.4.12. The AoS Community Assessment (Appendix A1) considers a range of potential adverse effects on communities including impacts on journey times, severance effects, closing schools and loss of housing. Where consultation responses provided new or alternative data on any topic this has been considered, and

[31] The Environmental Assessment of Plans and Programmes Regulations 2004, SI No 1633
[32] S.I. 2017 No. 572
[33] Airports Commission, 2015, *Airports Commission Final Report* [online]

where appropriate, incorporated into the AoS analysis. The AoS considers that all options will lead to significant negative effects and recommends a number of mitigation and compensation measures. The Government has therefore required in the Airports NPS that an applicant provides a compensation package and that this is developed through engagement with affected communities.

4.4.13. An applicant would need to carry out more detailed analysis of impacts on the affected population. This would include consideration of compensation packages and re-provision as part of the application for development consent.

QUALITY OF LIFE

4.4.14. A number of respondents are in favour of night flight respite of 8hrs for quality of life reasons. It was felt by some respondents that the potential for stress associated with living beneath the approaches to Heathrow Airport are not adequately considered nor are the cumulative effects of airport expansion factored into the assessment of quality of life impacts.

Government response

4.4.15. The Government recognises the importance of considering and mitigating the quality of life impacts felt by the communities affected by expansion at Heathrow Airport. The AoS Quality of Life (Appendix A2) considers the effects of an expanded Heathrow Airport on quality of life, including environmental noise and loss of community facilities. The assessment also covers the areas of Harmondsworth and Sipson as well as the cumulative effects of multiple impacts on the local population (including air quality, noise and congestion), and cumulative impacts of other major infrastructure projects taking place at the same time, such as HS2. Further consideration of these points can be found in Chapters 6, 7 and 9 of this document.

4.4.16. The detail of the Health Impact Analysis (HIA) is appropriate at this stage of the proposal. The Airports NPS notes in paragraph 1.37 that the HIA, which was published alongside the drafts of the Airports NPS, identified impacts which would affect the population's health, including noise, air quality and socio-economic impacts. In order to be compliant with the Airports NPS, a further project-level Health Impact Assessment will be required at the stage of applying for development consent. The Government is clear that any application should include and propose health mitigation, which seeks to maximise the health benefits of the scheme and mitigate any negative health impacts.

ECONOMY

4.4.17. Some respondents felt that the negative impacts on the national and local economy are being ignored in the appraisal, particularly the impacts of construction and the unpredictability of future events, such as unforeseen costs and delays undermining the economic case for expansion. There was some concern that the AoS does not allow for the general ratio of low-paid to higher paid work and job creation, nor does it address the fact that the Heathrow Northwest Runway scheme is the most expensive of the shortlisted schemes. These respondents were generally concerned that the Northwest Runway scheme, or Heathrow Airport expansion more generally, would create further regional economic imbalances with prosperity limited to the South East of England. It was argued that this should be fully assessed in the Airports NPS.

Government response

4.4.18. The AoS is undertaken to ensure that environmental and social impacts are considered in decision-making, in addition to economic impacts. It considers both positive and negative economic effects and covers the cost of construction, impacts on regional airports and a range of growth scenarios.

4.4.19. The updated passenger forecasts demonstrate that additional capacity is urgently needed, and the costs of not expanding could be greater than previously forecast by the Airports Commission (the Commission), as the main London airports are now forecast to be full by the mid-2030s, sooner than previously estimated.

4.4.20. The Department acknowledges that there is uncertainty and risks in the delivery of all three shortlisted schemes, and has reflected these in the appraisal. The Commission considered that all three schemes could be delivered with different infrastructure configurations, some of which could be more costly, and calculated a range of costs to demonstrate this. The Commission also recognised the scope for unforeseen cost overruns, and used established evidence of the typical overruns that have been observed in comparable projects, to further increase the range of costs for each scheme.

4.4.21. The Department has followed this approach in using the scheme costs calculated by the Commission in the economic case for expansion. The Updated Appraisal Report (UAR) acknowledges that the Heathrow Northwest Runway scheme is the most expensive, and has greater uncertainty around its scheme costs,

which is reflected in its higher cost range. These costs are directly compared to the benefits and other impacts of each scheme in the UAR, through calculating the net present value, net social benefit and net public value metrics. This appraisal also captures the carbon impacts of construction.

4.4.22. The Commission and the Department also tested the impact of various potential negative impacts on the schemes, such as delays in opening, inability to utilise the full additional capacity, and shocks to national and international economies. These tests do not alter the order of the schemes in the economic case, as the Heathrow Airport schemes, especially the Northwest Runway scheme, consistently provide better connectivity and earlier realisation of benefits than the Gatwick Second Runway scheme.

4.4.23. All three schemes are expected to create a range of jobs, including during construction. The jobs created are estimated for each scheme in the UAR at a number of points in time, based on evidence of the types of roles that are associated with airport expansion. As recognised by the Commission and set out in the Airports NPS, additional capacity has the potential to bring productivity gains across the economy, and support further economic growth across regions, not just the South East. The better connectivity forecast under the Heathrow Airport schemes, especially the Northwest Runway scheme demonstrate this potential for further trade, freight and productivity gains.

4.4.24. The AoS Economy Appendix considers impacts on the local economy, including positive effects on jobs and local businesses. Impacts on accessibility were assessed as neutral.

NOISE AND AIR QUALITY

4.4.25. Several respondents argue that existing noise levels and potential future impacts would render the proposal to expand Heathrow Airport unsustainable. A few respondents suggest that the AoS does not quantify the number of people potentially affected by noise pollution, which makes the potential extent of the impacts unclear. It was felt by some respondents that the AoS fails to acknowledge that noise levels at an expanded Heathrow cannot be accurately predicted yet. There were some suggestions that the AoS should objectively relate the relative performance of each of the schemes with respect to noise impacts.

4.4.26. Many respondents, including local authorities, the Mayor of London and Natural England, raised concerns regarding air quality. It was felt by some respondents that EU air quality limits are already being disregarded and they therefore feel no confidence in the AoS's mitigation proposals.

Government response

4.4.27. The AoS assesses the three shortlisted schemes for airport expansion against the requirements of the Strategic Environmental Assessment (SEA) Directive. The general criteria for assessing the significance of effects are set out in Chapter 3 of the AoS report. The AoS concludes that there are likely to be significant adverse effects from noise for all three schemes. For the Heathrow Northwest Runway scheme, the Airports NPS outlines the mitigation measures the Government expects any applicant to put in place to address noise impacts for those adversely affected.

4.4.28. Assessment of compliance with EU air quality limit values has been undertaken as part of the AoS on the basis of a new runway opening in 2030, as well as pre-2030. The Air Quality Re-analysis has been updated to reflect the UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations, published in July 2017, and updated aviation demand forecasts. It is the Government's view that, with a suitable package of policy and mitigation measures, the Northwest Runway scheme is capable of being delivered in compliance with legal obligations on air quality. Further consideration in respect of these matters can be found in Chapters 6 and 7 of this document.

BIODIVERSITY

4.4.29. Some respondents raise concerns about the impact of the Government's preferred Northwest Runway scheme on biodiversity and ecological conservation. Many of these would like planning requirements that protect the natural environment and would like nature conservation to be further considered in the proposals. The Royal Society for the Protection of Birds (RSPB) and Natural England believe that compensation ratios should be driven by a full understanding of the ecological requirements of the species and habitats impacted and that compensation should only be implemented as a last resort after all mitigation options have been considered.

4.4.30. Some respondents suggest that included in the potential negative impacts on biodiversity in the surrounding area are: loss of habitats at designated sites like the Thames Basin Heath (birds), Burnham Beeches (trees), Richmond Park (beetles), Staines Moor Site of Special Scientific Interest, and Colne Valley Regional Park.

The AoS should therefore conduct further assessment and consultation with local authorities to understand the impacts and mitigations.

Government response

4.4.31. The AoS concludes that there will be significant negative effects on biodiversity, including habitats and species, and sets out potential mitigation and compensation measures. The Airports NPS requires that the applicant's Environmental Impact Assessment (EIA) reflects the principles of the Government's Biodiversity Strategy[34] and applies a mitigation hierarchy, which supports efforts to conserve and enhance biodiversity.

4.4.32. As part of the application for development consent the Airports NPS is clear that an environmental statement is required that clearly sets out any likely effects on internationally, nationally and locally designated sites of ecological or geological importance, protected species, and habitats and other species identified as being of principal importance to the conservation of biodiversity. This would need to be undertaken through both further survey work and better understanding of the design. This work can provide further information on both impacts and mitigation or enhancement. Aspects such as compensation ratios and 'significant harm' are not defined at this level as to do so would require more information which can only be undertaken at project level. The Government has made clear that a 2:1 compensation ratio is considered to represent the minimum requirement.

HABITATS REGULATION ASSESSMENT

4.4.33. A few respondents refer to the Habitats Regulations Assessment (HRA). Gatwick Airport Limited (GAL) provided a very detailed assessment of the HRA, and concluded that it is deficient in several key areas. For example, it offers evidence to support their view that the HRA has wrongly concluded that adverse impacts on priority habitats at the Mole Gap to Reigate Escarpment Special Area of Conservation (SAC) from an expanded Gatwick Airport could not be discounted, and that zones of influence[35] have not been correctly established. GAL also provided their view that there has been a failure of process in undertaking the assessment of whether their own scheme can be considered to be an alternative solution, for the purposes of the Habitats Directive[36] requirements, as an opinion from the European Commission was not obtained on whether other imperative reasons of overriding public interest (IROPI) exist[37]. In its response to the October 2017 consultation, GAL provided further ecological assessment of its own proposed Second Runway scheme, and also further indicated that it did not accept that its scheme should be disregarded as an alternative solution, due to the assertion in the draft Airports NPS and HRA that it would not meet the objectives of the proposed scheme. In its view, the HRA does not correctly reflect the performance of the Gatwick Second Runway Scheme relative to the other schemes.

4.4.34. Heathrow Airport Limited (HAL) also offered a detailed assessment of the HRA. HAL provided commentary on the assessments it is undertaking in relation to disturbance during both construction and operational phases, providing information from preliminary surveys around the use of the Queen Mother Reservoir within the South West London Waterbodies Special Protection Area (SPA) by gadwall and shoveler birds, concluding the potential for adverse effects would not occur. HAL asserted that through the combination of its own commitment to no increase in traffic and, if required, additional mitigation measures, adverse effects to site integrity resulting from air quality changes will be avoided, with this conclusion underpinned through further air quality and traffic modelling. HAL suggests there is additional information available which could be taken into account to support a greater differentiation between the potential impacts of the Heathrow Northwest Runway scheme and the Heathrow Extended Northern Runway scheme. For example, that the Northwest Runway scheme will not involve any direct habitat loss from within the South West London Waterbodies SPA.

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[34] Biodiversity 2020: A Strategy for England's wildlife and ecosystem services [online]
[35] Zones of influence are areas within which the scheme could cause adverse effects to protected habitats.
[36] Council directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.
[37] For the purposes of the Habitats Directive where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised for IROPI are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In other cases, IROPI that may be considered include those relating to social or economic benefit in addition to those of human health, public safety, or beneficial consequences of primary importance to the environment.

Government response

4.4.35. The HRA is a requirement under the European Habitats Directive, and seeks to evaluate significant impacts upon important habitats and areas of conservation, as classified in the Directive. The strategic level HRA was conducted by environmental adviser, WSP, in accordance with the Directive, and consulted on alongside the draft Airports NPS and revised draft Airports NPS. The HRA was undertaken at a strategic level because more detailed project design information and proposals for mitigation are not presently available and inherent uncertainties exist at this stage.

4.4.36. The strategic level HRA concluded that the potential for the preferred scheme to have adverse effects on the integrity of protected sites for the purposes of Article 6(3) of the Directive could not be ruled out. The Airports NPS has therefore been considered in accordance with Article 6(4) of the Directive. Article 6(4) stipulates that a plan should not proceed unless (a) there were no alternative solutions, (b) there were nevertheless imperative reasons of overriding public interest in support and, (c) the necessary compensatory measures to protect the site were secured. The Government considers that there are no alternative solutions that would deliver the objectives of the Airports NPS in relation to increasing airport capacity in the South East and maintaining the UK's hub status. Furthermore, the IROPI are examined in Chapter 10 of the HRA, concluding that the Government considers that the case for the proposed development, as set out in the Airports NPS, demonstrates that the plan is essential to the national interest and beneficial to the public. Chapter 11 of the HRA sets out the broad framework of parameters for compensatory measures, should they be required following the more detailed project level assessments undertaken for plan implementation.

4.4.37. The HRA is of particular interest to airports, environmental protection groups and local authorities whose boundaries fall within the areas of nature conservation considered in the Assessment. As referred to above, GAL provided in its consultation response its own HRA screening report of the Gatwick Second Runway scheme. GAL did not consider that the draft Airports NPS HRA accurately assessed the impact its scheme would have on the protected sites located near to the airport. The information provided in its response was considered by both the Department and WSP and subsequent changes to the draft HRA were made. For example, GAL was correct in stating that its scheme would not result in loss of habitat in the Mole Gap to Reigate Escarpment SAC because of surface access changes to the A23, and all references to this were removed in the HRA and its Appendix B, which were then updated and published for consultation in October 2017.

4.4.38. Similarly, in response to GAL's concern about how zones of influence were established, further information was included within the HRA published for consultation in October 2017, confirming the methodology used in developing the screening assessment and clarifying that Natural England were consulted, with WSP incorporating Natural England's advice and recommendations. With respect to GAL's objections to its exclusion as an alternative solution, because it would not meet the objective of maintaining the UK's hub status, Chapter 2 of this document sets out the Government's consideration of the importance of the UK's hub status. The Government does not consider that the Gatwick Second Runway would represent a true alternative solution to the proposed scheme.

4.4.39. That being said, a HRA was in any event undertaken on the two other schemes shortlisted by the Commission to assess their impacts on protected sites, but that also led to the conclusion that there were no suitable alternative solutions to the Heathrow Northwest Runway scheme being identified on the basis of ecological grounds. At this stage, that assessment cannot rule out adverse effects on a priority site from the Gatwick Second Runway scheme. In addition, in response to GAL's specific concern that the European Commission had not been consulted in regard to whether IROPI exist, it was not considered to be necessary to consult the European Commission at this stage.

4.4.40. Both GAL and HAL asserted that their proposed schemes would not result in all of the impacts identified in the draft HRA. The Government's environmental adviser, WSP, assessed and considered the technical information that was provided by a number of respondents, including GAL, HAL and Natural England, relating to the HRA. The HRA has been updated and revised in areas where this was necessary on the basis of the evidence provided by respondents to the consultation. However, not all points made in responses to the consultation have been incorporated into the revised document. Following consideration of the evidence at this stage of the process, WSP determined that a sufficient level of uncertainty still remained that prevented definitively concluding that adverse effects do, or do not, exist in relation to either the Gatwick or Heathrow schemes. Therefore, the precautionary approach was taken and the conclusions of the ecological assessment within the HRA remained.

4.4.41. The Airports NPS is clear that any development brought forward through an Airports NPS that was likely to have a significant effect on a protected site would be subject to a project-level HRA at the detailed design stage. It is only at that stage that a conclusion of no adverse effects on site integrity can be made with any confidence. If it could not be concluded that there would be no adverse effects on site integrity, the project would not receive development consent unless it passed the tests set out in Article 6(4) of the directive (as described above). Some respondents, including Natural England, accept that uncertainties exist at the strategic level stage and that this increases the importance of the project level HRA.

4.4.42. The Government acknowledges that the causes of adverse effects to designated sites are not constant, effects can lessen or worsen over time. The strategic level HRA is specific to the proposed policy set out in the Airports NPS. Any project level HRA, whether for the Northwest Runway Scheme or for a Gatwick Second Runway scheme, would necessitate further assessment of the detailed scheme design, which may allow a conclusion to be reached that either or both schemes would not have an adverse effect on the integrity of European sites. Any future additional runway development, separate from the Airports NPS, would require its own HRA specific to the plan or project being proposed at that time, in line with the Habitats Directive.

SOIL AND WATER

4.4.43. Some respondents refer to the negative impacts of expansion on soil and loss of agricultural land, with particular reference to Southern Buckinghamshire. GAL suggest that landfill sites in the vicinity of Heathrow Airport were not adequately considered in the assessment of safety and deliverability of the Northwest Runway scheme in the AoS.

4.4.44. There are concerns that expansion will lead to heightened flood risk around Datchet and Wraysbury, due to diverted watercourses using concrete unable to absorb excess rainwater. Some respondents go on to argue that the knock-on effect could lead to difficulty in securing home and property insurance.

4.4.45. There was doubt from some respondents that impacts can be successfully mitigated given the difficulty of predicting the impacts of expansion on water, particularly as a few respondents argue that de-icing already affects water quality in the area around Heathrow Airport. A few respondents provided suggestions in favour of comparative assessments of the flood risk at Heathrow Airport and Gatwick Airport to inform the decision as to which one should be given permission to expand. These suggestions included: incorporating proposed improvements to the sustainability of long-term water supplies and storage, such as a new reservoir; and measures such as additional channels to maintain the connectivity and flow in watercourses.

Government response

4.4.46. The Government acknowledges that the Heathrow Northwest Runway scheme has the highest predicted loss of agricultural land at 431 hectares (ha). The other shortlisted schemes are predicted to lose 371ha (Heathrow Extended Northern Runway scheme) and 421ha (Gatwick Second Runway scheme). The AoS identifies significant negative impacts on soil and high agricultural losses across all three shortlisted schemes, and each of the schemes would require a process of investigation and remediation for contaminated land.

4.4.47. The Government has assessed the risks to delivery of all three shortlisted schemes to an appropriate level of detail at this stage of design. Any applicant is expected to undertake site surveys as part of their application for development consent to provide further information on risks, contamination and any remediation action required. The Airports NPS has been amended to be clearer on the legal requirements and Government guidance relating to or dealing with contaminated land.

4.4.48. Appendix A-7 of the AoS considers impacts on water quality, channel diversion and culverting, in addition to flood risk. The three shortlisted schemes are considered side-by-side in the analysis. A number of mitigation measures are set out in the AoS to avoid or reduce impacts on the water environment. Where consultation responses provided new or alternative data on any topic this has been considered, and where appropriate, incorporated into the AoS analysis. The Government expects any applicant to comply with the Airports NPS, including pollution prevention and control, ensuring water supply, Flood Risk Assessment, provision of adequate water management and good standards of design.

CARBON EMISSIONS

4.4.49. Some respondents argue that the use of fossil fuels is not sustainable and suggest that there should be a new system of assessing the impact of non-CO_2 emissions to form a holistic understanding of the total harmful emissions associated with expansion. A number of respondents also suggest that there should be more thorough consideration of the relationship between aviation emissions and surface transport emissions.

Government response

4.4.50. The Government acknowledges that the scheme is likely to result in an increase in emissions from activities at Heathrow Airport and that any increase in emissions must be kept within the UK's commitments. This has been considered using two future policy scenarios, meeting the UK's overall emissions target in the Carbon Capped case, and meeting the UK's commitments under any future international agreement in a Carbon Traded case. This includes both aviation and surface access emissions. As set out in the "Next steps towards an aviation strategy" document, published in spring 2018, the Government will consider areas of greater scientific uncertainty, such as aviation's contribution to non-CO_2 climate change effects and how policy might make provision for their effects as part of the forthcoming Aviation Strategy.

4.4.51. The AoS identifies significant negative effects in relation to additional carbon emissions and sets out potential mitigation measures. The Airports NPS requires any applicant to take measures to limit the carbon impact of the project.

4.4.52. All environmental impacts have been assessed comprehensively, and fully in line with the latest Government appraisal guidance.

RESOURCES

4.4.53. Some respondents, including the Aviation Environment Federation (AEF) and WWF-UK, argue that additional airport capacity will have an impact on the consumption of natural resources and the production of unsustainable amounts of waste. These respondents generally feel that these impacts are not being properly considered in the AoS. They say that no details have been provided on the relocation of the Colnbrook/Lakeside Energy from Waste plant, and that this represents a significant flaw in the AoS.

4.4.54. There is concern that expansion at Heathrow could prevent the use of the safeguarded minerals sites within its boundaries.

Government response

4.4.55. The Government expects the scheme to achieve exemplar performance in relation to resource use and recovery, and this is referred to in both the AoS and the Airports NPS. The AoS identifies significant negative effects on consumption of resources and generation of waste, both for construction and operation and acknowledges that the demolition and re-provisioning of the Lakeside Energy from Waste facility would require significant consumption of materials. The Airports NPS is clear that any applicant must make reasonable endeavours to ensure that sufficient provision is made to address the reduction in waste treatment capacity caused by the loss of the Lakeside Energy from Waste plant.

4.4.56. The AoS also acknowledges that the future development of minerals sites will result in an adverse effect on the future availability of mineral resources. The Airports NPS states that any applicant should safeguard any mineral resources on the proposed site for the preferred scheme as far as possible.

4.4.57. The Airports NPS has been amended at paragraph 5.145 to be clearer that the principles of the waste hierarchy should be applied, for example focusing on preventing waste arising and reuse of material.

HISTORIC ENVIRONMENT

4.4.58. A number of respondents, including Historic England and Stop Heathrow Expansion (SHE) express concern about the proposed demolition of listed buildings. There were respondents who included reference to specific buildings such as the Great Barn, 11th Century churches in Harmondsworth and Harlington, and thatched public houses in Longford as well as concern that the site of a cemetery in Hayes would be built upon.

4.4.59. Some respondents were in favour of expanding consideration of the historic environment in the AoS to include a full assessment of archaeological sites that could be affected by construction of the Heathrow Northwest Runway scheme, or for mitigation measures to be introduced to all three shortlisted schemes.

4.4.60. There was concern that inadequate consideration has been given to the attractiveness of local historic sites and the impact of noise on tourism.

Government response

4.4.61. The Airports NPS acknowledges that the construction and operation of airports and associated infrastructure has the potential to result in adverse impacts on the historic environment above and below ground, including through additional noise and light. It also states at paragraph 5.201 that "Once lost, heritage assets cannot be replaced, and their loss has a cultural, environmental, economic and social impact". Any applicant is required

to make an assessment of any historical asset potentially impacted by the proposed development and is encouraged where possible to put forward proposals which make a positive impact on the historic environment and to consider how their scheme takes account of heritage assets. Any substantial harm or loss of Grade I and II listed buildings should be wholly exceptional. In deciding whether to grant permission on an application for development consent, the Secretary of State will consider evidence from a range of sources and will take account of a number of factors, noting particularly the significance of the heritage asset and the value they bring to future generations. The greater the significance of the heritage asset, the more weight the Secretary of State will put on its protection.

4.4.62. The AoS identifies significant negative effects on the historic environment, including effects such as physical disturbance and noise, on listed buildings and undesignated sites. At this stage, assessment is limited to the level of designation for these sites and the AoS recommends that a mitigation hierarchy is applied, starting with avoiding negative effects in the first instance. The Government requires that a more detailed assessment of the impact on the historic environment be carried out to support any development consent application. Requirements for this assessment are set out in the Airports NPS.

4.4.63. The Airports NPS requires that the applicant should provide a description of the significance of the heritage assets affected by the proposed development, and the contribution of their setting to that significance. The level of detail should be proportionate to the asset's importance, and no more than is sufficient to understand the potential impact of the proposed development on the significance of the asset.

4.4.64. An application for development consent would incorporate more detailed site assessments such as bat surveys. It would include details of proposed building recording and enhancement measures.

LANDSCAPE AND LAND USE

4.4.65. Several respondents argue that the Heathrow Northwest Runway scheme will have negative impacts on landscapes including the Colne Valley, and express concern about the potential loss of Green Belt land.

4.4.66. The partial or full loss of Prospect Park and Cranford Park and the perception that no mitigation has been proposed for the loss of green spaces in Hillingdon, was raised by a number of respondents. Some respondents were in favour of more explicit measures that ensure Green Belt land and land designated for conservation are protected against the impacts of expansion.

Government response

4.4.67. The Government attaches great importance to Green Belt land. Development on Green Belt land should only be approved in very special circumstances, which are set out in Government policy in the National Planning Policy Framework (NPPF). The Secretary of State will assess at the time of any application for development consent whether the application comprises of inappropriate development and, if so, whether there are very special circumstances which would justify that development.

4.4.68. The Secretary of State, at his/her discretion, may require the re-provision to be designated as Green Belt land. Given the location-specific nature of the Airports NPS, the Government considers it appropriate to reiterate this power in the Airports NPS itself. Green Belt land is able to be designated through local authority development plans, or via designation under the Green Belt (London and Home Counties) Act 1938.

4.4.69. The Airports NPS is clear that in deciding whether to grant development consent, the Secretary of State will consider whether the impact on green infrastructure and open spaces has been sufficiently mitigated, for example to provide exchange land and provide for appropriate management and maintenance agreements. Any exchange land should be at least as good in terms of size, usefulness, attractiveness, quality and accessibility.

4.4.70. The Airports NPS requires further environmental assessment to support development of any application for development consent. This should include consideration of the impact on landscapes and cultural heritage, and include appropriate mitigations. It is appropriate that this be done at the development consent application stage using the more detailed scheme design required at that stage.

COMMENTS ON THE AOS PROCESS

4.4.71. Criticisms of the AoS process generally tended towards accessibility and the information presented. Some respondents suggest that the AoS' size and complexity is inaccessible and expressed disappointment that it was not part of the main consultation documents and that there were some issues accessing it online. Other respondents express doubt about the information in the AoS, under the perception that there is missing information, false assumptions and failure to consult with aviation stakeholders particularly in relation to the

costs of the Heathrow Northwest Runway scheme. There were respondents who argued that the AoS has failed to consider environmental outcomes before any final decision is made and it therefore falls short of what is required under the Strategic Environmental Assessment Directive.

4.4.72. Some respondents included suggestions for improving the AoS such as undertaking a case-by-case and comparative assessment of the sustainability of each of the shortlisted schemes, and independent auditing of the AoS by an external body.

Government response

4.4.73. The Commission undertook options appraisal on 58 proposals for additional capacity that led to the three shortlisted schemes. Appendix B of the AoS sets out the options appraisal process undertaken by the Commission. Prior to the Government's announcement of preference in October 2016, the Department carried out further analysis of the three shortlisted schemes, including appraisal and development of the mitigation packages as set out in the AoS. The Airports NPS was developed using the impacts and mitigations identified by the AoS as a framework. The three shortlisted schemes have been appraised against the same criteria to ensure that the Government's decision of preference in October 2016 was made on an equal and objective basis (Appendix A of the AoS). The AoS process requires identification of significant effects and this is supported by the quantitative information for comparison which is summarised in Section 6 of the AoS.

4.4.74. The analysis of the three shortlisted schemes commenced in August 2015 and a full analysis of each option as presented in the Appendix A of the AoS for each topic was undertaken prior to a Government decision on a preferred option.

4.4.75. The AoS has been undertaken by WSP and ClearLead Consulting, the latter providing independent review of the AoS process. The team is structured so that technical experts objectively report assessments for each topic. The three shortlisted schemes are considered side-by-side in the analysis. The majority of the assessments found that, until further detailed mitigation and compensation measures are developed as part of the application for development consent, impacts are anticipated to be significant and negative for many of the sustainability topics. The AoS has been consulted on twice, as part of the public consultations on the drafts of the Airports NPS. Where consultation responses provided new or alternative data on any topic this was considered, and where appropriate, incorporated into the AoS analysis. Given the length and complexity of the AoS, a non-technical summary was produced as part of the suite of consultation documents that summarised the assessment of impacts and the recommended mitigations. Following the February 2017 consultation, the Government published a log of changes made to the AoS for the October 2017 consultation.

4.4.76. Following consideration of responses made to the October 2017 consultation, some changes have been made to the final versions of the AoS and its annexes, principally for clarity. Some minor changes have also been made to those documents as a result of a review of the baseline data used to inform the AoS and the revision of carbon dioxide emissions figures in the UAR, and to correct some minor inaccuracies. None of these changes affect the overall assessment contained in the AoS and therefore no change in the Airports NPS results from them. The changes clarify some of the research, methods and findings in the AoS and make clearer some details of the assessments carried out. All of these changes can be found in the AoS change log published alongside the updated documents.

5 REASONS FOR CHOOSING THE AIRPORTS NPS IN LIGHT OF OTHER REASONABLE ALTERNATIVES

5.1.1. On 25 October 2016, the Government announced that its preferred scheme to meet the need for new airport capacity in the South East of England was a Northwest Runway at Heathrow Airport. The Government believes that the LHR-NWR scheme, of all the three shortlisted schemes, is the most effective and most appropriate way of meeting the requirement for additional capacity in the South East in a way that best meets the needs case and maintains the UK's hub status. The Government has now completed its detailed analysis of all the responses to the February and October consultations on the draft and the revised draft of the Airports NPS. Having considered the views of all respondents, the Government remains of the view that the conclusions of the Airports Commission remain sound and that with the amendments explained and subject to the next steps set out in the Government Response to both consultations[38], the Airports NPS is the most appropriate method to put in place the planning framework for additional airport capacity in the South East of England. A range of factors have been taken into account in the selection of a preferred option. These are set out in Section 3 of the Airports NPS and summarised below:

- **International connectivity and strategic benefits, including freight** [39] - Heathrow Airport is best placed to address this need by providing the biggest boost to the UK's international connectivity. Heathrow is one of the world's major hub airports, serving around 180 destinations worldwide, including a diverse network of onward flights across the UK and Europe. Without expansion, the UK's position as a global hub would deteriorate, but this status can be maintained if Heathrow expands. In contrast, Gatwick is predicted largely to remain a point to point airport, attracting very few transfer passengers. Expansion at Heathrow also delivers the greatest benefit to air freight, further facilitated by the existing and proposed airport development of freight facilities accompanying the Northwest Runway scheme.
- **Passenger and wider economic benefits**[40] - Expansion at Heathrow would increase the availability of services, and increase competition between airlines. This would lower fares that passengers can expect to face relative to no expansion, and passenger benefits will be experienced more rapidly once the new capacity is operational, with both Heathrow schemes. Expansion at Heathrow is also expected to result in larger benefits to the wider economy than expansion at Gatwick, including the number of jobs created locally and the increased government revenue that these jobs bring. For example, the Northwest Runway scheme is expected to generate an additional 57,000-114,000 jobs in the local area by 2030, with Heathrow Airport also pledging to provide 5,000 additional apprenticeships by this time. The number of local jobs created at an expanded Heathrow is predicted to be much greater than at Gatwick (up to 21,000 by 2030 and 60,000 by 2050).
- **Domestic connectivity** – At an expanded Heathrow there would be more additional passengers from outside of London and the South East forecast to make one way international journeys (5.9m at LHR-NWR compared with 4.6m at LHR-ENR and 3.8m at LGW-2R). This means that more passengers from across the UK are likely to benefit from lower fares and access to important international markets from the airport. Heathrow Airport has pledged that expansion could increase domestic routes at Heathrow to 14, compared to the eight routes currently in operation. This compares to 12 domestic routes for Gatwick, compared to the six currently offered.
- **Surface access links** - Heathrow has good access links to the rest of the UK for passengers and users because of its more accessible location and more varied surface access links. Although Gatwick has access to London via road and rail, its location makes it less convenient for onward travel to the rest of the UK.
- **Views of airlines, regional airports and the business community** - The benefits of expansion will be delivered only if airlines and the industry choose to use the new capacity, and pay for it via airport charges. Heathrow's scheme has stronger support from the airlines and wider business community.
- **Financeability** - While the LGW-2R would be significantly cheaper than the two schemes at Heathrow, with the LHR-NWR the most expensive of the three shortlisted schemes, all three are private sector

[38] DfT, 2018, Government Response the Consultations on the Airports National Policy Statement [online]
[39] Airports Commission, 2015. *Final Report*, p. 105. [online]
[40] Airports Commission, 2015 *Final Report*, p. 135. [online]

schemes which the AC found could be financeable without Government support. In 2016, Government undertook assurance work on the financing of any new capacity and agreed with the commission's findings. Since then, the Government has conducted further assurance work on the financeability of HAL's scheme and concluded that, so far as can be assessed at this early stage of the process, HAL appears in principle to be able to privately finance expansion without Government support, subject to:

- The CAA agreeing a satisfactory regulatory framework that delivers acceptable shareholder returns and the necessary certainty; and
- HAL's shareholders being prepared to commit to deleveraging to maintain current credit ratings.

The level of debt and equity required for the LGW-2R scheme would be significantly lower than for the Heathrow schemes, but the AC noted that the LGW-2R scheme would have comparatively higher demand risk, which is harder for the Government to mitigate. Both Heathrow schemes build on a strong track record of proven demand that has proven resistant to economic downturns.

- **Deliverability** -The three shortlisted schemes involve different levels of delivery risk. The delivery dates for both Heathrow schemes are likely to be more risky than that for Gatwick as they are more complex. The AC worked with the CAA and NATS to review the operational and airspace implications of all three shortlisted schemes. The consensus was that, while managing the expecting increase in air traffic safely for any scheme will be challenging, it should nevertheless be achievable given modernisation of airspace in the South East and taking advantage of new technologies – changes which will be necessary with or without expansion.
- **Local environmental impacts -** Airports can have negative as well as positive impacts, and these must be weighed against the strategic and economic benefits. All three schemes are expected to lead to a reduction in air quality and increased noise (without consideration of potential mitigations of the three schemes), the Gatwick Second Runway scheme would have a lower level of adverse effects relating to noise and air quality than either scheme at Heathrow. All three schemes will have an impact on the natural environment, including biodiversity, water and landscape. Negative effects upon quality of life, health and amenity were assessed, when unmitigated, to be of a greater magnitude for the two Heathrow expansion schemes and of a lower magnitude for the Gatwick Second Runway scheme. This is primarily because of its more rural location and with fewer people impacted by the airport. The Government agrees with the AC's conclusion that "to make expansion possible…a comprehensive package of accompanying measures [should be recommended to] make the airport's expansion more acceptable to its local community, and to Londoners generally". The Airports NPS includes public transport mode share and staff trip targets to mitigate the effect of increased numbers of airport users. In addition, Heathrow Airport has committed to ensuring that following expansion, the level of its landside airport-related road traffic is no greater than today. Mitigation is expected to include a highly valued scheduled night flight ban of at least six and a half hours between 11pm and 7am (with the exact start and finish times to be determined following consultation), and the offer of a predictable period of respite for local communities.

5.1.2. The Northwest Runway scheme must also be deliverable within legal requirements on air quality and greenhouse gas emissions. The Government agrees with the evidence set out by the AC that expansion at Heathrow is consistent with the UK's climate change obligations. Further information on these impacts is provided in the carbon section of the AoS.

5.1.3. Section 3 of the Airports NPS also concludes that the LHR-ENR has two advantages over the LHR-NWR: lower capital costs (£14.4bn compared with £17.6bn) for the extended northern runway scheme; and significantly fewer houses being demolished (242 rather than 783), as well as avoiding impacts on a number of commercial properties.

5.1.4. However, the Government arrived at a preference for the LHR-NWR based on a number of key factors. These comprise:

- Resilience because of the way the three separate runways can operate more flexibly when needed to reduce delays, and the less congested airfield. It delivers greater capacity (estimated on a like for like basis by the AC at 740,000 flights departing and arriving per annum compared to the extended northern runway scheme at 700,000), accordingly higher economic benefits, and a broader route network.
- LHR-NWR would be able to offer greater respite from noise by altering the pattern of arrivals and departures across the runways over the course of the day to give communities breaks from noise.
- Although both schemes are deliverable, LHR-ENR has no direct global precedent. As such, there is greater uncertainty as to what measures may be required to ensure that the airport can operate safely and what the impact of those measures may be, including the restriction on runway capacity.

6 HOW SIGNIFICANT EFFECTS FROM THE AOS WILL BE MONITORED

6.1.1. As part of the AoS process, monitoring has been proposed where there are residual significant effects or uncertainties regarding significant effects in order to identify unforeseen adverse effects at an early stage and facilitate appropriate remedial action. The proposed monitoring can consider the baseline and the beneficial, cumulative, secondary and synergistic effects over the policy's lifespan.

6.1.2. As the plan maker, DfT will be responsible for monitoring the significant environmental effects of the Airports NPS. However, it is envisaged that the collection of some of this data will be the applicant's responsibility, for instance through the requirement to monitor significant effects in the EIA Regulations. A frequency for monitoring has been proposed but it is acknowledged that this will need to be refined during project design when more information will be available about the characteristics of the impact.

6.1.3. Proposed monitoring is set out in Table 5 below.

Table 5. Proposed Monitoring

Topic	Objectives	Summary of Effect	Proposed Monitoring	Responsibility for data collection	Proposed Frequency
Community	1. To avoid or minimise negative effects on community viability, including housing, facilities and indirect effects.	Significant Effect - Loss of residential properties, community facilities; formal and informal recreation sites. Indirect effects from traffic and air quality and noise.	Independent monitoring of performances against commitments to spend money on community compensation, including property purchase offers and further support. Monitoring of numbers relocated, using new community facilities.	Government and Applicant	Regular intervals during construction and early operation.
Community	2. To avoid or minimise disproportionate impacts on any social group.	Uncertain Effect - Disproportionate effects on vulnerable social groups from direct loss and relocation of housing and community facilities; in addition to indirect effects from noise, air quality, traffic housing demand.	Independent monitoring of performances against commitments to spend money on community compensation, including property purchase offers and further support and management measures. Monitoring of numbers relocated, using new community facilities etc.	Government and Applicant	Regular intervals during construction and early operation.
Quality of Life	3. To maintain and where possible improve the quality of life for local residents and the wider population.	Significant Effect- Effects on quality of life from traffic, air quality, noise, displacement and employment.	No specific monitoring identified for QoL Annex – refer to monitoring for air quality, noise, communities.	N/A	N/A
Economy	4. To maximise economic benefits and to support the	Significant Positive Effect -	Creation of new job opportunities. Creation of apprenticeships.	Applicant	To be confirmed (TBC) - Annually as a minimum.

Topic	Objectives	Summary of Effect	Proposed Monitoring	Responsibility for data collection	Proposed Frequency
	competitiveness of the UK economy. 5. To promote employment and economic growth in the local area and surrounding region.	Significant positive effects are identified for employment and the economy.	Benefits of job opportunities and apprenticeships to local communities.		
Noise	6. To minimise and where possible reduce noise impacts on human receptors.	Significant and Uncertain Effect - Noise effects on human receptors from aviation and ground noise.	Number of people affected by noise arising from airport expansion. The parameters will need to be defined during the DCO process.	Applicant	TBC
Biodiversity	7. To protect and enhance designated sites for nature conservation.	Significant Effect - Potential adverse effects on internationally, nationally and locally designated biodiversity sites.	Condition of European Sites (Natura 2000, Ramsar) identified as potentially affected by Airports NPS development. Condition of Scientific Interest (SSSIs) identified as potentially affected by Airports NPS development. Condition of areas subject to enhancement measures. Condition of areas created as compensation.	Applicant	TBC through project HRA process. Where appropriate to be integrated into Common Standards Monitoring for designated sites
Biodiversity	8. To conserve and enhance undesignated habitats, species, valuable ecological networks and ecosystem functionality.	Significant Effect - Negative effects on undesignated habitats, species, valuable ecological networks and ecosystem functionality.	Changes in areas of biodiversity Importance (priority habitats and species by type). Maintenance of conservation status for species translocations.	Applicant	TBC but likely to be at intervals to include pre-construction, during construction and post-construction.

Topic	Objectives	Summary of Effect	Proposed Monitoring	Responsibility for data collection	Proposed Frequency
Soil	9. To protect sites designated for geodiversity 10. To minimise loss of undeveloped soils and of Best and Most Versatile agricultural land, and protect soil against erosion, contamination and degradation.	Significant Effect - Loss and damage to soils, including greenfield and agricultural land from land-take, physical damage and contamination.	Loss or damage to greenfield land (ha). Loss of Best and Most Versatile Agricultural Land (ha).	Applicant	TBC but likely to be at intervals to include pre-construction and post-construction.
Water	11. To protect the quality of surface and ground waters, and use water resources sustainably.	Significant Effect - Change in status of surface and/or groundwaters through alteration of waterbodies and impacts on water quality/quantity through the discharge of contaminants, such as de-icer and hydrocarbons and changes in water resource use.	Water Framework Directive (WFD) status of water bodies. Compliance with discharge consents and abstraction licences. Water supply zones: supply/demand balance (Surface water quality monitoring would be undertaken in key risk construction areas in close proximity to surface watercourses and boreholes will be installed)	Applicant	TBC
Water	12. To minimise flood risk and ensure resilience to climate change.	Uncertain Effect - Change to flood risk and resilience to climate change.	Areas at risk of flooding (fluvial, groundwater, sea level rise).	Applicant	TBC
Air Quality	13. To improve air quality and reduce emissions consistent with EU, national and	Significant and/or Uncertain Effect - Reduced air quality and increased emissions with effects	Emissions of air pollutants such as nitrogen oxides (NOx) and particulates.	Applicant	TBC Regular intervals to be determined through Surface Access Strategy.

Topic	Objectives	Summary of Effect	Proposed Monitoring	Responsibility for data collection	Proposed Frequency
	local standards and requirements.	on local communities and sites designated for wildlife.	Journeys made to the airport by public transport, cycling or walking.		
Carbon	14. To minimise carbon emissions in airport construction and operation.	Significant and/ or Uncertain Effect. Carbon emissions from a number of sources: Increased airport capacity leading to a net change in air travel; Airside ground movements and airport operations; Changes in non-aviation transport patterns brought about by a schemes surface access strategy; and Construction of new facilities and surface access infrastructure.	Construction emissions through use of a construction carbon footprint monitoring and reporting tool, e.g. BRE SMARTWaste. Emissions from expansion during operation through use of fuel and energy use monitoring and carbon footprinting techniques to capture emissions from aircraft, airport operations and energy use.	Applicant	Construction – regularly (e.g. monthly) throughout construction period. Operation – annually or in relation to Surface Access Strategy.
Resources and Waste	15. To minimise consumption of natural, particularly virgin non-renewable, resources.	Significant Effect - Consumption of natural resources, particularly non-renewable materials, goods and products.	Monitoring during construction and operation of: Volume (t) of major construction / other materials consumed % (by volume / other) of re-used / recycled content % (by volume / other) of materials with other sustainability credentials.	Applicant (ultimate responsibility, all phases) Construction contractor (direct, construction only) Supply chain (supporting, all phases)	Construction – monthly throughout construction period, reporting summaries annually. Operation – initially quarterly, moving to annually.
Resources and Waste	16. To minimise the generation of waste in accordance with the	Significant Effect - Disposal of waste to landfill.	Monitoring during construction and operation of:	Applicant (ultimate	Construction – monthly throughout

Topic	Objectives	Summary of Effect	Proposed Monitoring	Responsibility for data collection	Proposed Frequency
	principles of the resource efficiency hierarchy.		Tonnes of arisings avoided / recovered / re-used / recycled / other diverted from landfill Total volume (t) of arisings diverted from landfill, £cost savings (e.g. haulage and landfill taxation savings) accrued as a result of landfill diversion	responsibility, all phases) Construction contractor (direct, construction only) Supply chain (supporting, all phases)	construction period, reporting summaries annually Operation – monthly.
Historic Environment	17. Conserve and where appropriate enhance heritage assets and the wider historic environment including buildings, structures, landscapes, townscapes and archaeological remains.	Significant Effect - Loss and harm to the significance of heritage assets and the wider historic environment including buildings, structures, landscapes, townscapes and archaeological remains and the setting of the assets.	Monitoring the assessment of significance of the heritage assets and their setting. Monitoring the predicted levels of harm to the historic environment. Monitoring of the mitigation strategy during construction for built heritage and below-ground archaeological remains, and during construction and operation for setting.	Applicant	Regular intervals until mitigation strategy fulfilled.
Landscape	18. To promote the protection and improvement of landscapes, townscapes, waterscapes and the visual resource, including areas of tranquillity and dark skies.	Significant Effect - Effects on designated landscape/townscape/waterscape (including historic landscape) and character, sensitive views and indirect effects from lighting and loss of tranquillity.	Change in the quality of character or status of a designated area. Changes in settings and views of designated sites. Monitor / review off site mitigation and enhancement strategy and its implementation.	Applicant and relevant statutory bodies where appropriate	TBC but likely to be at intervals to include pre-construction, during construction and post-construction.

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