

AIRPORTS NPS - HABITATS  
REGULATIONS  
ASSESSMENT APPENDIX A  
LONG LIST ALTERNATIVES  
CONSIDERED UNDER THE  
HABITATS REGULATIONS

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HABITATS REGULATIONS

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## ASSESSMENT OF LONG-TERM OPTIONS

- 1.1.1 This document provides information on the long-term options examined by the Airports Commission (AC) for proposals received from both organisations and private individuals. It presents how the AC examined alternatives to decide on a short-list of realistic proposals which have been taken forward for assessment within the Appraisal of Sustainability (AoS). This assessment is further considered against the requirements of the Conservation of Habitats and Species Regulations 2010<sup>1</sup>, ‘the Habitats Regulations’.
- 1.1.2 The Habitats Directive requires that where the assessment undertaken in accordance with Article 6(3) produces findings that are negative or uncertain, then the plan maker must consider whether there are alternative solutions for delivering the aims of the plan that better respect the integrity of the European Site(s) in question.
- 1.1.3 The alternatives test is carried out in order to determine whether there are any other feasible ways to deliver the overall objective of the project which would be less damaging to the integrity of European sites. An alternative solution is one that would deliver the same overall objective as the proposal but through different means e.g. a different route, design, different timing. It must be objectively demonstrated that there are no other feasible alternatives that will not affect the integrity of European sites, and that the proposal is the least damaging of all the solutions as regards the integrity of such sites and the habitat and species therein.
- 1.1.4 Defra guidance on Article 6(4)<sup>2</sup> outlines that:
- “The consideration of alternatives should be limited to options which are financially, legally and technically feasible. An alternative should not be ruled out simply because it would cause greater inconvenience or cost to the applicant. However, there would come a point where an alternative is so very expensive or technically or legally difficult that it would be unreasonable to consider it a feasible alternative. The competent authority is responsible for making this judgement according to the details of each case. If the authority considers an option is not feasible, it would not be necessary to continue to assess its environmental impacts.*
- 1.1.5 *The consideration of alternatives should also be limited to options which would be less damaging to the affected site(s) or to any other site(s) that could be affected by a given alternative. If the competent authority decides that there are feasible alternative solutions to the plan or project which would have lesser effects on European sites, it cannot give consent for the plan or project to proceed”.*

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<sup>1</sup> The Conservation of Habitats and Species Regulations 2010 [\[online\]](#) Accessed 08/12/2016.

<sup>2</sup> Defra, 2012. *Habitats and Wild Birds Directives: guidance on the application of article 6(4), Alternative solutions, imperative reasons of overriding public interest (IROPI) and compensatory measures.* [\[online\]](#) Accessed 02/12/2016.

- 1.1.6 The AC engaged in three sifts used to identify proposals which would not merit more detailed assessment and could be removed from consideration. This was in order to develop a short-list of the long-term options. This sifting was based on the AC publication '*Guidance Document 02: Long Term Capacity Options: Sift Criteria*'<sup>3</sup>, which identified the sift criteria that the AC used to assess submissions.
- 1.1.7 This document undertakes further consideration of the proposals in relation to the requirements of the Habitat Regulations, and through utilisation of the principles set out in Defra guidance on Article 6(4) above.
- 1.1.8 This document is based on information from the following sources:
- Airports Commission, 2013. *Appendix 2: Assessment of Long-term Options*;<sup>4</sup>
  - Airports Commission, 2013. *Airports Commission: Interim Report, Appendix 1: Assessment of Short- and Medium-Term Options*;<sup>5</sup>
  - Airports Commission, 2013. *Long term options: sift 1 templates*;<sup>6</sup>
  - Airports Commission, 2013. *Long term options: updated sift 2 templates*;<sup>7</sup> and
  - Airports Commission, 2013. *Long term options: updated sift 3 templates*.<sup>8</sup>
- 1.1.9 This document does not replicate or reproduce previous work completed and published by the AC. Further details on the AC considerations can be found through the referenced materials in this document.

## 1.2 LONG-TERM OPTIONS

- 1.2.1 Long-term options are those options which involve the substantial development of a new or existing airport site. This includes the delivery of any major surface access links or other infrastructure required to ensure that the new airport capacity can be utilised.
- 1.2.2 The following tables present the long-term options proposed, along with the AC's justification for sifting the proposals. The tables also display the reason that the proposals could reasonably be ruled out in relation to the requirements of the Habitats Regulations.
- 1.2.3 The first sift was based on high-level information provided in relation to each proposal. The remaining proposals for the second sift were considered further, with more developed information. The proposals remaining after the two sifts went forward to the final sift with full additional analysis.
- 1.2.4 The AC initially sifted proposals out on the basis of:
- a) The proposals had fundamental issues which could not conceivably be addressed. Under the additional consideration of the proposals in relation to the requirements of the

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<sup>3</sup> Airports Commission, 2013. *Guidance Document 02: Long Term Capacity Options: Sift Criteria*. [\[online\]](#) Accessed 05/04/2016.

<sup>4</sup> Airports Commission, 2013. *Appendix 2: Assessment of Long-term Options*. [\[online\]](#) Accessed 21/03/2016

<sup>5</sup> Airports Commission, 2013. *Airports Commission: Interim Report, Appendix 1: Assessment of Short- and Medium-Term Options*. [\[online\]](#) Accessed 21/03/2016

<sup>6</sup> Airports Commission, 2013. *Long Term Options: sift 1 templates*. [\[online\]](#) Accessed 05/04/2016.

<sup>7</sup> Airports Commission, 2013. *Long Term Options: updated sift 2 templates*. [\[online\]](#) Accessed 05/04/2016.

<sup>8</sup> Airports Commission, 2013. *Long Term Options: updated sift 3 templates*. [\[online\]](#) Accessed 05/04/2016.

Habitats Regulations, it is assumed that these proposals would not be technically feasible and could therefore be ruled out and not considered an appropriate alternative.

- b) The proposals were similar in scope to other better developed and more detailed proposals. Under this additional consideration, these proposals are assumed to be reasonably ruled out on the basis that they are being considered and assessed as appropriate alternatives against the Habitats Regulations as part of a better developed and more detailed proposal.
- c) The proposals did not fit with the Commission's remit or offer a solution to the key question of providing additional long-term capacity and connectivity for the UK. Under this additional assessment, proposals which would not fit the Commission's remit to offer a solution to the key question would not be considered reasonable alternatives. This is supported by the Defra Guidance on the application of article 6(4)<sup>9</sup>, Section 13, which states that '*wide ranging alternatives may deliver the same overall objective, in which case they should be considered*'. This suggests that those alternatives that are not able to deliver the same objective would not constitute alternative solutions.

1.2.5 The proposals sifted during the first sift are presented in Tables 1.1, 1.2, 1.3 and 1.4. Tables 1.1-1.3 display those proposals sifted out for reasons set out in the sifting criteria, at a-c above.

1.2.6 Of the proposals received, ten suggested surface transport alternatives to make better use of the UK's current infrastructure. The AC decided to combine elements of the ten surface transport proposals to create three templates (proposals) which would assess the overall potential to use surface access improvements to address aviation capacity constraints. These ten proposals are displayed in Table 1.4. Similarly to criteria b, by combining ten suggested surface transport alternatives, each proposed alternative is being considered and assessed against the Habitats Regulations. Some proposals within Table 1.4 can also be ruled out on the principle of not increasing aviation capacity, and focusing on rail and connectivity. Such measures do not meet the requirement for increased aviation capacity. This is substantiated by the Defra guidance<sup>10</sup> which states that: '*Alternative solutions to a port development would normally be limited to other ways of delivering port capacity, and not other options for importing freight*'.

1.2.7 The remaining proposals not included within Tables 1.1-1.4, which the AC did not sift out during the first sift and which were therefore taken forward to the second sifts, are listed in Table 1.5.

**Table 1.1: List of proposed long-term alternatives sifted out during the first sift by sift criteria (a) 'the proposals had fundamental issues which could not conceivably be addressed'.<sup>11</sup>**

PROPOSAL ALTERNATIVE	OUTLINE
Exhaustless	A scale proof of concept for an innovative assisted take off system. An electromagnetic propulsion system launches unmodified aircraft at high speeds.
Imperial College London	Dispersed hub system comprising a number of two-runway airports at Heathrow, Gatwick and Stansted.
Private – Foulness	A new airport at Foulness, Essex, on government owned land currently used as an experimental munitions testing facility for the Ministry of Defence.

<sup>9</sup> Defra, 2012. *Habitats and Wild Birds Directives: guidance on the application of article 6(4), Alternative solutions, imperative reasons of overriding public interest (IROPI) and compensatory measures*. [\[online\]](#) Accessed 02/12/2016.

<sup>10</sup> Defra, 2012. *Habitats and Wild Birds Directives: guidance on the application of article 6(4), Alternative solutions, imperative reasons of overriding public interest (IROPI) and compensatory measures*. [\[online\]](#) Accessed 02/12/2016.

<sup>11</sup> Airports Commission, 2013. *Appendix 2: Assessment of Long-term Options*. [\[online\]](#) Accessed 21/03/2016.

PROPOSAL ALTERNATIVE	OUTLINE
Private – Heathrow 7	Call for action to ensure that Heathrow retains capacity to ensure London has sufficient hub capacity for the long-term. A high level scheme setting out the potential for seven runways and a spaceport is illustrated.
Private – London East	New two runway airport in the motorway triangle (M25, M26, M20). Some element of traffic distribution.
Private – Lydd & Gatwick	Proposal for Gatwick to put its existing second runway into service, and for expansion of Lydd Airport near Romney Marshes, potentially adding two runways.
Private – Maplin	New London airport to be constructed on reclaimed land on Maplin Sands as part of a broader programme of infrastructure developments.
Private – Mega Hub	High level design concept for group of “mega hubs” in the South East.
Private – London Thames Global (Thurrock)	A single runway airport proposed at the London Gateway Logistics Park, a brownfield site and deep water port being developed by DP World on the Thames estuary near Thurrock, south of Basildon.
Private – Walland Marsh	To develop a modular four runway airport on Walland Marsh on the southern Kent coast as a replacement for either Heathrow, Gatwick or Stansted airport.

**Table 1.2: List of proposed long-term alternatives sifted out during the first sift by sift criteria (b) ‘the proposals were similar in scope to other better developed and more detailed proposals’.**<sup>12</sup>

PROPOSAL ALTERNATIVE	OUTLINE
Aras Global	Heathrow to be developed as the UK’s hub airport. The scheme comprises various elements including the introduction of mixed mode on existing runways, construction of a third runway and a fourth runway in the longer term.
Beckett Rankine	A new airport with up to five runways located on reclaimed land, built upon Goodwin Sands, 71 miles from London and two miles to the east of Deal.
London Medway Airport	New four runway airport on the Hoo Peninsula on the north Kent coast, predicated upon the closure of Heathrow.
MAKE Architects	The scheme proposes a four-runway international hub airport at Stansted, building on existing air, road and rail facilities.
Private – LHR and STN	A range of potential developments at a number of locations around London (existing airports as well as new on and off shore locations). Should a threshold of one million noise impacted residents be considered acceptable, the submission proposes that Heathrow should be developed, otherwise it recommends the development of Stansted into a replacement hub with Heathrow closed and redeveloped.
Private – LHR four runways (two southern)	Two additional runways located southwest of the existing airport. Two options appear to be proposed, one with equal length additional runways, one with a shorter northerly of the two new runways.
Private – Twyford	A new airport development at Twyford in North Buckinghamshire at the intersection of two prospective railway lines: HS2 (London-Birmingham) and the East West line which will eventually connect Southampton and Reading with Bedford, Cambridge and the various northbound Main Lines.
Progressive Aviation Group – RAF Croughton and Steventon	Proposed two sites: RAF Croughton near Brackley, Northamptonshire and a greenfield location near Steventon southwest of Abingdon, Oxfordshire. At either location a new London Gateway Airport comprising four parallel runways, each pair separated by two terminal buildings, which could be provided as a replacement for Heathrow which would be closed and redeveloped.

<sup>12</sup> Airports Commission, 2013. Appendix 2: Assessment of Long-term Options. [\[online\]](#) Accessed 21/03/2016.

**Table 1.3: List of proposed long-term alternatives sifted out during the first sift by sift criteria (c) 'the proposals did not fit with the AC's remit or offer a solution to the key question of providing additional long-term capacity and connectivity for the UK'.<sup>13</sup>**

PROPOSAL ALTERNATIVE	OUTLINE
Drive Through Airport	The proposal is a concept for a revolutionary view of an airport terminal as opposed to a particular solution to UK airport capacity.
Fairoaks	Fairoaks Airport lies two miles north of Woking. It currently serves General Aviation and some business aviation but has spare capacity within its existing permissions to accommodate more business traffic from Heathrow or another large airport in the South East. Thus it could act as a reliever airport and free up slots to increase hub airport capacity elsewhere.
Manston Airport	Policy initiatives and surface transport improvements to develop Manston as a 'reliever' airport for London and the South East, freeing up capacity at more congested airports, and reducing the need for new runway capacity to be built.
MSP Solutions – Severnside	Submitter suggests the construction of an airport in the Severn Estuary to replace Bristol and Cardiff airports.
Richmond Heathrow Campaign	Range of no-build options that seek to increase passenger throughput, across all London's airports within existing aircraft movement capacities in order to make best use of existing infrastructure.
Severn24	New two runway airport on a reclaimed island in Severn Estuary with road and rail links to M4 and Great Western Mainline near Newport.

**Table 1.4: Sifted out<sup>14</sup> proposals which offered surface transport and other alternatives to make better use of the UK's current infrastructure.**

PROPOSAL ALTERNATIVE	OUTLINE
Avery Waterhouse Schabas	Proposal to connect Stansted via Crossrail into central London providing non-stop services from Stansted to Stratford or Canary Wharf.
First Class Partnerships	This submission presents a number of surface access improvements to Stansted as part of a wider transport strategy. It also proposes to construct a four-runway airport at Stansted, with no requirement to close or downgrade Heathrow which is being tested in other proposals.
Greengauge21	This proposal suggests a high speed railway network connecting Heathrow with the south and west over existing railway lines, and new connections to Euston and northbound main lines. It suggests creating a surface transport hub at Heathrow with direct rail connectivity to all of the major cities and regions in England by the late 2020's as well as to south and north Wales and to Scotland.
Grimshaw – London Hub City	This proposal seeks to redefine the concept of a hub airport and proposes that London should become a 'Hub city', with excellent connections to its major airports, encouraging transfer passengers into central London to break up their journey and contribute to the economy.
Interlinking Transport Solutions – London Air Rail Rapid Transit System (LARTS)	Construction of a light rapid transit system alongside the M25, M23 and M1 connecting the existing airports and railway lines is promoted by this proposal. The light rail 'RapidRail' system will mix express services with stopping services and with a maximum speed of 125kph. RapidRail stations will be located close to airport terminals and will integrate with existing stations using elevated platforms and guide ways.
Private – London Orbital Maglev	A London orbital MAGLEV system to connect London's five main airports is suggested in this proposal. It is proposed to run beside/over the M25 with spurs to each airport. This is considered a way to encourage passengers to transfer between airports generating a dispersed hub.
Private – London	Proposal for a high speed underground orbital railway to connect existing capacity and

<sup>13</sup> Airports Commission, 2013. Appendix 2: Assessment of Long-term Options. [\[online\]](#) Accessed 21/03/2016.

<sup>14</sup> Airports Commission, 2013. Appendix 2: Assessment of Long-term Options. [\[online\]](#) Accessed 21/03/2016.

PROPOSAL ALTERNATIVE	OUTLINE
Orbital HS Railway	increasing glide slopes to 5.5 degrees.
Private – MERLIN	This proposal suggests the development of Luton Airport as either a single hub with a high speed rail link connecting Luton to HS2 and the East Midlands, the Midland Express Rail Link (MERLIN), or to develop Luton and Heathrow as a dual hub with a new high speed rail link between the two airports.
Private – Universal Hub for London	The construction of a single universal hub at Farringdon with a station beneath Smithfield Market used by all air travellers irrespective of airport or airline is suggested by this proposal. The Universal Hub would serve London's main airports via direct, non-stop underground rail links.
Quaestus (Poppleton) Ltd – Surface Transport: Heathrow-Gatwick Multi-Site Hub	This proposal suggests the development of high speed rail infrastructure such that all major cities north of Milton Keynes will have a direct connection to Heathrow, reducing the demand for domestic flights. Low frequency domestic flights from regional airports would be expected to be replaced by frequent train services bringing most cities to within three hours of Heathrow.

**Table 1.5: List of proposed long-term alternatives not sifted out during the first sift.**<sup>15</sup>

PROPOSAL ALTERNATIVE	OUTLINE
Heathrow Airport (one north runway)	New 2,800m runway constructed to the north of the existing airport with linking taxiways to the east of the current north runway. The new runway could operate independently from the existing runway. (London Heathrow Airport – 3 <sup>rd</sup> Runway: North Option)
Heathrow – one additional northwest runway	New 3,500m runway constructed to the northwest of the existing airport with linking taxiways to the west of the current north runway. (London Heathrow - 3 <sup>rd</sup> Runway: Northwest Option)
Heathrow – one additional south west runway	Proposed by Heathrow Airport Ltd. New 3,500m runway constructed to the southwest of the existing airport with linking taxiways to the west of the current south runway. (London Heathrow Airport – 3 <sup>rd</sup> Runway: Southwest Option)
Heathrow – extension of the northern runway (Heathrow Hub)	Firstly an extension of both existing runways to a length of 6,400m enabling each runway to operate as two runways: the down-wind runway used for arrivals and the up-wind runway for departures. Secondly, a multi-modal interchange and passenger terminal, 'Heathrow Hub' located 3km north of the existing airport.
Centre Forum, Policy Exchange joint submission (Heathrow – four west runways)	Following a review of various aspects of the southeast airport policy debate, the proposers preferred solution is to develop hub capacity at Heathrow. Heathrow development comprises the displacement westwards and marginal widening of separation of the current runways, and expansion to four by the addition of two close-spaced parallel runways one to the north and one to the south. The existing central terminal area would be retained, and extended westwards between the displaced runways. The two pairs of close spaced runways would be around 380m apart, while the distance between the sets of runways would be 1,035m. (Bigger and Quieter: Heathrow)
Birmingham Airport	One additional wide spaced runway at Birmingham.
Gatwick – one additional south runway	Proposed by Gatwick Airport Ltd. Assessment based on the widest spaced runway of the three options provided by the proposer for a second runway to the south of the existing runway, permitting fully independent mixed mode to both runways. (London Gatwick Airport – 2 <sup>nd</sup> Runway Options)
Kent County Council (and Medway local authority) 'Dispersed Hub' Model	High level presentation of provision of additional capacity at some existing airports, together with improved rail access to facilitate better strategic use of the London/South East multi-airport system. Better utilisation of regional airports including Manston and Lydd in Kent, for point to point flights, to release capacity and complement the main London airports to provide enhanced 'hub' operations. Additional runways proposed at Gatwick and subsequently Stansted, to encourage competition with Heathrow and establish a 'dispersed hub', with the potential for second runway at Birmingham should future capacity be required.

<sup>15</sup> Airports Commission, 2013. *Long Term Options: sift 1 templates*. [[online](#)] Accessed 05/04/2016.



PROPOSAL ALTERNATIVE	OUTLINE
Stansted – one additional east runway	Proposed by Manchester Airport Group. Two in-principle options for the provision of a second runway: either to the northwest of the existing runway or to the east. The closed spaced northwest runway option could operate in either segregated mode or provide independent departures, whereas the wide-spaced east runway would permit fully independent mixed mode operations to both runways. (Stansted Airport – 2 <sup>nd</sup> Runway)
Western Gateway Airport / Group (Cardiff)	Proposed by University of South Wales. Expanded Cardiff to be part of a dispersed model.
AC Secretariat (Milton Keynes/Bedford Airport)	New four runway hub between Milton Keynes and Bedford.
AC Secretariat (New West London Heathrow – Maidenhead)	Replacement airport for Heathrow located to the west of current site between Maidenhead and Reading. (West London Heathrow Replacement)
Thames Hub Airport	Submitted by Foster + Partners. New four runway airport on the Isle of Grain at the eastern end of the Hoo Peninsula on the north Kent coast. Four runways airport constructed on reclaimed land platform measuring 5.2km by 4.5km. Requires all supporting infrastructure, plus settlements.
London Gateway Airport	Submitted by International Aviation Advisory Group (IAAG). A package of short, medium and long term measures, commencing with the introduction of mixed mode for resilience at Heathrow, construction of a second runway at Gatwick, and construction of a 3-runway 24-hours hub airport, on the western end of the Hoo Peninsula in Kent.
Metrotidal Tunnel and Thames Reach Airport	Submitted by Metrotidal Ltd. Proposal for a new airport constructed on an artificial island in the Thames Estuary, immediately north of the Hoo Peninsula. Other airports, notably Heathrow, Gatwick and Stansted, would be constrained to their current capacity to encourage growth and to establish a hub operation at the new airport. Four runways would be developed as demand required, with each pair of runways in an east-west alignment. All supporting infrastructure, plus settlements to accommodate direct and indirect employees to be constructed. The airport would lie at a major transport node and the 'Metrotidal Tunnel' would facilitate a wider regional surface transport strategy for the East of England.
Pleiade Associates (London Oxford)	London Oxford (LOX) – New 3 or 4 runway airport on farmland near Abingdon in Oxfordshire approximately 50 miles west of central London.
London Britannia Airport	Submitted by ESTRAD. New five (expandable to six) runway airport on purpose-built island off the north Kent coast. On opening of the new airport Heathrow would be closed and its site redeveloped, with the realised value offsetting the cost of construction of the new airport.
Isle of Grain	Submitted by Mayor of London. New four runway airport, developed on the Isle of Grain at the end of the Hoo Peninsula on the north Kent coast, as a direct replacement for Heathrow. Partially constructed on reclaimed land.
Outer Estuary	Submitted by Mayor of London. New four runway airport, developed off the north Kent coast, as a direct replacement for Heathrow. Constructed on reclaimed land (total site area 55 m <sup>2</sup> ).
London Luton Airport	Submitted by WestonWilliamson+Partners. New 4 runway hub airport replacing the existing London Luton Airport extending its current site southwards and eastwards into farmland between Luton and Kington.
London Gatwick Airport – Hub Option	Significant expansion, in line with the options considered prior to the 2003 Air Transport White Paper consultation document, as a replacement for Heathrow. A second runway is suggested to the south of the existing runway at a width that enables mixed mode operations. A third, independent runway is proposed to the north, with an enlarged terminal zone. The scheme could be further expanded to include a fourth runway to the north if required.
Stansted 4-runway hub	Submitted by MSP Solutions. The submitter concludes that Stansted offers the best balance of cost and environmental impact, and that it should be developed into a 4-runway hub airport, along the lines anticipated by the 2003 Air Transport White Paper consultation documents. Depending on the runway configuration, up to c.950,000 ATMs

PROPOSAL ALTERNATIVE	OUTLINE
	could be handled by the airport.
Bigger and Quieter: Luton	Submitted by Policy Exchange and CentreForum. Develop an alternative hub at Luton. In principle, two options are presented to either build a new airport between Luton and Harpenden, or to extend the existing airport broadly along the lines of the airports former master plans.
Stansted Hub	Submitted by Manchester Airport Group; Mayor of London. Similar concepts for the provision of four (MAG) and five (Mayor of London) runways, including the current runway.

### 1.2.8

The second sift of proposals was undertaken by the AC using a second, more detailed set of criteria which are listed below. This second sift developed the information considered by independently analysing the proposals according to a consistent methodology in relation to the sift criteria.<sup>16</sup> Proposals sifted out during the second sift are displayed within Table 1.6. The proposals which did not meet the criteria were therefore deemed not reasonable alternatives. Table 1.6 also displays the Airports Commission's more detailed reasoning for the sift decisions made and displays the justification for which the proposals could reasonably be ruled out in relation to the requirements of the Habitats Regulations. The proposals that did not conflict with the second sifting criteria were not sifted out and were carried forward to the next stage of analysis. These are listed within Table 1.7. The second sift criteria included:

- Strategic fit - Nature, scale and timing of the aviation capacity and connectivity delivered
  - What is the nature, scale and timing of the aviation capacity and connectivity delivered by the proposal? How will the proposal support or enhance the UK's status as Europe's most important aviation hub?
  - Does the proposal support the Government's wider objectives and legal requirements (for example, support of national and regional economic growth, re-balancing of the economy or alignment with national climate change commitments and global targets)?
- Economy - Economic impacts
  - What are the potential national economic impacts of the proposal?
  - What are the likely impacts of the proposal on the regional/local economies surrounding a) the proposed site for new or enhanced capacity and b) other airports affected by the proposal?
  - What is the likely impact of the proposal on the UK aviation industry? How will other airports be affected by the proposal and what will the impacts of this be for air passengers and other users, airlines and the wider economy?
- Surface access - Surface access requirements and effective surface access
  - What estimate has been made of the surface access requirements of the proposal in relation to existing and new infrastructure?
  - Does the proposal provide effective surface access for passengers, businesses and relevant freight traffic?
  - How will the proposal change journey times from major business and population centres for users of aviation services?
- Environment – Air quality, noise, designated sites and others

<sup>16</sup> Airports Commission, 2013. *Guidance Document 02: Long Term Capacity Options: Sift Criteria*. [\[online\]](#) Accessed 21/03/2016.

- What are the air quality implications of the proposal (including impacts due to aircraft, air side operation and local surface transport links)? Are these consistent with the legal frameworks for air quality? What mitigation plans are proposed?
  - What are the noise implications of the proposal?
  - Does the proposal affect any designated sites (for example Sites of Special Scientific Interest or Special Protection Areas) and if so how might any effects be managed?
  - How might the proposal compare, in terms of its impact on greenhouse gas emissions, with alternative options for providing a similar amount of additional capacity? What are the proposal's plans for continuous improvement and reduction of carbon emissions over time?
  - Are there other significant local environmental impacts which should be taken into account?
- People - Impact upon the passenger experience
- How will the proposal impact upon the passenger experience (e.g. choice, cost, accessibility, etc.)?
  - What are the likely local social impacts of the proposal, including impacts around the proposed location for new capacity and around any other airports which would be affected?
  - Are there other significant wider social impacts of the proposal which should be taken into account?
  - How does the proposed plan to engage with local communities in taking forward their plans?
- Cost - Estimated cost
- What is the estimated cost of the proposal, including surface access, land purchase, compensation and any other associated infrastructure? What are the associated cost assumptions and risks?
  - Is it likely that the cost can be met entirely by the private sector?
- Operational viability - consistent with relevant safety requirements and airspace constraints
- Is the proposal consistent with relevant safety requirements? What operational, safety and/or resilience risks are associated with the proposal? What measures are proposed to mitigate these?
  - Is the proposal deliverable within relevant airspace constraints? What assumptions underpin this assessment?
- Delivery – Delivery risk
- What are the main delivery risks in the proposal?

The second sift outlined by the AC has been further considered in relation to the requirements of both the UK Habitats Regulations (and EC Habitats Directive), and through utilisation of the principles set out in Defra guidance on Article 6(4)<sup>17</sup>. This has focused on ruling out alternative options which are evidently not financially, legally and technically feasible according to the details of each case.

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<sup>17</sup> Defra, 2012. Habitats and Wild Birds Directives: guidance on the application of article 6(4), Alternative solutions, imperative reasons of overriding public interest (IROPI) and compensatory measures. [\[online\]](#) Accessed 02/12/2016.

**Table 1.6: List of proposed long-term alternatives and their reason for rejection (sift out) during the second sift.<sup>18</sup>**

PROPOSAL ALTERNATIVE	OUTLINE	AIRPORTS COMMISSION DETAILED REASON FOR REJECTION	REASON FOR RULING OUT AS A FEASIBLE ALTERNATIVE IN ACCORDANCE WITH THE HABITATS REGULATIONS
<b>Long term – Second Sift</b>			
<b>Alternatives to new runways</b>			
London Orbital	Linking the London airports by a rapid transit system to enable passengers to interline between airports. The surface transport systems would also be connected to the national rail system to facilitate improved surface access for travellers and workers.	This option does not deliver the additional capacity that will be required in the future as set out in the assessment of need. Obtaining an acceptable transfer time between airports with some of the concepts presented here would be difficult. The option would entail significant cost. Local environmental costs of the infrastructure not quantified but likely to be significant additional impact.	Principle issue of not being considered to deliver the overall objective of providing additional long-term capacity and connectivity for the UK.  There is some evidence of issues surrounding the technical and financial feasibility of the proposal. At a local level, the proposal may pose difficulties with legal feasibility against the Habitats Regulations Assessment process due to suggested significant environment cost.
National Network	Substituting domestic flights from UK regional airports into the main London airports by high speed rail with two options: (i) substituting all air traffic, i.e. point-to-point and feeder, connecting traffic; or (ii) only point-to-point traffic. This would require the construction and operation of additional high speed rail links connecting the catchment areas of the regional airports to the main London airports.	This option would entail significant cost. However, with the potential to substitute domestic air journeys there is a greater possibility that slots at the South East airports might be freed. Analysis of the current slots shows that the potential scope for international flight substitution is limited e.g. under 7% of Heathrow’s ATMs. This absolute maximum potential falls short of the identified need, even before consideration is given to the plausibility of turning these slots into additional international movements that increase international capacity. As with London Orbital, local environmental costs would likely be significant.	Principle issue of not being considered to deliver the overall objective of providing additional long-term capacity and connectivity for the UK.  There is some evidence of issues surrounding the financial feasibility of the proposal, which may entail significant cost. At a local level, the proposal may pose difficulties with legal feasibility against the Habitats Regulations Assessment process due to suggested significant environmental impacts associated with the construction and operation of a high speed railway.
London Central	Enable central London to operate as a ‘virtual’ or actual hub, with a downtown mega-terminal connecting existing London airports.	This option does not increase the capacity of the system, rather it improves surface connectivity. Given that demand growth is forecast to exceed overall capacity within the London system, it is unlikely that this approach will mitigate the need for new infrastructure.	Principle issue of not being considered to deliver the overall objective of providing additional long-term capacity and connectivity for the UK.

<sup>18</sup> Airports Commission, 2013. *Appendix 2: Assessment of Long-term Options*. [\[online\]](#) Accessed 21/03/2016.  
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PROPOSAL ALTERNATIVE	OUTLINE	AIRPORTS COMMISSION DETAILED REASON FOR REJECTION	REASON FOR RULING OUT AS A FEASIBLE ALTERNATIVE IN ACCORDANCE WITH THE HABITATS REGULATIONS
		The validity of the concept that passengers would be drawn to using the central or orbital hubs has yet to be tested, and there are several risks that are deemed not able to be satisfactorily addressed. It also involves considerable cost.	The technical feasibility of the proposal has been questioned due to the concept being untested, pose several risks. There is some evidence of issues surrounding financial feasibility of the proposal.
Maximum Capacity from Airport Operations	Package of proposals to maximise the use of existing capacity at South Eastern airports by removing any planning and operational constraints e.g. operational restrictions on night flights or increasing upper movement caps at Heathrow. This would allow both runways at Heathrow to be used for both arrivals and departures (mixed mode) as opposed to current operations where a single runway is currently used for arrivals and the other for departures (segregated mode). It is based on the option considered for the short and medium term.	The assessment of need concludes that by 2050, with a carbon constraint in place, there is expected to be demand in excess of existing capacity around 170,000 – 200,000 ATMs a year in the South East. It is clear from the work done for the short and medium term that of all the airport operations options looked at, mixed mode and night flights are the only ones that offer any significant additional capacity. Together these offer a maximum of an additional 60,000 ATMs coupled with very significant noise impacts and concerns over resilience. This is deemed not to be sufficient to meet the identified demand.	Principle issue of not being considered to deliver the overall objective of providing additional long-term capacity and connectivity for the UK.  The proposal may pose difficulties with legal feasibility against the Habitats Regulations Assessment process due to the suggested very significant noise impacts.
<b>Dispersed</b>			
Birmingham Airport	One additional wide spaced runway at Birmingham	Significant distance from the key catchment area of London makes it unlikely that this airport would cater as well as more proximate options. It would offer the largest catchment of people within two hours of the airport of all options. This is largely dependent on the journey time assumptions of HS2, which also makes the London airport system easier to access for passengers from Birmingham's core aviation market. Largest noise impacts of the group and current demand profile favours other airports in the group.	Proposal does not meet strategic objective. It is not located in London and South East England where additional capacity is identified as required. HS2 does not offset being located away from identified need - the airport is not forecast to be operating at capacity until mid-2040s, even if other airports in London and the South East are constrained.
Kent County Council and Medway local authority (various)	Dispersed model of extra runways at Gatwick and Stansted	This proposal delivers an over provision of capacity compared to the assessment of need and overlaps other options for expansion at Gatwick and Stansted.	Proposal does not meet strategic objective due to over provision. The proposal overlaps other options for expansion at Gatwick and Stansted. Therefore, this proposal is considered and assessed as an alternative for the respective

PROPOSAL ALTERNATIVE	OUTLINE	AIRPORTS COMMISSION DETAILED REASON FOR REJECTION	REASON FOR RULING OUT AS A FEASIBLE ALTERNATIVE IN ACCORDANCE WITH THE HABITATS REGULATIONS
Western Gateway Group (Cardiff)	Expanded Cardiff to be part of a dispersed model	This proposal has a high cost due to its high speed requirements and does not deliver any significant additional capacity. Furthermore the very limited additional capacity it does deliver is in a region of the country where it is not clear that unfulfilled demand exists. Therefore does not meet the requirements identified in the assessment of need.	<p>Gatwick and Stansted options.</p> <p>Principle issue of not being considered to deliver the overall objective of providing additional long-term capacity and connectivity for the UK.</p> <p>There is some evidence of issues surrounding financial feasibility of the proposal. While the airport development is of comparable cost to other expansion schemes, the necessary surface transport infrastructure costs could bring the total to c. £79bn, more than 5 times the cost of other second runway schemes.</p>
<b>Heathrow</b>			
Heathrow Airport (one north runway)	North Option: one new short wide spaced runway	The capacity gained by the shorter runway in this option is lower than the other two longer runway options offered by the airport. This option also has the highest number of people within the 57 LAeq (07:00 – 23:00) contour and the most houses that will need to be demolished of all the Heathrow Ltd options. Other options in the group offer more potential.	<p>Proposal would have a similar impact on European sites as those identified for LHR-NWR.</p> <p>Proposal is not deemed feasible on the basis of lower capacity coupled with higher noise and housing impacts combine to make proposal undeliverable.</p>
Centre Forum, Policy Exchange joint submission (Heathrow – four west runways)	Relocate the current Heathrow runways to the west and add two more runways	This proposal entails extending the airport westwards, a concept which has also informed Heathrow Airport Ltd's proposals. There are time, cost and environmental issues associated with building over the reservoir which are not applicable to other options in the group. This option also potentially gives more capacity than is needed at a higher cost than other Heathrow options and is therefore considered less credible.	<p>Proposal would have a direct impact on Wraysbury reservoir – part of the South West London Water Bodies SPA / Ramsar site, which would need to be replaced by a reservoir elsewhere and the northern half refilled.</p> <p>Significant negative impact on a reservoir forming part of a European / International site would not be easy to mitigate / compensate for and would be costly. Finding new locations to replace habitat lost / affected would be very difficult. The extent of impact related to bird strike control or noise change on other adjacent reservoirs / wetlands is not clear. Furthermore, loss to river corridor and flood plain area requiring diversion and flood compensation storage.</p>

PROPOSAL ALTERNATIVE	OUTLINE	AIRPORTS COMMISSION DETAILED REASON FOR REJECTION	REASON FOR RULING OUT AS A FEASIBLE ALTERNATIVE IN ACCORDANCE WITH THE HABITATS REGULATIONS
			<p>This has the greatest impact on the existing reservoirs west of Heathrow and the SPA, and is the most expensive of the options at Heathrow.</p> <p>Based on the above impacts, this option poses significant issues surrounding financial, legal and technical feasibility.</p>
<b>New</b>			
AC Secretariat (New West London Heathrow – Maidenhead)	Replacement airport for Heathrow located to the west of current site between Maidenhead and Reading	The assessment of the noise impact of this option appears much greater than the others in the group. It also suffers from environmental issues such as a significant flood plain loss not associated with other options in the group. Potential need to demolish more houses than others in the group.	<p>Not a feasible alternative as the proposal would require the closure of Heathrow Airport and the proposal does not have a commercial sponsor.</p> <p>This option poses significant issues surrounding financial, legal and technical feasibility.</p>
Thames Estuary Research and Development Company (outer estuary)	London Jubilee International Airport (off-shore Thames Estuary airport)	Compared against the inner estuary options, this is a more expensive proposal due to its surface access requirements and location, and it also delivers an over provision of capacity set against the assessment of need, and will place a large amount of pressure on Ebbsfleet. Its benefit over the inner Estuary proposals is the complete lack of people affected by noise but the inner Estuary offers very few people affected. The inner Estuary was therefore considered a more plausible option for further analysis.	<p>The footprint of the scheme is 26km<sup>2</sup> and impinges further into the Thames estuary than the other Hoo Peninsula proposals. This has potential increased impacts on estuary coastal processes and related impacts on flood risk and changes to estuary habitats.</p> <p>The proposal was similar in scope to a more plausible option. This proposal is assumed to be reasonably ruled out on the basis that the alternative is being considered and assessed against the Habitats Regulations through a more plausible option.</p> <p>Furthermore, Approximately 64% of the site (1,660 ha) is located within the boundaries of the Thames Estuary and Marshes SPA / Ramsar sites and another 3 SPA / Ramsar sites (Medway Estuary and Marshes; Benfleet and Southend Marshes and Foulness (Mid-Essex Coast Phase 5) and the Essex Estuaries SAC) are located with 5 km. The SPA / Ramsar impact would require the establishing of compensatory habitat to maintain integrity of the Natura 2000 network. In addition to the direct land take, there are likely to</p>

PROPOSAL ALTERNATIVE	OUTLINE	AIRPORTS COMMISSION DETAILED REASON FOR REJECTION	REASON FOR RULING OUT AS A FEASIBLE ALTERNATIVE IN ACCORDANCE WITH THE HABITATS REGULATIONS
			be additional impacts from disturbance, fragmentation of habitat, bird strike management and changes to estuarine processes. With other available less adverse alternatives, this proposal is considered legally unfeasible. This proposal may be further legally unfeasible due to An expanded Gatwick the impacts on watercourses and coastal processes (geomorphology).
Mayor of London (outer Estuary)	Outer Estuary – new four runway hub airport on an artificial island in the Thames Estuary	Compared against the Thames Hub inner Estuary options, this is also a more expensive proposal due to its surface access requirements and location. This option also delivers an over provision of capacity set against the assessment of need. The inner Estuary was therefore considered a more plausible option for further analysis.	Proposal is located within and/or would cause damage to a marine SPA, SAC and Ramsar site. Approximant 5530ha of subtidal habitat would be impacted. Additional impacts are likely on bird populations in four surrounding SPAs. Significant compensatory habitat would be required and may be difficult to provide (potentially technically unfeasible). There is also a major coastal flood and erosion risk. The proposal was similar in scope to Thames Hub a more plausible option. This proposal is assumed to be reasonably ruled out on the basis that the alternative is being considered and assessed against the Habitats Regulations through a more plausible option.
Pleiade Associates (London Oxford)	London Oxford – New four runway hub in Oxfordshire	Although less housing would be demolished and this was cheaper with a better relative noise performance to some others in the group, this option is at a greater distance from London. This proposal would also cause the loss of over 3000 hectares of high value agricultural land and would sit on a major floodplain needing significant compensatory storage provision. This area has also been earmarked as a site for a future reservoir by Thames Water.	Not a feasible alternative as the proposal would require the closure of Heathrow Airport to be commercially viable.  This option poses significant issues surrounding financial, legal and technical feasibility.
AC Secretariat (Milton Keynes/Bedford)	New four runway hub between Milton Keynes and Bedford	Amongst the cheapest in the group and located very close to good transport links to the rest of the country, this option is, however, located further from London and the core centre of demand identified in the assessment of need than many other options in the group. This	Principle issue of not being considered to deliver the overall objective of providing additional long-term capacity and connectivity for the UK.  Not a feasible alternative as the proposal might



PROPOSAL ALTERNATIVE	OUTLINE	AIRPORTS COMMISSION DETAILED REASON FOR REJECTION	REASON FOR RULING OUT AS A FEASIBLE ALTERNATIVE IN ACCORDANCE WITH THE HABITATS REGULATIONS
		option potentially necessitates the closure of Heathrow and Luton lessening the additional capacity it supplies to the London airport system. It may also impact on the competitiveness of Birmingham and could constrain the maximum utilisation of Stansted, all of which could reduce the competitiveness and capacity of the overall airport system.	require the closure of Heathrow Airport to be commercially viable.  This option poses significant issues surrounding financial, legal and technical feasibility.
<b>Existing</b>			
Policy Exchange and Centre Forum (Luton Hub)	Expand Luton airport to become a four runway hub	Due to the closure of Heathrow and the reduction in capacity at Stansted for commercial and airspace issues respectively that is necessitated by this proposal, the overall effect was considered to be a likely overall reduction in capacity. Therefore despite being amongst the cheapest in the group this option was sifted out.	Principle issue of not being considered to deliver the overall objective of providing additional long-term capacity and connectivity for the UK.  Not a feasible alternative as the proposal would require the closure of Heathrow Airport to be commercially viable.  This option poses significant issues surrounding financial, legal and technical feasibility.
Weston Williamson and partners – (Luton Hub)	Expand Luton airport to become a four runway hub	Due to the closure of Heathrow and the reduction in capacity at Stansted for commercial and airspace issues respectively that is necessitated by this proposal, the overall effect was considered to be a reduction in capacity. Therefore despite being amongst the cheapest in the group this option was sifted out.	Principle issue of not being considered to deliver the overall objective of providing additional long-term capacity and connectivity for the UK.  Not a feasible alternative as the proposal would require the closure of Heathrow Airport to be commercially viable.  This option poses significant issues surrounding financial, legal and technical feasibility.
Manchester Airports Group/ Mayor of London (Stansted Hub)	Combined template incorporating both proposals for a four/five runway hub at Stansted	Although only one template was produced at this point for the two similar proposals from the Mayor of London and Manchester Airports Group only the four runway option was sifted out at this stage. The proposal for the four runways gave very little extra capacity in the system due to its likely effect on Luton and the need to close	Principle issue of not being considered to deliver the overall objective of providing additional long-term capacity and connectivity for the UK (four runway option).  Not a feasible alternative as the proposal might

PROPOSAL ALTERNATIVE	OUTLINE	AIRPORTS COMMISSION DETAILED REASON FOR REJECTION	REASON FOR RULING OUT AS A FEASIBLE ALTERNATIVE IN ACCORDANCE WITH THE HABITATS REGULATIONS
		Heathrow. The five runway proposal was taken forward for further assessment.	<p>require the closure of Heathrow Airport to be commercially viable.</p> <p>This option poses significant issues surrounding financial, legal and technical feasibility.</p>
MSP Solutions (Stansted Hub)	Proposal to expand Stansted to four runways, operate Heathrow in mixed mode and build a Severn Estuary airport	As per the above proposal, very little extra capacity in the system is created due to its likely effect on Luton and the need to close Heathrow for airspace and commercial issues respectively.	<p>Principle issue of not being considered to deliver the overall objective of providing additional long-term capacity and connectivity for the UK.</p> <p>Not a feasible alternative as the proposal might require the closure of Heathrow Airport to be commercially viable.</p> <p>This option poses significant issues surrounding financial, legal and technical feasibility.</p>
AC Secretariat (Gatwick four runways)	Expand Gatwick to a three or four runway hub airport	Maximum capacity is likely to be significantly less than the requirement identified in the assessment of need. Largest number of houses likely to be demolished in the group and only middling noise performance and costs.	Principle issue of not being considered to deliver the overall objective of providing additional long-term capacity and connectivity for the UK.

**Table 1.7: List of proposed long-term alternatives not sifted out during the second sift<sup>19</sup>**

PROPOSAL ALTERNATIVE	OUTLINE
Heathrow Northwest Runway	Submitted by Heathrow Airport Limited. New 3,500m runway constructed to the existing airport with linking taxiways to the west of the current north runway. The new runway could operate independently from the existing runways. Includes expansion of existing terminals plus new Terminal 6 immediately west of Terminal 5 serving new satellites and aprons located between the new and current northern runways.
Heathrow Southwest Runway (one additional south west runway)	Submitted by Heathrow Airport Limited. New 3,500m runway constructed to the southwest of the existing airport with linking taxiways to the west of the current south runway. The new runway could operate independently from the existing runways. Includes expansion of existing terminals plus new Terminal 6 immediately west of Terminal 5 serving new satellites and aprons located between the new and current southern runways.
Heathrow Hub (Heathrow – extension of the northern runway)	Submitted by Heathrow Hub limited. The proposal contains two elements. Firstly, an extension of both existing runways to a length of 6,400m enabling each runway to operate as two runways: the down-wind runway used for arrivals and the up-wind runway for departures. Secondly, a multi-modal interchange and passenger terminal, 'Heathrow Hub', located 3km north of the existing airport.
London Gatwick Airport – 2 <sup>nd</sup> Runway Options	Submitted by Gatwick Airport Limited. Three in principle options to provide a second runway to the south of the existing runway, with three centreline separations permitting dependent segregation, independent segregation and fully mixed mode as the separation is increased between options.
Stansted Second Runway (Stansted – one additional east runway)	Submitted by Manchester Airport Group. Two in principle options for the provision of a second runway: either to the northwest of the existing runway or to the east, broadly based upon the options considered for BAA's Stansted Generation 2 project. Neither option is fully defined. This proposal assumes Heathrow remains open. The closer spaced northwest runway options, depending upon separation could operate in either segregated mode or provide independent departures, whereas the wide-spaced east runway would permit fully independent mixed mode operations to both runways.
Thames Hub Airport (Inner Estuary)	Submitted by Foster + Partners. New four runway airport on the Isle of Grain at the eastern end of the Hoo Peninsula on the north Kent coast. On opening of the new airport Heathrow would be closed and its site redeveloped, with the legalised value offsetting the cost of construction of the new airport. Four runway airport constructed on reclaimed land platform measuring 8.7km by 4.2km, 7m above sea level. The airport comprises two pairs of wide-spaced parallel runways in an east/west orientation, each 4,000m long. The inner pair are dependent, separated by 380m, while each outer and inner pair are proposed to be operated independently, being separated by 1,570m.
London Gateway Airport	Submitted by International Aviation Advisory Group (IAAG). A package of short, medium and long term measures, commencing with the introduction of mixed mode for resilience at Heathrow, construction of a second runway at Gatwick, and construction of a 3-runway 24-hours hub airport, on the western end of the Hoo Peninsula in Kent.
Metrotidal Tunnel and Thames reach Airport	New airport constructed on an artificial island in the Thames Estuary, immediately north of the Hoo Peninsula. The proposer states that other airports, notably Heathrow, Gatwick and Stansted, would be constrained to their current capacity to encourage growth with the establishment of a hub operation at the new airport, potentially in a split hub with Heathrow. Amongst a number of runway configurations submitted, proposer's preferred option is the east configuration of a four runway airport, each pair of runways in line east-west, with further scope to

<sup>19</sup> Airports Commission, 2013. *Long Term Options: updated sift 2 templates*. [\[online\]](#) Accessed 05/04/2016.  
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PROPOSAL ALTERNATIVE	OUTLINE
	extend.
London Britannia Airport	New five (expandable to six) runway airport on a purpose-built island off the north Kent coast. On opening of the new airport Heathrow would be closed and its site redeveloped, with the realised value offsetting the cost of construction of the new airport. Construction on 15 km by 6 km reclaimed land platform with option to expand to 6 runways. Runways of unspecified length, aligned east/west. Triple independent approaches with dual independent departures or vice-versa.
Isle of Grain	Submitted by Mayor of London. New four runway airport, developed on the Isle of Grain at the eastern end of the Hoo Peninsula on the north Kent coast, as a direct replacement for Heathrow. Partially constructed on reclaimed land with a total site area of 55 m <sup>2</sup> . The airport comprises four independent parallel runways in an east/west orientation, each 4,000m long.

- 1.2.9 The Commission reviewed the proposals and decided to combine elements of the inner Estuary proposals from Foster and Partners, the International Aviation Advisory Group, Metrotidal Limited and Transport for London into one package. In addition, the Commission decided to combine elements of the various Heathrow proposals to offer an option with four runways at Heathrow.<sup>20</sup>
- 1.2.10 The final sift assessed the remaining eight proposals, listed in Table 1.8 and 1.9, in more detail and additional work was carried out including<sup>21</sup>:
- Capacity analysis was developed;
  - Noise modelling was further refined;
  - Surface access analysis was refined;
  - Costs were refined;
  - A 45 minute isochrone was developed;
  - Likely financing opportunities of each option were assessed;
  - Analysis of local and regional GVA was undertaken; and
  - Further specific study into the economic, financial, and social impacts of closing Heathrow was completed.
- 1.2.11 A list of long-term alternatives sifted out during the final sift are presented within Table 1.8. These proposals were sifted by the Commission, supported by the additional work carried out, for not meeting a number of the sift criteria listed in Section 1.2.9. Therefore, these proposals were deemed not reasonable alternatives. Further detail for those proposals sifted out at this stage is also provided within Table 1.8. Those proposals that did not conflict with the sifting criteria listed in Section 1.2.9, were taken forward for further consideration and formed the short list of sites. These four short-listed proposals are listed in Table 1.9 which includes the reasons for not proceeding further with Isle of Grain Thames Estuary.

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<sup>20</sup> Airports Commission, 2013. *Appendix 2: Assessment of Long-term Options*. [\[online\]](#) Accessed 21/03/2016.

<sup>21</sup> Airports Commission, 2013. *Appendix 2: Assessment of Long-term Options*. [\[online\]](#) Accessed 21/03/2016.

Table 1.8: List of proposed long-term alternatives and their reason for rejection (sift out) during the final sift.<sup>22</sup>

PROPOSAL ALTERNATIVE	OUTLINE	AIRPORTS COMMISSION DETAIL REASON FOR REJECTION	REASON FOR RULING OUT AS A FEASIBLE ALTERNATIVE IN ACCORDANCE WITH THE HABITATS REGULATIONS
<b>Long term – Final Sift</b>			
Stansted – one additional east runway	Proposed by Manchester Airports Group. The most easterly and wide spaced of the two options submitted for a second runway at Stansted, which would allow for fully independent operation on both runways.	<ul style="list-style-type: none"> <li>- Uncertain that it would provide an effective solution to wider emerging capacity constraints and there is a lesser immediate catchment around the Stansted area than at Gatwick or Heathrow.</li> <li>- Rail journey times to Stansted are longer (over 40 minutes) from central London than for other options.</li> <li>- There are potential impacts on 39 listed buildings and two Scheduled Monuments, more than any other option at this stage for one additional runway.</li> <li>- To fund the debt requirement without government funds, the aeronautical charges would have to increase to around 1.6 times Heathrow's Q6 charges.</li> </ul>	<p>Principle issue of not being considered to deliver the overall objective of providing additional long-term capacity and connectivity for the UK.</p> <p>The airport is currently operating at roughly half its permitted capacity and could accommodate an additional 130,000 ATMs per year yet it is not forecast to reach capacity until approximately 2040, even with other London airports remaining constrained.</p>
Heathrow – one additional south west runway	Proposed by Heathrow Airport Ltd. New 3,500m runway constructed to the southwest of the existing airport with linking taxiways to the west of the current south runway.	<ul style="list-style-type: none"> <li>- The proposed location would cause the loss of the King George IV reservoir and a reduction of the Wraysbury reservoir (SPA/Ramsar). This impact would require an alternative storage capacity of around 22 million m<sup>3</sup> meaning a new reservoir would be required in a location unknown at this stage.</li> <li>- An initial conclusion was that to replace the reservoir could take up to 14 years, and that replacement should take place before construction of any new airport infrastructure, in order to maintain supplies to London.</li> <li>- Locating on this area would potentially cause a flood plain loss of ~ 670 hectares requiring over 1.4million m<sup>2</sup> of compensatory storage.</li> <li>- The Environment Agency has plans to construct a new flood diversion channel in the Lower Thames which the proposed runway would cross.</li> </ul>	<p>The proposal would result in direct loss to Wraysbury reservoir, King George VI reservoir, Staines Moor, and the Wraysbury and Hythe End Gravel Pits. All are part of the South West London Water Bodies SPA / Ramsar designations. The extent of impact related to bird strike control on the surrounding site such as the adjacent Staines reservoir is not clear. The project would require compensatory measures which can demonstrably maintain the integrity of the Natura 2000 sites affected. It may be difficult to both demonstrate that each qualifying species would be accommodated and finds new locations to replace habitat loss / affected by bird strike control measures.</p> <p>All Heathrow runway options are within an area of influence for the SPA / Ramsar site, but this south-</p>

<sup>22</sup> Airports Commission, 2013. *Appendix 2: Assessment of Long-term Options*. [\[online\]](#) Accessed 21/03/2016  
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PROPOSAL ALTERNATIVE	OUTLINE	AIRPORTS COMMISSION DETAIL REASON FOR REJECTION	REASON FOR RULING OUT AS A FEASIBLE ALTERNATIVE IN ACCORDANCE WITH THE HABITATS REGULATIONS
			<p>west option has a much greater direct impact. In this context it may be difficult to show that this is an alternative due to the potential for other locations to meet the objectives for the expansion which would not have such an adverse effect (as per Secretary of State's decision not to grant permission for the Southampton Dibden Bay Container terminal).</p> <p>Based on the Defra guidance on Article 6(4), this proposal could be ruled out on the basis that the loss of reservoir storage capacity, resulting in a requirement for alternative storage capacity of around 22 million m<sup>3</sup>, as well as the potential loss of storage capacity from flood plain loss, would be so financially, legally and technically difficult that it would be unreasonable to consider it a feasible alternative.</p>
Heathrow – four runways	<p>Heathrow Airport Ltd did not put forward a fully developed proposal for four runways (although the concept was described in their submission), however, the Commission looked at this option to ensure there was a full understanding of the possible future of Heathrow. Of the several possible options a fourth runway north of the northwest option was analysed. This was chosen as it minimised the cost and avoided creating two separate airport operations at the site, as would have been necessary if the fourth runway was built to the south west of the airport.</p>	<ul style="list-style-type: none"> <li>- It may be difficult to realise the full additional benefit of the additional runway in the current London airspace architecture, due to potential impacts on other traffic, potentially resulting in little or no additional capacity.</li> <li>- The projected capacity if fully realised would be in excess of identified need, which a single additional runway at Heathrow satisfies.</li> <li>- The additional costs of a fourth runway bring extra costs for airport and highway infrastructure as well as the runway, without it being clear that this extra capacity is desirable or possible.</li> <li>- The fourth runway would require further disruption to the road system around Heathrow.</li> <li>- More houses lost than other options except for the Estuary which has a similar impact.</li> </ul>	<p>Principle issue of not being considered to deliver the overall objective of providing additional long-term capacity and connectivity for the UK.</p> <p>Provision of capacity in excess of identified need at Heathrow poses significant issues surrounding financial, legal and technical feasibility to the extent that a 4<sup>th</sup> Runway is explicitly ruled out by the government in the Airports NPS.</p>
Stansted – five runways	<p>The proposal submitted by the Mayor of London was for four additional runways plus the retention of the existing runway. The current runway</p>	<p>- With the large surface access requirements as with the Estuary, on top of the new airport costs, the total cost is very large (although lower than the Estuary) and far higher than the expansion of an existing airport;</p>	<p>Principle issue of not being considered to deliver the overall objective of providing additional long-term capacity and connectivity for the UK.</p>

PROPOSAL ALTERNATIVE	OUTLINE	AIRPORTS COMMISSION DETAIL REASON FOR REJECTION	REASON FOR RULING OUT AS A FEASIBLE ALTERNATIVE IN ACCORDANCE WITH THE HABITATS REGULATIONS
	<p>and terminal would be used to serve low-cost carriers with the four further runways built adjacent to the current airport site. These four would be wide spaced independent runways. This would require the closure of Heathrow for commercial reasons and reduction in capacity of Luton and London City.</p>	<ul style="list-style-type: none"> <li>- These costs do not include any finance required for buying and closing Heathrow and the resulting requirements to making it attractive to investors, nor any costs relating to compensation to Luton or London City for any necessary reduction in their capacity.</li> <li>- Significant additional surface transport infrastructure would be required which would add to the cost, complexity and risk associated with the proposal</li> <li>- A new high speed line into St Pancras as suggested would cut through a large section of countryside, presenting potentially significant environmental challenges, and would have to be built through – or beneath – north London into a station where there is currently limited platform capacity;</li> <li>- Airspace interactions with other London system airports may limit the extent of additional capacity achieved;</li> <li>- In addition to the closure of Heathrow, Luton and London City would be expected to have their capacities significantly reduced or closed to allow the Stansted site to accommodate the expected volume of traffic;</li> <li>- There may be an upper limit to the total number of ATMs possible at one site. NATS advise that in the London context it may be difficult to achieve much more than one million movements at any one site which would almost eliminate any capacity gain</li> <li>- This option would require the closure of Heathrow for commercial reasons and a reduction in capacity at Luton and London City for airspace reasons. The assessment of the economic and social impacts of the closure of Heathrow on west London is uncertain as the relocation of an airport the size and importance of Heathrow is unprecedented;</li> <li>- The closure of Heathrow has potential for immediate adverse effects on employment in the area, though this may subsequently be offset by any longer term positive impact from the redevelopment of the site and the provision of new housing opportunities. The overall</li> </ul>	<p>Not a feasible alternative as the proposal requires the closure of Heathrow Airport to be commercially viable.</p> <p>This option poses significant issues surrounding financial, legal and technical feasibility.</p>



PROPOSAL ALTERNATIVE	OUTLINE	AIRPORTS COMMISSION DETAIL REASON FOR REJECTION	REASON FOR RULING OUT AS A FEASIBLE ALTERNATIVE IN ACCORDANCE WITH THE HABITATS REGULATIONS
		<p>balance, nature and extent of economic impacts are highly uncertain and the process would add significant risk to the project;</p> <ul style="list-style-type: none"> <li>- Stansted is located in an affluent area of the country, offering fewer regeneration opportunities than an Isle of Grain airport, and although broadly aligned with the development corridor along the Lee Valley would not support London's economic development objectives to the same extent.</li> <li>- There would be impacts on a SSSI Interest, on 157 listed buildings including two grade 1 and seven grade II* and four Scheduled Monuments;</li> <li>- There would be a loss of over 2,000 hectares of grade 1 and 2 (best and most versatile) agricultural land.</li> </ul>	

**Table 1.9: List of proposed long-term alternatives that required further assessment or were short listed, and the reason for the decision.**<sup>23</sup>

PROPOSAL ALTERNATIVE	OUTLINE	REASON FOR DECISION
<b>Long term – Further assessment</b>		
Isle of Grain (Thames Estuary)	A four runway option considered for the Thames Estuary area developed by the Commission incorporating elements from several proposals submitted to the Commission that would give the maximum noise reduction available and the best chance of avoiding an impact on the liquefied natural gas facility at the south east corner of the Isle of Grain.	<p>The proposal has a much greater impact on Special Protection Areas and Ramsar Sites than the three options shortlisted by AC – the scale of provision of new habitat required to compensate for the scheme’s impacts on protected sites would be unprecedented in the UK and in Europe. The cumulative obstacles to delivery including environmental impact, high costs, the closure of Heathrow and City Airports, large requirements for surface access and public subsidy, and uncertainties in relation to economic and strategic benefits mean this is not a credible/deliverable option.</p> <p>These fundamental financial and technical feasibility issues result in this not being a reasonable alternative.</p>
<b>Long term – Short-list</b>		
Gatwick – one additional south runway	Proposed by Gatwick Airport Ltd. Assessment based on the widest spaced runway of the three options provided by the proposer for a second runway to the south of the existing runway, permitting fully independent mixed mode to both runways.	An expanded Gatwick could operate at 70% capacity in 2030 and could be achieved at a relatively low cost, Stansted offering the only cheaper option. The strong demand suggests that finance could be credibly found, although some government support may be necessary. Local noise impacts are of a similar order of magnitude to other incremental expansions of existing airports. No internationally designated sites are directly impacted though there may be indirect impacts on nearby Sites of Special Scientific Interest, Conservation Areas and Scheduled Monuments. There is some potential for local and regional economic and employment benefits.
Heathrow – one additional northwest runway	Proposed by Heathrow Airport Ltd. New 3,500m runway constructed to the northwest of the existing airport with linking taxiways to the west of the current north runway.	Demand forecasts indicate that expansion at Heathrow would see the airport operating at around 80-90% capacity by 2030, with a new runway in place. The costs would be similar to the Heathrow extended northern runway. This would be more expensive than additional runways at Stansted and Gatwick but cheaper than the south west runway at Heathrow. It would be orders of magnitude cheaper than any of the new hub airport options. The connections and proximity to central London and the catchment area of the airport is amongst the best of the options considered. The site would potentially have indirect impacts on some internationally designated sites and would require the demolition of significant numbers of residences and impacts on local cultural heritage. Overall noise impacts at Heathrow are higher than at any of the other

<sup>23</sup> Airports Commission, 2013. *Appendix 2: Assessment of Long-term Options*. [\[online\]](#) Accessed 21/03/2016.  
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PROPOSAL ALTERNATIVE	OUTLINE	REASON FOR DECISION
		locations under consideration.
Heathrow – extension of the northern runway	Proposed by Heathrow Hub Ltd. Firstly, an extension of the most northerly existing runway to a length of 6,400m enabling it to operate as two runways. This option was reduced from the proposer’s four runway option to three runways to allow for comparison with other Heathrow Airport three runway options. Secondly, a multi-modal interchange and passenger terminal, “Heathrow Hub”, located 3km north of the existing airport.	Impacts for this option are broadly similar to those for the northwest runway with a small number of key exceptions. The noise impacts are worse at 57 LAeq (07:00 – 23:00) as the additional traffic is focussed on the same approach paths, however noise impacts at night would be lower than for the northwest runway option. The novel nature of the proposal introduces some risks to the delivery of the capacity as a safety case will need to be made. Impacts on local cultural heritage are less significant and would result in few demolitions of residential properties than for the northwest runway option.