



# **Inner Thames Estuary Airport:** Summary and Decision Paper

September 2014

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# Chair's Foreword



The idea of a new airport for London in the Thames Estuary has captured the imaginations of a number of people over the years. A minority report from the Roskill enquiry recommended a site at Maplin Sands and, for a time, the then government took that idea forward before concluding that the plan was fundamentally flawed. More recently, the Mayor of London has revived a different plan on the southern side of the river, and several consortiums have sketched out related schemes. All have one clear attraction: by replacing Heathrow they remove the aviation noise nuisance from many West London residents.

This is an important advantage. To it are added other claims, some more speculative: that a new airport could allow 24 hour operations and reduce over-flying of central London, would be easily expandable as demand grows, and would catalyse a shift in the economic geography of the South East of England, providing impetus for the population of London to expand eastwards.

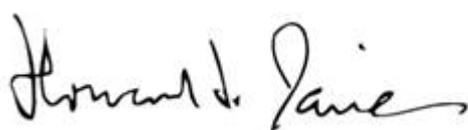
Perhaps surprisingly, in view of these promised benefits, the Commission has found in its enquiries that few people outside the direct advocacy groups support the idea. The aviation industry doubts the viability of the plan, local councils are opposed, and business groups are similarly unenthusiastic. Nonetheless, in view of the potential benefits, the Commission has examined the proposals very carefully over the last eighteen months, and this year commissioned a number of studies specifically designed to assess its feasibility, impact and risks in more detail.

At the end of this lengthy process, we have concluded that in view of the obstacles to delivery, high costs and uncertain benefits we will not shortlist a scheme for further consideration.

The reasons for our decision are set out in detail in this document. In brief, we are not persuaded that a very large airport in the Thames Estuary is the right answer to London's and the UK's connectivity needs, and the airport would need to be very large to justify the enormous costs involved, both for the airport itself and the surface transport connections to it. While we recognise the need for a hub airport, we believe this should be a part of an effective system of competing airports to meet the needs of a widely spread and diverse market like London's. One or more of those airports will need to grow: we will recommend which of them should expand first in our final report. Our *Interim Report* argued that we need one net new runway by 2030, and that additional capacity on that scale can be reconciled with the country's climate change commitments. That remains our planning assumption.

The delivery risks of such a massive project including its surface transport links are very great, and the economic disruption would be huge. No other city has moved the operations of an airport on anything like the scale of Heathrow anywhere near as far as would be implied here. There are environmental hurdles which it may prove impossible, or very time-consuming, to surmount. There are also challenges in relation to the practicality of operating a very large hub airport in the estuary; for example in relation to airspace management and the risk of birdstrike. The implications for passengers are unfavourable. The average rail journey to the airport on opening would be 20-25 per cent longer than is the case today. Even the least ambitious version of the scheme would cost almost £70 to £90 billion with much greater public expenditure than involved in other options – probably some £30 to £60 billion in total. More ambitious schemes would cost considerably more. While future governments must make their own decisions on priorities we cannot see that additional infrastructure investment in the South East, on the scale implied, with uncertain economic benefits, would be likely to appeal to the Chancellor of the Exchequer in a government of any political colour.

There will be those who argue that we have missed an opportunity for a Great Leap Forward, and that the Commission lacks ambition and imagination. Our response is that we are ambitious for the right solution. The need for additional capacity is urgent. To roll the dice on a very risky project, where delays and overruns are highly likely, would be reckless. We need to focus on solutions which are deliverable, affordable, and set the right balance for the future of aviation in the UK.

A handwritten signature in black ink, appearing to read 'Howard Davies', written in a cursive style.

Sir Howard Davies  
Chair, Airports Commission

# 1. Introduction

- 1.1** A new airport in the Thames Estuary is not a novel concept. Maplin Sands, a proposal for a new airport on reclaimed land to the east of Southend, was one of the options considered by the Roskill Commission in their 1971 Report on the Third London Airport. Although rejected by the Commission, it was promoted in a minority report by one member and subsequently taken forward by the Government, until the project was cancelled in 1974.
- 1.2** The option of a new airport at Cliffe on the Hoo Peninsula was also one of the options considered and rejected by the Government in preparing its 2003 White Paper, *The Future of Aviation*.
- 1.3** Since the publication of the 2003 White Paper, the aviation industry and the UK airports sector have developed and changed, as discussed in Chapters 2 and 3 of the Airports Commission's *Interim Report*:
- At the global level, consolidation in liberalised aviation markets such as the US and Europe and the rapid growth of the three major airline alliances have been accompanied by a parallel trend which has seen new competitors and business models, including low cost carriers and new Middle Eastern and Asian airlines, emerge or grow in strength.
  - In the UK, the break-up of BAA has seen increased competition within the London airports system, and a new statutory framework for reducing carbon emissions has been put in place. The main London airports have benefited from substantial investment in new and improved terminals, but they are still reliant on runway capacity built in the middle of the twentieth century.
- 1.4** The UK aviation industry has responded well to these developments and to the constraints of existing infrastructure. Its diverse and competitive airports system is able to cater for a range of airline models – from major network carriers, both UK-based and international, through the low cost sector, to charter, freight and business jet operators – and provides valuable connections for travellers from across the country. As set out in the Commission's *Interim Report*, this has seen the UK maintain links to a greater number of destinations and provide higher levels of aviation capacity for passengers than any other European country.

- 1.5** London also benefits from having a broad range of airports, which are able to provide convenient access to air services for travellers from all parts of the capital and the wider South East, as well as supporting the UK's overall connectivity. The differing costs and operational models enable carriers of all kinds to serve this market. For example Heathrow provides hub capacity supporting a dense long-haul route network, with Gatwick also accommodating a number of long-haul carriers; London City serves a niche, largely business, market; and low cost airlines operate services from many airports across the system. Heathrow is the country's largest belly-hold freight airport, whereas Stansted hosts a substantial dedicated freight operation. These factors have supported London in retaining its status as the world's largest aviation market and providing more destinations and greater overall connectivity across the system as a whole (both short- and long-haul) than any of the other main European aviation centres.
- 1.6** But as demand rises, the airports system in London and the South East is being placed under growing pressure. Unless further capacity is added this will, over time, have increasingly detrimental effects on the national economy, businesses and air passengers.
- 1.7** For this reason, the Airports Commission ('the Commission') concluded in its *Interim Report* that there was a case for the provision of at least one net additional runway in London and the South East by 2030. In considering the options for such additional capacity, the Commission's view was that – rather than a binary choice between additional hub or point-to-point capacity – the optimum approach would be to continue to invest in an airport system that caters for a range of airline business models.
- 1.8** The Commission shortlisted in its *Interim Report* three options for a new runway which would be taken forward for further detailed development and consultation: a proposal to extend the existing northern runway at Heathrow to the west (promoted by Heathrow Hub Limited), a third runway to the north-west of the existing Heathrow runways (Heathrow Airport Limited), and a second runway south of and parallel to the existing runway at Gatwick (Gatwick Airport Limited).
- 1.9** The Commission also noted that the option of a new airport in the inner Thames Estuary (ITE) potentially offered attractive benefits as well as significant challenges that warranted further study before a decision could be taken whether to include such a proposal on the Commission's shortlist.

- 1.10** On 16 January 2014, the Commission therefore published for consultation an Introductory Note setting out the draft terms of reference for four additional studies into the feasibility and impacts of a new ITE airport, covering environmental impacts (study 1), operational feasibility and attitudes to moving to a new airport (study 2), socio-economic impacts (study 3), and surface access (study 4). The finalised terms of reference were published on 25 March 2014.
- 1.11** In parallel with its consultation on the terms of reference, the Commission also opened a call for evidence inviting interested parties to make submissions on the issues to be considered in the four studies by 23 May 2014.
- 1.12** A total of just over 170 responses were received to the Call for Evidence, of which 44 were ‘technical’<sup>1</sup> and 127 ‘non-technical.’ All the technical responses are available on the Commission’s website. Where appropriate the studies incorporate or refer to such evidence.
- 1.13** The environmental impacts study was published for consultation on 3 July 2014, and the remaining three studies on 10 July 2014. While general comments were invited as part of the consultation, the Commission sought responses to two specific questions: whether there was any information in the studies which was factually inaccurate; and, whether there was any new information or evidence to consider before a decision could be reached.
- 1.14** The consultation closed on 8 August 2014. The Commission received 27 technical and three non-technical responses, which are summarised in **Annex 1**. They were carefully considered by the Commission before reaching a decision.
- 1.15** Taken together this has constituted a significant body of work and a valuable evidence base to support the Commission in making its decision. This process has provided a wide range of additional information on the potential concept, design and impacts of a new hub airport that was not available when the Commission published its *Interim Report*.

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<sup>1</sup> Technical responses are those responses which are considered to include substantive policy content rather than solely setting out an opinion towards the proposal.

- 1.16** The Estuary process has been an extension of the first phase of the Commission's work, which culminated in its *Interim Report*, and is described in full in **Annex 2**. The process was intended to provide additional information to support an assessment of the credibility of a new airport in the inner Thames Estuary against the sift criteria for assessing long term capacity options in this initial phase, which had been published on the Airports Commission's website on 3 May 2013 ('Guidance Document 02: Long term capacity options sift criteria'<sup>2</sup>). The additional information taken into account reflected the specific terms of reference for each study and the responses to the Call for Evidence and consultation on the studies.
- 1.17** The options for a new airport in the ITE have not been analysed using the criteria and methodologies set out in the Commission's Appraisal Framework<sup>3</sup> published on 2 April 2014. That framework is being used as the basis for the analysis of the currently short-listed options that is being undertaken as part of the second phase of the Commission's work programme. The framework was, however, designed to accommodate the inclusion, if required, of a new airport in the ITE onto the shortlist.
- 1.18** The proposals which have been under active consideration during this process are those for a new hub airport at either Grain or Cliffe on the Hoo Peninsula. The only proposal considered by the Commission for an airport at Cliffe was submitted by the Independent Aviation Advisory Group (IAAG).<sup>4</sup> The proposals for an airport at Grain (around 10 miles to the east of Cliffe) include submissions from Foster+Partners, Thames Reach Airport and Metrotidal Tunnel Ltd and the Mayor of London as well as the Isle of Grain option developed by the Commission in phase 1.
- 1.19** The opening of a new airport in the ITE is predicated on two key assumptions. Firstly, the Commission has assumed that Heathrow airport would need to close for a new inner Estuary airport to be commercially successful, with scope for the subsequent redevelopment of the Heathrow site. This reflects the analysis carried out by PWC in the socio-economic study, and is also assumed by a number of scheme promoters. The opening of the new airport and closure of Heathrow is presumed to occur by around 2030. Secondly, a new inner Estuary airport would be a three or four-runway airport, with some of the designs submitted offering flexibility to extend the number of runways further.

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2 *Guidance Document 02: Long term capacity options sift criteria*, Airports Commission (May 2013) [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/193867/sift-criteria.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/193867/sift-criteria.pdf)

3 *Airports Commission Appraisal Framework*, Airports Commission (April 2014) <https://www.gov.uk/government/consultations/airports-commission-appraisal-framework>

4 London Medway Airport also submitted a proposal for a new airport to the north of Cliffe village, but the Commission had no participation from them in this process.

## 2. Decision

The Commission's decision on whether a new airport proposal in the inner Thames Estuary is a credible option to be taken forward to phase 2

- 2.1** In its *Interim Report* the Commission recognised that an ITE airport could potentially have socio-economic and noise benefits, but also identified high environmental impacts and barriers to delivery.
- 2.2** Following the completion of its four independent studies and consideration of the comments received, the Commission believes that there has been significant value in exploring further the costs, benefits, feasibility and impacts of a new airport in the ITE.
- 2.3** In comparison with the incremental expansion of an existing airport, such an option would offer a substantially different response to the UK's aviation challenges. It would focus strongly on the long-term development of a major hub, potentially of similar scale to airport developments in cities such as Dubai and Istanbul, as well as offering an alternative distribution of geographic impacts, due to both its location to the east of London and the incorporation of Heathrow's closure and redevelopment into the overall strategy. A great deal of analysis has been provided in its support by TfL and the Mayor of London, and by the private sector consortia promoting these schemes, which has informed the Commission's thinking and enhanced the quality of the overall debate.
- 2.4** Nonetheless, the Commission has concluded that the proposal for a new ITE airport has substantial disadvantages that collectively outweigh its potential benefits. Cumulative obstacles to delivery, high costs and uncertainties in relation to its economic and strategic benefits contribute to an assessment that an ITE airport proposal does not represent a credible option for shortlisting.
- 2.5** A new ITE airport would clearly provide an increase in capacity, in theory sufficient to meet the Commission's assessment that one net additional runway would be required by 2030. There are, however, a range of risks associated with the delivery of an option of this kind, which would in practice create significant challenges to the timely provision of new capacity. These include risks in respect of:

- the scheme's very significant impacts on protected habitats which, as well as being a substantial disbenefit in themselves, would present, under Article 6(4) of the Habitats Directive, a high legal hurdle to be overcome;
- the scale of provision of new habitat required to compensate for the scheme's impacts on protected sites, which would be unprecedented in the UK and in Europe and whose deliverability remains uncertain;
- the challenges of transferring aviation services and associated activities from Heathrow to a new ITE airport, which would be greater than for any previous transition of this kind, and of providing the necessary housing and other supporting infrastructure;
- uncertainties as to the scope for a new ITE airport to co-exist with the nearby Liquid Natural Gas storage facility, with no alternative site for such a facility having so far been identified; and
- the surface access improvements required for a new ITE airport, which would represent a significant and expensive package of multi-modal investment and need to be delivered in parallel with other schemes of national significance such as HS2.

**2.6** The costs of a new ITE airport would be very high – estimated at £67 to £88 billion for a three runway airport and rising to £97 to more than £120 billion to deliver a four-runway airport with the full surface access infrastructure needed to support unrestricted operations. The public expenditure implications of such would be considerable. While these would be offset to some degree by the sale of the Heathrow site, and potentially the sale of the new ITE airport itself, the outstanding cost for the taxpayer could be as high as £30 to £60 billion even for the least expensive option. Any capital receipts from the sale of the ITE airport or Heathrow site would not be accrued until after the airport was operational, and the quantum is highly uncertain.

**2.7** The location of the airport would be less convenient than Heathrow for the majority of passengers. The average rail journey time for passengers travelling to an ITE airport would increase by 19 minutes or 26 per cent compared to Heathrow on the basis of current distribution of Heathrow passengers.<sup>5</sup> Even if a substantial relocation of travellers to areas closer to the new airport is assumed, this increase would only reduce to 18 per cent or 13 minutes. Despite significant investment in improved road and rail, an ITE airport to the east of London could still be more inconvenient to access for many parts of the country than Heathrow.

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<sup>5</sup> This assumes that a 'basic' road and rail improvements package is in place at a cost of around £20 billion.

- 2.8** The Commission has identified relatively little support for such a proposal from the aviation industry or business community, or from the local authorities nearby, and some intended benefits, such as the scope for 24-hour operation, appear to be of limited relevance. Competing airports in Europe operate few night flights even where they are allowed. In addition, the unrestricted operation of an ITE airport would pose significant airspace challenges, with London City and Southend airports likely in NATS' view to be 'severely limited in their operational capability'. Managing the risk of birdstrike, particularly outside the airport perimeter, would also be challenging. An ITE airport would dramatically alter the existing character of the inner Thames Estuary, including requiring several hundred homes to be demolished.
- 2.9** These disadvantages need to be considered alongside the potential benefits of an ITE airport. The overall noise benefits from closing Heathrow and opening a new airport in the inner Thames Estuary would be substantial. The closure of Heathrow would eliminate aviation noise as a significant issue for a large population to the west of London, whereas the numbers of people newly affected by noise from an ITE airport would be small, particularly if it is located on the Isle of Grain. The number of flights passing over central London may also reduce.
- 2.10** The socio-economic impacts of this strategy, however, present a more nuanced picture. There would be the potential for strongly positive local economic effects as a result of direct, indirect and induced employment generated by a new airport, although there would also be a number of risks to the achievement of these benefits, including in relation to passenger forecasts, delivery and the availability of supporting infrastructure such as housing.
- 2.11** In contrast, the closure of Heathrow Airport would be expected to have a significant negative economic impact on the surrounding local area, with the scope and timing of any mitigation as a result of the redevelopment of the Heathrow site highly uncertain.
- 2.12** Furthermore, while the development of new aviation capacity to the east of London could be well-aligned with broader eastward shifts in economic activity and population in and around the capital, it is likely that any local catalytic economic effects as a result of a new airport would be incremental rather than transformational, with no guarantee as to whether a positive effect at the national level would be achieved. The agglomeration clusters that have grown up around Heathrow over many years could not simply be 'dragged and dropped' into a new location – it could take many years for economic activity around the new airport to grow to equivalent levels, if at all.

- 2.13** A further benefit claimed by advocates of a new ITE airport is that it would be able to deliver against the potential requirement for a further increase in runway capacity by 2050. NATS have advised the Commission, however, that no more than 800,000 air traffic movements (ATMs) per annum would be likely to be achievable at a four-runway airport, constraining the level of additional capacity provided. While the construction of additional runways, if feasible, might enable a higher number of ATMs to be accommodated, it would also increase the scheme's costs, environmental impacts, and airspace and delivery challenges.
- 2.14** It is not clear, in any case, that an ITE 'super-hub' would present an attractive solution to the UK's long-term aviation capacity needs. It may be less flexible in responding to changes in the aviation industry than other, more incremental options. Also, if UK carbon emissions are to be kept within the overall cap, concentrating a very high number of flights in one location could limit the scope for growth elsewhere and hence reduce the overall diversity of the UK airports system.
- 2.15** The additional work that has been undertaken on the option of a new ITE airport has been important in enabling the Commission to take an informed view of its costs, benefits, feasibility and impacts. To keep the option under consideration beyond this point, however, would prolong unnecessarily the associated costs and anxiety for nearby communities, unless it could be seen to be a credible proposal. The Commission's judgement is that a balanced assessment does not favour such a conclusion.
- 2.16** As such, the Commission has concluded that the option of a new airport in the inner Thames Estuary should not be shortlisted for more detailed development and appraisal as part of the second phase of its work. The Commission will therefore proceed to consultation in autumn 2014 on the three currently shortlisted options.

## 3. Summary of decision with reference to the phase 1 sift criteria

**3.1** The Commission has considered proposals for an ITE airport against its phase 1 sift criteria as set out in its *Interim Report* and has made the following observations. Assessments against the full range of sift criteria which informed the Commission's decision are provided in the updated sift templates published alongside this document.

### Strategic Fit

**3.2** In its *Interim Report*, the Commission set out its assessment of need that there was a requirement for one net additional runway by 2030 and that this new capacity should be flexible to a range of different future aviation market trends.

**3.3** The Commission does not see a binary choice between providing additional hub capacity or additional point-to-point capacity. Instead the optimal approach would be to continue to invest in an airport system that caters for a range of airline business models.

**3.4** Hub capacity will remain important. While London benefits from the largest origin-and-destination market in the world, the addition of transfer traffic is still necessary to incubate new routes and ensure that the UK benefits from the highest levels of connectivity. Other forms of capacity will also be important, however, to enable passengers and other aviation users to benefit from the broadest range of options for cost, location and type of travel.

**3.5** The Commission is satisfied that an ITE airport could in theory meet the Commission's assessment of need, even allowing for the fact that the capacity provided by such an airport would to an extent be offset by reductions elsewhere:

- London Heathrow would need to close for commercial reasons for the ITE airport to succeed;
- London City and Southend would be likely, according to NATS, to be "severely limited in their operational capability" by a fully operational ITE airport in east/west orientation. It cannot be ruled out that such limitation may make one or both of these airports commercially unviable.

- 3.6** In addition, it has been argued by some stakeholders that a significantly higher level of aviation connectivity would be provided by a single, large hub airport than by a more dispersed distribution of aviation capacity, and that an Estuary airport is best placed to facilitate this. The analysis carried out by the Commission for its *Interim Report*, however, indicated that, while a concentrated capacity model would deliver higher passenger and ATM numbers than a dispersed model, it only showed a small difference in destinations served. Therefore, it is not clear that any benefits of this kind would be as great as some advocates of such schemes contend.
- 3.7** The timely achievement of any capacity or connectivity benefits is, of course, dependent on successful delivery of the airport and necessary supporting infrastructure by 2030. Whilst deliverability is considered in paragraphs 3.84 – 3.91 it is important to note that 2030 is the point at which the need for new runway capacity becomes acute. Failure to have new capacity in place by this date would constitute a significant shortcoming.
- 3.8** The possibility of 24-hour operations at an ITE airport (which could be enabled by its relatively low noise impacts) may have some benefits, but there is currently low demand for such services. Evidence on the potential impacts of 24 hour operations suggests that there is minimal passenger traffic between 23.00-05.00 at major European hubs, including where local regulations would permit more flights, and a very limited number of freight services. Discussions with airlines suggest that most do not consider 24-hour operations to be valuable due to limited passenger demand at these times. Those flights, however, that are currently operating (including very early morning arrivals as there are at Heathrow) are considered valuable.
- 3.9** Some scheme promoters and supporters of an ITE airport have noted the Commission's view in its *Interim Report* that there is likely to be a demand case for a second net additional runway by 2050 and argued that the suggested capability of an ITE airport to provide for this need should be considered a benefit. The vision of a 'super-hub' airport, comparable in scale to airport developments in the Middle and Far East, has been advanced by some as the solution to the UK's long-term aviation capacity needs.

- 3.10** The level of additional capacity provided by a four-runway ITE airport, however, may not be as high as some of its proponents claim. NATS have stated that “a maximum of 800k ATMs per annum could be supported by an airport that operated four independent parallel runways of the length expected at any new hub airport”.<sup>6</sup> This implies that, once the closure of Heathrow is taken into account, the incremental increase in capacity over a single new runway at an existing airport would be relatively small. Any impacts on capacity at other airports, such as London City or Southend, could reduce this further.
- 3.11** The construction of one or more further runways may enable more ATMs to be accommodated, but it would also increase the costs, environmental impacts, and airspace and delivery challenges associated with the scheme. Furthermore, it is not clear that such an ITE ‘super-hub’, even if it could be delivered, would present an attractive solution to the UK’s long-term aviation capacity needs. The increasing concentration of capacity in a single location could reduce the London airports system’s flexibility to respond to future changes in the structure and operation of the aviation industry. If the UK is to remain within its overall targets for carbon emissions, it may also limit the scope for growth at other locations, potentially reducing the diversity of the overall system. This is implicit to some degree in any expansion proposal, but such effects would be more pronounced in relation to an ITE ‘super-hub’ compared to other, more incremental approaches.
- 3.12** The Commission will set out in its final report how the case for a second net additional runway might most appropriately be considered. It does not plan to make a firm recommendation on the location of a further new runway in 2050, and a wide range of locations will need to be considered. The ITE airport arguments on this point do not cause the Commission to wish to prejudge the issue in its favour now.

## Economy

- 3.13** The Commission has noted arguments that an ITE airport could deliver significant economic benefits in its local area. For example, Transport for London have suggested that a new hub airport has the potential to generate an uplift in employment above the baseline of approximately 98,000 jobs (24 per cent) by 2030 in the six closest north Kent local authorities, together with further potential employment in the Essex local authorities.
- 3.14** There is evidence to suggest that these areas could benefit from regeneration. There are pockets of deprivation in Essex and north Kent, including in Medway, Swale, Southend-on-Sea and Basildon.

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6 *Operational Feasibility and Attitudes to moving to an Estuary Airport*, Leigh Fisher (2014) Appendix A

**3.15** In addition, there is likely to be more previously developed (brownfield) industrial land available for development in Kent and Essex than to the west of London or around Gatwick. The table below shows hectares of previously developed land as reported by neighbouring local authorities. These exclude returns where the most suitable use is housing and also exclude previously developed land or buildings currently in use with redevelopment potential but no planning allocation or permission – such data is not available.

**Table 3.1: More developable land is likely to be available in north Kent and south Essex**

Hectares (Ha)	North Kent <sup>7</sup>	North Kent excluding Medway	South Essex <sup>8</sup>	Berkshire and West London (Hillingdon, Hounslow and Ealing)	Gatwick Triangle <sup>9</sup>
Previously developed land now vacant	457	430	288	85	4
Vacant buildings	93	80	15	52	3
Derelict land and buildings	446	360	105	6	80
Land or buildings currently in use and allocated in the local plan and/or having planning permission	1,897	840	147	525	73
Total	2,893	1,710	556	668	159

Source: National Land Use Database 2010

**3.16** This suggests that the authorities in close proximity to the airport could in theory benefit from an uplift in local economic activity. In particular, Medway, Swale, Dartford, Southend-on-Sea and Castle Point were identified in the socio-economic study as having potential suitable employment land banks for future growth.

**3.17** However, there are also reasons to be cautious about the scale of potential economic benefits and whether they could be realised:

7 Medway, Swale, Dartford, Tonbridge and Malling, Gravesham, Maidstone.

8 Southend-on-Sea, Castle Point, Basildon, Rochford, Thurrock.

9 Crawley, Mole Valley, Tandridge, Mid Sussex, Horsham, Epsom and Ewell, Reigate and Banstead.

## Uncertainty of passenger forecasts advanced by scheme promoters

**3.18** The calculations made by Transport for London of local economic benefits, including the number of jobs and gross value added, created by an ITE airport are derived from forecasts of the number of passengers served, with more passengers enabling more growth. There are reasons to be sceptical about the large number of passengers forecast by scheme promoters and in turn about the scale of economic benefits that would result:

- The attitudes study has suggested that there would be low market preference for an ITE airport, based primarily on anticipated high charges and inconvenient location. The surface access study demonstrates that journey times by rail to an ITE airport would be longer for many passengers in London and other parts of England than currently experienced for Heathrow. So an ITE airport may not necessarily replicate Heathrow's market share immediately following transfer, or achieve the scale of growth anticipated thereafter, in the face of competition from other UK and European airports.
- NATS has advised that airspace requirements would restrict a 4 runway airport to 800,000 ATMs and there is diminishing return in the number of additional ATMs that an airport can accommodate as its number of runways increase.<sup>10</sup> This is lower than assumptions made by some scheme promoters with both Metrotidal and TfL in their submissions to the Call for Evidence assuming 1 million or more ATMs.

## Uncertainty of the pace of wider development

**3.19** For an ITE airport to deliver economic benefits would require successful delivery of the airport itself as well as the related development such as surface access, housing and business development. The socio-economic study indicated that the realisation of the potential economic benefits would be dependent on successful and timely transition of services from Heathrow and that the benefits could be constrained by the availability of labour supply, land and surface access.

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<sup>10</sup> Advice from NATS included in the operational feasibility study states: *whilst the number of movements that can be achieved by an airport with multiple runways capable of supporting independent parallel operations (as specified by ICAO) increases with the number of runways used, it is not governed by a simple pro-rata relationship, due to the need to provide sufficient capacity and airspace to safe operations can be provided at all times (sic). Previous input to the Commission set out that a maximum of 800k ATMs pa could be supported by an airport that operated four independent parallel runways of the length expected at any new hub airport; such a quantity is confirmed in this briefing note. Operational Feasibility and Attitudes to moving to an estuary airport, Leigh Fisher (July 2014)*

**3.20** The level of challenge inherent in delivering the airport itself is considered elsewhere in this paper. It is worth noting that, whilst delivery of the airport is of course essential for economic benefits to occur, delayed delivery also has a negative impact on economic benefits. If an ITE airport were to fail to be fully operational by 2030, benefits would start to accrue later and be subject to greater discounting.

**3.21** In addition, the realisation of indirect, induced and catalytic jobs supported by the airport will also be dependent to some extent on the creation of new workplace buildings, housing for employees, accessible public services and local transport links. There is some cause for optimism here (such as evidence of brownfield land), but the Commission also noted concerns raised by local authorities about the feasibility of such plans. As set out at paragraphs 3.63 – 3.69 below, this wider development is more likely to follow than precede the creation of the airport itself. In particular development may be much slower than has been assumed in some assessments of local economic impacts and the resulting benefits similarly reduced.

### **The loss of Heathrow would have a significant economic cost and redevelopment of the site is uncertain**

**3.22** Heathrow airport currently provides major economic benefits nationally and locally, with many of the jobs it supports in relatively deprived areas:

- Optimal Economics estimated that Heathrow supported 84,300 direct, 44,400 indirect and 77,200 induced jobs in 2010.
- There are areas of deprivation in Hounslow, Slough and Ealing. Heathrow is a significant employer in these and other local areas.

**3.23** Development of an ITE airport would entail the closure of Heathrow and have a significant socio-economic impact on the Heathrow area, including large numbers of job losses.

**3.24** There are a number of proposals for the redevelopment of the former Heathrow site which could repair some of these losses, but they would necessarily take several years to deliver and the level of success is uncertain:

- Heathrow would need to continue to operate as an airport until the ITE airport was fully operational, likely to be at least 15 years. As highlighted by the attitudes study, during this time Heathrow and the surrounding area would effectively be blighted by uncertainty (or approaching certainty of closure) which could discourage investment (including from overseas) and hold back economic growth;

- When Heathrow became available for redevelopment, delivery of resulting benefits would be likely to take many further years if not decades and could have mixed results, as evidenced by international examples:
  - **Kai Tak Airport, Hong Kong (closed 1998)** Little redevelopment delivered. To date, one corner of the site has been redeveloped into high-rise rental flats, while a cruise liner terminal has been built on another corner. Beyond this, most of the site is undeveloped and increasingly overgrown by vegetation. Various plans for further commercial redevelopment have been circulated, but none formally adopted.
  - **Stapleton International Airport, Denver (closed 1995)** Redevelopment stalled for several years following the closure of the airport, but residential and commercial development began in 2001 and is expected to take 15-20 years to complete. Population of the redeveloped site is expected to grow to 30,000 by 2020.
  - **Ellinikon International Airport, Athens (closed 2001)** Partly redeveloped for facilities for the 2004 Olympic games. Despite numerous initiatives, redevelopment has been slow since then.
  - **Oslo Airport Fornebu (closed 1998)** Limited redevelopment to date. An ambitious redevelopment plan with a completion date of 2030 is in the planning stages. Some government offices and some private businesses have relocated there.

## Uncertainty of the net national benefit

- 3.25** Subject to delivery risks and constraints, an ITE airport could have significant local economic benefits, for a relatively deprived area. However the Commission did not judge that these benefits would necessarily constitute a net economic gain for the country and outweigh economic losses elsewhere.
- 3.26** The socio-economic study noted that the closure of Heathrow and establishment of an ITE airport would have an effect on the attractiveness of their locations to businesses. This may be sufficient to incentivise some firms to move, which may include to destinations overseas or elsewhere in the UK. The socio-economic study concluded that the pattern of any resulting movement of catalytic activity would be uncertain but would most likely flow from West London and M4 towards Central London, East London and the transport corridors to the Estuary airport.

- 3.27** Where businesses relocate within the UK they will bring with them local economic benefits, but these may be merely displaced from elsewhere in the UK. To generate net national benefits in this respect an ITE airport would need to support a greater level of catalytic activity.
- 3.28** Potential availability of land around the ITE airport could support firms to grow faster than in more expensive locations which may also be attractive to overseas investors. However, the costs and risks of relocation and the relative locational inconvenience of the Thames Estuary for accessing many parts of the UK would be likely to have a negative impact on firms' productivity.
- 3.29** The agglomeration clusters that have grown up around Heathrow over a number of years, including along the M4 corridor and stretching up to Reading and Oxford, with access to deep and skilled labour pools, housing and transport links, could not simply be 'dragged and dropped' into a new location. The inner Thames Estuary is currently characterised by relatively low population and employment density and poorer road access. It could take many years for economic activity around an ITE airport to grow to equivalent or greater levels, if at all.
- 3.30** There are no international examples of an airport being moved 70 miles across a city. As such the scale of relocation or replication of wider economic activity attached to Heathrow airport envisaged would be unprecedented. The degree of success that might be achieved and the resulting economic gains or losses, particularly in the early years, are highly questionable.

## Surface Access

- 3.31** The provision of adequate road and rail links to cater for airport passengers as well as background demand as a result of both forecast growth and catalytic activity generated by the airport over time is an important consideration. Not only can additional provision result in an increased burden to the public purse, but customers expect high service quality, and getting to and from an airport is a key part of the overall journey experience.
- 3.32** The surface access study analysed a number of options for road and rail investments to enable customers and employees to access an ITE airport. It concluded that from a purely capacity viewpoint, a rail package sufficient to meet need in 2030, at a cost of around £9.8bn with risk and optimism bias, would comprise:

- Provision of an express service via HS1 from St Pancras connecting to the airport via a spur to the south east of Gravesend – assumed to take approximately 26 minutes from St Pancras to the airport. The availability of 4 train paths per hour on HS1 was assumed;
- Extension of the southern branch of Crossrail from Abbey Wood in the south via Dartford, Gravesend and Hoo Junction – assumed to take approximately 51 minutes between Tottenham Court Road and the airport; and,
- Rail connections from south Essex and north Kent via shuttle services from Grays and Strood stations, including a river crossing to the Fenchurch Street line.

**3.33** This package would not be sufficient to meet longer term capacity needs and enhanced express rail connections as well as the addition of an express service to Waterloo via Barking Riverside, Canary Wharf, and London Bridge would be necessary. This enhanced rail package would cost £26.9bn including risk and optimism bias.

**3.34** In addition to addressing long-term capacity needs, the enhanced rail package if in place from 2030 would offer a better service provision to passengers, including during an assumed period of relocation and transition for passengers and employees (which is discussed below) and greater resilience for networks. Alternatively, a phased introduction of surface access provision may be more easily financed and delivered.

**3.35** Road improvements as a result of the airport that have been assessed as necessary include: 88km widening of the M25; 17km widening of the A2; and around 30km of single lane widening of the A12/A127/A13 roads on their approach to the M25 from outside of London. Additional road widening may also be required because of increased congestion levels on the following links: 20km single lane widening of the M25; 3km single lane widening of the M2 and around 55km single lane widening of the A12/A127/A13 in various locations. The total costs of the road improvements are estimated to be between £10.1bn and £17.2bn including risk and optimism bias.

**3.36** It is important to note that the estimated geographical pattern of passenger trips to the ITE airport used in the surface access study is based on an assumed relocation from west to east of people who fly more and firms whose employees fly more. As such, its conclusions are based on an assumption of full relocation. In reality such a relocation may take several years or even decades and indeed may not happen completely at all.

- 3.37** In the early years, people would be most likely to be travelling to and from their current places of work or current homes, and would on that basis incur total journey times and costs getting to and from the ITE airport which would be greater than those estimated in the report. As people and firms relocate over time, the excess journey times and costs will diminish. A similar transition applies to the loading of road and rail networks.
- 3.38** The study does include an analysis of rail journey times to an ITE airport without assuming a relocation as described above, concluding that time impacts associated with replacing Heathrow with an airport in a more remote location may be more pronounced than expected. In this scenario, the average rail clock time for passengers travelling to an ITE airport increases in the short term by 19 minutes or 26 per cent compared to the average rail travel time to Heathrow.<sup>11</sup> After the transition period, when full relocation of homes and firms is assumed to have taken place, the increase in average rail clock time falls to 13 minutes (an increase of 18 per cent compared to Heathrow).
- 3.39** In addition to cost, the study also highlighted challenges in delivering this infrastructure including:
- the availability of land for four-tracking the Abbey Wood to Hoo Junction line to accommodate the southern branch of the Crossrail extension;
  - the requirement of a new airport express service from Waterloo station to have four new underground stations connected via an underground tunnel around 18km in length, three of which would be at already very heavily used stations (London Bridge, Waterloo and Canary Wharf); and
  - the construction of an additional platform at St Pancras alongside securing 4 trains per hour on the HS1 line (the latter has been identified as potentially unfeasible by HS1 and Kent County Council).
  - local challenges such as the provision of new platform capacity at central London termini and resolving line utilisation issues on the London-bound section of the Chatham Mainline from Rochester to Swanley.

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<sup>11</sup> This assumes that the 'basic' road and rail package at a cost of c.£20 billion is in place in 2030.

- 3.40** In their consultation response, Kent and Medway councils have cast doubt on the forecast journey times to the ITE airport and made clear the need for local infrastructure improvements such as Strood station and local roads if the surface access package were to be implemented. This suggests that there may be additional challenges and complexities involved in providing the scale of infrastructure improvements that will be needed. TfL and some of the scheme promoters have also suggested the inclusion of different elements of surface transport enhancements, such as a HS1-HS2 link. The Commission judged that it would not be appropriate to include this link, which had been rejected by Government in the light of the Higgins Report 'HS2 Plus'. This report suggested that alternative approaches should be considered, with no presumption that the preferred option would be a direct rail link.
- 3.41** Some consultation responses also argued that it was important to consider the wider benefits to passengers from the proposed improvements to surface access, for example providing new links and additional capacity into central London or enhanced cross-river connectivity between north Kent and south Essex. The Commission acknowledges the potential for such benefits, but they do not alter its assessment of the cost and delivery challenges associated with the surface access investments needed to support an ITE airport.
- 3.42** Credible plans for providing surface access links to an ITE airport appear to exist. However, the cost of such proposals and challenges in delivering them would be substantial. In addition, even with significant investment, the ITE airport would remain a more inconvenient location for many passengers and employees than Heathrow and the amount of time spent to access it would be greater. This would particularly be the case for much of the country to the north and west of London.

## Environment

### Noise

- 3.43** The noise benefits from replacing Heathrow with a new airport in the inner Thames Estuary are attractive. The closure of Heathrow would reduce noise impacts for hundreds of thousands of people, with only a fraction of that number affected by noise from the new airport. To illustrate this difference the tables below set out the number of people projected to be affected by noise from an Isle of Grain or Cliffe airport (two alternative Cliffe locations were tested) and alternative schemes in 2030 measured against the 57  $L_{Aeq}$  and 55  $L_{den}$  metrics. The 55  $L_{den}$  figures for the Isle of Grain and Cliffe may be compared to the Commission's equivalent phase 1 estimate of more than 350,000 people affected by an expanded Heathrow in 2030.

**Table 3.2: Numbers of people affected by noise – 57 L<sub>Aeq</sub>**

57 L <sub>Aeq</sub> at 2030	Isle of Grain (Hoo Peninsula)	IAAG (Cliffe)	IAAG East (Cliffe)
<b>Total local impact with scheme</b>	1,400	22,900	14,600
<b>Net local impact</b>	1,400	22,900	14,600
<b>Net system impact</b>	(-229,100)	(-207,600)	(-215,900)

\* Net system impact is the combined local impacts of London Heathrow, Gatwick, Stansted, Luton, City and Southend and Isle of Grain if applicable

\*\* Impacts for Isle of Grain assume closure of Heathrow, City and Southend. If it were possible to maintain operations at City and Southend with an Isle of Grain airport in 2030 the net noise benefits across the system would be reduced in line with the local impact of whatever level of traffic is supported at those airports.

**Table 3.3: Numbers of people affected by noise – 55 L<sub>den</sub>**

55 L <sub>den</sub> at 2030	Isle of Grain (Hoo Peninsula)	IAAG (Cliffe)	IAAG East (Cliffe)
<b>Total local</b>	5,600	114,700	93,200

**3.44** It is worth noting that the socio-economic study implies that a significant level of new house-building within reach of the ITE airport would be required to support the growing local workforce. It is too early to know where such houses and related development would be built, but the scale of development required and pressure on existing local plans for new housing suggest that as the local population grows there could be some increase in the numbers affected by aviation noise at an ITE airport. In addition, the surface access study has highlighted that around 28,000 properties could be newly affected by noise generated by the surface access links required for an ITE airport. While these issues might reduce to a limited degree the noise benefits offered by a new ITE airport, it would remain a highly attractive option in this respect.

## Habitat loss and impact on wildlife

- 3.45** The Thames Estuary and Marshes Special Protection Area (SPA) and Ramsar site occupy a significant proportion of the northern part of the Hoo Peninsula.<sup>12</sup> These designated sites, together with the Medway Estuary and Marshes SPA and Ramsar site to the south east of the Peninsula form part of the European network of Natura 2000 sites and are subject to very high levels of environmental protection, under the EC Habitats Directive<sup>13</sup> ('the Directive'). The purpose of the Directive is to maintain or restore at Favourable Conservation Status natural habitats and species of wild fauna and flora of community interest and to promote long term biodiversity conservation. Article 4 of the Birds Directive<sup>14</sup> identifies Annex I bird species and regularly occurring migratory species as requiring special conservation measures, including the classification of Special Protection Areas.
- 3.46** The Thames Estuary and Marshes SPA alone is estimated to host a winter assemblage waterfowl population size of 75,019 birds of species protected under Article 4.2 of the Birds Directive. There are also a number of British and international bird species that use the Thames Estuary and Marshes SPA, which qualify under Articles 4.1 and 4.2 of the Birds Directive. For example, 28.3 per cent of the British avocet population is estimated to regularly use the SPA.
- 3.47** The location of a new airport on the Hoo Peninsula is likely to result in substantial direct habitat loss within the Thames Estuary and Marshes SPA and Ramsar sites: between 24 and 45 per cent of the SPA and between 27 and 39 per cent of the Ramsar site depending on the specific airport option chosen. Some of the Grain options would also impact on the Medway Estuary and Marshes SPA and Ramsar resulting in the loss of between 0.1 and 4 per cent of the sites.
- 3.48** A new airport would therefore have significant adverse effects on the integrity of the Natura 2000 network. As well as the serious negative impacts associated with the loss of important protected habitats, this would present important challenges in respect of the deliverability of the project. To comply with Article 6(4) of the Directive, if a Secretary of State for Transport wished to take forward a new airport proposal with such impacts, he or she would need to be satisfied that no feasible alternative solutions existed. He or she would also need to be able to demonstrate that the proposals were necessary for "imperative reasons of overriding public interest" (IROPI). Following this, an acceptable package of compensation measures would then need to be identified.

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<sup>12</sup> Ramsar sites are wetlands of international importance designated under the Ramsar Convention.

<sup>13</sup> Council Directive 92/43/EEC of 21 May 1992.

<sup>14</sup> Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (this is the codified version of Directive 79/409/EEC as amended).

- 3.49** It is not possible to state categorically at this stage whether a decision in favour of an ITE airport could or could not satisfy Article 6(4) of the Directive. The Secretary of State would need to satisfy him or herself that it could in order to proceed. In this context, the impact of the three tests is significant and would comprise a material risk to delivery.
- 3.50** To satisfy the alternatives and IROPI tests, the Secretary of State would have to demonstrate that none of the other options for additional aviation capacity (including options for new runways at existing airports) was capable of meeting the specified objectives, and would have to show not only that developing a new airport in the inner Thames Estuary was in the public interest, but that its public benefits were of sufficient scale to override the substantial adverse effects of the airport on the Natura 2000 network. Although it is not possible to rule out at this stage that those tests could be met, they would be challenging hurdles to overcome, given the scale of habitat loss inherent in the schemes under consideration.
- 3.51** The question of compensatory habitats also presents significant challenges. The scale of habitat needing to be replaced in terms of hectares appears technically possible, but would be unprecedented in the UK and in Europe. The interactions and complexities, which together make up the functional habitats in and around the Estuary for different species of birds, would also be challenging to replicate for those species using the Estuary, some of which rely on the unique conditions created there. The analysis needed to reach a robust view as to whether compensatory habitats could effectively be provided would be likely to take several years, with no certainty of success.
- 3.52** For example, consideration would need to be given to the requirements for and use of the habitats by all the qualifying species; how to replace existing functions and provide for the breadth of the existing habitat. Given that there would not be sufficient potential locations for compensatory habitat in the immediate vicinity of the Estuary site, the question of whether the wider group of Estuaries lying between the Suffolk coast and the eastern tip of the north Kent coast could offer realistic options for compensation, taking into account constraints such as availability, suitability and additional impacts, would need to be fully considered.

- 3.53** The operational risk to the airport posed by birdstrike could increase the scale of compensatory habitat required as it would require it to be sited further away, ideally to a minimum of 20km away from the site, and certainly outside of the 13km bird safeguarding circle<sup>15</sup>, increasing the uncertainty as to its suitability as replacement for the habitat lost. It may also necessitate additional mitigation measures to be put in place. If any remaining bird habitats within the 13km safeguarding circle (that is those not already displaced by the airport's direct impact) were considered to pose an operational safety risk additional mitigation measures would be needed and it may ultimately be necessary to remove those habitats, increasing further the environmental impact and cost of compensation.
- 3.54** Given the uncertainties associated with creating compensatory habitats of this scale and complexity and likely need for it be provided some distance from the original site, a ratio of gain to loss of greater than 1:1 is likely to be required. Studies indicate that 2:1 to 3:1 ratios could be more appropriate, and where uncertainty is higher, it could be more than 3:1. It may also be necessary to demonstrate delivery of successful compensation provision before displacement occurs, which would involve monitoring over a sufficient period to demonstrate that compensatory habitat had been successfully provided.
- 3.55** The environmental study sets out that the scale of environmental compensation required could be between 2,130 and 20,400 hectares. Responses to the consultation on the environmental study have included those from the Mayor of London which argues for a lower upper limit of 6,500 hectares as well as those from Natural England and the Environment Agency which state that the scale of compensation required would likely be at the higher end of the range set out in the study.
- 3.56** The Mayor of London's response identifies one scheme in the US<sup>16</sup> which aims to create new habitat totalling around 7,500 hectares. It should be noted that by 2013, some ten years after the project began only around 3,000 hectares of new habitat have been delivered (41 per cent of the target),<sup>17</sup> indicating the significant timescales and delivery challenges that could be associated with a habitat creation programme of this scale.
- 3.57** Natural England has stated that compensation for impacts to seabirds and subtidal habitats has never been delivered and should be treated as 'extremely challenging (at best) but more likely impossible to deliver'.

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15 This is the safeguarding circle within which off-airfield bird management can be carried out under general licence with landowners' permission

16 The South Bay Salt Pond Restoration project in San Francisco Bay, California aims to begin to reverse trends in declining tidal marsh habitats across San Francisco Bay which has caused declines in populations for marsh-dependent fish and wildlife.

17 [http://www.southbayrestoration.org/documents/technical/SBSPR\\_2013AR\\_032014\\_Web.pdf](http://www.southbayrestoration.org/documents/technical/SBSPR_2013AR_032014_Web.pdf)

## Other Environmental Impacts

- 3.58** The Thames Estuary is noted for its sense of remoteness and relative tranquility, and the development of a new hub airport would radically and irreversibly change that. All of the airport locations would cause significant adverse landscape character and visual effects and the loss of tranquility.
- 3.59** Cliffe and Grain are also characterised by cultural heritage features. These relate to the use of the Hoo Peninsula for military and industrial purposes such as defence, salt production, brick-making, cement and gravel extraction and more recently the production of explosives, oil refining and electricity generation. The environmental study identified a total of 407 cultural heritage assets, which are designated or have the potential to be designated in the study area.<sup>18</sup> There is also the high likelihood of future cultural heritage designations within the study area as a result of further surveys and on-going archaeological investigation. For example, consultation responses have highlighted the importance of the non-designated archaeological assets, such as pre-Roman Iron Age and Roman communities.

## People

- 3.60** The development of an ITE airport would result in significant housing loss. Whilst the scale of this would ultimately be dependent on the design of the scheme, the Commission's analysis indicates that between 486 and 2,227 houses could be lost.
- 3.61** An ITE airport would deliver a substantial change for local communities. New jobs and improved surface access links could be to the benefit of local people. However, the Commission has noted significant opposition to an ITE airport within local communities.
- 3.62** The pace of new development and of the resulting local economic benefits and impacts is uncertain. An ITE Airport would be likely to create a strong incentive for additional development in the area to support a growing population, driven by the new jobs that would be delivered in and around the airport. Indeed, such development is a key ingredient for local economic benefits and a prudent planning assumption.
- 3.63** Estimates of the number of new houses that an ITE airport could support in north Kent, given the expected number of jobs supported in 2030, range from 23,000 to 79,000 – broadly equivalent to one 'new town's worth' of additional housing.

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<sup>18</sup> The study area was defined as the Hoo Peninsula and a buffer around it approximately 27km from east to west and approximately 12km north to south.

- 3.64** Whether this scale of new housing is provided in a new settlement or several expanded settlements or a more dispersed development pattern, it will be necessary to consider the wider social implications and the related infrastructure that will be needed to support the growth of cohesive communities and liveable spaces. Key factors would include:
- accessibility of local services – including provision of healthcare and education and sufficient access to hospitals, schools and other amenities. New airport jobs may attract working age people with young families whose needs should be considered;
  - the expansion of public utilities – water, gas, electricity and waste services to support a growing population; and
  - requirements for sustainable development – the National Planning Policy Framework sets out a number of factors to be considered in this regard, in particular ensuring that patterns of growth are managed to make the fullest possible use of public transport.
- 3.65** Such factors would need to be considered in terms of their impact on public expenditure and would need to be incorporated into local development plans. They would present their own delivery challenges.
- 3.66** The Commission does not consider that development of this scale would be impossible to achieve. It would, however, require sufficient political will over a considerable period. Depending on the preferred spatial development pattern, a delivery model such as a development corporation or similar body to the Olympic Delivery Authority created by an Act of Parliament would likely be appropriate to facilitate efficient and timely delivery.
- 3.67** In addition, the growth of new housing and communities would take time. Since 2001/02 the housing completion rate in north Kent has been around 2,000 per year. A Government commitment to an ITE airport in the next Parliament may enable some acceleration of this rate, but a sustained increase of two or threefold would likely be required for the forecast housing growth potential by 2030 to be fully realised.
- 3.68** Private investors as well as individual homeowners are unlikely to want to invest in large numbers ahead of progress on the airport and new residents are also unlikely to want to move much in advance of new jobs. Experience suggests that growth cannot be forced, and take up of new housing will increase gradually over a number of years. It is reasonable to expect housing and wider social development to be demand-led with the fuller development and maturity of any new town or settlements following rather than preceding a new airport.

- 3.69** The pace of development will have an impact on the scale of local economic benefits resulting from the airport. It will also affect the attractiveness of the airport to future customers and potential employees.

## Cost

- 3.70** The total costs of the Isle of Grain option previously assessed by the Commission were £82bn – £112bn including allowances of 40 per cent for risk and 50 per cent for optimism bias. This total included estimates for the cost of purchasing the land, the reclamation and construction works for a four-runway airport and the associated surface access improvements. In addition £1bn was included for environmental costs (£0.4bn for marine habitat conservation and flood defence, and £0.6bn to cover other environmental mitigation measures).
- 3.71** A number of submissions to the Call for Evidence on an ITE airport challenged the Commission's cost estimates, including the allowances made for risk and optimism bias. The feasibility studies and comments received have also identified and provided more clarity on some issues which could have an additional impact on the cost of an ITE airport:
- The environmental study assessed the cost of compensatory habitat at £150m – £2bn with the need to mitigate birdstrike risk having the potential to further increase this cost.
  - The socio-economic study estimated the price of purchasing / compensating Heathrow at £13.5bn – £21.5bn. It should be noted that having incurred this cost, the revenues generated from the operation of the airport prior to closure could contribute to the development costs of an ITE airport, and the eventual redevelopment of the Heathrow site could allow some of these funds to be recovered.
  - The operational feasibility study identified the inefficiency costs of 'double-running' during transition from Heathrow to an ITE airport at between £190 and £200m per annum. It also highlighted the possible cost of re-siting the Grain LNG plant (should this be required) at £1.3bn.
  - The surface access study has recalculated the surface access costs for an ITE at £9.8bn – £26.9bn for rail costs and £10.1bn – £17.2bn for road costs including risk and optimism bias. It also noted an additional £2bn risk if the Government does not take forward the Lower Thames Crossing option closest to the Hoo Peninsula.

**3.72** The Commission has reviewed the potential costs of an ITE airport in the light of these comments and challenges. Its updated high level cost assessments for the period to 2030 are set out below:

**Table 3.4: High level cost assessment to 2030**

	<b>COST (£bn)</b>
Purchase of Heathrow <sup>19*</sup>	13.5 – 21.5
Basic Airport Construction <sup>20</sup> (3 runways)	31.5 – 42
Enhanced Airport Construction (4 runways) <sup>21</sup>	37.8 – 52.5
Basic Rail Surface Access <sup>22</sup>	9.8
Enhanced Rail Surface Access <sup>23</sup>	26.9
Basic Road Surface Access <sup>24</sup>	10.1
Enhanced Road Surface Access <sup>24</sup>	17.2
Other <sup>**</sup>	2.1 – 5
<b>TOTAL (Basic)</b>	<b>67.1 – 88.5</b>
<b>TOTAL (Enhanced)</b>	<b>97.5 – 123.1</b>

\* A proportion of these costs would likely be recouped through sale / redevelopment of the Heathrow site in the 2030s and beyond and through revenues from operating during the 2020s.

\*\* Includes allowance for environmental compensation and marine habitat compensation and coastal flood measures. Does not include LNG relocation costs, potential LCY or SEN compensation costs if required, inefficiency costs associated with double-running during transition

**NB Basic and enhanced options represent alternative specifications for different elements and costs should not be combined**

19 Taken from PWC analysis in socio-economic study – no risk or optimism is added to this cost.

20 Taken from sift 3 analysis of the cost of the Airports Commission Isle of Grain scheme.

21 Ibid.

22 Assumes Rail Package 1 in the surface access study.

23 Assumes Rail Package 4 in the surface access study.

24 Includes 88km widening of the M25 (73km single lane widening and 15 km double lane widening); 17km single lane widening of the M2; 17km widening of the A2 (2km single lane widening and 15km double lane widening); and around 30km single lane widening of the A12/A127/A13/A3 roads on their approach to the M25 from outside London.

25 As above and includes additional schemes would bring volume/capacity ratios above 85 per cent threshold: (20km single lane widening of the M25; 3km single lane widening of the M2; and around 55km single lane widening of the A12/A127/A13/A3 roads).

- 3.73** The table sets out the cost implications of alternative specifications for the number of runways and the two surface access packages. Other than for the purchase costs of Heathrow, these include allowances of 40 per cent for risk and 50 per cent for optimism bias. Whilst the Commission considers that the enhanced options would most likely ultimately be required, it has noted proposals for phasing of investments over time and considered the impact this could have on initial costs.
- 3.74** The Commission also noted comments on its assumptions with regard to risk and optimism bias. As set out in its *Interim Report*, the Commission considers that its assumptions are prudent given the early stage of development and significant uncertainty attached to schemes, and are consistent with the cost changes seen in other schemes. For example, as the *Interim Report* noted, the HS2 Y Network was estimated in January 2012 to have a construction cost of £33bn, including allowances for risk and optimism bias of around 65 per cent. This indicates a base cost of roughly £20bn compared to a current risk-adjusted cost estimate of £42.6bn.
- 3.75** Nevertheless in the interest of responding to stakeholders concerns the Commission has also calculated costs using an alternative approach to risk and optimism bias. This has included adjusting airport costs for optimism bias by 55 per cent (representing a mid-point between the adjustments for standard and non-standard civil engineering set out in the Green Book supplementary guidance on optimism bias); and adjusting road and rail costs for optimism bias by 40 and 66 per cent respectively in line with the Department for Transport's WebTAG guidance. No additional risk allowance is included. Costs remain high under this approach. The cost for the basic package would be £53bn – £71bn and the cost for the enhanced package would be £76bn – £97bn.
- 3.76** When all the necessary elements are considered, an ITE airport can be seen to be a very significant investment. Comparison with projects in the UK National Infrastructure Plan 2013, which set out the country's top 40 infrastructure investments out to 2020, can give a sense of scale with, for example, Crossrail at £14.8bn investment, Hinckley Point C nuclear power station at £16bn and HS2, which would be under construction during the same period as any ITE airport, at £42.6bn for construction costs and £7.5bn for rolling stock.

- 3.77** Comparison with existing public investment plans for transport is also instructive. In the 2013 Spending Round the Government set out plans to invest £15.1bn to 2021 across the strategic road network and £12bn for maintenance of local and strategic roads. In July 2012 the Government announced funding of £16bn for the rail network between 2014 and 2019.
- 3.78** Costs of the scale required for an ITE airport would likely put pressure on the commercial viability of the airport, require significant public funding or both. All costs ultimately have to be met by passengers or taxpayers.
- 3.79** Passing more cost to the passenger requires higher charges to airlines and /or strong yields from other revenue sources including car-parking and duty free and other shopping. However, the attitudes study suggests that customer preference is for more conveniently located airports and there is little enthusiasm from airlines for an ITE airport. Efforts to attract customers with financial incentives would serve to only increase charges in the long term. In addition, ambitions to increase public transport share and efficiency for passengers at an ITE airport could reduce car-parking revenue and 'dwell time' for passengers. The Commission also noted concerns that airlines operating at Heathrow and other existing airports would be unwilling for their charges to be used to fund construction or cross-subsidise an ITE airport.
- 3.80** Some level of Government involvement in funding or financing an ITE airport is assumed in most submissions put forward by a number of scheme promoters. The significant risk of escalating costs associated with environmental compensation and other elements of delivery may be such that they can only be borne by the State. State investment would need to be considered carefully in light of European Union rules on State Aid.
- 3.81** Even where scheme promoters have suggested that an ITE airport could be privately funded, these proposals are generally predicated on an assumption that surface access costs are met by the taxpayer, on lower assessments of other cost elements including environmental compensation and on state underwriting of airport development costs in some cases.

- 3.82** The Commission considered it probable that public expenditure would be required broadly to meet all costs in the period to 2030, equivalent to £67bn to £88bn for the ‘basic’ three-runway package, offset to only a limited degree by revenues from the operation of Heathrow.<sup>26</sup> The opportunity to then sell the new airport to a private owner / operator and the former Heathrow site for redevelopment could allow some of these costs to be recouped but would leave a residual cost to the taxpayer of some £30bn to £60bn, assuming a resale value of around £3-4bn for the Heathrow site<sup>27</sup> and £20-30bn for the ITE airport.<sup>28</sup>
- 3.83** In any case, it is likely that significant recourse to the public purse would be required for an ITE airport to be viable. The scale of this public investment at what is likely to be a time of ongoing scrutiny and multiple demands on public funding must be considered a substantial challenge to the deliverability and the credibility of an ITE airport. Given the already significant investment in London and South East it must be questioned whether investment in an ITE airport would be considered a priority when more affordable options exist.

## Operational Viability and Deliverability

- 3.84** The studies produced for the Commission and comments received have identified a number of issues which may be potential barriers to the successful delivery of an ITE airport.
- 3.85** The evidence suggests that there is no single factor that considered in isolation would necessarily make an ITE airport impossible to deliver or operate. However, there are a number of factors that could cause substantial delays or escalating costs and for which sufficient mitigation has not been identified. The most significant of these could have a major impact on the success or feasibility of the project:
- **Environmental Compensation** – As discussed at paras 3.45 – 3.57, meeting the legal challenges associated with development affecting protected sites under European law and delivering the required level of compensation presents a significant challenge.

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<sup>26</sup> Analysis by Ernst and Young for TfL suggests a nominal value of £2.2bn for these.

<sup>27</sup> Analysis by Ernst and Young for TfL suggests a nominal value of £3.3bn for this.

<sup>28</sup> Resale value of an ITE is estimated on the basis of PwC analysis of the purchase cost of Heathrow at £13.5-20.5bn. Scaling this by 50 per cent, to reflect the additional capacity available at a 3-runway ITE airport, as assumed in the basic package, indicates a price of £20.25-30.75bn. In comparison, Gatwick airport was sold by BAA Ltd for £1.5bn in 2009 and Stansted airport for £1.5bn in 2013. The actual sale value would depend on a number of factors at the time. The Commission’s analysis on this issue is intended only as a broad indicator of possible net public expenditure and yields figures of £33.1bn to £65.5bn (with rounding), summarised as £30 to £60bn.

- **Level of Public Expenditure** – The total cost of an ITE airport, as well as the delivery and escalation risks, mean that significant public funding and underwriting would be expected to be required. Competing demands for public funds, the number of years required to deliver an ITE airport and ongoing scrutiny of public spending may mean that delivery is delayed or, as was the case with Maplin Sands, halted.
- **Surface Access** – As detailed at paras 3.31 – 3.42 the surface access required for an ITE airport would represent a significant package of multi-modal investment. Planning, funding and implementing a programme of this scale, in parallel with other transport investments of national significance and in time for the opening of an ITE airport in 2030, would comprise a significant delivery challenge.
- **Transition** – Establishing an ITE airport would require, as well as new transport links, the necessary housing and related infrastructure to be in place and would entail a major transfer of aviation services from Heathrow (and possibly other London airports) to the ITE airport. There are a number of uncertainties inherent in this, including securing commercial agreements and negotiating potential compensation with airports and airlines, relocating or replacing workforce and supply chain businesses, and maintaining effective ‘hub’ connectivity during construction and transfer of services in the face of international competition. Any opposition to an ITE airport from airlines, businesses and local authorities in the area, who would be essential delivery partners, would compound this challenge.
- **Grain LNG** – The Hoo Peninsula is home to a number of UK energy facilities, including a major Liquid Natural Gas (LNG) plant. The Commission concluded that there was a risk that the ITE airport and LNG plant could not coexist, although further work, including from the HSE, was required. If the LNG plant had to move the Commission was not satisfied that an equivalent alternative could easily be found and the loss of a facility of such strategic importance to the UK would be highly problematic.

**3.86** As well as the logistical challenge of the transition process from Heathrow to an ITE airport, the potential broader impacts also merit consideration. The inconvenience of the location for many existing Heathrow staff would imply a combination of significant redundancies, costly relocations (which may require houses to be built for this purpose) and very long commutes during the transition phase. The Commission was particularly concerned that, over the whole transition period following a Government decision in favour of an ITE airport, investment in and around Heathrow could reduce, airlines and businesses may look to relocate or rebalance in favour of overseas locations and the standard of UK international connectivity may be impaired and made dependent on the delivery of an uncertain project.

- 3.87** It should also be noted that the move from Heathrow to an ITE airport (a distance via the M25 of some 70 miles) would be more than twice the size and double the distance of even the largest previous transition of this kind, from Kai Tak to Chek Lap Kok Airport in Hong Kong in 1998. The Commission is aware of plans to transition from existing airports to new ‘super-hubs’ in Dubai and Istanbul, but the feasibility, timescales and success of any such transition remain to be seen.
- 3.88** Other factors could also impact on cost and timescales, but were not considered to present as high a level of risk. These included the likely requirement to ‘make good’ the wreck of the SS Richard Montgomery ahead of constructing any ITE airport, as the cost and inconvenience to the airport and local population of doing so later would be much greater, and the need to negotiate changes to airspace design and operations with international partners. The Commission was satisfied that issues relating to wind, flooding and fog in the inner estuary would not be a significant impediment to an ITE airport being considered credible.
- 3.89** Based on this assessment, the Commission concluded that there was a high probability that an ITE airport if taken forward by Government would not be successfully delivered by 2030, sufficient to meet the assessment of need set out in the Commission’s Interim Report. This is not owing to any one single issue, but the combined weight of multiple delivery risks.
- 3.90** The effect of these delivery risks and uncertainties would likely be to drive up scheme costs and make it more difficult to secure private sector funding. Any delays to delivery could mean escalating costs and failure to provide additional airport capacity at the point it is needed. The scale of exposure to delivery risks and the national strategic importance of the project would be such that State underwriting would be likely to be required, exposing the taxpayer to significant and open-ended costs.
- 3.91** In respect of broader operational feasibility and impacts, the Commission noted the views of some stakeholders that an ITE location could reduce overflying of central London. The Commission also noted the costs and challenges associated with the management of birdstrike risk at an ITE airport, particularly outside the immediate perimeter of the airfield.

## 4. Conclusions

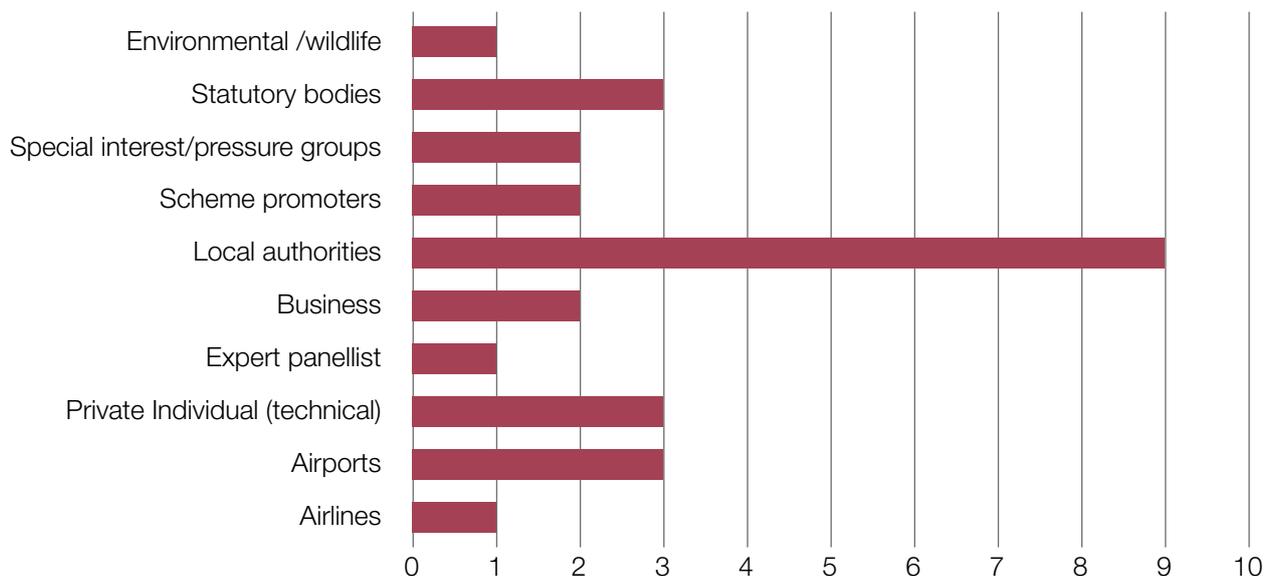
- 4.1** The Commission appreciates the imaginative and considered designs put forward for a new airport in the inner Thames Estuary. Much high quality work has been produced from all sides that has greatly enhanced the quality of the public debate on the UK's international connectivity needs.
- 4.2** The scale of change associated with an ITE airport would be very great with major implications for passengers throughout the UK, thousands of direct employees and others in associated jobs, businesses, wildlife, local communities around both Heathrow and the ITE site, the aviation industry and the UK taxpayer. The in-depth feasibility studies, and the submissions made to the Call for Evidence and consultations, have enhanced the Commission's understanding of these effects, and of the broader costs, impacts and feasibility of such an option.
- 4.3** The Commission has concluded that the proposal for a new ITE airport has substantial disadvantages that collectively outweigh its potential benefits. Cumulative obstacles to delivery, high costs and uncertainties in relation to its economic and strategic benefits contribute to an assessment that an ITE airport proposal does not represent a credible option for shortlisting.
- 4.4** There will be scheme promoters and others who will be disappointed by this decision and who would wish to see further consideration of proposals for an ITE airport by the Commission. However, it should be remembered that such work is not without its costs. As set out in its *Interim Report* the Commission appreciates the potential for its work to cause unwelcome uncertainty for communities close to shortlisted schemes. These circumstances underline that it would be inappropriate for the Commission to continue to consider the option of an ITE airport unless it could be seen to be a credible proposal.
- 4.5** As such, the Commission will not be taking forward any further work on the option of an ITE airport, and will proceed to consultation in autumn 2014 on the three currently shortlisted options.

# Annex 1: Responses to the consultation on the feasibility studies

## Responses to the consultation on the feasibility studies

1. The Commission welcomed responses to the consultation on the four feasibility studies by 8 August 2014, and sought responses to two specific questions: whether there was any information in the studies which was factually inaccurate; and, whether there was any new information or evidence to consider before a decision is reached.
2. In total the Commission received 27 ‘technical’ and 3 ‘non-technical’ responses. As the table below shows, the highest number of technical responses was from local authorities.<sup>29</sup> Statutory bodies included the Environment Agency, Natural England, and the CAA. Airports included Manchester Airports Group, Heathrow and London City. Special interest groups included Campaign Against Gatwick Noise Expansion (CAGNE) and Urban Futures Planning Consultancy. Businesses were SEGRO and National Grid, and scheme promoters Foster + Partners, and Thames Reach Airport and Metrotidal Tunnel Ltd. The environmental/wildlife organisation was the RSPB.
3. The Commission carefully considered all of the responses to the consultation, and as a result undertook further analysis in a number of areas before reaching a decision (see paragraph 14 and 15 below).

### Number of technical responses to the inner Thames Estuary feasibility studies



<sup>29</sup> Responses received from TfL, Southend-on-Sea, Gravesham, Essex County, Kent County, Medway Council, Basildon, South Bucks, and Hounslow and Ealing (joint response).

## Responses to Environmental Impacts Study (Study 1)

### Habitat Loss

4. Responses generally provided clarifications to some of the detail in the environmental impact study, together with suggestions for wider impacts and additional or alternative evidence, which the Commission should consider to assess the success of compensation provision if a new airport went ahead. Responses included those that stated the potential impact on the environment and the challenge of compensating for this would be at the top end of the ranges estimated in the study and those that stated the study overestimated the impact of the scale and complexity of compensation that would need to be provided.

### Air Quality and Noise Impacts

5. A number of responses suggested that the environmental impacts study did not examine the noise, carbon and air quality benefits of a new hub airport but was overly-focused on the loss of designated sites.

### Cultural Heritage

6. Some comments suggested an over emphasis on post-medieval and modern heritage sites in the environmental study, underplaying the value of pre-Roman Iron Age and Roman sites, while others felt that the potential impacts on the visual landscape were under-played.

## Responses to Operational Feasibility and Attitudes to Moving to an Estuary Airport (Study 2)

7. Respondents generally agreed with the study's assessment that there are a number of challenges to be addressed to make an airport feasible but that while complex, these were not necessarily individually insurmountable.
8. Some responses questioned the study's conclusions regarding the bird-strike risk and the attitudes of Kent businesses, and suggested that further work should be undertaken to address these, together with reviewing the operational impact of radar sites within 30km of the airport footprint.

9. One particular area that was suggested as overlooked was the issue of maintaining an effective and safe capability throughout the transition from Heathrow to the new airport. For example, comments suggested that if a material proportion of the skilled staff that undertake maintenance and upkeep work do not migrate to an Estuary airport – or take a prolonged time to do so – it could pose a risk as new staff will need to be recruited, trained and licensed.
10. The Commission also received comments suggesting the cost of making the SS Richard Montgomery site safe had previously been estimated and this evidence should have been included in the study. Evidence was submitted that in 2013 an estimate of the cost of disposal was made at £30m.<sup>30</sup>

### Responses to Socio-economic Impacts Study (Study 3)

11. The Commission received comments suggesting the study had not provided analysis on the impacts of closing Southend and London City Airport and their impacts on the local economy. In addition, that the study had not provided a comparative assessment between the Thames Estuary and the shortlisted options, it had done little to develop any new or standalone analysis on the national or local economic impacts of a Thames Estuary airport, and did not properly account for the impacts on south Essex.

### Responses to Surface Access Study (Study 4)

12. The Commission received a number of responses suggesting changes to the four surface access options examined in the study. These suggestions included alternative rail links; revised road programmes; and new services to and from the airport. The changes suggested sought to reduce the cost and improve the efficiency of the surface access strategy considered by the Commission.
13. A number of comments also questioned the public mode share used in the Jacobs' study, the likely impacts on local networks and rail stations, and the assumptions relating to HS1 capacity.

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30 <http://www.kentonline.co.uk/medway/news/airport-disarming-the-ss-richar-a55502/>

## Consideration of Consultation Responses

- 14.** The Commission carefully considered all of the responses to the consultation following the publication of the feasibility studies. In reviewing both the feasibility studies and the consultation responses, the Commission considered whether the material concerns raised by respondents had already been addressed by the Commission's analysis, or whether there was a need for any additional analysis to be reviewed, before reaching a balanced view. The Commission judged that sufficient analysis and information had been completed in most areas in order to reach an informed judgement, in particular from the phase 1 analysis set out in the Interim Report and associated documents, from the feasibility process, and in relation to the proposed benefits of a new airport on carbon emissions, the costs of environmental compensation and the relocation of the LNG facility. There were some areas where further work was commissioned, which responded to direct concerns raised by responses to the consultation: for example, the noise impacts of the two possible Cliffe locations; indicative analysis to demonstrate the air quality impacts of a new hub airport; and, reviewing any operational constraints resulting from radar or technical sites within 30km of an inner Thames Estuary airport.
- 15.** The Commission recognised that work could have been progressed in more detail in phase 2 in some of the areas where uncertainty remained, however, it was satisfied that the level of analysis and detailed considerations over the last 18 months, gave it sufficient information on which to reach a balanced and informed decision on the question of whether the ITE was a credible proposal for consideration alongside the shortlisted options.

# Annex 2: The inner Thames Estuary Airport Feasibility Process

- 1.** The Airports Commission's feasibility process was intended to inform a decision about whether an inner Thames Estuary airport could be considered credible to be shortlisted for phase 2, and has been undertaken in line with the Commission's principles of independence, openness and transparency.
- 2.** This has enabled interested parties the opportunity to comment on the terms of reference for the feasibility studies, to submit evidence which the Commission could consider in the development of the studies where appropriate and relevant, and to comment on the study conclusions before a final decision was made.

## The process

- 3.** On 16 January 2014, the Commission published its Introductory Note setting out the draft terms of reference for the four studies, and simultaneously opened a Call for Evidence inviting interested parties to submit evidence against the terms of reference for the studies by 23 May 2014.
- 4.** The commission received 29 responses to its consultation on the proposed terms of reference for the inner Thames Estuary feasibility studies. The Commission published its final terms of reference in March 2014, indicating where changes had been made from the original terms, and making clear that detailed points not directly included in the terms of reference would be considered in taking forward the studies.
- 5.** A total of just over 170 responses were received to the Call for Evidence, of which around 44 were 'technical' and 127 'non-technical.' All of the technical responses are available on the Commission's website. Where such evidence was deemed to be relevant and appropriate, it was incorporated or referenced in the studies.
- 6.** The studies were authored by advisers employed by the Commission. As part of the procurement process for our advisers, the Commission stipulated that any contract or relationship which might create a perception of conflict was to be disclosed to the Commission during tender and before award; this was done by all the bidders for the contracts and any such relationships were given consideration prior to the award of the contract.

7. The Commission also drew upon the expertise of its Expert Advisory Panel to quality assure the studies. Specific panellists' expertise relating to the studies included air traffic modelling, aviation economics, engineering, road and rail transport, town planning, spatial geography and bird-strike.
8. The environmental impacts study was published for consultation on 3 July 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 on 10 July 2014.
9. While general comments were invited as part of the consultation, the Commission sought responses against two specific questions: whether there was any information in the studies which is factually inaccurate; and, whether there is any new information or evidence to consider before a decision is reached. The consultation responses are summarised in **Annex 1**, and were considered by the Commission before reaching a decision.

## Stakeholder engagement

10. As set out in the final terms of reference for the studies in March 2014, the Commission Secretariat consulted and engaged interested parties in the form of meetings, interviews and workshops as part of the Call for Evidence process and the development of the studies to deliver robust outputs for the studies.
11. The Commission Secretariat held meetings with a number of key stakeholders in addition to the surveys carried out as part of the attitudes research, some of which are as follows:
  - Meetings with Natural England, RSPB, the Environment Agency and HR Wallingford in relation to the environmental study.
  - Scheme promoters had the opportunity to give presentations on their proposals and address clarification questions posed by consultants authoring the four studies.
  - The Secretariat held two workshops for Local Authorities to discuss the socio-economic impacts – one for those authorities in or close to the inner Thames Estuary, and a separate one for authorities neighbouring Heathrow.
  - The Secretariat held a workshop for business representatives and Local Economic Partnerships (LEPs) to consider the socio-economic impacts.

- TfL had the opportunity to present to the Commission Secretariat and its consultants on the commercial case for a new hub airport, including the case for closing Heathrow, and the socio-economic effects of constructing and operating a new airport in the Thames Estuary and redeveloping Heathrow. These presentations summarised the findings of work published by TfL in September 2013.
- TfL hosted events attended by Commission Secretariat, for example 'Shaping a Growing London' on 9 June (also attended by two members of the Commission) and a summer exhibition of future redevelopment scenarios at Heathrow at New London Architecture.
- MPs on behalf of Medway Council and Kent County Council hosted roundtable events at the Houses of Parliament, which the Commission Secretariat observed, including an event on the cost and financing of an ITE airport and an event on the habitat compensation.

## Sift Templates

- 12.** The inner Thames Estuary phase 1 sift 2 templates<sup>31</sup> have been updated to reflect the new and material information from the Call for Evidence and the feasibility studies, and for completeness, the phase 1 sift 3 Isle of Grain template (67) has also been updated. The updated templates are published on the Commission's website.
- 13.** Material differences relate to a number of areas, such as scheme design, phasing of delivery, costs, surface access strategy and costs, listed buildings, noise and environmental impacts, closure of other airports, and socio-economic impacts. The sift 2 templates, however, replicate sift 2 assumptions as set out in the phase 1 report 'Long Term Options: Approach and Assumptions' which can be found on the Airports Commission website,<sup>32</sup> to ensure consistency with phase 1, unless where stated on the templates themselves. Similarly, the updated sift 3 templates replicate the sift 3 assumptions.

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31 Foster + Partners (Template 46); International Aviation Advisory Group (Template 47); Metrotidal Tunnel and Thames Reach Airport Ltd. (Template 48); Phase 1 sift 2 – Mayor of London (Template 51)

32 – <https://www.gov.uk/government/publications/airports-commission-interim-report>

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