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We welcome the opportunity to comment upon the Commission's Discussion Papers relating to the Inner Thames Estuary Feasibility Studies.

This response is structured in line with the Commission's preferred format, highlighting any factually inaccurate information or suggesting new evidence which the Commission may want to consider before it makes its decision, in addition to general comments.

The Inner Estuary concept might present the prospect of a long term hub airport for the UK, but there are serious questions as to its feasibility and whether it is at all preferable to other options to provide true hub capacity and sustain the UK's hub status.

We note the findings from the Airports Commission study 2 that there are a number of issues that individually provide '….*significant but perhaps not insurmountable challenges and risks to the successful development of an airport in the inner Thames Estuary. Considered together however they appear to present a substantial risk that would incur large costs, in the order of billions of pounds, to appropriately manage'*. We share these concerns.

We note that much of the work in the Commission's Discussion Papers relating to the Inner Thames Estuary Feasibility Studies is qualitative and has led, in places, to a somewhat equivocal conclusion in the absence of more definitive data.

We believe that obtaining more quantified data on issues such as environmental and economic challenges, birdstrike risk and airspace capacity constraints, could confirm and strengthen these and other adverse findings, potentially to the point where it can be demonstrated conclusively that there is not a feasible solution. Even if those concerns can be overcome, the analysis does suggest that an Inner Thames Estuary proposal would not be preferable to other feasible options.

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1. Inner Thames Estuary feasibility study 1: environmental impacts

In general the Inner Thames Estuary airport proposal appears to face significant environmental challenges. In particular we agree with the difficulties identified in meeting the test for no 'alternative solutions' to justify relocation of environmentally sensitive sites. We have a few points to make, that we hope will guide the more detailed assessment that is to be undertaken.

1.1 Factual Inaccuracies

We have not identified any factual inaccuracies in the report.

1.2 New Information which could be considered

No reference is made to the potential indirect impacts that could occur to the Outer Thames Estuary SPA, which is situated approximately 2.5-3km to the east of the proposed airport. Indeed the SPA is actually missing from Figure 4-3 'Natura 2000 sites within 25km'. Potential impacts to the 'qualifying interest species' (red throated diver) of this site are therefore not identified as requiring further consideration. We feel this is an omission.

1.3 Cultural Heritage

We feel that the Study incorrectly concludes that the principal effects of the proposed development are restricted to only post-medieval and modern heritage assets. Consequently, we feel that there is inadequate consideration of impacts to the heritage significance of earlier remains. There is also inadequate consideration of the evolution of reclaimed grazing marshes that commenced in the Saxon period and continues to determine the historic landscape character in the area. These assets are likely to be of at least equivalent importance to designated assets but are actually more vulnerable to airport development.

Furthermore as is described in the Study, evaluation techniques could draw on deposit modelling methods, however, we feel that this will not be adequate in itself. We propose that a far more extensive programme of trench survey is likely to be necessary and this may lead to a requirement for landscape scale archaeological excavations. This approach would be in line with the other sites being considered.

1.4 Landscape

Whilst the landscape and visual assessment sets out the potential adverse effects of constructing an airport on the site, the potential visual impacts from the Kent Downs AONB is, we feel, underplayed. The Kent Downs AONB Management Plan recognises that proposals which affect the setting of the AONB are not subject to the same level of constraint as those which would affect the AONB itself, however, it does indicate that the weight to be afforded to setting issues will depend on matters such as the size of proposals and their incompatibility with their surroundings in terms of movement, reflectivity and colour. The proposed development would be, for this local area, a very major new development and therefore we feel that more detailed assessment is required to establish with more certainty the likely effects of a new estuary airport on the AONB.

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1.5 Flood Risk

The proposed development appears to be in conflict with future flood risk management proposals as put forward by the Environment Agency. This is because the development area itself coincides with areas where habitat creation and managed realignment are proposed as means of reducing flood risk and enhancing biodiversity in the area. We would therefore suggest that there is a need to consider not only the implications of the development on existing biodiversity resources and flood risk potential, but also where future planned improvements (i.e. those proposals from the EA) could be located if it is not to be at this site.

1.6 Conclusions

The Inner Thames Estuary airport proposal appears to face significant environmental challenges. In particular we agree with the difficulties identified in meeting the 'alternative solutions' test to justify relocation of environmentally sensitive sites.

2.0 Inner Thames Estuary feasibility study 2: operational feasibility and attitudes to moving to an estuary airport

We concur with the overall findings of the study in that there are significant challenges with many aspects of the operability and attractiveness (or unattractiveness) of a move to a Thames Estuary airport and that together, '*they appear to present a substantial risk that would incur large costs, in the order of billions of pounds, to appropriately manage*'. These not only affect the business case for such a solution, but also the timescales for delivery as well.

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2.1 Factual Inaccuracies

We have not found any substantial factual inaccuracies in the data contained within the report. However, there is one conclusion which has been made in the study, which we would query. This is in relation to the birdstrike risk in Chapter 5 of the report and summarised in Chapter 11.

The information from which Leigh Fisher has drawn its conclusions has been drawn largely from the 2003 Hoo Peninsula study (Bell et al), which was the last in-depth quantitative fieldwork study to assess the birdstrike risk in the area, plus proposals from scheme promoters on what measures they would take to manage the birdstrike risk.

We note the conclusions of the 2003 study which stated that Cliffe Airport was "*possibly the most problematic location in the UK to site an airport*" and that "*even with such world class management and mitigation measures in place as identified in this report, it is not considered possible to reduce the risk to a level similar to that experienced at other UK airports.*"

We also note that whilst scheme promoters have stated in qualitative terms what they would do to reduce the risk to an acceptable level, there does not appear to be any quantified analysis of the impacts of the proposed measures that would have to be taken to mitigate the birdstrike risk to an acceptable level.

Against that context, we would question at this stage the conclusions drawn by Leigh Fisher in Section 11 of the study on Page 11-1, namely that "*it is considered that the [birdstrike] problems are not insurmountable*". For instance, in paragraph 5.6.2 Leigh Fisher states that "*the control of birdstrike risk arising from off the airfield is far more problematic, and given the large numbers of hazardous birds in the broad Thames Estuary area, this risk is potentially impossible to manage effectively*". Leigh Fisher then goes on to explain why it has made that comment.

Given the ambiguity in the comments summarised above, we believe that a quantified assessment of the impacts may be desirable in order to ascertain whether there is an acceptable environmental and economic solution which can adequately mitigate the birdstrike safety risk. For example, a further quantified assessment may demonstrate

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unequivocally that the amount of mudflat and grazing marsh removal/relocation required for a safe airport operation (including the surrounding airspace) may come at too great an environmental and/or economic cost.

We recommend that a more quantified assessment is undertaken, in order to reach a clear and definitive conclusion around whether the problems are or are not insurmountable. Until such time, we would recommend that the conclusion in the report is revised to state that whilst there may be an acceptable birdstrike risk solution, there is a material risk that the solution may not be found acceptable or viable.

2.2 New Information which could be considered

As mentioned in the introduction, we concur with the overall findings of study and, given the time available, the basis upon which the findings have been reached. New information (or studies) which we believe would help validate the findings, are set out below.

2.2.1 Chapter 5 Birdstrike

As mentioned in Section 2.1, we would recommend that a more quantified assessment of the birdstrike risk is undertaken to validate whether there is a safe aviation solution that is environmentally acceptable and affordable. We agree that the birdstrike risk at an Inner Thames Estuary is extremely high, even after all risk management actions have been taken. Undertaking more detailed survey/analysis of the proposed site would help confirm whether there is actually a feasible solution.

2.2.2 Chapter 7 Airspace Implications

The NATS study for the Airports Commission in relation to the Thames Estuary (Appendix A) identifies potential capacity risks of the overall airport system. This is due to the operation of London City and Southend airports as well as the proximity of the Thames Estuary site to the UK airspace boundary with Belgium. There is a significant risk to the business case in terms of not being able to operate the Thames Estuary site to its required potential capacity and/or at a system level of having to reduce the capacity of London City and/or Southend airports or simply close them. We recommend that this risk must be taken into account in the overall evaluation. Consideration could be given to undertaking a more detailed airspace study in order to quantify the capacity reduction which could arise, in order to feed into the business case.

2.2.3 Chapter 9 Transition to a New Hub Airport

Leigh Fisher has set out a commendably extensive review of the many issues associated with the transition from Heathrow, London City and Southend to a new estuary airport. This highlights the magnitude of the social engineering required to make an estuary airport function effectively and the very significant costs and risks associated with such a move for many of the entities involved in the airport.

However, we believe that there is one highly significant risk which has not been identified or discussed in Leigh Fisher's work to date – this is the issue of maintaining an effective and safe aircraft engineering capability throughout the transition. Whilst many of the roles undertaken at Heathrow are relatively unskilled, albeit as Leigh Fisher points out do need to be adequately manned and trained for the airport to work effectively, the aircraft engineering roles are highly skilled roles which are essential to ensure the safe and timely maintenance of aircraft at the airport. Whilst heavy maintenance is and will be undertaken off-site (e.g. British Airways undertakes this work at Cardiff), base carriers provide light maintenance checks for their own aircraft and casualty maintenance services for themselves and for any away-based carriers requiring engineering support.

If a material proportion of the highly skilled staff that undertake this work do not migrate to an Estuary airport, for the reasons set out in Leigh Fisher's report, this poses a significant risk as new staff will need to be recruited, trained and licensed to undertake this work. Similarly, the necessity to provide these services in two locations with split operations during the transition will further exacerbate these risks. A significant loss of experience in this key area must be a critical concern. We recommend that Leigh Fisher be requested to study this issue with the base carriers in order to set out an informed view about the implications of various staff-loss scenarios on the ability to maintain safe aircraft maintenance and operation.

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2.2.4 Chapter 10 Attitudes Towards Moving Towards a New Hub Airport

We agree with the overall conclusions reached as a result of the telephone interviews with airlines, businesses, passengers and airports. Moving forward, however, we wonder whether a larger sample size should be considered in order to validate the preliminary findings. One approach is to include appropriate questions in the forthcoming consultation (from businesses as well as individuals). If not possible, a wider telephone interview survey could be considered.

2.3 General Comments

In addition to making the above points in relation to inaccuracies and new information, Heathrow Airport makes the following observations in relation to other chapters of the study.

2.3.1 Chapter 2 Flood Risk Management

We note that the flood risk management studies are at an early stage. We agree that there will be a technically feasible solution but that sufficient allowance needs to be made in the business case regarding the height of any earthworks platform levels and/or flood embankments. There are a number of different concepts proposed by scheme promoters and we would be keen to understand what is going to be the proposed solution in the business case.

2.3.2 Chapter 3 Fog Events

Heathrow Airport notes Leigh Fisher's findings that fog events (less than or equal to 200m) at the Thames Estuary (0.82%) will be more than twice as likely than at Heathrow (0.38%) or Gatwick (0.30%). This increase occurs not only overnight, but particularly between 0400-0700 where there are around three times as many fog events at the Thames Estuary compared to Heathrow. Whilst there are assumptions around a 24 hour operation at an estuary airport, London's geographic location in relation to when airlines want to operate services to make them commercially viable, needs to be considered. The 0500-0700 period of the day is an important window for arriving aircraft into London from Asia and North America as it fits with optimal departure times from those regions. This is evident in that a twin arrivals runway operation is needed tactically at Heathrow at this time today (particularly post 0600), in order to cope with today's traffic. Moving aircraft a few hours earlier or later, in order to reduce runway capacity to provide headroom to cope with more fog events (when CATIII conditions will reduce runway flow rates), can affect viability of the flight and reduce demand. We would recommend that the impact of having to operate at reduced CATIII capacities (across a comparable twin arrivals operation), which is likely to occur three times more often in the Thames Estuary, is taken into consideration when evaluating the Inner Thames Estuary with Heathrow or Gatwick.

2.3.3 Chapter 4 Cross-winds and Wind

We note the similar wind conditions for the Thames Estuary compared to Heathrow and agree with findings that there are no significant operational issues.

2.3.4 Chapter 6 SS Richard Montgomery

We agree with the recommendation to remove and dispose of the Montgomery's munitions before the start of any construction works given the increasing risk this would present to both people and infrastructure. We are concerned, however, that there is no definitive view on whether this is now feasible and, if so, the implications of doing so. It could be that since the 1998 DERA report that considered removal unfeasible, the appropriate technology may now be available to safely remove the ship and its munitions. But until such time as the precise risk and feasibility of this is confirmed by the relevant agencies, which may include the Ministry of Defence, the Centre for the Protection of National Infrastructure and the Port of London Authority, the Montgomery remains a key risk to the construction and operation of a new airport.

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2.3.5 Chapter 8 Energy Facilities

We note the close proximity of the Grain LNG to a number of the Inner Thames Estuary sites. The HSE is inconclusive about the risk of being able to safely operate the Isle of Grain proposal alongside the Grain LNG facility. Even if it was deemed safe to operate, both facilities would restrict each other's ability to grow. The cost of dealing with this risk (e.g. the feasibility and cost of relocating the Grain LNG or to relocate the airport to avoid it), needs to be considered in the evaluation of the Inner Thames Estuary proposal, depending upon which airport concept is selected. In addition, the programme risk to opening day of any forced relocation of the LNG facility also needs to be clearly understood.

2.3.6 Chapter 9 Transition to a New Hub Airport

We agree with the overall conclusions, which consider issues beyond the transition to a new hub airport to the permanent operation of the airport itself. In particular, Leigh Fisher highlights the difficulties arising from the difference in location and the increased distances from passenger catchments and existing employees. Fundamentally, people would have to travel from the UK hub's passenger catchment centre of gravity of Beaconsfield, Buckinghamshire to Kent. The economic and environmental impacts of these permanent changes need to be factored into the evaluation process, in addition to the transition costs.
Above all there is a huge risk of the supposed main benefit of an Inner Thames Estuary airport – that it would establish a world class hub airport are lost because of the impacts of transition on London as a competitive hub location.

2.4 Conclusions

We support the general findings of the Inner Thames Estuary Feasibility Study 2 - Operational Feasibility and Attitudes to Moving to an Estuary Airport. We agree that there are serious operational feasibility challenges, which will undermine the business case and programme viability of a Thames Estuary proposal.

We believe that quantified data in a number of areas will validate these conclusions further and, in the case of birdstrike risk may lead to the conclusion that such a proposal is unfeasible and not just unfavourable.

3.0 Inner Thames Estuary feasibility study 3: socio-economic impacts

PwC's report raises serious concerns over the commercial viability, and socio-economic impact of an Inner Thames Estuary Airport. It also articulates the high risks of the project.

3.1 Factual Inaccuracies

We have not identified any factual inaccuracies in the report.

3.2 New Information which could be considered

There is no new information that we believe needs to be considered to inform the study.

3.3 Commercial assumptions

The business case for an Inner Thames Estuary Airport relies on a number of assumptions which, at best, carry considerable risk, or otherwise are simply implausible.

The fundamental problem with the business case for an Inner Thames Estuary Airport is that the level of airport charges required for a reasonable rate of return on the investment will be materially higher than charges at

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Heathrow,[1] and at a level that would question the ability of the airport to attract transfer traffic in competition to European and Middle Eastern hub airports.

We have a number of particular concerns:

- Non-aeronautical revenue: for Heathrow, non-aeronautical revenues provide a key source of revenue offsetting the need for materially higher aeronautical (airport) charges. At present non-aeronautical revenue averages around £13.50 per passenger. TfL assume this this can be raised to around £16 (in 2012 prices). A far more likely scenario is for this to decline to less than £9 per passenger (as Heathrow assumes in its own modelling for a third runway). Amongst other effects, the trend for new passengers will dilute average spending (based on econometric evidence). With higher growth rates at the hub airport (from release of the capacity constraint) the dilution of non-aeronautical revenues per passenger will be material. PwC also correctly raise the points that car parking revenues in particular will be lower due to an assumed greater use of public transport, as will catering and retailing revenues from transfer passengers with the reduction of dwell times
- Capital expenditure project risk: we agree with PwC's concern that proposers of the Inner Thames Estuary airport schemes use a materially lower risk allowance than suggested by the Government's Green Book, and used by the Airports Commission in its Interim Report. This is particularly concerning given the ambition of the overall package of developments
- Compensation for closure of Heathrow: we agree with PwC that compensation would mostly likely need to be based on Heathrow's Regulated Asset base (RAB).

Taking all of the above into account, the airport charges required to make an adequate risk adjusted return on investment will be considerably higher than that required to expand hub capacity at Heathrow. It seems highly implausible that an Inner Estuary Airport will be able to maintain passenger traffic levels (particularly transfer passenger levels that are contestable by other European and Middle Eastern hubs) at these levels of charges.

The particular issue faced by a new Inner Thames Estuary airport is that there is virtually no flexibility to scale the airport to actual take-up of capacity. This is in contrast to Heathrow's proposal for new terminal capacity to be built as and when it is needed, and where commitment to a fourth runway would only be made in the eventuality that it was proven to be necessary.

The flexibility of the investment in an expansion of Heathrow, particularly the possibility of a fourth runway at some point in the future should this be justified by demand, creates a "real option value". A "real option" -- similar to a financial market option -- provides the opportunity, but not the obligation, to make a future investment. In the case of a "real option" this investment is in a physical asset (e.g. airport capacity), rather than a financial instrument. As with financial market options, a real option must always have positive value, since the investment is only undertaken if at some time in the future it turns out to be value adding.

In contrast, commitment to an Inner Thames Estuary airport would immediately wipe out the real option value of a fourth runway. The loss of this real option value is a significant cost to the Inner Thames Estuary proposals that could, and should, be quantified.

[1] TfL, with assistance from E&Y estimated a price of £30/passenger, but this is based on: (1) the government paying for all surface access; (2) capital expenditure projections with minimal allowance for risk or optimism bias; (3) unrealistic forecasts for non-aeronautical charges; (4) assumptions that the new airport could continue to attract transfer passengers in competition against other European and Middle Eastern hubs. Against this, an expanded Heathrow would have an average charge of £24/passenger under an entirely realistic assumption set.

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3.4 National economic impacts

PwC correctly distinguishes between "direct, indirect and induced effects (DDI)" and "catalytic" effects. Whilst the catalytic effects are unambiguously incremental to UK GDP (since they are generated by increases in the productivity of the economy), the additional expenditure from direct, indirect and induced economic activity relies on activating resources that are currently not contributing to economic activity.

In the operational phase of an airport, DDI effects will be broadly proportional to passengers served, and so will be the same for any scheme that meets a particular level of passenger demand (e.g. the Commission unconstrained forecast). In this respect there will be little difference between an Inner Thames Estuary Airport and an expanded Heathrow.

However, the more fundamental catalytic effects of each scheme are mainly determined by connectivity to countries that provide trading and business partners to the UK. We have already raised the issue that an Inner Thames Estuary airport, with materially higher charges, would find it difficult to compete against other European and Middle Eastern hubs, and the loss of transfer passengers would inevitably remove the commercial viability of a number of routes, reducing the airports overall connectivity.

The PwC report shows the extensive academic literature capturing catalytic effects through the association between air connectivity and GDP and trade. Heathrow has produced its own working paper of this relationship, estimating a set of econometric models that capture the bidirectional relationships between air connectivity and international trade, distinguishing between the impact of connectivity on trade, from the impact of trade on connectivity.[2] Our work found:

- Heathrow's air connectivity to individual countries contributes significantly to the UK's level of overseas trade with that country. This effect is statistically significant.[3] On average, each daily flight to/from Heathrow, equivalent to an additional 730 ATMs, generates £100m of international trade in goods and services[4]
- The impact of air connectivity on international trade was found to be statistically significant only at London's international hub airport (Heathrow). The air connectivity provided by the point to point airports of Gatwick and Stansted certainly react to patterns in international trade (along with tourism) but does not drive this relationship.

The second point is interesting since it relates to PwC's comment that "…there is a gap in the analysis regarding the extent to which connectivity differs between a single hub…and alternative expansion options in the London System…".

We believe that a single hub will generate greater benefits than a dispersed hub. Attempts to create a dual hub between Heathrow and Gatwick were tried in the 1970s and 1990s but both ended in failure because airlines were attracted back to the main Heathrow hub where they could maximise transfer opportunities, and there maximise connectivity. The effect is the same in other markets , for example, the experience of Tokyo's Narita and Haneda airports is similar.

[2] Sandbach, J., & Ardila, G. (2013). Causality between international trade and air connectivity. Working paper, please see Appendix 1

[3] At the 1% level (P=0.0013).

[4] The CBI study estimates that an additional daily flight an additional daily flight to a high growth market will generate £128m of additional trade (CBI, 2013).

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Expansion of Heathrow will clearly provide a strong UK hub to release catalytic benefits. For reasons given above we doubt that this will be true of Gatwick expansion. A new hub replacement airport could do this - provided we believe that (1) airline commitment could be maintained; (2) transfer passenger levels maintained despite a sharp increase in airport charges; and (3) momentum of the existing Heathrow hub carried through to a new hub airport whilst investment is rundown in the run-up to Heathrow closure. All these, as the PwC report recognises, are big risks.

3.5 Local economic impacts

A hub airport, whether at Heathrow or in the Inner Thames Estuary, will act as a catalyst for investment in the surrounding economy. This is clearly seen in the number of foreign companies that have chosen to locate in the Thames Valley, close to Heathrow. Compared to businesses across the UK, the Thames Valley has: [5]

- 50% more European businesses (Heathrow provides strong European connectivity)
- 60% more foreign companies (Heathrow provides the majority of UK long haul connectivity)
- 100% more US companies (Heathrow provides a large majority of UK connectivity to the US)
- 260% more Japanese companies (Japan is only accessible from Heathrow).

The PwC report also points to concentrations around Heathrow of particular sectors for whom air connectivity is important (financial and business services, transport and storage, and ICT).

Whilst it is true that a stronger Heathrow hub would reinforce these effects, it is not true that relocation of the hub airport to the Inner Thames Estuary would mean that these clusters would migrate (or that new ones would emerge). This is especially true of agglomerations – where clusters of similar companies benefit from nearby location through, for example, sharing of supply chains, access to skilled labour, and formal or informal collaboration and sharing of knowledge bases. PwC (Table 5.10) cite data showing agglomeration elasticities are particularly high in financial and business services, transport and storage.

The important point about agglomeration is that once these effects are established, relocation is unlikely, since each individual company will wish to "stay with the pack". Therefore, although relocating the hub airport will certainly weaken the agglomerations of financial, business and ICT services around Heathrow, it is by no means certain that corresponding agglomerations will build around the new airport in the Inner Thames Estuary. This is especially the case when account is taken of the initial lack of appropriately skilled workers for these sectors, and the increased commuting time that existing workers would face. There is a real risk that rather than relocate across London, any such clusters to either fade or relocate overseas as evidenced in the feasibility submissions. Consequently it is inevitable that relocation of the hub airport would result in a net loss of local economic activity.

3.6 Conclusion

PwC's report raises serious concerns over the commercial viability, and socio-economic benefits of an Inner Thames Estuary airport. It also articulates the high risks of the project. We generally agree with these findings. A proper analysis of the commercial and economic case must be based on realistic assumptions for revenues, risk and optimism bias allowances in capital expenditure estimates, and the reduced ability of the airport to retain and attract new transfer passengers. An evaluation must also include the full costs of closing Heathrow and the low probability of recapturing a significant value from redeveloping the site within any reasonable timeframe.

[5] Analysis of data from Companies House.

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One of the critical assumptions is the extent to which the new airport can maintain the momentum of the Heathrow hub which it will replace. We seriously doubt its ability to do this, given the disruption of the transition period, and the level of airport charges it will require to be financially viable. This will have a direct impact on the ability of the airport to drive local and national catalytic benefits to the UK economy.

4. Inner Thames Estuary feasibility study 4: surface access

We support the overall approach to the assessment, which is suitable for this type of strategic level assessment. The assessment shows that an Inner Thames Estuary Airport would require very significant investment in surface access infrastructure both by road and rail. It also shows that the surface access proposition for a Hub Airport requires a mix of rail services, including a dedicated service, to meet the needs of passengers.

Journeys to a Thames Estuary Airport would be longer for passengers than for their current journey to Heathrow . This is consistent with our document 'Best Placed for Britain'.

4.1 Factual Inaccuracies

We have not identified any factual inaccuracies in the report.

4.2 New Information which could be considered

There is no new information that we believe needs to be considered to inform the study.

4.3 General Comments

Whilst the general approach is sound, we believe there are some elements of the methodology that require further consideration.

4.3.1 Employee mode share assumptions

The study appears to assume no change in mode share between 2030 and 2050. We believe that current trends in technology, government policy and road congestion mean that further shift towards public transport is likely between 2030 and 2050.

The assumed employee public transport mode share is 25% by rail and 10% by bus. Whilst this may be considered appropriate for an ITEA given its location and local catchment, it would not be appropriate for Heathrow. The most recent employee survey showed that 40% of employees use public transport, walk or cycle. With further improvements to public transport and restriction on access to parking, there is expected to be substantial further shift to more sustainable modes of travel.

4.3.2 Road assessment

There is a risk that the current methodology may overestimate the impact of airport expansion on the road network. A small increase in airport related traffic could result in a threshold level being breached. Threshold levels as well as the proportion of the traffic growth related to airport expansion should be considered in determining the impact of the airport.

There also does not appear to be any consideration of how technology might support additional road capacity, without the need for additional lanes. By 2050, there is a realistic proposition of some form of greater automation of cars, particularly on motorways.