Airports Commission

Comments on published long term proposals

Heathrow Airport Limited

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This document sets out Heathrow's comments upon the' long term option' proposals submitted to and published by the Airports Commission.

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Overview

We have taken a focussed, evidence based approach to commenting on other proposals in order to support the Commission at this initial 'proposal sifting' phase. To the same end we have elected to comment only on a selection of the options submitted rather than every single one. We understand that we will be invited to comment in more detail on shortlisted options in 2014.

Those submissions that we have chosen to comment on are:-

1. Options proposed by other parties for the development of Heathrow
    - Aras Global, Policy Exchange, "Heathrow Hub"
2. Other hub airport submissions with a substantial level of development
    - Foster & Partners; TfL – Inner Estuary, Outer Estuary, Stansted; LOX; MAG – 4 runway Stansted
3. "Competing Constellation" or "Dispersed Hub" concept
    - Gatwick Airport Ltd, MAG proposal for two runways at Stansted

Options in the first category have been covered to explain why we have not chosen to propose similar schemes in our own submission. Options in the second and third category have been covered, not as a detailed examination of all the data provided, but as a review of and challenge to the most critical assumptions that have been made in developing the options.

We have given careful consideration to the viability of other hub airport options as the UK has an urgent need for more hub capacity at a single hub. We have come to the conclusion that these other hub options are unable to address some fundamental issues. For example: firstly, they are too remote from passenger demand. This remoteness could prove fatally damaging to the competitiveness of the hub. Even exceptional levels of investment in new surface access infrastructure cannot sufficiently resolve this challenge.

Secondly, a transition of this scale and distance would be unparalleled, globally. In fact, only much smaller airports have attempted moves requiring a transition of over 30 miles, and all have failed (moving the UK's hub to Stansted or the Isle of Grain would be a 50-60 mile move). As the world's largest international hub airport, attempting to move Heathrow would entail an attempt to move one of the world most productive economic regions. For the last 60 years Heathrow has grown as an integral part of the social and productive economic fabric of West London and the Thames Valley. Would the numerous industry clusters really relocate together to Stansted or the Isle of Grain? Is it not more likely that the 202 head offices of the UK's top 300 businesses would choose Paris, Frankfurt or Amsterdam instead if Heathrow were to close? How would the social infrastructure be put in place to support the hundred thousand plus jobs from day one at these proposed new hubs?

Thirdly, in the absence of private funding for such a project, is the UK government realistically in a position to support investment on such a scale? What about state aid issues?

The "Competing Constellation" proposal is a zero-hub solution that would lead to an irreversible decline in Britain's connectivity. The benefits case is inherently flawed as it is based on long haul connections and network airline customers that are very unlikely to materialise. All three network airline alliances have stated they have no interest in moving out of Heathrow to another airport. Globally, there is no example of a "constellation", quite the opposite; the UK's competitors are strengthening their single hubs. Frankfurt, Paris, Amsterdam, Madrid, Dubai, Istanbul and Doha either already have, or are committed to developing, capacity at a single hub that is 50% greater than Heathrow. The constellation proposal would actually *constrain* competition and choice as Heathrow, capacity capped for a decade, would not have the freedom to compete.

As we have put forward in our own submissions, Heathrow, as the UK's hub airport, offers the fastest, most cost effective and most practical route for the UK to compete effectively in the global race to provide connections to emerging markets and to ensure the UK's future prosperity.

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1. Options proposed at Heathrow by other parties

In this section we consider proposals by:-

- Aras Global
- Policy Exchange
- "Heathrow Hub"

Heathrow welcomes these proposals relating to Heathrow expansion put forward by other parties. The Policy Exchange scheme in particular has done much to shape our thinking on the options which Heathrow has submitted. We explain here why we have not chosen to propose similar schemes in our own submission.

Aras Global proposal for 3 and 4 runways at Heathrow

We do not believe that this is an acceptable proposal. The use of close coupled runways to minimise the airport footprint makes it impossible to provide respite to communities under the flight path and limits the capacity of the airport. There is a significant underestimation of the extent of additional apron, pier and terminal infrastructure which would be required, necessitating extensive expansion towards the west of the airport.

This concept relies upon the use of "close coupled" runways placed only 390m away from the current runways, initially to the south and then later to the north of the airport. This arrangement has the advantage of reducing the required airport land-take and the consequent impact on surrounding areas; it also produces a more compact noise footprint which might yield reductions in the population affected by noise. There are however a number of disadvantages to this arrangement that led HAL to decide not to put this option forward to the Commission.

Most importantly, the close coupled pair of staggered runways dictates that the closer of the two runways (to the direction of arriving aircraft) is always used as the landing runway and the one further away is used for take-offs. In this way planes can be kept safe from flying alongside each other at too small a separating distance.

This close coupled, staggered scheme has the effect of ruling out the ability to deliver respite. In a three runway airport neither of the close coupled runways can be used in mixed mode; this means that the third more separate runway must run in mixed mode all the time. At the same time the close coupled pair cannot be alternated to swap the arrivals stream for a departures stream and vice versa.

In a four runway airport, alternation is again impossible since arriving aircraft must always land on the nearest pair of runways. Irrespective of whether the airport is operating in westerly or easterly mode it is the same communities who are being continuously overflown, either by arriving or departing aircraft.

This inability to deliver respite to half the communities which surround the airport was HAL's principal reason for not proposing this option since we consider the ability to deliver respite is an essential characteristic of any proposal.

A further important consideration is that at this spacing and stagger, the runways are not independent of each other and would result in a maximum 4 runway airport passenger capacity of approximately 125 - 130mppa (compared to 130mppa for HAL's 3 runway plan)[1]. The concept also rules out the ability of a four runway airport to have three concurrent arrivals streams at peak hours at some future point.

The proposal also underestimates the additional terminal, pier and apron capacity that would be needed to serve the increased passenger numbers. Since these facilities would have to be contained within the existing runways, addressing this issue would require an extension of the airport boundary westward by a considerable distance. The number of communities affected overall by the airport footprint would still include: Stanwell, Stanwell Moor, Poyle, Longford and Sipson.

"Bigger and Quieter" – Policy Exchange

Two of our options have adopted the principle of the Policy Exchange idea in placing our* new *runways as far west as possible, but whilst moving Heathrow's* existing *runways further west as well would bring additional noise benefits, this does not justify the greater community and infrastructure impacts and the high price premium of up to £11bn[2]

We have had some considerable time to examine the proposal put forward by Tim Leunig on behalf of Policy Exchange and to consider the essence of the idea. The scheme would move Heathrow's runways 3,500m further West in order to reduce the noise burden on the densely populated areas of West London. As we acknowledge in our own submission document, the Policy Exchange scheme has done much to shape our thinking on the options which Heathrow has put forward.

We have therefore done extensive work on analysing this idea, to ensure that we have understood the benefits and the costs of the concept. Our analysis shows that whilst the concept can bring additional noise benefits over the options proposed by Heathrow, these come at a significant cost, both financial and in terms of infrastructure and community impacts, which we have judged to outweigh the benefits.

The runway layout depicted in the "Bigger and Quieter" document shows a very similar concept to the Aras Global idea, inasmuch as it employs two close coupled runways 380m away from the existing[2], but it also moves the existing runways to align with these in a rectangular arrangement, rather than leaving them in-situ to produce a staggered arrangement as Aras Global suggest. As such, the proposal would have been subject to the same short-comings on respite described above.

Despite this, we did not wish to discount the principle of the idea as it has some potentially significant benefits. For this reason, we have produced a developed version of the Policy Exchange layout in which we have spaced the runways more widely to allow alternation and thus enable respite, and to provide for the potential to have three concurrent arrivals streams at some point. We have also adjusted the existing northern runway position which was moved further south (this would have necessitated the removal of Terminal 5 and its piers) and kept the existing runways at 3,500 m long rather than shortening them to 3,000m as suggested, 3,500m being in our view the minimum length for a runway capable of departing every type of aircraft. Finally, we have located the new Terminal building at the eastern end of the new development area, alongside Terminal 5 for the purposes of sharing the main rail interchange facilities and thus avoiding adding an additional stop on the Crossrail service and another extension to the Piccadilly Line. We have

included in our July submission a drawing of the resulting layout (page 37) and our analysis and commentary is based on this drawing rather than that in the Policy Exchange document.

We have estimated the additional cost of the Policy Exchange concept at between £5-11bn when compared to our 4 runway options, with it taking at least five further years to deliver. When compared to our four runway options an additional 15% – 30% more land take is required, resulting in 1,900 - 2,200 more homes requiring to be compulsory purchased, 33% more impact on flood storage capacity than our worst option in this regard (>2 million m^2) and a significantly greater impact on the volume of reservoir storage lost. We are currently undertaking a feasibility study with Thames Water to assess the impact of our South West option on the reservoir system, but the impact of the Policy Exchange concept would be to remove the entire Wraysbury reservoir as well as impacting the George VI reservoir.

The Policy Exchange concept would reduce the number of people affected by air noise when compared to our 4 runway options, but our options deliver much of the noise benefit of the Policy Exchange proposal without the attendant impacts referred to above. In weighing the benefits and costs of the two approaches, we concluded that the additional noise benefits of moving Heathrow's existing runways further west as well as placing the new ones there, were outweighed by the greater community and infrastructure impacts, the 5 year longer delivery timescale and the high price premium incurred.

"Heathrow Hub" proposal

The in-line runway arrangement cannot deliver respite to communities. The proposed transport interchange some 4 km away from the airport[3] is a significantly poorer passenger experience than an interchange on the airport, with negative impacts on the achievable public transport mode share and the operation of the Great Western Main Line.

The "Heathrow Hub" proposal can be split into two separate and quite independent ideas; the runway concept and the rail interchange and terminal concept.

The Runway Concept:-

The runway concept consists of extending the existing runways westward to be 6400m long rather than the current 3750- 3950m [3]. These are then split into two separate runways, the further section (from the arriving aircraft point of view) acting as a departures runway and the nearer acting as the landings runway. Phase 1 extends one of the runways to adopt this concept, Phase 2 extends the other.

This runway layout is unable to produce meaningful respite from being overflown for local communities. In its Phase 1 configuration the runway arrangement proposed would have the same effect on local communities as running the current airport in continuous Mixed Mode operations. For this reason we do not endorse it.

The Phase 2 configuration suffers from a similar issue once movement numbers are increased above today's levels of 480,000 per annum. Assuming that one arriving runway (the active runway) continues to operate at close to full capacity (say 90% of today's figure), the other 10% of arrivals and any additional arriving movements would have to be accommodated on the other runway (the respite runway). The proposal assumes that the movements on this respite runway can be configured so as to offer predictable respite to affected communities. There are two reasons why this is unworkable; timing and volume.

Timing: To provide meaningful and predictable respite the additional flights would have to be constrained within a series of time windows during the day. The commercial constraints that this would place on airlines' ability to develop viable network connections makes this at best less than ideal and in reality unworkable. This means that, outside of peak hours, the traffic on the respite runway would be less frequent than on the main runway, but would never be zero. The respite on offer in the early years would therefore be a choice between constant overflight or slightly less frequent overflight.

Volume: However, as movement levels rose above today's levels, more and more of the respite runway capacity would need to be used; at 570,000 annual movements in 2030 there would be an arrival every 3.5 minutes throughout the day (on average) on the respite runway, at 740,000 movements there would be an arrival every 2.5 minutes and at 900,000 movements there would be no difference between the two runway arrivals rates at all.

The assumption that 6,400m is sufficient length to accommodate two runways, the safety zones and landing aids requires further investigation, with the probability being that this would need to be significantly increased. Examples of the issues to be resolved would include, risks to do with arriving aircraft overshooting the runway end, technical failures etc that might put a departing aircraft at risk from an arriving aircraft; the ability to site Instrument Landing Systems successfully at the outer ends of the runways where they might be impacted by departing aircraft rather than in the central area between the runways. If these cannot be satisfactorily resolved except by lengthening the in-line separation distance between the two runways or the runway lengths themselves, the space assumed currently will be inadequate and will mean significant additional land take would be required to resolve the issue.

The Rail Interchange and Terminal:-

This concept is not a determinant of the airport Masterplan. The "Heathrow Hub" proposal suggests the siting of a new Terminal 6 at Iver on the Great Western Main Line due north of Terminal 5 and some 4km distant. We do not believe that this will produce an efficient airport, either from the point of view of passengers who will experience longer and likely uncompetitive transfer times (with the current protocol of cleaning the passenger in their Terminal of departure this could produce an end to end journey of 12km from the arrivals pier to the departures pier via Terminal 6, significantly extending the current target of 60 minutes Inter-Terminal minimum connection time, and 45 minutes for intra terminal.), or from the airline operators stand point who will be remote from the rest of the airport and with potentially split operations leading to an increase in their cost base. Terminal 6 should be placed on airport and between the existing runways.

If the interchange is considered as an airport access point, or "new front door" as it is referred to, in Iver, with some self-service check-in and bag-drop facility rather than an actual Terminal building, such a facility only replicates the connectivity already planned to be delivered by Crossrail and the Western Rail Access project. This scheme would adversely impact on the operation of the Great Western Main Line by introducing another stop for every train (if only a proportion of the trains stop at the new Heathrow Interchange, the frequency advantage of being on the main line rather than a branch line is lost). Some modest additional benefit would still accrue to passengers on the Great Western Main Line who could access the airport without changing to Crossrail at Reading but this must be weighed against the significant cost of providing a landside access system and a secure high speed baggage connection between Iver and the airport and the disruption to Great Western Main Line operations. Experience with the Heathrow Express check-in offer in Paddington has also

shown that passenger take-up of a remote early bag drop facility can be very low, potentially further undermining the already poor business case for the facilities proposed by “Heathrow Hub”.

Significantly, any redistribution and dispersal of conventional rail and road based public transport services away from the existing on-airport hub to the new interchange will impact heavily on both airport employee and passenger public transport mode share and dilute the airport’s ability to be an effective integrated transport hub.

Heathrow has previously advocated that HS2 should directly serve Heathrow with an on-airport station location and this is supported by international best practice examples at Frankfurt, Amsterdam and Paris. We do not therefore see advantage in routing HS2 as described in the proposal which would largely be a replication of the facility proposed at Old Oak Common. Any re-routing of HS2 to serve the hub airport at Heathrow (especially considering the time and effort involved in doing this) should be done properly, bringing the line truly onto the airport, and not necessitate yet another off-airport interchange.

For these reasons we do not support this aspect of the “Heathrow Hub” proposal either.

2. Other hub airport options, with a substantial level of development

In this section we consider issues raised in proposals by:-

- Thames Hub – Foster and Partners
- Transport for London – 4 runway Stansted
- Transport for London – Inner Estuary airport
- Transport for London – Outer estuary airport
- MAG – 4 runway Stansted
- Pleiade Associates - LOX

We have given careful consideration to the viability of other hub airport options as the UK has an urgent need for more hub capacity at a single hub. We have come to the conclusion that these other hub options are unable to address some fundamental issues and raise several further key issues:

- They are too remote from passenger demand.
- They require a transition that is unparalleled globally, and would necessitate an attempt to move one of the world most productive economic regions, at considerable risk to the Thames Valley and UK economy.
- They require exceptional levels of investment in new surface access infrastructure that wouldn't sufficiently resolve the location's remoteness for passengers.
- Estimated delivery dates are highly optimistic and could leave the UK's urgent need for hub capacity unaddressed for decades
- In the absence of private funding, is the UK government really in a position to support such scale of investment?
- The implications of closing Heathrow have not been addressed. Regeneris[4] estimates that 230,000 jobs could be at risk in the Thames Valley if Heathrow were closed.

Set out below are comments on the key assumptions underpinning these options and areas we would invite the Commission to scrutinise.

Passengers

Moving the hub airport location away from the centre of demand for passengers and businesses will increase journey time for 90% of passengers. Moving the hub away from its demand base creates an incentive to pull the hub apart, reducing hub demand at a new location, either via spillage to other airports or via demand destruction. Either of these effects could prove fatally damaging to the competitiveness of any hub.

Most London airport passengers start or end their journey to the west of London; this is especially true for business passengers. As a result, the centre of gravity for London passenger demand is only 12 miles from Heathrow. Business passengers in particular value Heathrow's proximity and ease of access. If the UK's hub airport was moved to Stansted or Estuary, average journey times would increase for ~90% of passengers. A Stansted or Inner Estuary hub would mean an additional 30 minute average journey time to the airport, which could cost the UK economy £26 billion[5]. Outer Estuary additional journey times would be even longer.

The importance of the proximity of Heathrow as the hub airport to passengers and businesses cannot be underestimated. Passenger demand is not 'geographically neutral' and consequently a move away from this centroid would drive a major loss of demand. Moving the hub away from its

demand base creates an incentive to pull the hub apart, reducing hub demand at a new location, either via spillage to other airports or via demand destruction. Either of these effects could prove fatally damaging to the competitiveness of any hub.

As a demonstration of this effect in action one can look at global examples of moving an airport from its existing site. Moves more distant than 30 miles have been unsuccessful. For example, in Milan (a 35 mile move), domestic and short-haul international flights do not now fly from the new under-connected airport, while in Montreal (a 30 mile move), the new airport eventually closed, with all flights now using the original airport[5].

Surface access

New hub submissions appear to significantly underestimate the surface access required. For example, Heathrow's strategy includes up to 34 services per hour into London, whilst Isle of Grain only delivers 20 per hour.

Heathrow welcomes the recognition by most proposals of the need for direct, premium, high speed rail services between the hub airport and central London, and encourages the Commission to ensure that sufficient resilience exists in the public transport network to London, thus providing choice for passengers and employees. Heathrow is currently served by the Piccadilly Line and Heathrow Express and will be served by Crossrail, Western Rail Access and HS2 in due course.

The Stansted and Estuary hub proposals appear to take no account of the fact that the centroid of passenger demand is to the west of London. Consequently, these proposals significantly under-estimate the level of demand that can be expected to be traveling to, from or through Central London, and the need to supply a range of services to encourage public transport mode shift.

The Fosters proposal indicates 20 trains per hour (tph), whereas proposals by TfL for Stansted, Isle of Grain and Outer Estuary do not indicate the necessary train frequency to meet passenger demand and choice and whether this can be achieved on existing or planned infrastructure. Therefore the consequential impact on London's public transport and highway network, as well as the burden placed on passengers, may not have been considered sufficiently.

As a comparison to these proposals, Heathrow's strategy includes up to 34 services per hour into London (Piccadilly Line - 18 tph, Heathrow Express - 4 tph, Crossrail - 8 tph, Southern Rail Access - 4 tph).

Fundamental questions remain for nearly all the schemes:

- Does the additional surface access deliver sufficient peak capacity?
- What evidence is there to support the public transport mode share assertions?
- How are passenger journey times impacted?
- How has the cost of additional journey times been accounted for?
- Can the surface access infrastructure be operational before their stated opening date?
- What's the full cost of off-airport surface access?
  (TfL published very high level estimates of £33b for £52b for Outer Estuary[6].)

We also need to address two specific assertions in Transport for London's proposals:

Firstly, the assertion set out in Transport for London's proposals relating to the Isle of Grain[7] and Outer Estuary[6] that a four runway proposal at Heathrow will *"involve a more dispersed development of terminals, making it more complex and expensive to provide the necessary surface access"* is incorrect. Heathrow master plan options have been developed around its 'public

transport spine' so that in a 3 or 4 runway scenario the rail/underground services are concentrated between Terminal 5 (and 6 where required) and Terminal 2. There is therefore no dispersal effect or significant additional cost.

Secondly, they assert that *"substantial expansion at any existing or new airport location in South East England, including Heathrow, will require significant investment in surface access infrastructure"*. In relative terms, the incremental surface access costs will be significantly lower at Heathrow, as our strategy is based on surface access infrastructure projects that have already been delivered, or where funding is already in place, or projects that are in the process of being delivered or planned. In fact, since the 1970's, around £20-25b[8] of rail infrastructure with a connection to Heathrow has been invested or committed. None of the alternative proposals can come close to replicating the quality of accessibility that has become established at Heathrow. Neither are they naturally located to act as a major transport integrated transport hub in the way that Heathrow does.

Finally, as a general comment, surface access proposals have been prepared to varying levels of detail but it is not clear, from any of the proposals submitted by others, what supporting analysis has been undertaken. Where underlying analysis has been completed, different methodologies and modelling tools will have been applied, thus issues such as congestion and traffic impacts, capacity on the road and rail networks and journey time effects will not have been considered consistently across the proposals. We assume that the Commission will be working to establish a process for assessing proposals on a like-for-like basis.

Delivery

Delivery dates quoted generally are optimistic given the nature of the construction programme, the scale of surface access change and the delivery of wider social infrastructure required.

We question what Fosters[9] mean by "*the initial phase of the hub can be ready to open by 2029 – the same as a third runway at LHR"*; not only because of the inaccurate opening date for the majority of our three runway options, but also on what the "initial phase" comprises and whether it will be sufficient to accommodate Heathrow's 2029 demand whilst providing significant additional capacity.

We believe the suggested 7 year construction programme from 2022 – 2029 to be highly optimistic compared to our estimated timescales for a delivering a new Estuary Airport and query whether this takes account of the necessary surface access infrastructure development.

Capital costs/Funding

The high cost of alternative hub options would necessitate a very high public funding requirement. Is the UK government really in a position to support such scale of investment.

When correctly scoped, benchmarked and aligned, the cost of a new four runway hub airport with appropriate road and rail connections and associate supporting social infrastructure will be very high - £68bn (Stansted[10]/Inner Estuary[7]) – £84bn (Outer Estuary[6]). The full extent of public investment required may not be represented in these numbers when other social infrastructure is taken into account. With no evidence to suggest that this level of investment can be privately funded, the implication is a reliance on very high levels of public funding, at an exceptional level of risk to taxpayer funds or to the scheme itself if these are not available.

Reviewing the range of new hub options, there appears to be a wide range of cost estimates for projects with a broadly similar scope of development e.g. £9bn quoted by Manchester Airports Group[11] for a 4 runway hub airport at Stansted versus the Mayor of London's similar proposal cost at £39b[10] (both numbers excluding the cost of road and rail access) or Foster and Partners estimate of £24bn[9] for an inner estuary airport versus Transport for London's estimate of £68bn[10]. We assume that the Commission will be working to establish some process for assuring, the scope and levels of capital costs, as far as possible at this stage.

The Thames Hub proposal (and although unstated, potentially others) assume a level of pre-funding based upon the use of income generated from Heathrow landing charges. The viability of these proposals should be reviewed without reliance on this mechanism. The income from landing charges at Heathrow will continue to accrue to Heathrow Airport and be used for investment in the development of Heathrow.

Heathrow closure

The impact on the surrounding area of closing Heathrow will be overwhelmingly negative

None of the alternative hub proposals submitted to the Commission deal sufficiently with the impact of closing or downgrading Heathrow or the issue of how the existing airport operation at Heathrow would be effectively transitioned across to a new hub airport.

In particular, we question the statements made in Foster & Partner's submission that:

"Heathrow only accounts for a small proportion of the West London economy and these local economic impacts would be more than offset by higher value jobs and higher income injections into the local economy if the Heathrow site is redeveloped as a commercial and residential hub for West London to rival Canary Wharf. Given that the necessary infrastructure already exists at the Heathrow site, the low unit costs of providing these jobs makes this a low cost way of securing high value growth for London".[9]

This assertion demonstrates insufficient consideration of knock-on effects to indirect/induced jobs and agglomeration. A recent study by Regeneris[12] found that up to 230,000 jobs could be at risk in the Thames Valley if Heathrow were closed in order to build a new hub airport elsewhere.

We would also question Foster & Partner's assertion that *"property values around Heathrow will be positively impacted by its closure and redevelopment"*[9]. Firstly, there is no evidence of generalised property price depression in local boroughs due to the airport's presence. Secondly, evidence shows that major employment sites take decades to be redeveloped. In the long term there may be new job opportunities at a vacated Heathrow site — but it may take 20–30 years after closure for the site to be fully redeveloped. The former Hong Kong Airport site, in a prime location, is yet to be redeveloped, 15 years after closure. Similarly the Battersea power station site is only now being redeveloped, 33 years after its closure[5]. In the intervening years before regeneration, the very high level of jobs lost in the local area and the large numbers of workers and families relocating to the new hub will have a significant negative impact on property prices in the region around Heathrow.

Transition

No proposals for alternative hubs have attempted to address transition challenges, particularly with regard to workforce availability

Moving a hub airport the size of Heathrow a 54 or 58-mile drive (Stansted and Isle of Grain) would be without international precedent. When the German federal government moved from Bonn to Berlin in 1999 it transferred only 10,000 jobs[5]. Hong Kong airport was less than half the size of Heathrow, when it moved from Kai Tak to the new Chek Lap Kok airport (23 miles away, moved overnight) and businesses and employees could stay in their existing central location, mostly accessing the offshore airport by direct rail link.

76,600 people are directly employed at Heathrow[5], and many more indirectly rely upon Heathrow for their employment. Many of these roles are specialist, requiring extensive training. It is difficult to conceive of a distant airport move that requires the relocation of many tens of thousands of staff, particularly in an overnight or very short timescale.

Before the opening of the new airport, not just the housing but also the hospitals, schools, and entire social infrastructure to support 100,000 workers and their families would need to be provided. The cost and feasibility of doing all this before the airport opens would present a substantial risk to any transition to a new hub airport.

202 of the top 300 companies in the UK have located themselves within a 25 mile radius of Heathrow and there are 60% more international companies in the area around Heathrow than in the rest of the UK. Many of these companies are formed into business "clusters", with at least 3 of these clusters being rated "2+ stars", putting them in the top 10% of European regions for employment and level of industry concentration. Transition for these businesses will be fraught with uncertainty. All those businesses reliant on being sited close to Heathrow must decide whether to relocate to an undeveloped airport hinterland at the new airport or to relocate to a competing European hub airport with its already established airport city and business clusters.

As the world's largest international hub airport, attempting to move Heathrow would entail an attempt to move one of the world most productive economic regions. For the last 60 years Heathrow has grown as an integral part of social and economic fabric of West London and Thames Valley. Would the 202 head offices really relocate towards the new hub, or instead move to Paris, Frankfurt or Amsterdam? Can the numerous, well established, industry clusters really relocate together? Can the social infrastructure really be put in place to support the hundred thousand plus jobs from day one? It is not credible to assume that any one of the established business clusters around Heathrow would move in its entirety to a new UK airport, meaning that disbenefits for the productivity of these clusters, and hence the UK economy, are inevitable.

We have not seen any serious attempt to address what appears to be a near impossible logistical challenge or to address the risk to the UK of reliance on the unproven assumption that a "seamless"[13] transition can be achieved.

Environmental impact

Considerable further work is required before robust comparative judgements can be made about the impacts of one scheme versus another. In particular, a more complex approach to noise impact assessment must be developed that puts aviation noise in an overall context. What remains indisputable though is the major carbon inefficiency of siting any new hub airport considerably further away from the centres of passenger demand.

We note that in a number of the submissions comparisons are made to the environmental impacts of proposals to add capacity at Heathrow. We agree that comparisons need to be made, however these need to be on a like for like basis, and need therefore to consider not only the impacts but the benefits and scope of the proposals. We therefore support the commission's proposal in its 2014 work-plan to carry out sustainability appraisals of options that will account for and balance effects relating not just to the environment but also economy and society.

We noted in our response to the Airports Commission's discussion paper 05 that noise around Heathrow needs to be put in context. The majority of those within Heathrow's noise footprint are also in London, where background noise is at typical urban levels. Noise from road traffic in London affects four times more people than noise from Heathrow. In choosing to live in a major city, people have made a judgement on whether the benefits (such as access to jobs and city amenities) outweigh the downsides (including a noisier environment). In contrast, proposals to establish a new hub airport in the Thames Estuary or at Stansted may have a disproportionate impact on what are relatively quiet, predominantly rural areas. There is evidence that quiet areas are of value to people, with 91% of respondents to a survey stating that such areas need protecting[i]. We do not believe that the impact on relatively tranquil areas of a significant increase in overflight has been fully reflected in these proposals.

There are also significant carbon inefficiencies associated with the new hub options, which we do not believe are fully reflected in these submissions. Comparing Heathrow's proposed transport infrastructure with other potential hub options, notably Stansted and a potential new hub airport in the estuary, Heathrow would have over four and a half million more people living within a 60-minute travel time catchment. As such, for most UK passengers, a hub airport to the east of London would be in the wrong place.. In terms of carbon therefore, expanding hub capacity to the east of London will come with a material carbon penalty.

We note also that the Estuary options will result in unprecedented loss of ecological habitat. As acknowledged by Fosters and Tfl submissions, significant further work is required to establish the full extent of this loss and therefore there must remain significant risks around this and satisfying the requirements of EU and UK habitat regulations.

3. "Competing Constellation" or "Dispersed Hub" options

In this section we consider proposals submitted by:

- Gatwick Airport Ltd – proposal for a second runway at Gatwick
- MAG - proposal for a second runway at Stansted

The "competing constellation" or "dispersed hub" proposal is a zero-hub solution that would lead to an irreversible decline in Britain's connectivity.

- The claimed long haul connectivity is very unlikely to materialise at these locations
- The benefits case is inherently flawed as it is based on these long haul connections and network airline customers that are very unlikely to materialise
- Competition and choice would be constrained as Heathrow would not have the capacity to compete
- Funding: easyJet and Ryanair now operate most of the slots at Gatwick and Stansted respectively (~48% and ~71%)[14]. As low cost, short haul point to point carriers, they have a clear disincentive to fund hub capacity.
- All three airline alliances have stated they have no interest in moving to Gatwick

We will say more on each topic in turn, and have already provided the Commission with significant further detail and evidence within our earlier submissions, particularly on Airport Operational Models.

<u>Connectivity</u>

Gatwick's "Competing Constellation" proposal is a zero-hub solution that would lead to an irreversible decline in Britain's connectivity. The evidence does not support Gatwick's claims that a constellation of airports around London can supply the long haul connectivity the UK needs. Quite the opposite, only a hub airport with the scale to compete internationally can provide the long-haul flights the UK needs.

In the ten years that Heathrow has been full, Gatwick has failed to deliver sustainable connections to long-haul business destinations. Airlines that have been unable to access slots at Heathrow have tried and failed to make long-haul flights from Gatwick work. A total of 20 long-haul airlines have withdrawn from Gatwick in the last five years[15].

Long-haul airlines that have withdrawn all flights from Gatwick since 2008[15]:

20 long-haul airlines have withdrawn from Gatwick in five years

Year	Airline	Destination	Status	Year	Airline	Destination	Status
2008	American Airlines	Dallas	Cancelled	2011	Qatar Airways	Doha	Cancelled
2008	Oasis Hong Kong	Hong Kong	Cancelled	2011	Sunwing Airlines	Toronto	Cancelled
2008	Continental	Houston	Cancelled	2012	Hong Kong Airlines	Hong Kong	Cancelled
2008	Zoom	Ottawa	Cancelled	2012	Air Nigeria	Lagos	Cancelled
2009	Nationwide	Johannesburg	Cancelled	2012	Air Asia X	Hong Kong	Cancelled
2009	Air Namibia	Windhoek	Cancelled	2012	Delta	Atlanta	Cancelled
2009	Oman Air	Muscat	Cancelled	2012	Cubana	Mexico City	Cancelled
2009	Fly Globespan	Vancouver	Cancelled	2012	Korean Air	Seoul	Cancelled
2010	Ghana Int	Accra	Cancelled	2013	US Airways	Charlotte	Cancelled
2010	Mexicana	Mexico City	Cancelled	2013	Air China	Beijing	Cancelled

Over the same period Gatwick has gained just six long-haul airlines that are still operating, mostly to leisure destinations – Thomson, Monarch, Caribbean, Gambia Bird, Vietnam, and Iraqi.

Some of Gatwick's flights to Vietnam, one of the last long-haul services to an emerging market from the airport, are now flying via the Frankfurt hub to pick up more passengers to make the flight viable.

Gatwick's submission[16] states that the airport "is already supporting new connections to China." This is no longer true: Air China has become the latest airline to suspend its flights, withdrawing the service from Gatwick to Beijing from this winter. In fact, Gatwick does not even have a flight to the world's most important business and financial centre, New York, let alone to more distant and less-popular destinations.

Many of the airlines that have withdrawn from Gatwick operate flights to economic competitors in France, Germany and Holland. The issue is not a lack of demand from London, but that without pooling local demand with transfer passengers Gatwick cannot fill long-haul aircraft and compete with Paris, Frankfurt, and Amsterdam.

Hub airports, where local passengers combine with transfer passengers, are uniquely important in allowing airlines to fly to growth destinations. Heathrow serves more than 70 global destinations[17] that are not served by another UK airport and is one of only six airports world-wide that provides regular direct connections to more than 50 long-haul destinations[18]. This gives UK consumers a greater choice of destinations and makes Britain a more attractive location for international business. This source of competitive advantage for the UK cannot be sustained by Gatwick's proposals.

There are no European countries that have two hubs and no successful examples of what Gatwick is proposing. Analysis by York Aviation, referred to in Transport for London's submission, shows that adding capacity at other London airports but not at a hub would mean fewer routes than today, while adding new runways at a single hub would mean London and the UK could add more than 100 new routes[7]. This assessment is supported by a wide range of other literature, for example OECD recent analysis of airport capacity expansion[19].

All three network airline alliances have said publicly that they will not move to Gatwick or Stansted[20]. It is sometimes said that airlines' attitudes might be different if they were given no choice other than to operate from Gatwick. It is important to note that this is the choice airlines have faced for the last ten years while Heathrow has been full. There is no need to speculate about what might happen in such a scenario - we have ten years of hard evidence. The result is not sustainable long-haul flights from Gatwick or an enhancement of UK connectivity. Airlines that have been unable to access slots at Heathrow have tried and failed to make long-haul flights from Gatwick work. Ultimately airlines have chosen not to operate to the UK at all rather than to operate unprofitably from Gatwick. The result has been a comparative decline in the UK's connectivity compared to its European competitors.

Gatwick's proposal to prevent Heathrow expanding, while adding a new runway at its own airport, endangers Britain's future competitiveness. This zero-hub solution will lead to an irreversible decline in Britain's international connections. Only a hub airport with the scale to compete internationally can provide the long-haul flights the UK needs

Competition and choice

We disagree with Gatwick's assertion that adding an additional runway at Gatwick and then one later at Stansted would improve competition and bring benefits for passengers and airlines.

We agree that competition is good for consumers. Airlines benefit from having a choice of airport, and passengers benefit from having a choice of airline. In both cases competition drives innovation, service and value. Competition means choice. In a competitive environment a consumer who has a bad experience can go elsewhere instead.

By providing capacity at Gatwick but constraining capacity at Heathrow, airlines and passengers have less choice than if there was capacity at both Gatwick and Heathrow. Gatwick's proposal is the opposite of competition. It limits choice for airlines and passengers and creates a monopoly of spare capacity at Gatwick.

For passengers, choice of airline and route is at least as important as choice of airport. Gatwick's proposals would not improve competition they would constrain the choice of airlines and routes available for passengers.

London and the UK have benefited from a highly effective combination of airport types: a leading global hub providing global connectivity, and several point-to-point airports providing local catchments with excellent connections to Europe and a handful of long haul holiday destinations[21]. This combination provides a significant competitive advantage for the UK and also provides UK passengers with very competitive airline services. The Airports Commission should recognise the longer term need for more capacity at one of London's point-to-point airports in order to meet anticipated growth in short haul point-to-point demand, however the pressing issue is not "constellation capacity" but hub capacity.

Less choice of routes

The news that Air China is suspending flights from Gatwick to Beijing[22]; that Korean Air is withdrawing flights between Gatwick and Seoul[23]; and that the proposed Garuda Indonesia flight from Gatwick to Jakarta[24] will not start this winter as previously announced should come as no surprise. A total of 2o long-haul airlines have withdrawn from Gatwick in the last 10 years[15].

In the ten years that Heathrow has been full, Gatwick has had spare capacity but has failed to deliver a network of flights to long-haul business destinations. Ultimately airlines have voted with

their feet and chosen not to operate to the UK at all rather than to operate unprofitably from Gatwick.

There are routes that would be available from Heathrow with a third runway that are not available to direct or transferring passengers at all because of a lack of capacity at Heathrow. Heathrow serves 75 destinations[17] that are not served by another UK airport. The acquisition of bmi's slots by British Airways and the subsequent introduction of new routes such as Leeds, Chengdu[25] and Austin[26] show that when new capacity is available at the UK's hub then airlines add new routes. Having spare capacity at Gatwick but no capacity at Heathrow has done nothing to introduce a greater choice of routes to these cities.

Less choice of airline

Two or more airlines operating the same route are likely to deliver better service to passengers at lower cost than one airline operating the route. There are destinations that are currently served by one airline from London that would be served by more than one airline if there was spare capacity at Heathrow. To take one recent example, it took AeroMexico four years to gain the slots at Heathrow which enabled it to provide competition to British Airways on the Mexico City route. Having spare capacity at Gatwick but no capacity at Heathrow has done nothing to introduce competition and choice on long haul routes. Airlines and passengers want competition at the hub. Heathrow's long-haul network is the most heavily competed of the world's biggest cities. Across the 90 routes, 48 airlines compete with 246 daily services[18]. Several long-haul routes have five carriers competing. More capacity will support further competition. Passengers will benefit directly from that choice.

There are 26 emerging market destinations with daily flights from other European hubs that are not served daily from Heathrow[18]. To take one recent example, China Southern started serving Guangzhou from Paris more than eight years ago but it was only able to access slots at Heathrow for the first time last year. Having spare capacity at Gatwick but no capacity at Heathrow did nothing to give European transfer passengers a choice of airport to fly through to get to Guangzhou.

Many passengers at UK regional airports now have to travel through a European hub to reach their final destination rather than travel through the UK's hub. There are 23 UK destinations served by Amsterdam compared to just seven from Heathrow[27]. Some passengers at UK regional airports have no choice but to fly via Amsterdam, giving KLM a monopoly on those routes. If Heathrow had spare capacity then those passengers would have an alternative hub via which to reach their final destination. Having spare capacity at Gatwick but no capacity at Heathrow does nothing to give regional passengers a choice. Gatwick doesn't have the choice of long-haul flights, regional connections or transfer facilities to offer any competition to Amsterdam.

Economic benefit

Gatwick's benefits case is inherently flawed as it is based on both long haul connections are very unlikely to materialise and the arrival of network airline alliances from Heathrow that have clearly stated they won't move. [See above section on connectivity].

The dense, embedded business population around Heathrow means that both the geographic centre of passenger demand is located just 12 miles North of Heathrow and that 30% of Heathrow's passengers are travelling for business[18]; more than double the level of other London airports. With airline yields therefore much higher at Heathrow, airlines are extremely unlikely to choose to go elsewhere.

Gatwick's assertion on regional growth is also flawed. *"A proposal to expand Gatwick – to the south of London – would allow airports to the north of London – such as Birmingham and Stansted – to grow to serve the overlapping catchment areas north of London. Thus, expansion of Gatwick, as part of a constellation, would be consistent with promoting regional growth, particularly in the Midlands."*

Regional growth is best promoted by providing the very best choice and facilities to businesses. For UK airports this means providing long-haul intercontinental connectivity to the growth markets of the future. This tends to attract the HQ of international businesses which in-turn promote on-shore back-office corporate functions, and their supply chains, across the countries and the regions. Similarly we recognise that business requires stability and ease of access to its connections overseas. We therefore consider that the calculation of any agglomeration benefits arising from placing a new hub airport in a new location and closing Heathrow must take into account of the 'disagglomeration' dis-benefits to existing business clusters in West London and the Thames Valley, which, it should be noted, may never reform elsewhere.

Funding

easyJet and Ryanair now operate most of the slots at Gatwick and Stansted respectively (~48% and ~71%)[14]. As low cost, point to point short haul carriers it is extremely unlikely that they will support the funding of investment in developing the higher cost hub infrastructure e.g. transfer baggage or A380 stands & taxiways.

Airline Customers

The constellation proposal is reliant upon attracting network airlines away from their base at Heathrow. Over the decade that Heathrow has been full, this has not happened.

The Commission has rightly highlighted a handful of potential reasons why airline alliances have not moved to a second London airport to date. These include Heathrow's: scale to operate as a hub; higher yields; high density catchment of affluent travellers; and high profile overseas. The high costs of switching airports and the releasing of slots at Heathrow for the benefit of competitors are other important influences. In our submission on Airport Operational Models we outlined further reasons why Star Alliance, SkyTeam or a major network carrier are unlikely to ever choose to move to a second UK airport whilst Heathrow is the hub.

Ultimately, alliances will not choose to move to a different London airport as their operations will continue to be considerably more profitable at Heathrow. In an industry where profit margins average 0.6%[18], even 1% of volume or yield is often critical to viability.

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