



Pointmaker

DOUBLE UP ON HEATHROW

A SIMPLE, PRIVATELY FUNDED, AFFORDABLE AND ACHIEVABLE SOLUTION

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SUMMARY

- Economic growth in the UK is being held back by the shortage of airport capacity in the South East.
- The only realistic solution to UK airport congestion is the expansion of Heathrow. However, those who live near Heathrow are understandably concerned at the impact that Heathrow expansion might bring.
- This paper sets out an innovative, practical and affordable solution to this conundrum, the “Heathrow Hub”, an integrated air and rail facility. This would nearly double Heathrow’s available slots. It involves:
 - extending both of the existing runways up to a total length of about 7,000 metres and dividing them so that they each provide two, full-length, runways, allowing simultaneous take-offs and landings. There are no operational or technical issues to prevent this; and,
 - providing a new Terminal immediately north of Terminal 5, directly connecting the airport with the M25 motorway, Crossrail, the Great Western Main Line and, as an option, an alternative HS2 route via the airport (should the HS2 project proceed).
- “Heathrow Hub” has five main advantages:
 - **Capacity** – doubling the number of Heathrow’s runway slots would allow more flights while also reducing delays and improving its resilience and efficiency. Importantly, this would also allow some runway alternation throughout the day;
 - **Quick** – significant new runway capacity could be completed within five years;
 - **Quiet** – the extra capacity could allow the airport to open later in the morning and possibly allow innovative noise reduction techniques. Very few, if any, new areas will be brought into the airport’s noise footprint. In addition, early morning arrivals could land more than two miles further west, reducing noise over London;
 - **Cost effective** – the cost and the airport user charges would be much lower than that of any other new airport. It would also be entirely privately funded;
 - **Connected** – by connecting Heathrow to the national rail network, it will reduce road congestion and improve regional access to the only hub airport in the UK.



1. THE NEED FOR MORE CAPACITY

Governments have grappled with the challenge of expanding airport capacity for at least 45 years, certainly since the Roskill Commission was established in 1968.

What was difficult in the early 1970s is even more challenging today, as environmental issues assume increasing importance and public scrutiny of the decision-making process intensifies. But what is also clear is that delay is no longer an option.

Global trade demands connectivity. If the UK wants to develop trade with the emerging economies, then it needs good air links with these countries. And Heathrow, as the Transport Select Committee made clear, plays a unique role for the UK in providing that connectivity.¹

"We conclude that expansion of Heathrow is necessary and recommend that the Government permits this to happen."

Freight connectivity is as important to the UK economy. Heathrow, as well as being the UK's largest traffic generator, is also the country's biggest port by value of freight handled, with freight going through Heathrow being worth £35 billion a year.² It provides vital capacity on routes that would not support a dedicated freight service and is therefore critical to inward investment decisions. The Freight Transport Association (FTA) has pointed out that:³

"Air freight is crucial to the UK economy because it provides a service which the rest of UK industry relies upon in order to be competitive in the global market... Although the volume of freight travelling by air is very small when measured by weight – around 0.5% of the total, it has a high value – about 40% of the UK's extra-EU trade."

¹ House of Commons Transport Committee, [Aviation Strategy](#), 2014.

² Heathrow Airport Ltd., [press release](#), 25 April 2013.

³ FTA, [Submission to the Airports Commission](#), 25 April 2013.

But Heathrow is full. Forty years ago, the Roskill Commission estimated that its practical annual capacity would be about 315,000 Air Transport Movements (ATMs), or flights. Now it is handling 480,000 ATMs annually and the two runways operate at 99% capacity.⁴

The consequences of congestion include:

- inefficient operations, as there is a lack of resilience to accommodate operational challenges such as reduced visibility and high winds; leading to disproportionate impacts from any disruption;
- higher construction costs (affecting user charges and therefore fares);
- extended approach paths to facilitate precise separation on landing, resulting in widespread noise impacts;
- restricted opportunities to develop new routes to destinations, thereby contributing to a lack of direct connectivity to the fastest growing economies for British businesses.

2. WHY HEATHROW?

Heathrow is the world's busiest international airport. It is estimated to contribute around 1% to UK GDP.⁵ However, its challenges have led to suggestions for other ways of increasing hub capacity.

Other airports serving London and the south east have considerable spare capacity, leading some to claim that there is therefore no case for expanding Heathrow, the UK's only hub airport.

However, while traffic at Heathrow continues to increase, other airports have not been able to develop new long-haul routes on any significant scale despite Heathrow's lack of spare capacity. Instead, from 2005 to 2011, there was a 49%

⁴ Heathrow Airport Ltd, [One Hub or None](#), 2012.

⁵ See London Assembly, [Heathrow Expansion](#), 2005.



growth in passengers flying from UK regional airports to transfer at overseas hubs, such as Schiphol and Charles de Gaulle.⁶

Other proposals suggest combining Heathrow and other London airports. But “Heathwick”⁷ for example would add significant costs without producing commensurate benefits. The extended journey times and the inconvenience of connecting two airports 45 miles apart, coupled with the improbability of Gatwick becoming a major base for any airline, make it difficult to see how this could compete with the efficient airside connections offered between flights at competing European hubs, as has been pointed out by Heathrow Airport:⁸

“Not only would the Government need to fund and build an expensive and complex rail connection. It would also mean Heathrow’s minimum connect time of 60 minutes would extend to at least 100 minutes. This wouldn’t be competitive with other European hubs, such as Amsterdam which has a 45 minute minimum connect time.”

Boris Johnson has repeatedly dismissed Heathrow as “a planning error of the 1960s”,⁹ but that overlooks its economic benefits. For example, Heathrow retains the highest business connectivity score amongst major European hubs,¹⁰ and is located on seven out of the top 10 business routes in the world:¹¹ this contributes to the fact that Heathrow accounts for just 32% of

UK aircraft seats but more than 80% of long-haul business and first class seats.¹² And its catchment area is particularly valuable to the airlines themselves, as the Chief Executive of Emirates has explained:¹³

“People complain about Heathrow but airlines want to fly to it and passengers want to travel to it. Why? Because 25% of passengers can get there in 30 minutes. [That doesn’t] apply to Boris Island.”

The result is a virtuous cycle where access to a global airport drives business location decisions, in turn providing an attractive catchment area for airlines.

These synergies result, for example, in the Thames Valley being ranked seventh in Europe for GDP per capita,¹⁴ and hosting the European HQ of 11 of the top 30 global brands.¹⁵

Heathrow’s location also has certain climatic and topographical advantages which a Thames estuary airport may lack, such as minimal crosswinds, fog, snow and bird strikes.

Finally, airlines, businesses, Heathrow itself and the taxpayer have together already invested billions of pounds in infrastructure in the existing site and its environs. Moving Heathrow or closing it down would be accompanied by significant economic cost and inconvenience. Rather than taking the commercial risk of relocating to a new airport, with a less attractive catchment and with higher user charges, airlines might instead simply move services to mainland European hubs. The result would be to relegate the UK to the end of branch lines, with serious consequences for the UK economy.

⁶ IATA IS database 2005 & 2011.

⁷ “Heathwick” has been proposed in, for example, a Greater London Authority briefing, [#VirtualHub: An Alternative to a Third Runway at Heathrow](#), 2012.

⁸ Heathrow Airport Ltd, [One Hub or None](#), 2012.

⁹ See, for example, [Daily Telegraph](#), 21 September 2008.

¹⁰ York Aviation for the City of London Corporation, [Aviation Services and the City](#), 2011 Update.

¹¹ House of Commons Transport Committee, [The Future of Aviation](#), 2009.

¹² Heathrow Airport Ltd, [One Hub or None](#), 2012.

¹³ Tim Clark, [The Sunday Times](#), 11 November 2012.

¹⁴ FDI Magazine, [European Cities and Regions of the Future](#), 2010.

¹⁵ Presentation by [Thames Valley Chamber of Commerce](#)



The Roskill Commission's conclusions from 1971 remain relevant.¹⁶

"The main objection to Foulness was much simpler. It was no use building an airport which met all the necessary tests of environmental accessibility but which then failed as an airport. It was no use locating your airport in a place to which neither airlines nor passengers would want to go. Foulness supporters argued there was a straightforward way out of this situation: you could simply force the airlines to use Foulness. But they might then respond by using alternative sites out of London, and possibly by not coming to Britain at all."

3. HEATHROW HUB

"Heathrow Hub" is a practical and innovative method of doubling runway capacity at Heathrow which would have overwhelming economic benefits for the UK. Its advantages include:

- it would require no public funding;
- it could eventually double Heathrow's slot availability while also providing the quickest possible initial increase in capacity;
- it would be an integrated transport solution;
- it would be developed in phases so that capacity could be delivered as required by demand, or by the need for noise mitigation;
- it would incorporate various environmental mitigation measures to reduce current noise and air quality impacts;
- it would have sufficient capacity to ensure resilience in the case of adverse weather conditions;
- it would increase Heathrow's catchment area, without adding to road congestion;
- it would provide better access between the airport and the UK's regions.

How does it work?

Heathrow Hub would retain the two existing runways, and take advantage of the simple fact that these are much longer than required for modern aircraft.¹⁷

Both runways would therefore be extended at one or both ends, and divided by an intermediate safety zone to comply with mandatory safety codes (see Figure 1). Each existing runway becomes two separate, in-line runways – one for aircraft landing and one for taking off. The M25 motorway would be diverted or possibly bridged where crossed by runway and taxiway extensions.

During the construction phase, each of the four runways could also be a different (and variable) length to accommodate varying aircraft performance requirements. The proposed arrangement allows each runway to be used simultaneously, providing, in its ultimate phase, a doubling of slots. This would meet all foreseeable demand and create enormous flexibility for noise mitigation and runway alternation.

Construction could take place in phases. One option would be to extend the northern runway first, with construction of the southern runway following as and when required. This would be coordinated with development of the Heathrow Hub transport interchange to provide the necessary surface access improvements and, by relocating some landside facilities from Heathrow's constrained site, release space for larger numbers of aircraft.

The additional capacity would dramatically improve Heathrow's operational efficiency, both in normal operations by reducing the intensity of runway utilisation, and in periods of

¹⁶ David McKie, *A sadly mismanaged affair: a political history of the third London airport*, Croom Helm, 1973.

¹⁷ An additional benefit of this proposal is that it would not introduce new flightpaths and would thereby not expose new populations to aircraft noise (which would probably be politically challenging).



perturbation (for example during snow, low visibility or high winds).

There are also environmental benefits, including reduction of delays and ground hold times. Making best use of existing assets is also likely to be far less carbon intensive than constructing an entirely new airport and its associated transport and ancillary infrastructure.

Extending existing runways in this way does not conflict with the Coalition's opposition to a third runway, nor does it bring new areas into the noise footprint.

Westerly operations, currently used about 70% of the time, are shown in Figure 2 overleaf. Easterly operations would simply use the runways in the same way but opposite direction.

Noise Mitigation

These proposals could allow various noise mitigation techniques to be introduced both through changes in approach and descent patterns and through modern landing systems and technologies.

An agreed percentage of the additional slots could be left unused to accommodate some runway alternation schemes. In addition, the spare capacity created by these proposals could allow the airport to open later in the morning, removing the current 4.30am arrivals. Furthermore, in the early morning peak, when there are no departures, the second, rather than the first, of each of the in-line pairs of runways could be used for aircraft landing.

By effectively moving the descent point by approximately two miles, the height of aircraft over areas below the flightpath would be increased, reducing the noise footprint at this highly sensitive time of day.¹⁸

The significant increase in available runway capacity also provides much greater flexibility in runway use, allowing, for example, runway alternation at different times of the day to provide noise relief.

In conjunction with these proposals, other means of further reducing noise could be adopted, including:

1. The current intermediate approach height of about 4,000ft for aircraft landing into Heathrow could be raised to approximately 8,000ft. This alone will reduce noise levels over a large part of London.
2. Arriving aircraft could use a two stage descent, the first at approximately five degrees as opposed to the current three degrees, changing to a normal three degrees slope at approximately 1,500ft. This is currently under consideration by NATS and would dramatically decrease noise over a large area of Heathrow's noise footprint.
3. Departing aircraft could take advantage of modern engines' increased power to employ a steeper climb-out on departure, reducing noise outside the airport boundary with only a marginal increase in engine wear and fuel consumption.

Modern guidance systems, such as MLS or GPS, allow curved approaches to be flown. By adopting the use of curved lateral approaches with two stage vertical approaches, further noise mitigation can be achieved (although this would need to be assessed against impacts on areas outside Heathrow's existing noise footprint). It is worth noting that, without additional runway development, aircraft noise will increase as a result of the greater use of larger aircraft, an inevitable consequence of airlines maximising their use of Heathrow's scarce runway capacity.

¹⁸ These concerns are listed in the London Assembly Transport Committee report, [Airport Capacity in London](#), May 2013.

FIGURE 1: HEATHROW HUB

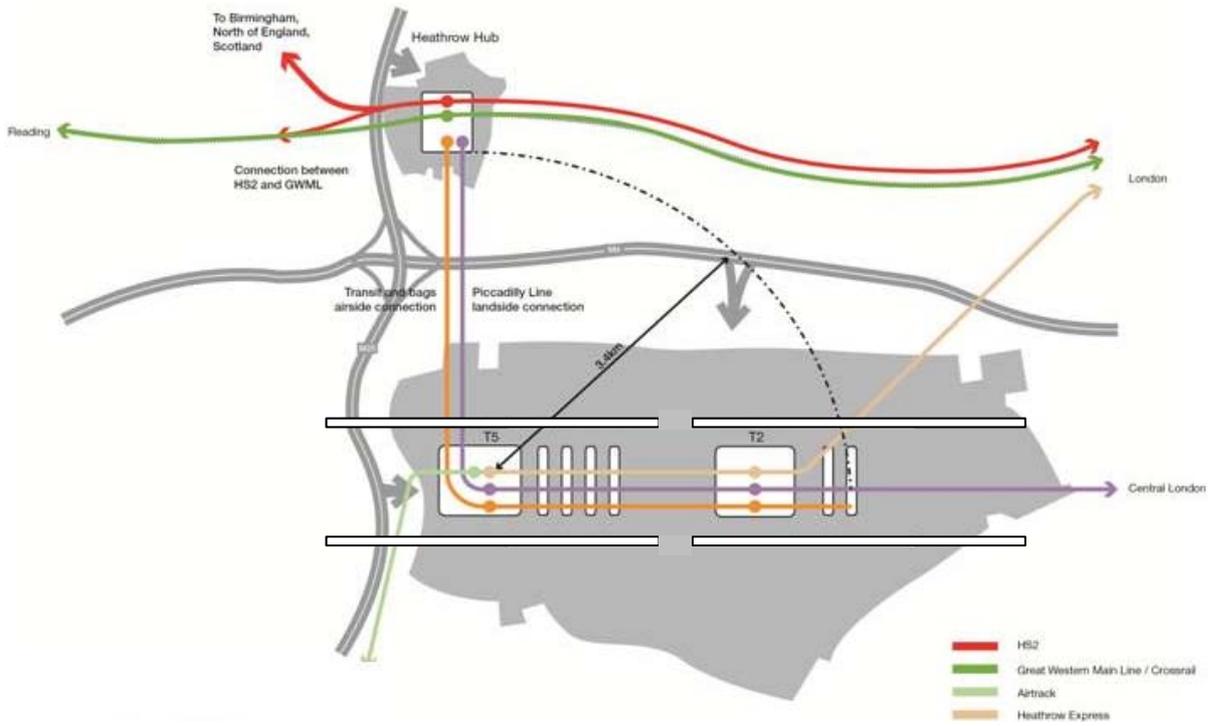
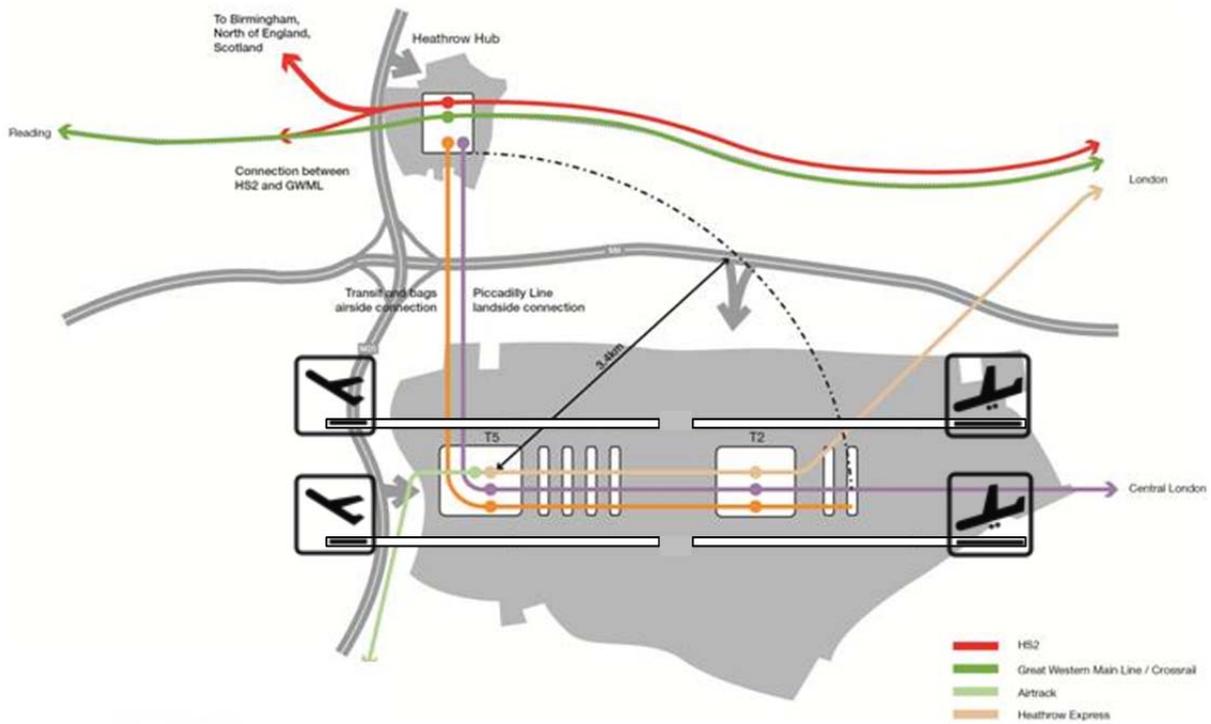


FIGURE 2: LANDING AND TAKEOFF





The Heathrow Hub interchange

A new multimodal air, rail and road interchange could be located on a readily developable site approximately two miles north of Heathrow's Terminal 5 – roughly the same distance as that between T5 and the new T2 satellites.

This interchange would provide seamless connections between:

- **Air.** A new passenger terminal would be developed to accommodate passenger growth at an enlarged Heathrow. Fast transit and baggage links between the terminal and satellites, located within the existing airport campus, would allow the Hub to function as an “on-airport” terminal.
- **Rail.** A new railway station would be built, located on the Great Western Main Line (GWML), served by Crossrail, (from 2018), regional and inter-city rail services, and the potential to extend the Piccadilly Line to connect with the interchange and GWML services. The interchange could also be served by HS2 if the current route was altered to run directly via Heathrow, (which would reduce HS2's cost and environmental impacts, and, by increasing passenger demand while avoiding the inherent inefficiencies of an airport spur, slightly ameliorate the flaws in its business model).
- **Road.** The new Hub would have direct access to the M25 motorway, just north of its junction with the M4.

Phasing

The development would be phased to deliver benefits at the earliest possible stage.

Phase 1 would provide new terminal capacity outside the existing constrained airport boundary (but still “on-airport”). The Hub site could also accommodate some of the landside facilities which currently congest the Central

Terminal Area. This would allow more efficient ground operations and contribute to a reduction in the airport's environmental impacts.

The Heathrow Hub rail interchange would also provide direct rail access to Heathrow from much of the UK, particularly from the economically disadvantaged areas of the South West of England and South Wales.

Phase 2 would add a new high speed rail connection between Heathrow Hub and HS1. This avoids the adverse environmental impacts of the current HS2 proposal by tunnelling below the Great Western Main Line, (and partly paralleling Crossrail's tunnels through central London). Two central London interchanges, at low level below Paddington and Euston/Kings Cross/St Pancras, would allow seamless interchange with Crossrail, Thameslink and National Rail services.

The Government has confirmed a programme of electrification, including the Great Western Main Line, the Reading-Basingstoke line and the reinstated East-West line between Oxford and Bedford. Combined with Heathrow Hub, these committed enhancements would allow existing “Javelin” services to be extended from Kent, across London, via Heathrow to destinations such as Reading, Basingstoke, Oxford and Milton Keynes.¹⁹

As well as further improving rail access to Heathrow, this would relieve the UK's most congested radial rail routes into Paddington and Waterloo, reinforce the UK's “Silicon Arc” between Oxford and Cambridge, and provide new journey opportunities to transform the economic geography of the South East.

¹⁹ This principle is also endorsed by the alternative Euston Cross proposal for the HS1/HS2 connection, by Lords Berkeley and Bradshaw. See [Rail Technology Magazine](#), 8 March 2013.



The link with HS1 would also enable air rail substitution of short-haul flights, releasing some runway capacity at Heathrow.

Phase 3 could, with an amended HS2 route, further increase Heathrow's accessibility, allowing high speed rail to replace many domestic flights and releasing further runway capacity.

Improving access to Heathrow

While decisions on air/rail substitution of specific routes are a commercial matter for airlines, improved train connections with Heathrow could release significant runway capacity for long haul flights. It has been suggested that air/rail substitution could release between 45,000 to 91,000 ATMs a year.²⁰

However, this is dependent on Heathrow being on the main train network – not a branch or loop off it. This allows much higher service frequencies (essential for time-sensitive airport passengers) and is a more efficient way of serving airports. Even major traffic generators like Heathrow would struggle to fill trains with airport traffic alone, at the frequencies required to be attractive to passengers and in numbers sufficient to generate adequate revenues to offset operating costs.

This is also the consensus view of Heathrow's airlines²¹ and owners,²² and the Department for Transport²³ as well as transport specialists

such as Oxford University's Transport Studies Unit²⁴ and Greengauge 21.²⁵

Other European airports are clear that their success is due to their location on through high speed lines, not branches or spurs.²⁶ On its website, Frankfurt Airport describes the importance of such intermodality.²⁷

"Airports with intermodal capabilities have an edge on their competitors because intermodality generates additional traffic: Integration of Frankfurt Airport in Deutsche Bahn's high-speed rail network has expanded the airport's catchment area compared to airports without Long-distance Train Stations. It strengthened the hub function, raised passenger figures, and given us an important competitive edge. At the same time, moving air traffic to rail eases some of the strain on flight capacity."

Expanding Heathrow's catchment area in this way would also maintain the feeder and transfer traffic that is essential to sustain high frequencies of flights serving a wide range of destinations.

Access to Heathrow is one of the most important issues for UK regional economic competitiveness. As the British Chambers of Commerce has stated:²⁸

"The UK regions are at a major disadvantage in terms of access from major world markets. This hampers the ability to attract inward investment and regional economic growth."

²⁰ Heathrow Airport Limited, [Evidence to the Transport Committee's Inquiry into the Strategic Case for High Speed Rail](#), June 2011.

²¹ See London (Heathrow) Airline Consultative Committee (LACC) airlines and the Heathrow Airline Operators Committee (AOC), [Submission to the HS2 consultation](#), July 2011.

²² See Heathrow Airport Ltd., [Submission to the HS2 consultation](#), July 2011.

²³ DfT, *New Line Capacity Study – Cost Estimate*, 2007.

²⁴ See Dr Moshe Givoni, Oxford University Transport Studies Unit, *The House*, 31 January 2011.

²⁵ See Greengauge 21, [The Heathrow Opportunity](#), 2010.

²⁶ See Guillaume Pepy, Chairman SNCF, Transport Times conference, London, May 2009.

²⁷ Frankfurt Airport website, ["Intermodality"](#).

²⁸ British Chambers of Commerce, [Economic Impacts of Hub Airports](#), 2009.



It is also a major factor in inward investment, as the DfT recognises:²⁹

"[Heathrow] is vital to the UK's competitiveness: easy access to Heathrow is often a major factor for businesses in deciding where to locate."

A direct connection with the main rail network would also enable Heathrow to be served by EuroCarex, the proposed network of time-sensitive overnight freight on Europe's high speed rail network. This would improve Heathrow's freight capability, increasingly important to "just in time" supply chains, with high-value, low-weight components.

4. THE BENEFITS TO THE TAXPAYER

The relatively simple nature of the Heathrow Hub infrastructure, and the ability to take advantage of past investment in Heathrow, results in a capital cost far lower than all the other options being considered. In addition, the phased nature of the proposals allows capacity to be matched with demand. This increases affordability and reduces the commercial risk inherent in "all or nothing" proposals for entirely new infrastructure.

Constructing a new terminal and surface access infrastructure outside the existing congested operational airfield also significantly reduces capital costs.

Figure 3 overleaf shows how the cost of this proposal could be tens of billions of pounds cheaper than constructing an entirely new airport such as Lord Foster's Thames Hub (which is used here as some cost estimates are available).

Clearly, the cost of any new airport, together with the necessary surface access in the form of roads and dedicated rail and tube lines, as

well as the necessary ancillary facilities would be unprecedented. As the Mayor acknowledges, it would require a considerable contribution from the taxpayer.³⁰

On top of that, even assuming that aeronautical charges at a new airport were comparable to Heathrow's, (which are already amongst the highest in the world), it is difficult to see a case for commercial funding – particularly if the private sector is expected to assume any of the development or commercial risk.

It is also likely to be uneconomic for airlines to operate from a new airport where user charges were required to finance capital costs. The Independent Transport Commission, for example, suggests that a new estuary airport would result in airline charges being three times greater than comparable continental competitors.³¹

Schiphol, which shares some of Heathrow's environmental challenges, also investigated the option of a new off-shore airport but concluded that viability was unlikely.³² The Transport Select Committee's Inquiry into the UK's aviation strategy similarly concluded that, in all the examined scenarios, "a new hub airport would not be commercially viable".³³

²⁹ DfT, [Factsheet Connecting to Heathrow](#), 2011.

³⁰ "The Mayor admitted that it was "inevitable" that the bill for road and rail links from his proposed Thames Estuary airport would be picked up by the taxpayer – at a cost of £30 billion over 15 years" – [The Evening Standard](#), 4 October 2012.

³¹ Independent Transport Commission, [Flying into the future: Key issues for assessing Britain's Aviation infrastructure needs](#), May 2013.

³² Guillaume Burghouwt, [Airline network development in Europe and its implications for airport planning](#), Ashgate Publishing, 2007.

³³ Oxera, [Would a new hub airport be commercially viable?](#), January 2013.

Figure 3: Comparison of capital costs and user charges between Thames Hub & Heathrow Hub

	Thames Hub (Isle of Grain)		Heathrow Hub	
Airport cost	Runways, aprons, terminals, cargo etc.	£20bn ³⁴	Runway and taxiway extensions (inc. site acquisition)	£5bn ³⁵
Access cost	Road & Rail infrastructure	£15bn ³⁶	Road & rail infrastructure, terminal (inc. site acquisition)	£5bn
Other costs	Relocate LNG terminal	£3bn ³⁷		
	Barrier Crossing of Estuary	£6bn ³⁸		
	Infrastructure improvements (inc. site acquisition/clearance) ³⁹	£4bn ⁴⁰		
	Acquire/close Heathrow ⁴¹	£20bn ⁴²		
	Gross development cost	£68bn		£10bn
Offsets	Heathrow residual site value	£3bn ⁴³		
	Total development cost	£65bn		£10bn
RAB⁴⁴	Development cost	£65bn	Develop't cost + existing RAB (£15bn) ⁴⁵	£25bn
	RAB x rate of return (£65bn x 6.2%) ⁴⁶	£4.0bn p.a	£25bn x 6.2%	£1.6bn p.a
	Capital charge (£400m per £10bn RAB) ⁴⁷	£2.6bn p.a		£1.0bn p.a
Annual RAB⁴⁸		£6.6bn		£2.6bn
Airport user charges⁴⁹	RAB of £6.6bn/106.6m pax ⁵⁰	£62/pax	RAB of £2.6bn/106.6m pax	£24/pax

³⁴ Assumes two pairs close parallel runways, no allowance for additional crosswind runways if found to be necessary for all-weather operation – [Thames Hub](#), Foster & Partners 2012.

³⁵ Assumes all phases of runway development constructed.

³⁶ £20bn orbital rail cost estimate ([Thames Hub](#)) plus £10bn estimate of additional cost of new road infrastructure to transport the 40% of the 150 million passengers who will rely on road access. Assume airport developer bears 50% of cost of surface access infrastructure.

³⁷ Estimate from local MP Mark Reckless, quoted in [Kent Online](#), 8 October 2012.

³⁸ [Thames Hub](#)

³⁹ [Thames Hub](#) Excludes cost of new housing, schools, hospitals etc. for airport staff and families.

⁴⁰ [Thames Hub](#)

⁴¹ Excludes cost of closing other airports, eg: London City, Southend, Biggin Hill, (where existing flightpaths conflict with estuary airport) and possible requirement to acquire non-UK airspace (eg: Schiphol).

⁴² Oxera, [Would a new hub airport be commercially viable?](#), January 2013. Excludes wider impact of closing Heathrow.

⁴³ A comparable site RAF Uxbridge was sold for £1 million/acre. Heathrow site area is approximately 3,000 acres.

⁴⁴ Under the current regulatory model, "a regulated asset base (RAB) is defined and valued. As time progresses, capital expenditure (capex) is added to the RAB. The RAB drives two of the fundamental building blocks that make up a company's revenue requirement: the cost of capital (the return on the RAB) and the depreciation allowance (return of the RAB). These two building blocks are then added to the projected level of operating expenditure (opex) to calculate the total revenue requirement for the business." See [About Heathrow Airport](#).

⁴⁵ [Heathrow Finance plc Investor Report](#), 18 December 2012.

⁴⁶ Assume 6.2% pa Weighted Average Cost of Capital. See CAA, [Economic Regulation of Heathrow and Gatwick Airports, Q5 2008-2013](#), 11 March 2008.

⁴⁷ Independent Transport Commission, [Flying into the Future](#), Appendix 1, May 2013.

⁴⁸ The table makes a simplified assumption that the RAB for each alternative is unchanging over time.

⁴⁹ In 2012, 70 million passengers flew on 471,341 flights at Heathrow at an average of 148 passengers per flight (see [About Heathrow Airport](#)). Assume 80% capacity utilization of 900,000 flights at both airports to provide resilience and reliability. Number of projected passengers is therefore 900,000 flights x 148 passengers x 80% = 106.6 million. Estimates include aeronautical and non-aeronautical charges. For comparison, current average Heathrow charge per pax £18. See Independent Transport Commission, [Flying into the Future](#), Appendix 1, May 2013.

⁵⁰ Thames Hub is likely to provide even lower capacity than assumed here as its proposed layout (two pairs of close parallel runways) would prevent independent operation of each pair of runways. A similar layout at Paris Charles de Gaulle allows a maximum of 710,000 ATMs compared to 900,000 with independent operation of four runways (as Heathrow Hub would provide) – Mayor of London, [A new airport for London](#), Part 1, Figure 20, January 2011.



Note that the business case for a new estuary airport should include estimates of the environmental impact of an entirely new estuary airport – likely to be particularly significant for an estuary site located in protected areas, some enjoying the highest level of protection by international treaty.

5. CONCLUSION

The current uncertainty over the UK airport strategy is holding back economic growth and deterring inward investment. As Slough Borough Council recognises:⁵¹

“Uncertainty now abounds around the future of Heathrow, and this is of great concern to many businesses. 75% of businesses located in the Thames Valley cite Heathrow as one of the primary factors for their location, and 70% of businesses locating in the Thames Valley for the first time locate within 60 minutes of the airport. Thames Valley Chamber of Commerce have already experienced a reluctance to invest in the Thames Valley by foreign businesses owing to the uncertainty which exists around future aviation provision in the region.”

The proposal for Heathrow Hub provides the best chance of finally resolving the vexed question of UK airport policy. It also meets the requirement set out by the Airports Commission for an integrated approach to the question.

By providing an innovative, integrated approach to air and rail, and by balancing economic and environmental demands, it provides a practical and affordable solution to a key barrier to growth. Crucially, it also allows a phased approach, enabling additional capacity to be provided as required and where

environmental constraints allow, thereby avoiding reliance on inherently uncertain long term forecasts. Together with its far lower capital cost and the proven commercial success of Heathrow, it provides a compelling opportunity for private investment.

In contrast, any other option requires a leap of faith that could only be funded by Government, and which, given the uncertain success of many recent large infrastructure projects in the UK, runs too great a risk of failure.

Finally, the Airports Commission’s integrated approach to air and rail stands in stark contrast to the silo approach adopted in planning HS2. If the Commission concludes, in 2015, that Heathrow should remain the UK’s hub airport, it would be unfortunate if this required HS2 to be “adapted,” as the Secretary of State for Transport has suggested, after almost a billion pounds of public monies had been spent.

The High Speed Rail Preparation Bill, currently progressing through Parliament, seeks authority for unspecified sums of public monies to continue work on HS2. The uncertainty over the future of Heathrow provides a compelling reason to halt further expenditure on HS2 – the largest investment of public monies in a single project ever envisaged – until air and rail strategies can be considered together in accordance with the recommendations of both the Commons Transport Select Committee and Government’s own policy statements.

Without such an approach, there is a grave danger that the UK faces another 45 years of indecision and debate. In the increasingly competitive global economy of the twenty first century, that is simply not an option.

⁵¹ Slough Borough Council, [Cabinet Report](#), 16 July 2012.



THE AUTHORS

Captain William “Jock” Lowe BSc, PhD, DSc, DUniv, FRAeS was Concorde’s longest serving pilot (25 years). As General Manager Operations Control, he was also responsible for the day to day operation of the British Airways fleet of 300 aircraft worldwide, as well as the operational integration of British Airways and British Caledonian at Gatwick following the 1988 merger. From 1992, he was Flight Operations Director and Chief Pilot of British Airways and Chairman of the UK Flight Operations Director Group. He is Past President of the Royal Aeronautical Society and is currently a director of Runway Innovations Ltd, a company set up to explore options for Heathrow expansion.

Mark Bostock is a Fellow of the Institution of Civil Engineers and was a Director of Ove Arup and Partners from 1980 to 2004, where he established the company’s economic and planning consultancy. He led Arup’s work in identifying and promoting the Right Line for the Channel Tunnel Rail Link, the UK’s first high speed railway (now HS1), replacing British Rail’s preferred route. This was followed by setting up London & Continental Railways Ltd, which, in February 1996, won the PFI bid to own and operate European Passenger Services (the operators of Eurostar), and to design, build and operate the new 109km railway linking the Channel Tunnel with London via Stratford – a £6.2 billion investment. HS1 was commissioned on time and on budget on 14 November 2007. He is also a director of Runway Innovations Ltd.

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