

Appendix 11



Links to Heathrow

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Introduction

- 11.1 This appendix scopes the potential market for a direct link to Heathrow, considers the impact on carbon emissions, and examines potential service patterns for serving Heathrow, together with the impact of such an operation on reliability and the opportunity cost in terms of the capacity lost for services to central London.

The HS2 Business Case

- 11.2 The Consultation documents published in February 2011 include very little useful information on the business case for the Heathrow spur.
- 11.3 The main consultation paper High Speed Rail: Investing in Britain's Future¹ asserts that there is a *"compelling strategic case for being able to link the high speed network to Heathrow"* (page 24) and that this link should be in the form of a spur, costing between £2.5 – 3.9 billion. However, it is acknowledged that operating to Heathrow would have an opportunity cost in terms of capacity to central London, as a spur would mean that a train path to central London would be lost for every train to Heathrow (Page 66). To minimise this capacity impact, it is suggested that Heathrow trains would split/join on-route (presumably at Birmingham Interchange) although operation on this basis would inevitably extend journey times and impact on reliability.
- 11.4 The Economic Case for HS2² provides no more detail. It is claimed that the assessment of the full "Y" network includes Heathrow (Page 7), but no Heathrow services are shown in the *"Service specification assumptions for the Y network"* (page 61), and there is no published incremental case for the spur. It is not clear whether this is because the work has not been done, or that the evaluation which has been done shows that there is no case for building the spur on any basis of conventional transport economic evaluation.

¹ <http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/hsr-consultation.pdf>

² <http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/hs2-economic-case.pdf>

- 11.5 It is however clear from the report prepared by HS2 Ltd for the Labour government, published in March 2010 that their conclusion at that time was that there was no business case for a direct link to Heathrow, even though it was then Government policy to increase Heathrow's capacity by building a third runway:

*"...the total market for accessing Heathrow from the West Midlands, North West, North and Scotland is currently around 3.7 million trips. Our modelling suggests relatively little of this would shift to HS2, with the rail share increasing by less than 1 percentage point (about 2000 passengers per day, or **just over one train load each way**)" (Para 3.3.10).*

Potential Markets

Air Passengers Accessing Heathrow by Surface Transport

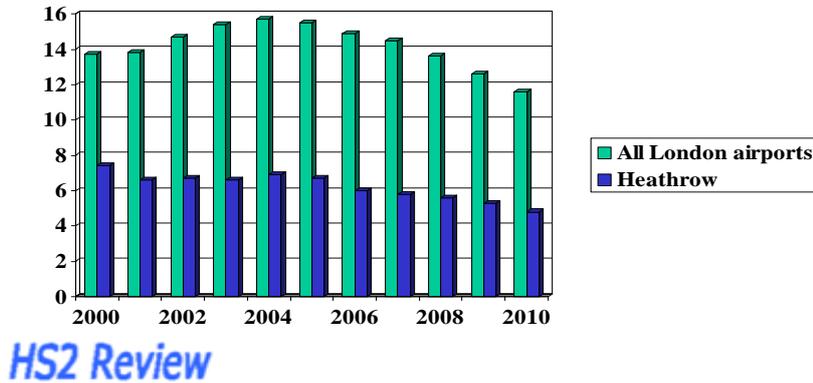
- 11.6 Heathrow is an immensely important airport, in a premier league compared with other British airports. It has the overwhelming majority of the UK's long haul flights, and a much higher proportion of business travel than elsewhere. It is the key international gateway to London, a pre-eminent "World City" and one of the handful of international business centres. There are only limited long haul flights from other British airports. However, even though Heathrow is in a real sense Britain's national airport, long haul business travel and inwards tourist travel is primarily centred on London.
- 11.7 In contrast, for European destinations, and in many cases for holiday travel beyond Europe, Heathrow is in fact a regional airport, albeit serving the wealthiest and most densely populated region in the country.
- 11.8 CAA data provides detailed information on the origins and destination of Heathrow passengers. The data shows that passengers overwhelmingly start or finish relatively close to the airport itself. Over 90% of Heathrow's passengers originate or terminate in regions which would not be served by HS2 at all.

Domestic Flights

- 11.9 Domestic air passenger volumes to and from London have declined by 26% since 2004, with an 8% reduction in 2010 alone; this is in marked contrast to the forecast of 128% growth by 2043 for domestic air travel used by DfT.

FIGURE 11.1 DOMESTIC AIR TRAVEL

Domestic air traffic to London airports has been declining since 2005 (CAA data)



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- 11.10 There are now only five mainland domestic routes to Heathrow: Manchester, Newcastle, Glasgow, Edinburgh and Aberdeen. On any realistic basis, it would take years to complete high speed routes to Edinburgh and Glasgow, let alone Aberdeen, so for the foreseeable future there will continue to be significant numbers of air passengers from these cities to London, even though rail is now taking a greater share of the leisure market as services improve and air travel becomes less pleasant, principally as a result of security requirements.
- 11.11 The Manchester air market has already substantially reduced as a result of the improved rail service following completion of the West Coast Main Line upgrade. Rail is now estimated to take c80% of the combined rail/air market³, as would be expected when there is a twenty minute frequency train service taking just over two hours to central London. The majority of remaining Heathrow passengers are almost certainly interlining. A direct high speed link to the airport would of course be attractive for interlining passengers, but the volumes are insufficient to justify the construction costs, or to sustain a dedicated service: 2010 air passengers between Heathrow and Manchester totalled 799,000, 1095 a day each way. This isn't enough to justify £2.5 – 3.9 billion for a link to Heathrow, nor the trains to

³ ATOC press release 5th April 2011 <http://www.atoc.org/media-centre/latest-press-releases/shift-from-air-to-rail-heralds-turning-point-in-how-people-travel-between-uks-main-cities-100571>

serve it at a competitive frequency. Even if all the interlining passengers transferred to rail at Heathrow, a minority still want to go to central London, so would transfer to HS2 direct London services, not to Heathrow trains.

Heathrow as a Surface Transport Hub

- 11.12 The Department for Transport (DfT) claim that that a direct link “*would contribute to Heathrow’s future development as a multi-modal transport hub*”⁴ for passengers travelling to a wide range of destinations in the greater south-east. This is not credible; Heathrow provides much poorer access to the Underground network than central London rail termini; the bus network is only useful for local distribution; and coach services are in competition with, not complementary to InterCity rail. The “Airtrack” project would potentially have provided a useful link, providing a rail connection to South Western suburbs, but BAA have recently abandoned this scheme, withdrawing their Transport and Works Act application.

Heathrow as an Alternative to European Hubs

- 11.13 Greengauge21, a leading pro-HS2 lobby group, suggest that a direct HS2 link would result in passengers who currently fly from regional airports and interline at other European hubs such as Charles de Gaulle and Schipol choosing to travel via Heathrow instead. Given the congestion at Heathrow, hence the frequent flight delays, both queuing for take off and stacking waiting to land, it does not appear likely that construction of an HS2 spur will trigger a significant transfer away from other hubs.
- 11.14 Such an operation would require through ticketing and baggage check at all stations served by the proposed Heathrow trains. While through ticketing is unlikely to create any problems, baggage check raises significant practical difficulties, including the need to allow time to load/unload baggage at intermediate stations. Given the intensity of planned use of the HS2 route, this would almost certainly reduce both route capacity and reliability. Also, previous remote baggage check in facilities such as at Paddington for Heathrow Express were unsuccessful and quickly withdrawn.

⁴ <http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/hsr-consultation.pdf> Page 17

Assessment of Potential Demand

Transfer from Domestic Flights

11.15 Domestic passenger volumes for Heathrow for 2010 are shown in the table below.

TABLE 11.1 2010 HEATHROW MAINLAND DOMESTIC ROUTE VOLUMES (BOTH WAYS)

Route	Passengers	% Change on 2009
Manchester	799,264	-12
Newcastle	424,251	-11
Edinburgh	1,244,793	-5
Glasgow	1,003,344	-7
Aberdeen	617,693	-4

11.16 Experience from elsewhere in the world indicates that the introduction of high speed rail services does not typically result in the withdrawal of parallel air services – there are still frequent flights from Tokyo to Osaka, Paris to Lyon and Madrid to Barcelona. However, Manchester - Heathrow flights could be withdrawn following completion of HS2, and we assume that 67% transfer to HS2 Heathrow services, with other passengers transferring to HS2 Euston services.

11.17 Although HS2 journey time savings are limited for Newcastle, Edinburgh and Glasgow, it is assumed that HS2 would capture 10% of current air volumes, a major increase in rail traffic for the Edinburgh and Glasgow routes. However, this would overwhelmingly be travel to central London, for which rail is much more competitive. Transfer of passengers for Heathrow itself (primarily interlining) is likely to be much less, perhaps 2% of total air volumes. No transfer is assumed from Aberdeen, as rail times will remain uncompetitive with HS2.

11.18 Domestic air volumes are assumed to remain at 2010 levels, which is a “high” estimate given the substantial, progressive decline since 2004. On this basis, total rail volumes transferred from mainland domestic flights are estimated at 1,067,000 a year, of whom 589,000, or 807 daily each way, would use direct HS2 Heathrow services, the balance travelling to Euston. This is dramatically lower than DfT’s forecast of a total switch from air of 2.9 million passengers a year, primarily reflecting DfT’s extraordinary forecast of

128% growth in domestic air volumes by 2043.

Transfer for Surface Access from Other Modes

- 11.19 CAA has published detailed survey data for the origin and destination passengers for Heathrow for 2009⁵. This shows the percentage of total Heathrow passengers to and from areas for which HS2 would provide potentially attractive surface access as follows:

East Midlands (Nottingham, Derby and surrounding area) 1.6%

West Midlands 2.1%

Other parts of England c1.5%⁶

- 11.20 This analysis indicates a total potential for mode shift to HS2 of 5.2%. Taking a “high” estimate of 50% of this potential would give a total of 1.06 million passengers, or 1,452 daily each way, provided a high all day frequency is offered.

Transfer from European Hubs

- 11.21 No significant transfer is expected.

Total potential

- 11.22 This analysis suggests a total potential daily volume of 2259 passengers each way a day. It should be noted that this total is based on “high” estimates of transfer to rail, and is over double the number estimated by HS2 Ltd in its March 2010 report.

Carbon Impacts

- 11.23 Capacity at Heathrow is highly constrained, and BAA Executives are on record as saying that they would welcome replacement of short haul flights by rail as this would free up slots for additional long haul flights. Colin Matthews, BAA’s Chief Executive is quoted as saying⁷:

“...BAA would like more passengers to arrive [at Heathrow] by train. High Speed rail would attract people who currently arrive by short-haul flights, freeing slots for more long-haul flights”

⁵ <http://www.caa.co.uk/docs/81/2009CAAPaxSurveyReport.pdf>

⁶ “Rest of England” covers the North of England, as more detail is available for other regions. The total for “Rest of England” is 3.8%

⁷ Transport Times November 2010, reporting on a High Speed Rail conference

and Nigel Milton, Director of Policy and Political Relations at Heathrow told the ENDS Report (an environmental website):

“No sensible, well-informed person still seriously pretends HS2 is a green alternative to a third runway. The question now is given no third runway, how we can maximise the effectiveness of our limited capacity at Heathrow. That means more long-haul flights...every time BMI or British Airways have cancelled a domestic route in the past, they’ve replaced it with a more profitable medium- or long- haul route. That’s exactly what will happen when HS2 comes and more domestic routes get cut.”⁸

- 11.24 There is no ability for Government to lock in any carbon savings as a result of withdrawal of domestic routes. BMI’s recent withdrawal from the Glasgow – Heathrow route has demonstrated this very clearly. BMI has not surrendered the slots previously used for Glasgow flights, but is instead using these for longer European routes, resulting in a net increase in carbon emissions. Further analysis of carbon impacts is given in Appendix 6.

Potential HS2 Service Patterns for Heathrow

- 11.25 The consultation documentation does not give any information on the proposed pattern of service to Heathrow to be operated on HS2. It appears likely that **no** serious work has been done in connection with this – an extraordinary position in relation to a proposed investment of between £2.5 billion - £3.9 billion for this link. The Economic Case for HS2 does include a “service specifications for the Y network”⁹, but this does not show any trains to Heathrow or to HS1; there is a footnote which states “Further work is being done to determine which of the above services might serve Heathrow...”.
- 11.26 A frequent, regular service would be essential in order to achieve the scale of modal shift discussed above. The **minimum** pattern is an hourly service from Birmingham, joining at Birmingham Interchange with trains from Manchester and Leeds on alternate hours, giving a two hourly frequency for each branch of the “Y”. This pattern would give a total of 17,600 seats each way over a sixteen hour day, resulting in an unsustainably low average load factor of c13% seats occupied. It is clear that an operation of this nature would not cover the direct operating costs of the trains themselves, and would not therefore contribute towards the cost of maintaining the

⁸ ENDS Report 434, March 2011, pp. 34-36

⁹ <http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/hs2-economic-case.pdf> Page 61

infrastructure. There is no possibility of any return on capital for either the rolling stock used for Heathrow services or the investment in the spur itself.

Reliability Impacts

- 11.27 The proposed utilisation of HS2 for the full “Y” scheme is 18 trains an hour, significantly in excess of that for any other high speed route in the world, and only achievable with assumptions on improved signalling and braking technology. There is no resilience in this level of route utilisation, and reliability is therefore at best problematic, as discussed in Appendix 4 “HS2 Route Capacity and Reliability”. The pattern of operation proposed by DfT, with Heathrow trains joining and splitting on-route, adds significant complexity and risk to the planned operation. Without a detailed timetabling exercise, which it is clear has not yet been carried out, the ability even to plan the proposed Heathrow services, with trains splitting and joining at Birmingham Interchange, is unproven and indeed may well be impracticable.
- 11.28 In any event, it is certain that this pattern of operation will inevitably lead to serious reliability issues.

Opportunity Cost

- 11.29 Operation of poorly used trains to Heathrow will reduce the capacity available for trains to Euston. However, it is clear from DfT’s forecasts for HS2 that capacity will be at a premium, with the capacity projected for the Preston – Glasgow and York – Newcastle corridors wholly inadequate for the projected demand (discussed in Appendix 8 “HS2 – Capacity and Service Disbenefits”).
- 11.30 It is also clear from The Economic Case for HS2 that operating services to Heathrow would have an opportunity cost in terms of capacity to central London, as a train path to central London would be lost for every train to Heathrow.¹⁰
- 11.31 Given this, it is clear that the Heathrow spur will **reduce** the already poor benefit cost ratio for the overall project, and potentially make it impossible for HS2 to offer the full geographic range of London services.

¹⁰ <http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/hs2-economic-case.pdf>

11.32 Conclusions

- The government has provided no quantitative evidence to support its claim that there is a case for the link to Heathrow.
- Analysis of the potential market for direct services to Heathrow shows that these will be heavily loss making before any account is taken of infrastructure costs.
- Operation of services to Heathrow would make the fragile reliability of HS2 significantly worse.
- The link will have no benefit in terms of carbon emissions, as it will free up slots for more long haul flights, with higher emissions.
- Operation of Heathrow services will have a major opportunity cost for the project as a result of reduced capacity into Euston.