



## **Submission to the Commons Transport Select Committee Inquiry into the Strategic Case for High Speed Rail**

### **Introduction**

1. The Bow Group exists to develop policy, publish research and stimulate debate within the Conservative Party. It has no corporate view, but represents all strands of Conservative opinion.
2. We have a particular interest in transport, energy and the economy, all of which are relevant to the HS2 proposals. The Bow Group's research paper, "*The Right Track*",<sup>1</sup> in January 2010 contributed to the high speed rail debate. A summary of our recommendations from that study is appended. Link here:  
[http://www.bowgroup.org/files/bowgroup/The\\_Right\\_Track\\_PDF.pdf](http://www.bowgroup.org/files/bowgroup/The_Right_Track_PDF.pdf)
3. We are grateful for the opportunity to provide this response to a number of the Committee's questions.

### **Q1 - What are the main arguments either for or against HSR?**

4. The argument for a UK HSR network requires an integrated intermodal transport and spatial planning policy context, tested through the democratic process. Policy objectives might include assisting modal shift from both road and air to rail, enabling the decarbonisation of the UK's transport network, providing network-wide benefits, promoting regional economic competitiveness, clarity in financial appraisal and minimising environmental impacts. We believe that it is also critical that Heathrow and HS2 are considered holistically.
5. The current HS2 consultation proposals lack such strategic policy objectives and democratic legitimacy. This has resulted in a flawed proposal, which has led to well informed criticism on specific aspects of HS2 and, worryingly, encouraged more general opposition to the principle of HSR.

---

<sup>1</sup> "The Right Track, Bow Group, 2010 [www.bowgroup.org/files/bowgroup/The\\_Right\\_Track\\_PDF.pdf](http://www.bowgroup.org/files/bowgroup/The_Right_Track_PDF.pdf)

6. We agree with the Committee's conclusion that clear policy objectives must be agreed before the case for or against HSR can be properly considered.<sup>2</sup>

## **Q2 - How does HSR fit with the Government's transport policy objectives?**

7. European transport policy objectives make it clear that aviation and high speed rail should be planned using an intermodal approach.<sup>3</sup> In contrast, the UK continues to adopt a silo approach to policy.
8. For example, DfT's New Line Capacity Study in 2007<sup>4</sup> included a map purporting to identify "the key transport centres of primary importance (or nodes)". This showed the UK's major cities, as well as ports such as Dover and Immingham - but omitted Heathrow.
9. The current DfT consultation on aviation,<sup>5</sup> whilst at least recognising that HS2 exists, notes only that "in the longer term, much of the demand for domestic aviation and for near-European short-haul aviation could be met by high speed rail".
10. Government's original remit to HS2 Ltd.<sup>6</sup> continued this silo approach, focusing on reducing journey times between London and Birmingham to the exclusion of wider policy objectives.<sup>7</sup>
11. Such silo thinking is not new. Lord Heseltine has noted that "as Environment Secretary studying the various proposed routes for HS1, then called the Channel Tunnel Rail Link, in the early 1990's, I was surprised by the lack of imagination shown by British Rail and the rail

---

<sup>2</sup> "The Government must explain the nature of the economic solutions that it is seeking to deliver through transport spending and how the schemes that it is supporting will achieve these aims. A detailed set of objectives and a robust analytical framework are required against which proposals can be assessed. Large sums of money are involved and difficult choices have to be made. We recommend that a White Paper be published, clarifying the Government's objectives for all transport spending and the criteria it will use for deciding between different claims on the available resources" – Transport and the Economy, House of Commons Transport Committee, March 2011  
<http://www.publications.parliament.uk/pa/cm201011/cmselect/cmtran/473/473.pdf>

<sup>3</sup> "Better modal choices will result from greater integration of the modal networks: airports, ports, railway, metro and bus stations, should increasingly be linked and transformed into multimodal connection platforms for passengers" – European Commission White Paper, Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system, March 2011  
[http://ec.europa.eu/transport/strategies/doc/2011\\_white\\_paper/white\\_paper\\_com\(2011\)\\_144\\_en.pdf](http://ec.europa.eu/transport/strategies/doc/2011_white_paper/white_paper_com(2011)_144_en.pdf)

<sup>4</sup> Figure 2.1 - Key Transport Nodes in the UK, DfT New Line Capacity Study, Supplementary Report, May 2007  
<http://webarchive.nationalarchives.gov.uk/+http://www.dft.gov.uk/pgr/rail/researchtech/research/newline/suppreport.pdf>

<sup>5</sup> Developing a sustainable framework for UK aviation: Scoping document, DfT March 2011  
<http://www.dft.gov.uk/consultations/open/2011-09/consultationdocument.pdf>

<sup>6</sup>  
<sup>7</sup> "The company's objects are the 'development of proposals for a new railway line from London to the West Midlands and potentially beyond' - Letter from Sir David Rowlands to Lord Adonis, 13<sup>th</sup> February 2009  
<http://www.hs2.org.uk/assets/x/55864>

*industry in their plans to connect London with the Channel Tunnel. The route chosen for HS2 must not be left to the rail industry, though their expertise and opinion is important.”<sup>8</sup>*

12. However, it appears that the planning of HS2 has been left to the rail industry, since HS2 Ltd’s advisory/challenge groups lack any representation from the UK aviation industry.<sup>9</sup> We believe that this is responsible for many of the flaws in the current HS2 consultation proposal.

### **Q3 - Business case**

### **Q4 - The strategic route**

13. We respond to Questions 3 and 4 together, as HS2 Ltd’s early decisions on the business case - in particular, Heathrow’s demand modelling and the value of journey time savings - were fundamental to the choice of the strategic route.

#### **Heathrow’s context**

14. We – and others<sup>10 11</sup> - argue that a coherent transport strategy should have Heathrow at its heart. It is the world’s busiest international airport,<sup>12</sup> and UK’s only hub, directly contributing around 1% of GDP.<sup>13</sup> A number of issues create an urgent need to secure a sustainable future for Heathrow.

---

<sup>8</sup> Foreword by The Rt. Hon. Lord Heseltine, The Right Track, Bow Group 2010

<sup>9</sup> High Speed Rail: London to the West Midlands and Beyond. A report to Government by HS2 Ltd. – HS2 Ltd, 2009 <http://webarchive.nationalarchives.gov.uk/20110131042819/http://www.dft.gov.uk/pgr/rail/pi/highspeedrail/hs2ltd/hs2report/>

<sup>10</sup> “The surface accessibility of Heathrow is treated as an ancillary issue in UK air transport policy, with this important issue only being considered after decisions on airside infrastructure and terminals have been made. This undermines the policy objective of the Government with respect to developing Heathrow, especially with regard to securing its economic contribution to the whole of the UK”- Adding Capacity at Heathrow – Transport Studies Unit, University of Oxford 2008 <http://www.tsu.ox.ac.uk/pubs/1035-givoni-banister.pdf>

<sup>11</sup> “In particular, the TCPA highlights the need for an intelligent approach to integrated spatial planning in order to link HS2 with existing rail services and co-ordinate with planning for a sustainable future for the UK’s airports, especially London Heathrow” – The Case for a Sustainable Transport System, TCPA Briefing Paper 26, May 2011 <http://www.tcpa.org.uk/data/files/resources/1040/TB26-HSR.pdf>

<sup>12</sup> <http://www.flightmapping.com/news/Coventry-Airport/Biggest-busiest-airports.asp>

<sup>13</sup> “Heathrow contributes 0.9% of the UK’s GDP – significantly more than any other single site in the UK”- Heathrow Expansion, London Assembly 2005 [http://legacy.london.gov.uk/assembly/reports/plansd/heathrow\\_expansion.pdf](http://legacy.london.gov.uk/assembly/reports/plansd/heathrow_expansion.pdf)

## Heathrow's growth

15. Following the withdrawal of support for a third runway, the Coalition Government's aim is a Heathrow that is "better, not bigger".<sup>14</sup> However, even with two runways, operating within current planning limits, Heathrow is forecast to grow significantly, from 65.7mpaa<sup>15</sup> in 2010 to 90mpaa<sup>16</sup> or 95mpaa<sup>17</sup> by 2030. Such growth is outside Government's control, and is a consequence of airline market forces replacing short haul domestic and near-Europe flights with larger aircraft serving long haul destinations. Heathrow is already the UK's single largest traffic generator<sup>18</sup> and its poor surface access requires significant improvement if this growth is not to have unacceptable local impacts.<sup>19</sup>

## Heathrow's market

16. Heathrow's existing market is concentrated on London and the South East. However this simply results from its inaccessibility by rail from much of the UK – indeed, anywhere other than central London.<sup>20</sup> Access is, in theory, possible from Wales, the west and south west by changing trains at Paddington. In reality, the interchange penalty<sup>21</sup> acts as disincentive to the use of rail. Hence, Bristol generates ca. 300,000 surface access trips to Heathrow pa, of

---

<sup>14</sup>

"As David Cameron has made very clear, we believe Heathrow should be better not bigger" – Theresa Villiers, July 2009

[http://www.conservatives.com/News/Speeches/2009/12/Theresa\\_Villiers\\_The\\_Conservative\\_position\\_on\\_aviation.aspx](http://www.conservatives.com/News/Speeches/2009/12/Theresa_Villiers_The_Conservative_position_on_aviation.aspx)

<sup>15</sup> BAA press release 12<sup>th</sup> January 2011 -

[http://www.baa.com/portal/page/BAA%20Airports%5EMedia%20centre%5ENews%20releases%5EResults/8b84191ed806d210VgnVCM10000036821c0a\\_/a22889d8759a0010VgnVCM200000357e120a\\_/](http://www.baa.com/portal/page/BAA%20Airports%5EMedia%20centre%5ENews%20releases%5EResults/8b84191ed806d210VgnVCM10000036821c0a_/a22889d8759a0010VgnVCM200000357e120a_/)

<sup>16</sup> UK Air Passenger Demand and CO2 Forecasts, DfT January 2009 -

<http://webarchive.nationalarchives.gov.uk/+http://www.dft.gov.uk/pgr/aviation/atf/co2forecasts09/co2forecasts09.pdf>

<sup>17</sup> Heathrow Interim Masterplan June 2005, BAA -

<http://www.baa.com/assets/B2CPortal/Static%20Files/LHRInterimMasterPlan.pdf>

<sup>18</sup> "London Borough of Hillingdon UDP Adopted September 1998 <http://www.hillingdon.gov.uk/media/pdf/7/5/udp.pdf>

<sup>19</sup> "Even without a third runway, absolute numbers requiring surface access to Heathrow will increase dramatically over the next 20 years. In 2001/2, around 27mpaa used cars and taxis to access Heathrow. By 2015/20, and assuming a 40% sustainable surface access target has been achieved, this figure will be around 40mpaa" - Heathrow Expansion, The London Assembly's response to BAA's consultation on the Interim Masterplan for Heathrow, London Assembly 2005 [http://www.legacy.london.gov.uk/assembly/reports/plansd/heathrow\\_expansion.rtf](http://www.legacy.london.gov.uk/assembly/reports/plansd/heathrow_expansion.rtf)

<sup>20</sup> "Heathrow's catchment area is very limited to Greater London, though it is the main UK airport, due to its poor surface transport accessibility from areas outside Greater London – specifically the fact the airport is not a node on the UK long distance rail network" - Adding Capacity at Heathrow Airport – Givoni and Banister, Transport Studies Unit, University of Oxford 2008

<sup>21</sup> "Previous studies have demonstrated that an interchange in a rail access journey to the airport suppressed demand by approximately 50%" - High Speed Rail Development Programme 2008/09, Strategic Choices, MVA/Systra for Greengauge  
<sup>21</sup> <http://www.scribd.com/doc/39964950/High-Speed-Rail-Development-Programme>

which only 6% are made by rail, and Reading, just 20 minutes from Paddington, with ca. 750,000 trips pa, only 1.3% by rail.<sup>22</sup>

17. Heathrow therefore depends largely on road access, over the most congested parts of the UK network.<sup>23</sup> Road congestion and the lack of rail access means that Bristol, just 90 miles from Heathrow and in what should be its natural market catchment, sees 10,000 passengers bypass Heathrow each week to interline instead at other European hubs.<sup>24</sup> 11.5% of Heathrow's UK origin and destination passengers come from Berkshire and Buckinghamshire, whereas only 2.8% come from Birmingham, Manchester, Liverpool, Leeds, Sheffield, Newcastle, Edinburgh, Glasgow, Cardiff and Bristol combined.<sup>25</sup>

18. In contrast, Schiphol, (33m people accessible by rail within 200km)<sup>26</sup>, Frankfurt, (35m within 200km)<sup>27</sup>, Charles de Gaulle and Brussels see a commercial imperative in expanding their markets by direct connection to high speed and classic rail services serving a cross-border hinterland.<sup>28</sup> The Schiphol/Charles de Gaulle industrial alliance is predicated on direct high speed rail links between the two airports.<sup>29</sup> Extending Heathrow's catchment, with new direct rail services, would benefit Heathrow's hub operations.<sup>30</sup>

---

<sup>22</sup> Heathrow Hub: The UK's Global Gateway, Arup submission to HS2 Ltd, December 2009  
[www.arup.com/.../091210 Arup submission to HS2 Ltd Full Report c ARUP.ashx](http://www.arup.com/.../091210_Arup_submission_to_HS2_Ltd_Full_Report_c_ARUP.ashx)

<sup>23</sup> "The western section of the M25 is the UK's busiest section of motorway. Over 18% of total UK vehicle delay in the year ending March 2010 was experienced on the M25" - Road statistics 2009: Traffic, Speeds and Congestion, DfT June 2010  
<http://www.dft.gov.uk/adobe/pdf/162469/221412/221546/226956/261695/roadstats09tsc.pdf>

<sup>24</sup> "More than ten thousand passengers a week are turning their backs on direct flights from London airports and instead travelling between Bristol International and hubs such as Amsterdam-Schiphol, Frankfurt, Paris Charles de Gaulle, Brussels and Oslo, from where they can access connections to hundreds of destinations worldwide" - Bristol Airport press release 13th June 2008, <http://www.bristolairport.co.uk/news-and-press/press-releases/2008/6/ten-thousand-join-hub-club-at-bristol-international.aspx>

<sup>25</sup> CAA 2007 UK O&D passenger survey data

<sup>26</sup> "For Schiphol, landside accessibility is of essential importance. The construction of the HSL South line will place Schiphol on the European HSL high-speed rail network. The HSL will extend Schiphol's catchment area towards Antwerp and Brussels" -Long term vision for Schiphol Group 2009

<sup>27</sup> "Long distance trains doubled (surface access) market share between 1998 and 2000, and since 2004 high speed long distance services have carried more passengers than local services. 19% of originating passengers used high speed services in 2009, and this is projected to increase to 30% by 2015" - Frankfurt Intraplan 2010

<sup>28</sup> "In addition to deregulation of the air transportation markets, one reason for the growing competition among the hubs is that their catchment areas increasingly overlap. The impetus here comes from the high-speed rail systems (ICE, TGV) permitting a fast journey to the airport" - Fraport 2009

<sup>29</sup> Aéroports de Paris and Schiphol Group, December 2008  
<http://www.schiphol.nl/SchipholGroup1/NieuwsPers/Persbericht/AeroportsDeParisAndSchipholGroupCreateALeadingGlobalAllianceInTheAirportIndustry.htm>

<sup>30</sup> "An HSR network serving Heathrow would also encourage those who currently interline at Paris CDG, Amsterdam or Frankfurt to use Heathrow, thus strengthening Heathrow's competitiveness compared to other European airports for long haul flights" - High Speed Rail Development Programme 2008/09, Strategic Choices, MVA/Systra for Greengauge 21

## UK regional competitiveness

19. The current HS2 consultation confirms that Heathrow *“is vital to the UK’s competitiveness: easy access to Heathrow is often a major factor for business in deciding where to locate.”*<sup>31</sup> Domestic flights accounted for only 6.6% of Heathrow’s capacity in 2010,<sup>32</sup> a result of market forces leading airlines to focus on long haul routes and the structure of landing charges.<sup>33</sup> The continuing attrition of domestic flights and frequencies, and the lack of a rail alternative, reduces Heathrow’s accessibility from the UK regions, increasing their dependence on transfers through European hubs to access global markets.<sup>34</sup> This exacerbates their already peripheral location within Europe and undermines their ability to compete.<sup>35</sup> Direct HSR access to Heathrow, and improvements to the classic rail network, are needed.

## Modal shift from road to rail

20. Improving Heathrow’s accessibility by rail would assist in increasing rail’s modal share of passengers (and staff), essential if Heathrow’s growth is not to put unacceptable pressure on the Heathrow area’s already congested roads. Road vehicles are a major contributor to poor local air quality,<sup>36</sup> which even without further growth of Heathrow exceeds legally binding limits,<sup>37</sup> is amongst the worst in London<sup>38</sup> and presents a threat to Heathrow’s ability to operate within its current legal limits.<sup>39</sup> The environmental challenge is significant - taking

---

<sup>31</sup> Connecting to Heathrow, Factsheet, DfT 2011

[http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/connecting-to-heathrow\\_0.pdf](http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/connecting-to-heathrow_0.pdf)

<sup>32</sup> Centre for Asia Pacific Aviation, April 2010 <http://www.centreforaviation.com/news/2011/04/11/londons-heathrow-competitive-disadvantages-are-beginning-to-hurt/page1>

<sup>33</sup> *“The domestic passenger charge will increase from £13 to £20 per passenger, and, from 1 April 2011 an annual regulator-approved increase will also be implemented, bringing the total charge to £22 per departing domestic passenger”* – BBC News, 31<sup>st</sup> January 2011 <http://www.bbc.co.uk/news/mobile/uk-scotland-glasgow-west-12324693>

<sup>34</sup> *“Organisations outside London were concerned about the impacts on international investment in the regions as a result of the limited and reducing number of services to Heathrow from airports within the UK”* – Transport and the Economy, , Transport Select Committee 2011 <http://www.publications.parliament.uk/pa/cm201011/cmselect/cmtran/473/473.pdf>

<sup>35</sup> *“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”* - Economic Impacts of Hub Airports, British Chambers of Commerce 2009 [www.britishchambers.org.uk/.../BCC\\_Economic\\_Impacts\\_of\\_Hub\\_Airports.pdf](http://www.britishchambers.org.uk/.../BCC_Economic_Impacts_of_Hub_Airports.pdf)

<sup>36</sup> para. 275, London Borough of Hillingdon Response to Consultation on Adding Capacity to Heathrow Airport 2007 <http://extras.timesonline.co.uk/hillingdon.pdf>

<sup>37</sup> *“In 2001/2, air quality close to access roads at Heathrow failed the annual average daily NO2 objective. Monitoring has also shown several breaches of the PM10 daily average objective”* - Parliamentary Office of Science and Technology report 195, Aviation and the Environment 2003 <http://www.parliament.uk/documents/post/pn195.pdf>

<sup>38</sup> *“The area around Heathrow currently has some of the poorest air quality in London. Air quality measurements show that annual average nitrogen dioxide (NO2) levels exceed the health based EU air quality limit values.”* - Adding Capacity at Heathrow, Mayor of London’s response to the consultation 2008 [http://www.legacy.london.gov.uk/mayor/.../docs/mayors\\_response\\_heathrow\\_report.rtf](http://www.legacy.london.gov.uk/mayor/.../docs/mayors_response_heathrow_report.rtf)

<sup>39</sup> *“Air quality limits could require BAA to reduce the number of aircraft using Heathrow”* - Heathrow Expansion, London Assembly 2005

airport operations alone, (and ignoring airport related surface access), Heathrow is claimed to be responsible for almost one third of London's carbon footprint.<sup>40</sup>

21. Air passenger statistics also understate the challenge, since each passenger using private vehicles to access the airport can generate up to 4 road journeys, (eg: minicabs, kiss and ride), estimated to be responsible for 70% of airport related CO2 emissions.<sup>41</sup>

### **Modal shift from air to rail**

22. If Heathrow was seamlessly integrated into HSR services serving the UK's regions and Europe (via HS1), this would release valuable slots at the airport, currently used for short haul domestic and near-Europe flights, for new long haul services that could benefit the UK's global connectivity.
23. This is likely to have a negative impact on air quality and carbon, as a result of small aircraft being replaced by larger planes.<sup>42</sup> However, the process has been under way for some time, and may be at least partially offset in a national context by HSR replacing existing short haul flights from UK regional airports to European hubs, (recognising the disproportionate environmental impact of such flights).<sup>43</sup>

### **Heathrow's operational efficiency**

24. Heathrow's forecast growth also impacts on the airport's already constrained operations. Heathrow occupies the smallest site of any major airport, 1227ha compared to Charles de Gaulle's 3309ha and Schiphol's 2147ha.<sup>44</sup> A strategy that allowed HSR to provide a co-located airport terminal and rail interchange outside the current constrained airport site

---

<sup>40</sup> "London's role as an international aviation hub means that (taking account only of Heathrow & London City airports) aviation emissions account for 34% of its total carbon footprint" (The Mayors Climate Change Action Plan 2007 [http://www.static.london.gov.uk/mayor/.../climate-change/.../ccap\\_summaryreport.rtf](http://www.static.london.gov.uk/mayor/.../climate-change/.../ccap_summaryreport.rtf) – London City Airport responsible for less than 1% with Heathrow accounting for the remaining 33%, based on fuel loaded into aircraft on the ground at each airport, and without taking into account the carbon implications of airport related surface access)

<sup>41</sup> "As part of a strategy to reduce the carbon impact of surface access, it is clear that the reduction of "Kiss and Fly" journeys would have a significant impact on reducing overall carbon emissions since it is the most inefficient form of surface access, requiring four trips per return flight. Estimated landside CO2 emissions (2005) from "Kiss and Fly" (passenger drop-off, including passengers using minicabs) equals 70% of estimated CO2 emissions" - BAA 2008-2012 Transport Vision [http://www.heathrowairport.com/assets/B2CPortal/Static%20Files/LHR\\_SAS.pdf.pdf](http://www.heathrowairport.com/assets/B2CPortal/Static%20Files/LHR_SAS.pdf.pdf)

<sup>42</sup> "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" – Nigel Milton, Director of Policy and Political Relations BAA, ENDS Report 434 March 2011 <http://www.endsreport.com/28048/high-speed-rail-set-to-boost-uk-emissions-from-aviation>

<sup>43</sup> "Short haul passenger flights make a disproportionately large contribution to the global environmental impacts of air transport, much larger than those from equivalent rail journeys: CO2 emissions per passenger by an average aircraft in 2001 being over four times that of an equivalent train" - The Environmental Effects of Civil Aircraft in Flight, Royal Commission on Environmental Pollution 2002 [http://eeac.hscglab.nl/files/UK-RCEP\\_CivilAviation\\_Nov02.pdf](http://eeac.hscglab.nl/files/UK-RCEP_CivilAviation_Nov02.pdf)

<sup>44</sup> Heathrow Interim Masterplan, BAA June 2005

could provide a number of benefits – for example, improving the passenger experience, providing the additional passenger processing (terminal) facilities necessary to handle Heathrow’s forecast passenger growth and creating more space within the airfield for aircraft – the one activity that can’t be moved. This could improve resilience, reduce delays and assist air quality through more efficient airport operations, (eg; reducing taxiing distances).<sup>45</sup>

## Heathrow and HS2

25. Early policy statements by both major political parties supported the objective of integrating HSR and Heathrow. Conservative rail policy specifically endorsed an HSR route serving Heathrow directly, along the lines promoted by Arup (Heathrow Hub),<sup>46</sup> while Lord Adonis<sup>47</sup> and Geoff Hoon, the then Secretary of State,<sup>48</sup> expressed similar support.
26. However, what appeared to a very clear statement by the Secretary of State was immediately qualified in the debate that followed his announcement to the Commons, instead confirming Government’s decision that a station at Old Oak Common should provide the Heathrow interchange.<sup>49</sup> Clearly, this ruled out a direct HS2 alignment via Heathrow.
27. HS2 Ltd’s conclusions could therefore be seen as pre-determined, with HS2 Ltd. confirming its understanding from the outset that Heathrow was to be relegated to a “convenient,” (not “direct”), interchange with HS2.<sup>50</sup>

---

<sup>45</sup> *“Delays caused by airport operations, (lack of gates etc), accounted in 2006/07 for eight percentage points of the 33% of flights which were delayed. Even controlling for congestion with respect to ATM’s per runway, the proportion of delays at Heathrow is relatively high”* - Imagine a World Class Heathrow, London First, June 2008  
[http://www.london-first.co.uk/documents/Imagine\\_a\\_world\\_class\\_Heathrow\\_FULL\\_REPORT.pdf](http://www.london-first.co.uk/documents/Imagine_a_world_class_Heathrow_FULL_REPORT.pdf)

<sup>46</sup> *“A Conservative Government will support proposals along the lines of the plan put forward by engineering firm, Arup, for a new Heathrow rail hub. This would link Heathrow terminals directly into the main rail network and the lines to Reading, Oxford, Bristol, Plymouth, Cardiff, Swansea, Cheltenham and Southampton, greatly improving public transport links to the airport.”* - Conservative Party Rail Review 2009  
[http://www.conservatives.com/News/News\\_stories/2009/02/Getting\\_the\\_best\\_for\\_rail\\_passengers.aspx](http://www.conservatives.com/News/News_stories/2009/02/Getting_the_best_for_rail_passengers.aspx)

<sup>47</sup> *“I think that it (the Heathrow Hub) is an attractive idea. It’s vital that we have an integrated approach to planning new rail capacity and any new airport capacity that’s also required.”*- Lord Adonis, Sunday Times 4<sup>th</sup> January 2009  
<http://www.timesonline.co.uk/tol/news/politics/article5439472.ece>

<sup>48</sup> *“A Heathrow International Hub station on the Great Western line to provide a direct four way interchange between the airport, the new north-south line, existing Great Western rail services and Crossrail, into the heart of London”* - Secretary of State for Transport 15<sup>th</sup> January 2009 Column 356,  
<http://www.publications.parliament.uk/pa/cm200809/cmhansrd/cm090115/debtext/90115-0006.htm>

<sup>49</sup> *“Our proposals on the hub are for a site much closer to west London, on land already owned by Network Rail, at the junction of the existing Great Western line and the proposed Crossrail line. A Heathrow hub would not necessarily have to be placed close to Heathrow”* – Secretary of State for Transport, 15<sup>th</sup> January 2009, Column 368  
<http://www.publications.parliament.uk/pa/cm200809/cmhansrd/cm090115/debtext/90115-0007.htm>

<sup>50</sup> *“Heathrow International station: This must provide an interchange between HS2, the Great Western Main Line and Crossrail with convenient access to Heathrow”*- Letter from Sir David Rowlands to Lord Adonis, 13<sup>th</sup> February 2009



28. We believe this is a fundamental flaw and do not agree that a remote interchange some 12km from Heathrow, with its inherent interchange penalty, can ever provide the passenger experience or modal shift that Heathrow and the UK requires.
29. The Coalition Government's Secretary of State for Transport, in his evidence to the Transport Select Committee soon after taking office<sup>51</sup> took the same view and consequently provided HS2 Ltd. with a revised remit.<sup>52</sup>
30. In our view, this significant change to the entire basis on which HS2 Ltd. had developed their original proposals should have led to a fundamental reappraisal. However, HS2 Ltd. simply proposed a spur, retrofitted to the route originally proposed, with the intention of constructing this as part of the second phase of HS2, by 2033 at the earliest, and with the ability for extension to form a loop at an even later date.
31. It is important to recognise the inherent inefficiencies in a spur, in terms of service frequency, operational cost and flexibility and line capacity.
32. For example, four tracking of the main HS2 route each side of its junction with the spur may be required if the projected 18 trains per hour capacity is not to be reduced. The technical notes confirm that the maximum speed over turnouts would be 230kph maximum<sup>53</sup> whilst the route maps<sup>54</sup> show a line speed between 300 and 360kph over the section from which the spur would diverge. Heathrow services joining and diverging from the spur would therefore need to accelerate to/decelerate from line speed to allow the lower speed turnouts and spur, on a ca. 3200m radius curve,<sup>55</sup> to be negotiated. To the west of the proposed junction, four tracking would necessitate additional bores over at least some of the length of the proposed M25-Amersham twin bore tunnel.

---

<sup>51</sup> "What is clear is this: there has to be a form of connection to Heathrow that makes sense to air travellers, that feels like a proper rail to air connection of the type that many major European airports have. Frankfurt, Paris, to a lesser extent Schiphol, have excellent rail to air connections. It is about the passenger experience.. There has to be a connection which feels right to airline travellers, which will encourage as it were interlining between air and train. That cannot be lug your heavy bags down a couple of escalators, along 600 metres of corridor and then change trains at a wet, suburban station somewhere in north west London. That is not an option. It is also clear that there could be options that involved a transfer point that was remote from the airport itself, provided the seamlessness of the service was of a type that airline passengers would find acceptable." – Q48, Philip Hammond, Secretary of State, Evidence to House of Commons Transport Select Committee on the Secretary of State's Priorities for Transport, 26th July 2010  
<http://www.publications.parliament.uk/pa/cm201011/cmselect/cmtran/359/10072602.htm>

<sup>52</sup> Letter from Phillip Hammond to Sir Brian Briscoe, 11<sup>th</sup> June 2010 <http://www.hs2.org.uk/assets/x/57834>

<sup>53</sup> High Speed Rail: London to the West Midlands and Beyond – HS2Technical Appendix, HS2 Ltd. December 2009  
<http://webarchive.nationalarchives.gov.uk/20110131042819/http://www.dft.gov.uk/pgr/rail/pi/highspeedrail/hs2ltd/technicalappendix/pdf/report.pdf>

<sup>54</sup> HS2 Route map 5 - <http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/HS2-ARP-00-DR-RW-04205.pdf>

<sup>55</sup> "Minimum desirable radius of curvature – 200kph 1800m, 300kph 4050m, 360kph 5900m and 400kph 7200m" - HS2 Ltd Technical Specification <http://www.hs2.org.uk/assets/x/77048>

33. Without four tracking, HS2's business case, which is reliant on the 18tph service pattern and which is already marginal at best, is likely to be unsupportable. Even with four tracking, it is unlikely that headways would allow as many as 18tph.
34. The consultation suggests that Heathrow might be served by half length trains, which would split and join en route to Heathrow.<sup>56</sup> This would reduce capacity by 50%, making it easier to fill trains. This presumably recognises the challenge of filling dedicated trains at sufficiently high frequencies whilst relying solely on airport traffic.
35. However, joining and splitting trains adds to cost, as it requires additional train crews, including the need to staff separate portions of the train, including catering facilities. There may also be an impact on the size of the train fleet. There is also a journey time penalty resulting from the need to split and join trains, and provide timetabled resilience. It is not clear how this relates to HS2 Ltd's assumption of £300-600m benefits for each minute saved.
36. A spur may also incur its own interchange penalty if the Heathrow interchange cannot, as seems inevitable due to lack of space and other constraints, be immediately co-located with an airport processor, (terminal).<sup>57</sup> HS2 Ltd's analysis suggests that a site in the Central Terminal Area is unlikely to be feasible,<sup>58</sup> while a T5 site would need to be some distance from the terminal itself. In contrast, Arup envisage a processor fully integrated with their proposed road and rail interchange, (Heathrow Hub), with airside transit and baggage connections to satellites on the airfield, avoiding any interchange (and service frequency) penalties, and allowing a fast and seamless passenger experience from kerb/train to aircraft.
37. Government proposes that a spur could be extended at a later date to allow through services. However, the significant additional cost and limited additional benefits suggest that this unlikely to be feasible. European experience indicates that the inevitable journey time penalty would restrict the frequency of through trains.<sup>59</sup>

---

<sup>56</sup> "A spur ... would allow HS2 services to start at Heathrow and split on route to serve a number of destinations in the Midlands, the North and Scotland" – Connecting to Heathrow, Factsheet DfT 2011  
[http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/connecting-to-heathrow\\_0.pdf](http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/connecting-to-heathrow_0.pdf)

<sup>57</sup> "The attractiveness of air-rail links is certainly inhibited when passengers have to transfer to a second mode of transport in order to reach their terminal because the railway station is not integrated into the terminal building" - Potential and Limitations of Air-rail Links – A General Overview, Andreas Eichinger und Andreas Knorr, IWIM - Institut für Weltwirtschaft und Internationales Management, Universität Bremen 2004 <http://www.iwim.uni-bremen.de/publikationen/pdf/w034.pdf>

<sup>58</sup> "Building a cavern at least 1km long and over 60m wide underneath a live airport would be extremely difficult" – High Speed Rail: London to the West Midlands and Beyond. A report to Government by HS2 Ltd. – HS2 Ltd, 2009

<sup>59</sup> "A loop of high speed railway had been built to serve Cologne/Bonn airport but this had added 15 minutes to the rail journey time and as a result the loop was little used" - High Speed Rail Access to Heathrow, A Report to the Secretary of State by Lord Mawhinney July 2010  
<http://webarchive.nationalarchives.gov.uk/20110131042819/http://www.dft.gov.uk/pgr/rail/pi/highspeedrail/lordmawhinneyreport/pdf/highspeedrailaccessheathrow.pdf>

38. We are not alone in seeing the inherent flaws in the concept of serving Heathrow by a spur or loop – so do the International Air Rail Organisation<sup>60</sup> MVA Systra,<sup>61</sup> and Greengauge 21<sup>62</sup> - and DfT themselves.<sup>63</sup>
39. SNCF<sup>64</sup> and Star Alliance,<sup>65</sup> for example, confirm their experience that successful air/rail interchanges in Europe are a consequence of their location on through lines.
40. A spur is also likely to have considerable environmental impacts. A route between, for example, Heathrow's T5 and the main HS2 line would be entirely within the Green Belt and Colne Valley Regional Park, where there is already concern over the environmental impact of the main HS2 route crossing the Park and its SSSI.<sup>66</sup> HS2 Ltd. may in due course propose extensive tunnelling to partly mitigate these impacts, although the grade separated junction with the main HS2 line would necessarily be at grade, (or elevated since HS2 crosses the Colne Valley on a 3.6km viaduct in the area where junctions are shown). The costs of this length of tunnel would also be substantial.<sup>67</sup>

---

<sup>60</sup> *"Dedicated trains between Heathrow and the rest of the country would be necessary. This is a major disadvantage. With trains serving London, Heathrow, the Midlands and beyond, the combined load would justify a reasonable frequency. Trains just connecting Heathrow, the Midlands and beyond would attract fewer passengers and would not justify such a frequent service – which would be a deterrent to use"* – High Speed Rail at Heathrow: an international perspective, International Air Rail Organisation, December 2009

<sup>61</sup> *"To be attractive for airline passengers, the (rail) service frequency needs to be at least one per hour. Even on our assumption that more than one city can be served with a single train (which depends on the structure of the HSR network), many of the flows are not viable. The solution will require serving Heathrow by trains that also serve other markets, such as London to Birmingham/Manchester, placing Heathrow as an intermediate station"* - High Speed Rail Development Programme 2008/9, Strategic Choices, MVA Systra for Greengauge 21

<sup>62</sup> *"The key really, as far as we could see from what has happened in France, is to make the airport station a station call en route"* - Q147, evidence by Jim Steer, Director, Greengauge 21 to Commons Transport Select Committee, 11<sup>th</sup> November 2009 <http://www.publications.parliament.uk/pa/cm200910/cmselect/cmtran/38/38ii.pdf>

<sup>63</sup> *"The interchange with Heathrow should be considered as through services will not be able to run from all points, both because demand would not be sufficient and because every Heathrow train would take a path on the new line which could be used for London bound trains"* - New Line Capacity Study – Cost Estimate, DfT, July 2007  
<http://webarchive.nationalarchives.gov.uk/+http://www.dft.gov.uk/pgr/rail/researchtech/research/newline/costestimate.pdf>

<sup>64</sup> *"The commercial success of TGV is due to the fact that Roissy Is a through station"* - Guillaume Pepy, Chairman SNCF, Transport Times conference May 2009

<sup>65</sup> *"Heathrow requires an "on-airport" station on HS2, and located on the direct high speed route, not on a spur or loop"* – Star Alliance submission to Lord Mawhinney, June 2010  
[http://webarchive.nationalarchives.gov.uk/20110131042819/http://www.dft.gov.uk/pgr/rail/pi/highspeedrail/lordmawhinneyreport/pdf/appendix3\\_29.pdf](http://webarchive.nationalarchives.gov.uk/20110131042819/http://www.dft.gov.uk/pgr/rail/pi/highspeedrail/lordmawhinneyreport/pdf/appendix3_29.pdf)

<sup>66</sup> Colne Valley News Release, March 2011 - <http://www.colnevalleypark.org.uk/High%20speed%20%20-%20CVP%20-%20March%202011.pdf>

<sup>67</sup> *"Tunnels cost about 5-6 times more per km than building through open countryside"* – High Speed Rail, London to the West Midlands and Beyond, A Report to Government by High Speed Two Ltd. December 2009

41. The spur, from the most recently published maps<sup>68</sup> and statements,<sup>69</sup> also appears to only provide a northern chord. Whilst this would allow high speed rail services between Heathrow, Birmingham and the north, this would preclude services from the east – ie; from HS1 and Europe. This would presumably have to await any future extension of the spur to *“loop back to the main HS2 line so that trains from West Midlands and beyond could call at Heathrow on the way to London.”*<sup>70</sup>
42. It is not clear how this very long term aspiration relates to the Government’s objective, in the current aviation consultation, *“that, in the longer term, demand for .... much of near-European short-haul aviation could be met by high-speed rail”*.<sup>71</sup>
43. Heathrow might eventually be served by a spur by the 2030’s. However, in the interim, BAA’s Transport and Works Act Order application for Airtrack has been withdrawn and Heathrow, under current proposals, will be solely reliant on Crossrail for better rail access. However, Crossrail is forecast to generate very little modal shift,<sup>72</sup> and simply reinforces existing access from central London. It is therefore difficult to see how Heathrow’s growth can be managed without unacceptable environmental impacts on air quality and road congestion, and how its hub status and UK regional competitiveness can be improved.
44. In our view, only a direct HS2 alignment via Heathrow provides the right solution for both Heathrow and HS2. The Bow Group have previously noted what appear to be the benefits of Arup’s Heathrow Hub proposal. Predating the political support for HSR and HS2 Ltd’s work, this would provide a direct HS2 route via Heathrow, achieving seamless air/rail interchange and a very high service frequency in the first phase of the UK’s high speed rail network. It also includes a direct connection between the GWML and HS2, and allows a range of regional high speed services using new and existing rail infrastructure, transforming connectivity across the UK.
45. We remain convinced that the original political consensus for a direct interchange between Heathrow and HS2 is the right solution for the UK. However, we have reviewed HS2 Ltd’s key assumptions to consider whether their prioritisation of journey time savings between London and Birmingham over Heathrow can be justified in whole or part.

---

<sup>68</sup> Figure 1.1, High Speed Rail: Investing in Britain’s Future – DfT February 2011  
<http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/hsr-consultation.pdf>

<sup>69</sup> *“A spur ... would allow HS2 services to start at Heathrow .... to serve a number of destinations in the Midlands, the North and Scotland”* – Connecting to Heathrow, Factsheet DfT 2011

<sup>70</sup> Connecting to Heathrow, Factsheet DfT 2011

<sup>71</sup> Developing a sustainable framework for UK aviation: Scoping document, DfT March 2011  
<http://www.dft.gov.uk/consultations/open/2011-09/consultationdocument.pdf>

<sup>72</sup> *“Analysis of passenger and staff data suggests that Crossrail will not contribute as much to the airport’s public transport mode share growth as Airtrack, as the areas served do not have such significant new passenger and staff resident populations”* – Sustaining the Transport Vision 2008-2012, BAA

## HS2 demand modelling

46. Heathrow generates much greater traffic than rail's busiest routes. Existing rail journeys between London and Birmingham totalled 2m in 2006/7, Manchester 2.1m and Leeds 1.5m. These three cities are, by a decent margin, the biggest markets for rail.<sup>73</sup>
47. Heathrow by contrast generates almost 60 million UK origin and destination passenger journeys annually, (excluding staff).<sup>74</sup> Assuming the proportion of transfer traffic remains constant, this could increase to ca. 84m by 2030.
48. Heathrow's market is, as previously discussed, currently dominated by London and the South East, reflecting the difficulty of accessing the airport from other regions.
49. However, HS2 Ltd's demand modelling assumed that, regardless of any improvements in surface access, Heathrow's existing market catchment would remain unchanged.<sup>75</sup> Hence, their decision to simply extrapolate from current demand, albeit adjusted to reflect to reflect projected growth in passenger numbers, and the conclusion that HS2 demand is *"not so strong for Heathrow access - wrong market (main market is South East), only 1-2,000 passengers per day forecast to go to Heathrow on HS2"*<sup>76</sup>
50. HS2 Ltd. therefore forecast just 1,400 passengers per day would use HS2 to reach Heathrow, (assuming a third runway and ca. 95m non-transfer, terminal passengers) - just 0.5% of the total. HS2 Ltd's most recent review of demand, adjusted to allow for the cancellation of a third runway and a reduced 2030 terminal passenger forecast of ca. 66m terminal passengers, would presumably reduce even this low forecast.<sup>77</sup>
51. We believe, and European experience confirms, that improving surface access to Heathrow would in fact expand its market catchment. For example, it is likely that a large percentage of the 0.75 million surface access trips from Reading and 0.65 million from Oxford - of which 98.7% and 98.9% respectively are currently made by road - would switch to rail if Heathrow was served by frequent, fast and direct GWML services as, for example, Arup's Heathrow Hub proposal provides.<sup>78</sup>

---

<sup>73</sup> Option Development Report, New Lines Programme, Network Rail, undated [http://www.networkrail.co.uk/documents/About%20us/New%20Lines%20Programme/5881\\_Option%20Development%20Report.pdf](http://www.networkrail.co.uk/documents/About%20us/New%20Lines%20Programme/5881_Option%20Development%20Report.pdf)

<sup>74</sup> "In addition to the 43m passenger surface access journeys in 2008 people accompanying or collecting air passengers (passengers "escorts") are estimated by BAA to have made 13m journeys, of which 95% were by car" – Heathrow Hub, The UK's Global Gateway – Submission to HS2 Ltd, December 2009 [www.arup.com/.../091210\\_Arup\\_submission\\_to\\_HS2\\_Ltd\\_Full\\_Report\\_c\\_ARUP.ashx](http://www.arup.com/.../091210_Arup_submission_to_HS2_Ltd_Full_Report_c_ARUP.ashx)

<sup>75</sup> "The expected catchment areas for HS2 rail trips... contain less than 10% of the air passengers accessing Heathrow" - HS2 Airport Demand Model, SKM 2010 <http://webarchive.nationalarchives.gov.uk/20110131042819/http://www.dft.gov.uk/pgr/rail/pi/highspeedrail/hs2Ltd/appraisalmaterial/pdf/airportdemandmodel.pdf>

<sup>76</sup> HS2 Ltd Technical Seminar, Modelling, Forecasting and Economic Appraisal <http://www.hs2.org.uk/assets/x/77489>

<sup>77</sup> SKM Update for Atkins, Modelling and Appraisal Updates and their impact on the HS2 Business Case, A Report for HS2 Ltd, Atkins April 2011 <http://www.hs2.org.uk/assets/x/77824>

<sup>78</sup> Heathrow Hub: The UK's Global Gateway, Arup submission to HS2 Ltd, December 2009

52. The same logic applies to long distance services. The West Midlands currently generates less than 3% of Heathrow's surface access journeys. If HS2 provided a fast and frequent service to Heathrow, European experience – and logic - suggests that this would significantly increase demand. For example, the proportion of Frankfurt's passengers arriving by HSR increased from 14% to almost 17% between 2006 and 2007, with the proportion travelling more than 100km to fly from Frankfurt also increasing from 37% to 40% in the same period.<sup>79</sup>
53. Lord Adonis specifically noted this experience,<sup>80</sup> which results from Frankfurt airport's location on a through high speed line, not a spur or loop, allowing a wide range of destinations to be served at high frequencies.
54. High speed rail requires very large traffic volumes for viability, with HS2 Ltd's business case dependent on 18tph in each direction, each with as many as 1100 seats. Direct services to Heathrow would therefore assist HS2 Ltd's business case.
55. HS2 Ltd's assumptions on Heathrow demand, if unchanged, are likely to have a significant impact on any business case for the proposed Heathrow spur.
56. HS2 Ltd's assumption of 18tph in each direction between London and Birmingham excludes any Heathrow services.<sup>81</sup> If HS2 Ltd. continues to suggest limited HS2 demand for Heathrow, it is likely that replacing a highly valued London train with a lower value Heathrow service would have a significant effect on HS2's BCR, (particularly if, as discussed earlier, each train path over the spur results in the loss of more than one path on the through line). The Catch 22 is that anything other than a very high frequency service would incur service frequency penalties,<sup>82</sup> inevitably suppressing demand for Heathrow services and making it difficult to create a credible business case for a very expensive spur.
57. Alternatively, if HS2 Ltd. now conclude that there is a case for frequent services to Heathrow, (necessary to justify use of what would otherwise be valuable paths for London

---

<sup>79</sup> Fraport Investor Day, Frankfurt, September 19, 2007

<sup>80</sup> "Some 16% of all Frankfurt airport passengers now come to and from the airport by ICE (high speed rail) from destinations across Germany. This experience needs to be studied carefully as HS2 assess options for serving Heathrow" – Lord Adonis, May 2009  
<http://webarchive.nationalarchives.gov.uk/+http://www.dft.gov.uk/press/speechesstatements/speeches/spchintertransrev>

<sup>81</sup> "The economic case for HS2 includes the link to HS1 for the first phase and the spur to Heathrow for the second phase. However, the service plans presented for HS2 do not include services to either, but uses all the train paths available on HS2 (18/hr) without them. DfT say this is because the decision to include Heathrow and HS1 was announced too late" – Review of the February 2011 consultation business case for HS2, HS2 Action Alliance 2011  
<http://www.hs2actionalliance.org/index.php/business-case/consultation-business-case-feb-11>

<sup>82</sup> "Frequency is usually treated as being very important in transport modelling – subject to a weighting, intervals between trains or aircraft are treated as equivalent to additional in-vehicle minutes. Typically, an improvement in frequency from a train or plane every 2 hours to every 1 hour is considered as having the same impact on market share as a reduction in journey time of 20-30 minutes. In order to be able to compare the importance of frequency with the importance of journey time, we calculate a frequency penalty measured in minutes for each mode and route. The point of the frequency penalty is take into account that a low service frequency makes a mode relatively unattractive even if the journey time is faster, and vice versa" – Air and Rail Competition and Complementarity, Steer Davies Gleave for European Commission DG TREN 2006  
[http://ec.europa.eu/transport/rail/studies/doc/2006\\_08\\_study\\_air\\_rail\\_competition\\_en.pdf](http://ec.europa.eu/transport/rail/studies/doc/2006_08_study_air_rail_competition_en.pdf)

services), then it may be asked why this does not justify an HS2 route serving Heathrow directly since, as we discuss below, a direct alignment incurs only marginal journey time penalties and costs approximately the same.

### HS2 journey time savings

58. HS2 Ltd clearly focused on a perceived need for speed, as a result of the appraisal methodology established at an early stage.<sup>83</sup> This led to a change in emphasis, from reference to “sufficient speed”<sup>84</sup> to the apparent decision, by the summer of 2009, that only routes which could provide a very high speed of 400kph were under consideration.<sup>85</sup>
59. Hence, even relatively modest time penalties have substantial adverse impacts on the business case, as recently re-confirmed by the current Secretary of State,<sup>86</sup> (and despite doubt being cast on such methodology by a review of another DfT project).<sup>87</sup>
60. Others have pointed out the various flaws in this methodology. Indeed, HS2 Ltd’s latest review of the business case highlights the potential difficulty attached to prioritising journey time savings over other criteria, by concluding that omitting the Old Oak Common interchange, (seen as essential by HS2 Ltd. for dispersal of London passengers onto Crossrail, as well as providing access to Heathrow), would further reduce journey times and hence improve the projects BCR.<sup>88</sup>
61. We suggest that the projected journey time saving of 3 minutes between London and Birmingham<sup>89</sup> do not justify the decision to adopt a route that bypasses Heathrow.

---

<sup>83</sup> “Early tests suggested that reducing journey times by one minute would provide benefits of around £300-600m (present value discounted over 60 years in 2009 prices) on a fully utilised high speed line” – HS2 Demand Model Analysis, HS2 Ltd. February 2010  
<http://webarchive.nationalarchives.gov.uk/20110131042819/http://www.dft.gov.uk/pgr/rail/pi/highspeedrail/hs2ltd/demandandappraisal/pdf/report.pdf>

<sup>84</sup> “The new line should be sufficiently high speed to optimise journey time benefits balanced with operational energy costs and achievement of maximum capacity. It is likely to be designed to at least the maximum speed of HS1”- Letter from Sir David Rowlands to Lord Adonis, 13<sup>th</sup> February 2009

<sup>85</sup> “With such a high top speed, there could be no tunnels and few curves. Aerodynamic forces would increase tunnel costs tenfold” - Andrew McNaughton, Chief Engineer HS2 Ltd, Rail News 1<sup>st</sup> June 2009.  
<http://www.railnews.co.uk/news/business/2009/06/01-hs-two.html>

<sup>86</sup> “A railway designed for a lower speed would have a very significant impact on the business case” – Response by Philip Hammond, Secretary of State, Transport Times conference 4<sup>th</sup> November 2010, quoted in Getting Back on Track, CPRE February 2011 <http://www.cpre.org.uk/campaigns/transport/rail/highspeed2>

<sup>87</sup> “Benefit Cost Ratio (BCR’s) are sensitive to variations in the data, assumptions and valuations on which they are based. It is also likely that a project’s BCR will change over time as its context, including its policy context, changes” - Foster Review of Intercity Express Programme, Sir Andrew Foster, DfT 2010 <http://www.dft.gov.uk/pgr/rail/pi/iep/fosterreview/>

<sup>88</sup> “Accounting for the increased costs associated with the extra station, the BCR of the scheme reduces from 1.75 without Old Oak Common to 1.63 with it” – Modelling and Appraisal Updates and their impact on the HS2 Business Case, A Report for HS2 Ltd, Atkins April 2011 <http://www.hs2.org.uk/assets/x/77824>

<sup>89</sup> For a route via Heathrow “the additional route length would entail a longer journey time between London and the West Midlands of 3 minutes for non-stopping services, and 8 minutes for services stopping at the airport” – High Speed Rail: Investing in Britain’s Future – DfT February 2011

62. The decision to adopt a 400kph design speed has also created fertile ground for opposition, with the currently proposed route through the Chilterns crossing the widest part of the AONB. It is difficult to reconcile the tranquillity of the Misbourne Valley with the Government's suggestion that this is a "major transport corridor".
63. HS2 Ltd. has clearly prioritised speed over any environmental impacts on the Chilterns AONB, despite the importance of its statutory designation,<sup>90</sup> and HS2 Ltd's own acknowledgement of its equivalent status to National Parks.<sup>91</sup> It is also of concern that the Secretary of State appears not to appreciate the protection that Parliament intended, dismissing the Misbourne Valley as "not some Constable country".<sup>92</sup>
64. An alternative, more southerly HS2 route via Heathrow, could more closely follow the M40 corridor, albeit requiring some compromise on speed. However, the M40 crosses the narrowest part (ca.12km) of the Chilterns AONB. Reducing speed over this distance, from HS2's proposed 360kph, (albeit on a route designed for 400kph, with 7200m radius curves), to say 300kph, (4050m radius curves),<sup>93</sup> and allowing the line to more closely follow the motorway and fit topography, would incur a journey time penalty of less than one minute.
65. Clearly any major new transport infrastructure will result in some environmental impacts. However, this more balanced approach, advocated in our 2010 paper,<sup>94</sup> is similar that proposed by CPRE<sup>95</sup> and The Right Lines Charter.<sup>96</sup>

---

<sup>90</sup> "Should it be implemented, the current high speed rail proposal could negatively affect the local environment of two areas: the Chilterns (which is an Area of Outstanding Natural Beauty - AONB) and the Vale of Aylesbury and Warwickshire. Paragraph 22 of the Planning Policy Statement 7 (Sustainable Development in Rural Areas) states that major development within an AONB can only be considered if it satisfies the following criteria:1) It is clearly in the national interest and: 2) It cannot be built anywhere else. The Chilterns Conservation Board, an independent body established by Parliamentary Order in July 2004 to "foster the economic and social well-being of local communities within the area of outstanding natural beauty", does not believe that the High Speed Rail proposal meets either of these criteria" (Environmental Law Foundation – High Speed Rail Briefing May 2010 <http://www.elflaw.org/wp-content/themes/elftemplate/media/ELF-Briefing-High-Speed-Rail-Network-May-2010.pdf>)

<sup>91</sup> "AONB's have equivalent status to National Parks as far as conservation is concerned. The single purpose of AONB designation is to conserve and enhance the natural beauty of the area" - HS2 Technical Appraisal <http://webarchive.nationalarchives.gov.uk/20110131042819/http://www.dft.gov.uk/pgr/rail/pi/highspeedrail/hs2Ltd/technicalappendix/pdf/report.pdf>

<sup>92</sup> "Have you looked at the route? It runs along the A413. Great Missenden is beautiful, but it doesn't go through Great Missenden. Between Great Missenden and the HS2 route are the A413, the Chiltern Railway and a line of pylons. So this is not some Constable country". Philip Hammond, Daily Telegraph 11<sup>th</sup> December 2010 <http://www.telegraph.co.uk/news/uknews/road-and-rail-transport/8194406/Philip-Hammond-high-speed-rail-will-be-a-pleasant-surprise-for-many.html>

<sup>93</sup> HS2 Ltd technical specification – minimum desirable radius of curvature 200kph = 1800m, 300kph = 4050m, 400kph = 7200m <http://www.hs2.org.uk/assets/x/77048>

<sup>94</sup> "The Chilterns will be one area where that seems likely to be affected by the first stage of a HSL. A corridor (is required) which minimises impact through routing the high speed line as close as possible to existing transport routes and .. keeps to a minimum the distance the line runs .. through the designated AONB. This ... may mean that there is a small adverse impact on the maximum possible train speed when compared with a straight route" – The Right Track, Bow Group January 2010



66. It also follows European practice, (eg: the Cologne-Frankfurt<sup>97</sup> and Turin-Milan<sup>98</sup> high speed lines), aligning HSR with motorway corridors to minimise their environmental impacts. This was the approach taken by HS1, which, by also minimising the length of line crossing the Kent AONB, is widely acknowledged to achieve a satisfactory balance between benefits and impacts.<sup>99</sup>

67. This approach appears to have merit, even if HS2 Ltd's figure of £300-600m net benefits per minute saved is accepted, (although the overall BCR calculation appears to allocate no value to those impacts that cannot be easily monetised, such as landscape, heritage and habitats). Reducing speed also reduces noise,<sup>100</sup> energy use,<sup>101</sup> maintenance costs,<sup>102</sup> and, potentially, cost,<sup>103</sup> (for example, a route that was less constrained by the need to be straight may be able to avoid at least some tunnelling).<sup>104</sup>

---

<sup>95</sup> "Damage to landscape, heritage and tranquillity must be minimal, for example by running new lines along existing road and rail lines wherever possible, as well as extensive tunnelling, landscaping and noise barriers" - CPRE  
<http://www.cpre.org.uk/campaigns/transport/rail/highspeedrail>

<sup>96</sup> CPRE, Greenpeace, RSPB, Environmental Law Foundation, Campaign for Better Transport and others  
[www.cpre.org.uk/resources/transport/item/download/531](http://www.cpre.org.uk/resources/transport/item/download/531)

<sup>97</sup> "On environmental grounds, the new line (between Cologne and the Rhine/Main conurbation) was generally constructed in parallel with an existing motorway, as close to it as possible. For this reason, the maximum gradient was set at 40%, minimum track radius at 3350m and maximum cant at 170mm, which allows a design speed of 300 km/hr around curves. It proved possible to reduce the number of tunnels compared with the alignment that would have been necessary for mixed traffic. This made constructing the line 15% cheaper than it would have been otherwise." - Dr.Ing. Eberhard Jaensch, Network Strategy Unit, DB Netz AG, Railway Technical Review 2/05 <http://vrt.fd.cvut.cz/data/konference/24ten.pdf>

<sup>98</sup> "The route exploits the natural lie of the land and runs alongside the motorway to minimise environmental impact ... within a corridor with an already dense infrastructure" – The New High Speed Turin - Milan – Line, RFI 2005  
<http://www.rfi.it/cms-file/allegati/rfi/The%20new%20high%20speed%20TURIN%20-%20MILAN%20line.pdf>

<sup>99</sup> "HS1 has fitted into the surrounding countryside well, with few complaints" – Getting Back on Track, CPRE February 2011  
<http://www.cpre.org.uk/campaigns/transport/rail/highspeed2>

<sup>100</sup> "The biggest issue in increasing Shinkansen [high speed train] speed is noise control"- East Japan Railway Company Technical Review Summer 2008 <http://www.jreast.co.jp/e/development/tech/contents12.html>

<sup>101</sup> "Journey time saving of 3.5 minutes consumes 23% more energy (comparison of 360 km/h operation to 300 km/h operation)"- HS2 Traction Energy Modelling December 2009 <http://www.hs2.org.uk/assets/x/56774>

<sup>102</sup> "Telling the People's Daily that speed restrictions would be placed on the trains to make them most cost-efficient, Sheng Guangzu, head of China's railways ministry, said that trains running at 350 kph consume twice as much energy as those traveling at 200 kph. Slowing them up will save both on power costs and maintenance. Speeds are to be cut back from upwards of 350 kph to 200 kph-250 kph with a maximum of 300 kph" -  
<http://chinabystander.wordpress.com/2011/04/14/slow-train-coming/>

<sup>103</sup> "Routes not constrained by requirements for such a very high speed could fit into the landscape better, such as being able to follow the lie of the land rather than carving valleys into a series of cuttings and embankments" – Getting Back on Track, CPRE February 2011 [www.cpre.co.uk/resources/transport/item/download/379](http://www.cpre.co.uk/resources/transport/item/download/379).

<sup>104</sup> The base construction cost of the Amersham tunnel alone on the consultation route is estimated by HS2 Ltd. at £0.7bn – HS2 Cost and Risk Model, December 2009

68. It is therefore surprising that an M40 alignment was not included in any of HS2 Ltd's numerous option studies.<sup>105</sup>
69. We therefore conclude that HS2 Ltd's methodology is fundamentally flawed and that a more balanced assessment of journey time savings, environmental impact, cost and benefits, taking an integrated approach to Heathrow, is required.

### **HS2 costs**

70. The consultation claims that a direct HS2 route via Heathrow is considerably more expensive than the Government's preferred route.<sup>106</sup>
71. A through route is said to cost an additional £2.9bn - £4.2bn, compared to the additional spur cost of £2.5bn - £3.9bn.<sup>107</sup> However, a through route would allow omission of the (very expensive) Old Oak Common interchange. It also appears that the claimed costs for a through route may be overstated. For example, in assessing Arup's Heathrow Hub proposal, HS2 Ltd. have assumed an underground station, whereas Arup propose a Heathrow interchange at grade.<sup>108</sup> The consultation's cost estimates also include risk and optimism bias. A spur serving an interchange within the airport seems likely to incur additional risk, and therefore cost, compared to the unconstrained, "green field" site outside the airport proposed by Arup.
72. It therefore appears that the costs of a spur and through route may be broadly similar. However, as discussed earlier, a spur or loop may require four tracking and additional tunnelling in order to minimise environmental impacts and avoid unacceptable reductions in HS2 capacity, the cost of which may not currently be included.
73. Delaying a spur to a later phase of HS2 introduces uncertainty as to whether this can be delivered within the timeframe stated, since it relies on phase 2 of HS2 proceeding immediately following phase 1. This requires consistent Government funding and political support, perhaps over four administrations. As Crossrail has shown, such consistency is challenging, however important the project. The Labour party have in any case already

---

<http://webarchive.nationalarchives.gov.uk/20110131042819/http://www.dft.gov.uk/pgr/rail/pi/highspeedrail/hs2ltd/riskmodel/pdf/report.pdf>

<sup>105</sup> Route templates, drawing no.HS2\_ARP\_00\_G1\_RW\_00148 Issue 1, HS2 Ltd.

<sup>106</sup> "This route would be around £3-4billion more expensive than to construct than the proposed route" - Alternative Routes Considered – Route 1.5 via Heathrow, DfT Factsheet 2011  
[http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/alternative-routes-one-and-a-half\\_0.pdf](http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/alternative-routes-one-and-a-half_0.pdf)

<sup>107</sup> Investing in Britain's Future, Consultation, DfT February 2011

<sup>108</sup> "Below is a description of the engineering and sustainability issues associated with the locations: Iver – Cut and cover box" - High Speed Rail - London to the West Midlands and Beyond. A Report to Government, HS2 Ltd, December 2009

indicated a possible review of their support for HS2.<sup>109</sup> In contrast, a through route would allow Heathrow to be served from day one, and would assist HS2's phase one business case, with its limited benefits, from a route serving only Birmingham, creating a viability challenge.

74. The consultation explains that those expected to benefit, (eg; airline users, and therefore passengers), will be expected to contribute to the cost of a spur and/or loop.<sup>110</sup>
75. This is not unreasonable. However, Heathrow's total closing RAB will be only £12bn by 2013 under CAA's March 2008 final determination. Any effective financial contribution to the very high, (and as yet unknown), cost of an HS2 spur and/or loop would therefore represent a significant, perhaps disproportionate, share of Heathrow's total asset base.
76. The UK's expectation that airport users bear a significant share of the cost of providing surface access to airports contrasts with other countries approach.<sup>111</sup>
77. Heathrow has recently moved from being the world's 20<sup>th</sup> most expensive airport in the world to the 4<sup>th</sup>, following user charges increasing 46% in 2007/08. Whilst this may represent legitimate pricing of scarce demand, and might be argued as necessary to fund much needed airport improvements, it is important that this, and any future private and public decisions on charging and taxation, are considered in the wider context of the UK economy and inward investment decisions.
78. Heathrow was one of only two airports in the top 30 busiest airports worldwide to report a decline in traffic in 2010, (the other being Las Vegas/McCarren International in 22nd place).<sup>112</sup> With the additional issues of constrained capacity and taxation, Heathrow's continued pre-eminence amongst its European competitors cannot be taken for granted.<sup>113</sup>

---

<sup>109</sup> "As Ed Miliband has said, we rightly start with a blank sheet of paper – that sheet doesn't have a high-speed train line already running through it," - Maria Eagle interview 10th December 2010  
<http://www.guardian.co.uk/politics/2010/dec/10/labour-high-speed-rail-link>

<sup>110</sup> "Significant numbers of individuals and organisations would stand to benefit from the construction of new high speed rail lines. This could include airport operators, businesses close to high speed rail stations and local authorities. The Government expects that such parties would therefore make a contribution to the cost of those links".- High Speed Rail: Investing in Britain's Future, Consultation, DfT February 2011  
<http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/hsr-consultation.pdf>

<sup>111</sup> "Already the UK Government places more costs on the airport owner than is the case internationally - e.g. surface access projects" – DfT Review of Regulatory Framework for UK Airports, submission from the Chartered Institute of Logistics & Transport, 2008 [http://www.ciltuk.org.uk/download/Review\\_of\\_Regulatory\\_Framework\\_-\\_CILT\\_final.pdf](http://www.ciltuk.org.uk/download/Review_of_Regulatory_Framework_-_CILT_final.pdf)

<sup>112</sup> ACI World Traffic Report 2010 [http://www.airportsint.com/view\\_news.asp?ID=3090](http://www.airportsint.com/view_news.asp?ID=3090)

<sup>113</sup> "Unlike most other major cities, where the government and regulators understand the value of air transport, aviation providers in the UK seem to be in constant conflict with plans by the government to further restrict—or tax—the aviation infrastructure. As a result, Heathrow is showing declines in areas where most major airports are registering positive growth. In addition, its primary tenant, BA, has been subject to labour actions that have made many seek other routings in order to avoid unwelcome surprises. Heathrow will always be a major international hub. But its competitive disadvantages, coupled with a government determined to fill its coffers at aviation's expense, are beginning to hurt. If the present decisions and policies stand, we can expect LHR to continue to decline in position amongst its peers, having dropped below Beijing and Chicago O'Hare in the latest world rankings for 2010" - Centre for Asia Pacific Aviation, April 2010

79. The particular characteristic of a spur, serving only airport passengers, make it difficult to claim any wider capacity or congestion benefits that might justify Government funding. For Heathrow's users, a spur requires Heathrow to generate sufficient demand to support a high frequency service to a wide range of destinations in order to justify the investment required.<sup>114</sup> Although the UK's single largest generator, filling very high capacity trains, even if half length sets, at a frequency that is commercially viable<sup>115</sup> would present Heathrow with a challenge.
80. Even if a spur could be funded and built to the timescale envisaged, Heathrow would be dependent on a remote interchange for 20 years or more, the same interchange which the Secretary of State for Transport described as "not an option."<sup>116</sup>
81. In that time, and bearing in mind competitive pressures and Heathrow's constraints, airlines, with their most mobile of assets, may have simply relocated their hub operations elsewhere. Not only would that have severe consequences for the UK, it would reduce the ability of Heathrow to make any significant financial contribution to an HS2 spur.
82. In the worst case scenario, if investment in a spur or loop cannot be supported and HS2's current route is taken forward, there is a significant risk that Heathrow would be solely reliant on a branch line connection with Old Oak Common.

### **HS2 Heathrow Interchange**

83. HS2 Ltd's revised proposal for a spur to Heathrow now requires stations at both Old Oak Common and Heathrow. This has significant cost implications, particularly at Old Oak Common where deep excavation is required to form the subsurface HS2 station box, with construction taking place in close proximity to the GWML, the proposed Crossrail and IEP (North Pole) depots and adjacent Grand Union Canal. The proposals also require relocation of the Heathrow Express depot, although this is not mentioned nor does there appear to be any cost allowance.

---

<http://www.centreforaviation.com/news/2011/04/11/londons-heathrow-competitive-disadvantages-are-beginning-to-hurt/page1>

<sup>114</sup> "To be attractive for airline passengers who might reasonably need to catch a specific departing flight, the service frequency needs to be at least one per hour. Even on our assumption that we can serve more than one city with a single train, (which depends on the structure of the HSR network), many of the flows, (Scotland, Manchester/Liverpool, Sheffield/Leeds/Newcastle, Birmingham and Bristol/Cardiff), do not have a viable flow" – High Speed Rail Development Programme 2008/09, Strategic Choices, MVA/Systra for Greengauge 21

<sup>115</sup> "Frequency is usually treated as being very important in transport modelling – subject to a weighting, intervals between trains or aircraft are treated as equivalent to additional in-vehicle minutes. Typically, an improvement in frequency from a train or plane every 2 hours to every 1 hour is considered as having the same impact on market share as a reduction in journey time of 20-30 minutes. In order to be able to compare the importance of frequency with the importance of journey time, we calculate a frequency penalty measured in minutes for each mode and route. The point of the frequency penalty is take into account that a low service frequency makes a mode relatively unattractive even if the journey time is faster, and vice versa" – Air and Rail Competition and Complementarity, Steer Davies Gleave for European Commission DG TREN 2006 [http://ec.europa.eu/transport/rail/studies/doc/2006\\_08\\_study\\_air\\_rail\\_competition\\_en.pdf](http://ec.europa.eu/transport/rail/studies/doc/2006_08_study_air_rail_competition_en.pdf)

<sup>116</sup> Philip Hammond, Secretary of State, Evidence to House of Commons Transport Select Committee on the Secretary of State's Priorities for Transport, 26th July 2010

84. HS2 Ltd. also propose that Old Oak Common acts as a Crossrail interchange to relieve what would otherwise be unacceptable congestion on the Underground network at Euston appears weak. However, HS2 Ltd's modelling shows, at best, a marginal impact on crowding.<sup>117</sup>
85. We are surprised that there appears to have been little or no consideration of the potential impact of the proposed Old Oak Common interchange on the surrounding community, in London's single most congested borough, and remote from the trunk road and motorway network.<sup>118</sup>
86. Without local road charging or other demand management measures, the current proposals would be likely to act as a magnet for HS2 passengers making kiss and ride, taxi and minicab journeys from much of west London, yet HS2 Ltd. make only a brief reference to the need for better road access.<sup>119</sup> There would appear to a real risk of worsening local air quality,<sup>120</sup> in a Borough that already suffers from some of the poorest air quality in London, (the whole of Hammersmith & Fulham being designated as an Air Quality Management Area in 2000 for nitrogen dioxide, NO<sub>2</sub>, and small particles, PM<sub>10</sub>).<sup>121</sup>
87. The effect of HS2 Ltd's proposed Birmingham interchange on the highways network is relevant to considering the potential impacts of an Old Oak Common interchange. Proposals for the former include a 7,000 space multi-storey car park,<sup>122</sup> which the Governments consultation document admits would require "significant improvements to the road network

---

<sup>117</sup> Average loadings on all LUL services to and from Euston Underground Station in the 7-10am morning peak (expressed as LUL load factor) –

2008 without HS2 – 138%

2033 without HS2 – 185%

2033 with HS2 without OOC - 194%

2033 with HS2 with OOC – 191%

HS2 Demand Model Analysis, HS2 Ltd. February 2010

<sup>118</sup> *"The strategic location of the borough and its position in relation to London's transport network means that H&F suffers from the worst road congestion in London. Some of the busiest road junctions in London are located within the Borough and it suffers disproportionately from the effects of through traffic."* - Chapter 4, London Borough Hammersmith & Fulham LDF Core Strategy Options 2009 <http://lbhf.limehouse.co.uk/portal/csojune09?pointId=1236781495778#target-d1756389e1527>

<sup>119</sup> *"Further consideration should also be given to ... options for the effective provision of road access"* – High Speed Rail: London to the West Midlands and Beyond. A report to Government by HS2 Ltd. – HS2 Ltd, 2009

<sup>120</sup> *"There is a clear link between poor air quality and traffic in Hammersmith & Fulham"* - Para 5.19 London Borough Hammersmith & Fulham UDP – Transportation and Accessibility Issues [http://www.lbhf.gov.uk/Images/CH\\_05\\_Transport\\_tcm21-136423.pdf](http://www.lbhf.gov.uk/Images/CH_05_Transport_tcm21-136423.pdf)

<sup>121</sup> [http://environment-agency.co.uk/static/documents/Research/HAMFUL\\_factsheet.pdf](http://environment-agency.co.uk/static/documents/Research/HAMFUL_factsheet.pdf)

<sup>122</sup> High Speed Rail: London to the West Midlands and Beyond. A report to Government by HS2 Ltd. – HS2 Ltd, 2009

(to) accommodate additional demand created by the interchange (which) would be the subject of a future local consultation.<sup>123</sup>

88. We suggest that a detailed and costed assessment of the local impacts of an Old Oak Common interchange is required, and that an appropriate allowance is included in HS2 Ltd's business case.
89. Significant connectivity benefits are claimed for Old Oak Common. However, apart from Crossrail, these depend on providing interchange with the North London and West London lines, some distance apart. The current proposals appear to make no allowance for the costs of such connectivity. These lines would also require very significant investment in route-wide capacity enhancements, in order to provide claimed benefits, as well as the necessary work to provide a satisfactory interchange with HS2 and Crossrail.
90. In contrast, an alternative HS2 route directly via Heathrow would only require a single, probably less expensive interchange, at Heathrow.
91. This could provide similarly provide interchange with Crossrail and allow fast journeys for HS2 passengers into central London by, for example, making use of GWML fast line capacity released on expiry of Heathrow Express's track access agreement. This would allow limited stop Crossrail services between Reading, Heathrow, and, (with a grade separated junction between main and relief lines), Paddington, and thence all central London Crossrail stations. Such a service would also provide much needed additional capacity for Thames Valley passengers.

### **The classic rail network**

92. HS2 Ltd. were specifically tasked with examining how a Heathrow interchange might improve surface access from Heathrow's existing catchment to the west, and assist in modal shift from road to rail.<sup>124</sup> However, this was not considered at all, as variously acknowledged, without explanation, by HS2 Ltd.<sup>125 126 127</sup> and noted by British Airways in their second submission to Lord Mawhinney's review.<sup>128</sup>

---

<sup>123</sup> High Speed Rail: Investing in Britain's Future – DfT February 2011

<sup>124</sup> "The key car modal shift gain is likely to be in respect of access to Heathrow from London, the west and Thames Valley, facilitated by the Heathrow interchange (and local rail enhancements)" - Letter from Sir David Rowlands to Lord Adonis, 13<sup>th</sup> February 2009

<sup>125</sup> "We have not taken account of the wider connectivity benefit that would accrue if Iver were to be developed as a wider hub interchange. We have not sought to model and analyse the benefits of improved connectivity to Heathrow generally through, for instance, improved western access. We focused on the case for high speed and considered a Heathrow station on the basis of a wider high speed network" - High Speed Rail – London to the West Midlands and Beyond - Report to Government, HS2 Ltd, December 2009

<sup>126</sup> "Our models ... do not address questions relating to potential demand for short distance travel to Heathrow from London and the South East (and therefore not using HS2)" - Supplementary Report, Options for Serving Heathrow, HS2 Ltd. September 2010 <http://assets.dft.gov.uk/hs2-heathrow.pdf>

<sup>127</sup> "It is important to note that the model does not analyse the potential market to Heathrow from areas to the west. This means for instance that the model does not forecast the demand to Heathrow from (for example) Reading using a London Interchange Station connected to the GWML" – HS2 Demand Model Analysis, HS2 Ltd. February 2010

93. In contrast, Arup's Heathrow Hub proposal integrates HS2 and Heathrow with Crossrail and existing GWML services, as also proposed by Network Rail.<sup>129</sup> We suggest that this approach has merit, particularly as there is an opportunity for the proposed electrification and resignalling to be incorporated as part of the integrated, intermodal strategy for which we argue.
94. As part of this, we also support Network Rail's emerging proposal<sup>130</sup> to divert WCML suburban services onto Crossrail, via a new, (short), connection at Old Oak Common. This would have a number of benefits, including improving Crossrail's current poor business case and utilisation west of Paddington.<sup>131</sup>
95. This proposal could also release significant capacity at Euston, assisting the phasing of HS2 works and perhaps obviating the need to extend the stations footprint, and the consequent need to demolish a large number of adjacent properties. It may also allow reuse, with suitable gauge enhancement, of existing Primrose Hill WCML tunnels for HS2, reducing cost and disruption.
96. Removing current services from Euston would also release capacity on the Underground for HS2 passengers.
97. We suggest that a clear strategy is required for use of spare capacity on the classic network, which HS2 is likely to make available. If the franchise system is to make use of the spare capacity, moderation of competition can be expected to ensure that there is no abstraction from HS2's anticipated market. However, it is not clear whether such services could be operated without subsidy. Alternatively, open access operators may well be interested, with the risk that fares could be set at levels that are more competitive than HS2, albeit with journey time penalties. Competitive services over the classic network would certainly allow HS2 Ltd's assumptions on the value of journey time savings to be tested in the real world.

### **Public consultation**

98. Our 2010 paper highlighted the need for HSR proposals to have democratic legitimacy. It is therefore of concern that Government had made up its mind, even before the start of work

---

<sup>128</sup> "Heathrow was not fully assessed for the wider benefits it could bring as an interchange type station to the south of England" – Second Response to the Heathrow Airport High Speed Rail Access Review, British Airways, June 2010  
[http://www.dft.gov.uk/pgr/rail/pi/highspeedrail/lordmawhinneyreport/pdf/appendix3\\_6.pdf](http://www.dft.gov.uk/pgr/rail/pi/highspeedrail/lordmawhinneyreport/pdf/appendix3_6.pdf)

<sup>129</sup> "The RUS considers that the existing Heathrow Express service would need to be incorporated into Crossrail. For this to be operationally viable, all the airport services would need to run on the relief lines, at least at peak times" - London and South East Route Utilisation Study, Draft for Consultation, Network Rail December 2010  
<http://www.networkrail.co.uk/browse%20documents/rus%20documents/route%20utilisation%20strategies/rus%20generation%202/london%20and%20south%20east/london%20and%20south%20east%20route%20utilisation%20strategy.pdf>

<sup>130</sup> "Crossrail extension onto WCML slow lines – recommended for further investigation, subject to business case, for several reasons" - London and South East Route Utilisation Study, Draft for Consultation, Network Rail December 2010

<sup>131</sup> "We have 24 trains an hour in the peak going through the tunnels in each direction and ten of those continue on to destinations such as Heathrow, Slough and Maidenhead. We have to turn 14 of them back close to Paddington" – Anthony Walters, Select Committee on Crossrail Bill, Column 12738, November 2007 <http://www.parliament.the-stationery-office.co.uk/pa/cm200607/cmselect/cmcross/235/6062727.htm>

by HS2 Ltd, that Old Oak Common would provide the Heathrow interchange. As this proposal has been carried forward, unchanged, to the scheme which forms the current consultation, there must be doubt as to the rigour of the subsequent option analysis carried out by HS2 Ltd, and indeed the entire basis on which HS2 Ltd. prepared the business case for HS2.

99. Regarding Heathrow, the consultation lacks any detail of HS2 Ltd's revised proposals, apart from a single factsheet<sup>132</sup> and passing reference in various documents, Hence questions such as the proposed service pattern over a spur or loop, business case, environmental impact and relationship with a Heathrow masterplan are left unanswered. Government has confirmed that it sees a direct connection between HS2 and Heathrow as being essential. We suggest that the current consultation is therefore flawed unless all issues relevant to a route between London, Birmingham and Heathrow can be assessed.

100. There must also be doubt as to the way in which alternative HS2 proposals have been assessed, for example, Arup's Heathrow Hub proposal, the principles of which were supported by the Conservative Party's Rail Review. HS2 Ltd. appear to misunderstand significant features of the proposal, omitting the benefits of an airport terminal co-located with the rail interchange,<sup>133</sup> referring to a light rail link rather than an airside transit between the interchange and the airport,<sup>134</sup> assuming costs for an underground rail station<sup>135</sup> and suggesting that an Iver site has insuperable environmental constraints.<sup>136</sup>

101. We are also concerned at the considerable amount of new material that has variously appeared on DfT and HS2 Ltd's websites since the start of the HS2 consultation in February 2011.

102. The material is obviously seen as important to the consultation, otherwise it presumably would not have been released. However, all relevant information should have been made available, in a co-ordinated manner, at the start of the consultation. Furthermore, no advice is being issued to alert consultees of new material, the material lacks any explanation of its purpose and relationship to other, previously published material, there is no advice as to whether new material supersedes earlier documents and much of

---

<sup>132</sup> Connecting to Heathrow, Factsheet, DfT 2011

<sup>133</sup> "A station at Iver would have connections to GWML and potentially to a parkway. However – whilst a link to the airport could be established – it is unlikely to have any connectivity equivalent to a station on the airport. Similarly this is unlikely to have connections to the Piccadilly line of Heathrow Express, and only limited Crossrail services" - P.48 HS2 DMA

<sup>134</sup> "an interchange with a light rail link to Heathrow ....without offering the benefits of an on-airport station" - "High Speed Rail: Investing in Britain's Future" – DfT February 2011  
<http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/hsr-consultation.pdf>

<sup>135</sup> "Below is a description of the engineering and sustainability issues associated with the locations: Iver – Cut and cover box" - High Speed Rail - London to the West Midlands and Beyond. A Report to Government, HS2 Ltd, December 2009

<sup>136</sup> "Any station at Iver would have a major adverse environmental impact with over 50% being within the Colne floodplain with potential to disturb riparian habitat. There would be serious floodplain impacts which would be difficult to mitigate" - High Speed Rail - London to the West Midlands and Beyond. A Report to Government, HS2 Ltd, December 2009



the material is highly technical in nature, and lacks any explanatory text for a non-expert audience.

103. We believe we have reasonable technical knowledge, but we find many of the documents inexplicable and difficult to relate to earlier published information. Much of it is, we believe, frankly impossible for the general public to understand.
104. In addition, some of this material appears contradictory. For example, the map showing the proposed connections to Heathrow on the “Connecting to Heathrow” factsheet shows a delta (three way) junction with the main HS2 route, which would allow services over the spur from both the UK and Europe. In contrast, the diagram in the main consultation document<sup>137</sup> shows only a north facing connection which would only allow services from Birmingham and the north to reach Heathrow. The factsheet also shows, without explanation, a purple dotted line striking north from Old Oak Common which could be seen as representing an alternative or additional high speed alignment.
105. Such confusion is not helped by press publication of other material, apparently obtained from official sources.<sup>138</sup> Whilst there is no way of knowing if this is current or accurate, it certainly suggests that detailed studies have in fact been completed on various options for a spur and loop. There would therefore appear to be no reason why the scope of the current consultation cannot be widened to ensure a comprehensive approach can be taken to Heathrow and HS2.
106. These reports also appear to confirm that any of the proposed spur alignments would require extensive tunnelling, with the lowest cost option quoted as ca. £7.3bn. (compared to costs for a spur of “between £2.5bn and £3.9bn” in the current consultation). It may be that these costs are not on the same basis, or may reflect further work, for example, to avoid the spur having unacceptable impacts on HS2 line capacity. Either explanation would appear to provide further justification for waiting until a comprehensive consultation can be carried out.
107. Other information recently released is simply unclear – the images that have recently appeared on DfT’s website, for example,<sup>139</sup> lack any comparison with existing views, show only daytime scenes, (whereas the most significant visual impact will be at night, when trains with high intensity headlights and electrical arcing are likely to be more visually intrusive), and some locations are poorly described.
108. We suggest that continuing to release additional material at this late stage in the consultation process is not helpful and would appear to be contrary to best practice. The growing and complex suite of documents, some released by DfT and some by HS2 Ltd, makes it impossible to see any clear hierarchy, structure or explanation, placing a considerable and unacceptable burden on those seeking to respond. There is a legitimate

---

<sup>137</sup> Figure 1.1, High Speed Rail: Investing in Britain’s Future, Consultation DfT February 2011

<sup>138</sup> <http://www.uxbridg Gazette.co.uk/west-london-news/high-speed-rail/2011/05/11/gazette-reveals-hs2-heathrow-options-113046-28677661/>

<sup>139</sup> <http://highspeedrail.dft.gov.uk/library/images>

question as to whether the consultation process is compliant with the Aarhus convention and the Government's own consultation code.<sup>140</sup>

109. The process as it stands is fatally flawed. As well as making the consultation process unsafe, there is also a risk that far reaching and costly decisions are taken in isolation, perpetuating the worst aspects of the UK's silo approach to transport planning and conflicting with European Transport policy.

### **Conclusion**

110. In a rare example of cross party consensus on long term strategic investment, the two major political parties provided political support for a UK HSR network as part of an integrated, intermodal approach to the UK's future transport infrastructure needs.
111. It is unfortunate that HS2 Ltd's decision making was then so heavily influenced by a rail industry perspective and a dubious appraisal methodology that prioritised journey time savings.
112. That led to the questionable and far reaching decision to adopt a design speed of 400kph, dooming the high speed line to slicing through anything that lay in its path – in this case, the Chilterns AONB, numerous protected wildlife sites, listed buildings, ancient monuments, National Trust properties and landed estates. This issue is of fundamental importance, yet the consultation adopts this as a fait accompli.
113. HS2 Ltd. also determined, through fundamentally flawed demand assumptions on demand, to ignore Heathrow, the world's busiest international airport and UK's single greatest traffic generator. Without any airline or airport representation within HS2 Ltd, no further thought was given to the illogicality of this decision, ignoring European experience,
114. The single specific area of HS2 Ltd's remit that might have brought a co-ordinated approach to air and rail was also ignored, with the result that HS2, as currently proposed, fails to consider the vital issues of Heathrow's sustainable growth and contribution to the UK economy.
115. The current consultation lacks any detail on options for connecting HS2 and Heathrow, without which it is not possible to reach well informed conclusions on the proposed route between London and Birmingham. The information that has been made available suggests that, even on HS2 Ltd's own assumptions, and disregarding any wider case for a direct HS2/Heathrow interchange, there appears to be a strong case for an alternative HS2 alignment that serves Heathrow on a through alignment.
116. The consultation is also, we believe, unsound in the way in which important material is being made available without notice, commentary or co-ordination.
117. Retrofitting Heathrow and a European connection cannot make a bad scheme better, but calls into question HS2 Ltd's judgement and ability to advise on a broader range of issues than a high speed railway in isolation.

---

<sup>140</sup> Code of Practice on Consultation, HM Government, July 2008 <http://www.bis.gov.uk/files/file47158.pdf>

118. As the Bow Group's 2010 paper noted, "*these are not transport issues, they refer to (Government) priorities. They are too important to be left to rail industry experts, whose role should be to advise on the options to deliver the wider national priorities*"<sup>141</sup>
119. In contrast, HS2 Ltd's narrow approach to planning what may be the UK's single largest public investment in a generation would be recognisable to the 19<sup>th</sup> century railway barons – conceived in isolation from any external factors, ignorant of other modes of transport, ignoring anything in its way and dismissive of its environmental impacts.
120. Our fear is that HS2, as currently conceived, may also have parallels with a 20<sup>th</sup> century *grand projet*, similarly conceived without a demonstrable business case, lacking democratic legitimacy, ignorant of the changing environmental landscape, designed without regard to energy use and promoted by Government as an article of technological faith – Concorde.<sup>142</sup>
121. The Secretary of State has dismissed opponents of the current HS2 proposals as having "*not much more to their argument than Nimbyism.*"<sup>143</sup> However, we believe the current consultation raises fundamental issues that cannot, (and, considering HS2's cost and strategic importance, should not), be so easily dismissed. Without the rigorous analysis that the Secretary of State so lightly disregards, the country – and its commitment to the expenditure of very large sums of public money - is wholly dependent on the conclusions reached by DfT and HS2 Ltd.
122. We reiterate the Bow Group's continued support for the principle of a UK HSR network. However, we suggest that Government must return to the principles underlying the original political consensus, to ensure that the required investment delivers the necessary improvements to the country's infrastructure in a way that is integrated, affordable, environmentally acceptable and beneficial to the whole of the UK.
123. This is the approach taken by the European high speed rail network– planned on an intermodal basis, integrated with the classic railway and major airports, considered within a wider spatial and economic strategy and mindful of environmental constraints.

---

<sup>141</sup> The Right Track, The Bow Group January 2010

<sup>142</sup> "*A serious technical oversight was failure to recognise sufficiently the environmental problems. Probably more important was the commercial misconception that speed was the key criterion for success, overoptimism in predicting sales and insufficient regard to customer requirements. Indeed, one could argue that there was a reckless failure even to care whether or not there was a market*" - They Meant Well - Government Project Disasters, D R Myddleton, Institute of Economic Affairs, 2007 <http://www.iea.org.uk/sites/default/files/publications/files/upldbook419pdf.pdf>

<sup>143</sup> Metro, 20<sup>th</sup> March 2011 - <http://www.metro.co.uk/news/858625-transport-secretary-philip-hammond-only-nimbys-oppose-250mph-trains#ixzz1MK3yQC2k>

124. HS2 as currently proposed is fundamentally flawed and faces massive opposition. We have of course been here before,<sup>144</sup> but it is not too late to return HS2 to the right track.

---

<sup>144</sup> *“When the high speed (Channel Tunnel Rail) Link to London was announced the revolt that followed shook the Tory party to the core. A revolutionary mob in waxed green jackets is enough to bring any Home Counties MP out in a rash” – The Sunday Times London magazine, 6<sup>th</sup> May 1990*

## **Appendix A**

### **Extract from Executive Summary of recommendations**

#### **“The Right Track” The Bow Group, January 2010**

- The Government risks choosing the wrong route for Britain’s second high speed railway (HS2).
- HS2 should be directly linked to Heathrow Airport through the construction of a Heathrow hub interchange station combining HS2, the Great Western Main Line, Chiltern Line and Crossrail services.
- Heathrow is one of the most difficult national airports in Europe to reach by rail, thus forcing many potential travellers to use other European hub airports.
- Without direct HSR connection to Heathrow traffic congestion and pollution around the airport and the M25 will continue to be amongst the worst in Europe.
- The Government must not just listen to the rail industry when making its choice for the route of HS2. British Rail was wrong in its choice for the first section of high speed rail, between London and the Channel Tunnel in the 1980s and a better route, promoted by Lord Heseltine, was chosen.
- A non direct HSR link with Heathrow, represented by a loop or spur, would represent folly in Britain’s ambition to develop a truly integrated transport policy.
- A successful national high speed rail network should directly connect all of Britain’s major airports and cities as is successfully reflected in France, the Netherlands, Belgium and Germany.
- Britain’s traditional North/South divide can be bridged by a successful HSR network as it will better bind and co-ordinate economic progress

**Tony Lodge**

**Chairman, Bow Group Energy and Transport Committee, May 16 2011**