

Bluespace Thinking Ltd - Further Assessment of HS2 proposals - November 2011

Summary

Bluespace Thinking Ltd's initial assessment (April 2010) of the HS2 proposals concluded that the passenger demand forecasts were unrealistic. HS2 Ltd have reduced their forecasts significantly but our recent reassessment shows that they are still overstated by about 35% .

We explain why we do not believe the HS2 forecasts, aimed at managers in Government Departments (DfT, Treasury, Scottish Transport etc.) and bodies responsible for Government oversight, we attempt to provide transparency to a complex area and instigate further internal discussion and challenge. We ask if alternatives to HS2 have been fully developed and full information made available to the public in accordance with DfT's duties under the United Nation's Arrhus Convention. We highlight the background to the HS2/HSR rail industry lobby. The Government have agreed with the Public Accounts Committee Report 5 2010/11 that vested interests in the rail industry need to be addressed but have not yet taken steps to curb their impact.

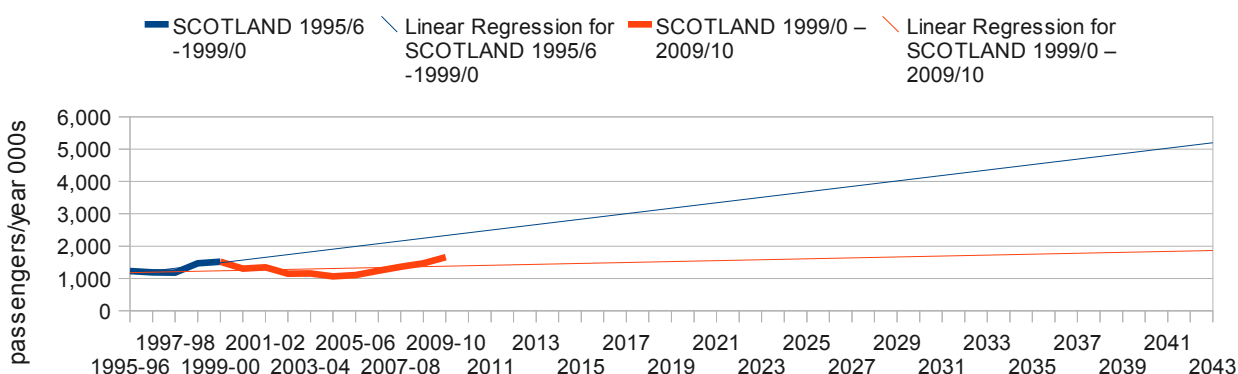
DfT / HS2 - Passenger demand forecasting

The 100 mile London to Birmingham HS2 line is expected to carry 136,000 passengers/day by 2043 with 14 trains/ hour running in each direction. The benefit cost ratio is calculated to be 1.6. ¹

Any HS2 extension beyond Manchester to Glasgow or Edinburgh will be about 200 miles long. HS2 Ltd calculate that if HS2 runs to Scotland there will be demand for 43,000 trips/day. ² HS2's 18 trains/hour planned capacity allows for 2 trains/hour to Scotland at peak times with one train/hour running during the day. ³

Not surprisingly HS2 Ltd have not published the Benefit Cost Ratio (BCR) or the load factors for this extension but from the cost and benefit figures provided it is possible to calculate an estimated BCR of 0.4. The previous Secretary of State for transport has advised the Transport Select Committee that projects with BCRs below 1 will not go ahead. ⁴

The Office of the Rail Regulator (ORR) have published the number of rail trips/year (since 1995) between each of the Government regions.⁵ For 2009/2010 this shows that between Scotland and London (both directions) there were 1.7 million trips, 4542/day or 5527/day based on 300 days/year. Regression analysis of the ORR data for the last 10 years shows that, if growth continues at the same pace, there will be 1.9 million trips (6,500/day @300days/year) by 2043 far less than the 43,000 HS2 Ltd figure. If however the regression analysis had been carried out on the 1995/6 to 1999/2000 data the growth rate would predict 5.1 million trips/year in 2043 (17,000/day @ 300 days/year) much higher, but still only 40% of the demand predicted by HS2 Ltd.



1 DfT Economic case for HS2 <http://highspeedrail.dft.gov.uk/library/documents/economic-case>

2 HS2 Ltd Demand and Appraisal report 2010

www.webarchive.nationalarchives.gov.uk/hs2Ltd/demandandappraisal/

3 DfT Economic case for HS2 <http://highspeedrail.dft.gov.uk/library/documents/economic-case>

4 Transport Select Committee HSR Inquiry - Secretary of State Evidence Q554

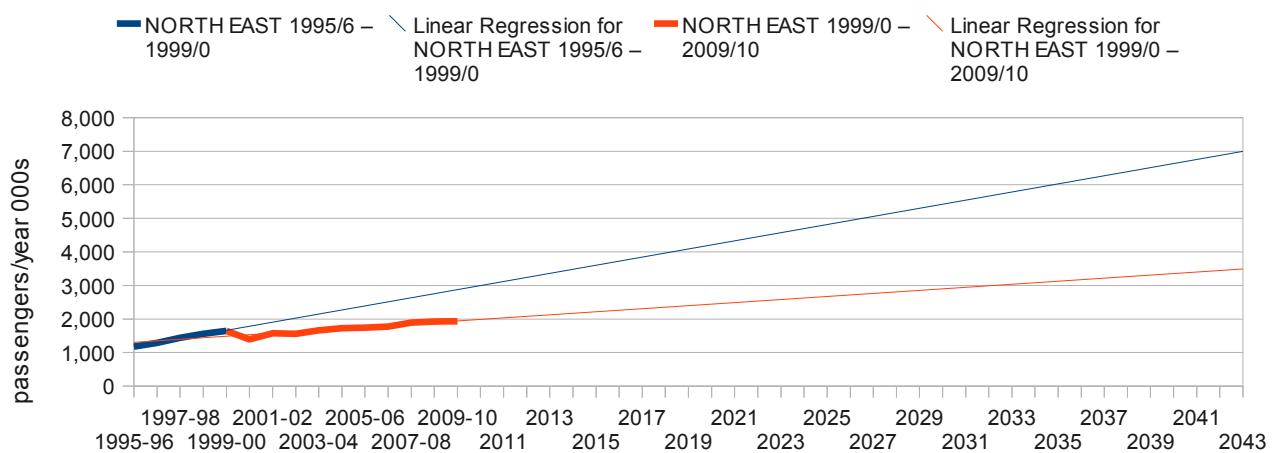
www.publications.parliament.uk/pa/cm201012/cmselect/cmtran/1185/11091301.htm

5 Office Rail Regulator National Rail Trends Year Book www.rail-reg.gov.uk/server/show/nav.2026

The DfT and HS2 Ltd forecasting methodology is obviously much more expensive and complex. Their analysis is based on the period of rail growth between 1990/1 and 1998/9⁶. From this data they have developed mathematical relationships (elasticities) of rail growth to changes in GDP for different distances of travel. This results in large elasticities to GDP growth for journeys between Scotland and London. They make adjustments for population changes, improvement in services (capacity/crowding, frequency, reliability and journey time) changes in fares and the impact all these changes have on passengers choice of whether to travel by rail, air or road.

This methodology predicted 43,000 trips/day, it has however failed to predict the lower growth over the last 10 years. If, in developing their elasticities to GDP over the 1990 -1999 period, the impacts of service improvement were not fully removed the DfT methodology will double count demand growth that comes from future service improvement.

The major problems with the analysis exaggerate longer distance predictions more than others, the forecast for the North East therefore is also significantly more than the growth that has actually occurred. The HS2 Ltd growth prediction is far higher than the simple regression analysis of the 1995 -1999 period shown, the graph shows the extent to which the growth has actually been far lower.



It is a common assumption that detailed bottom up analysis produces more accurate results. This is not always the case, in market forecasting it is frequently easier and more accurate to predict the overall growth in a market than trying to predict individual product or geographic area growth. This is particularly true where there is uncertainty in the detailed understanding of past data and complexity of analysis. The ORR data is probably as accurate a record of what has actually happened as exists, more detailed analysis needs to be consistent with and honour these high level figures to have validity.

The root cause of the problems with the HS2 analysis has been identified by the Parliamentary Public Accounts Committee. The Government (Feb 2011) have agreed to the finding in their report “Increasing Passenger Rail Capacity” that “*The Department’s knowledge of how many people use which parts of the rail network and when is inadequate, sketchy and so gives a poor basis for decision-making*”.⁷

Although our high level regression analysis does not require an accurate understanding of the exact relationships it would not be valid if future growth in the major influencing factors were expected to be significantly higher (fares increases lower) than over the last 10-15 years.

- The Office of National Statistic predict a reduced rate of population growth to 2033.
- We do not think the Treasury predict a higher GDP growth rate over the next 10-15 years.
- Service improvement (frequency, journey time, reliability) planned over the next 30 years as a result of HS2 is greater than has occurred recently on the West Coast Main Line however the improvement rate/year is probably lower.

⁶ DfT Webtag Unit 3.15.4 para 5.2.4 www.dft.gov.uk/webtag/documents/expert/unit3.15.4.php

⁷ www.hm-treasury.gov.uk/d/minutes_3_13_reports_cpas_feb2011.pdf page15

- Changes in Government policy means rail fares will increase faster for the next few years.

Significant air travel growth combined with reduced HSR journey time could result in a step change transfer of passengers to rail. But there is no evidence of domestic air travel increasing in the UK, the number of passenger journeys between Scotland and the London area over the last year has been about 6 million, similar to the figure in 1998. Air travel between the two regions peaked in 2004 at about 8.2 million passengers.⁸

Overall there is no reason to believe that long distance rail growth between the Government regions will be greater than estimated by simple regression analysis. This would represent a middle (P50) estimate with the uncertainty that it maybe higher or lower.

While Scotland and the North East have the greatest degree of over estimated growth, the use of 1990-1998 data and current DfT methodology results in the growth of travel between all the regions and London being over estimated. Although the detailed approach is different, using the 1995 -1999 data in the regression analysis shown produces the same overall results as the HS2 Ltd analysis, 136,000 passengers/day in 2043 for London to the West Midlands and 220,000 passengers/ day for the Y scheme. However using the last 10 years data predicts the passenger numbers of the London to Birmingham to be 100,000/day and the Y scheme 160,000/day. This level of passenger demand would result in BCRs of about 0.7 and 0.9 respectively.

The rail analytical community know that the HS2 Ltd analysis is not correct and recommendations for changes to the methodology have been made to the DfT. However the Secretary of state has not approved the changes needed.⁹

This does not mean that the UK cannot have a High Speed Rail network to deal with the projected passenger growth and reduce journey times, it does mean that a different approach is required if it is not to be an isolated single uneconomic line from London to Birmingham.

The proposed HSR network is based on 400 km/hour line speeds with trains running initially at 360 km/hr. This requires a very straight route and trains that cannot tilt, reducing speed when they run on existing or upgraded lines. Any 400 km/hr line to Scotland through the Northern terrain is going to require tunnelling and cut and fill levelling of the route and until it is built journey time savings are limited.

A line speed of 250 - 300 km/hour with tilting trains would be cheaper to build, have greater train path capacity and for the money being spent could achieve similar overall time savings on a combination of new and substantially upgraded existing lines. This could improve services to Scotland, the North East, Yorkshire and Humberside, the South West, the East, the East Midlands, Wales and possibly even the South East as well as to the West Midlands and the North West.

Have alternatives to the current HS2 proposals been properly considered ?

The recent Transport Select Committee's Inquiry into HSR supports the need for a new UK HSR network if growth continues at the levels of the last few years or if the problems of peak loading cannot be addressed. They also recommend that a revised business case, using a lower value of time, is prepared for the current HS2 proposal and the alternatives.

The TSC note that the alternatives have not been properly examined and they have recommended Government consider further routes that follow existing transport corridors. They consider that by excessively valuing time savings the decision to go for a 250mph very high speed solution prematurely ruled out other route options. They do not consider that HS2 will significantly reduce domestic air travel and they do not believe that claims of substantial CO2 emissions reductions stand scrutiny. Government have not yet responded to these recommendations.¹⁰

The Government have however accepted recommendations from the Public Accounts Committee's

⁸ Civil Aviation Statistics www.caa.co.uk/default.aspx?catid=80&pagetype=88&pageid=3&sglid=3

⁹ DfT Webtag Unit 3.15.4d www.dft.gov.uk/webtag/documents/expert/unit3.15.4d.php

¹⁰ Transport Select Committee 10th Report High Speed Rail
www.publications.parliament.uk/pa/cm201012/cmselect/cmtran/1185/118502.htm

“Increasing Passenger Rail Capacity” report.¹¹ :- *The Department should vigorously pursue and promote smart ticketing and other demand management techniques to reduce the inefficiencies of overcrowding in peak hours and underused rolling stock at other times.*

The Government say they have identified plans to reduce the impact of these problems.

The Government have also accepted the Public Accounts Committee's recommendations concerning the provision of information and transparency.¹² :- *“Governance arrangements for the railways do not provide enough independent scrutiny and transparency to drive value for money relative to the sums of taxpayer money involved.”*

The TSC note that during the public consultation on HS2 there was not full disclosure of information. The DfT claim that they do not have full information about the Strategic Alternatives developed by Atkins only the summary report published as part of the consultations, full information is apparently held only by Atkins. The Aarhus Convention guidance covering the disclosure of environmental information¹³ states :- *Further, under the Convention, public authorities must upon request provide copies of the actual documents containing the information, rather than summaries or excerpts.*

With respect to the data being held by Atkins rather than the DfT the guidance states :- *failure to possess environmental information relevant to a public authority's responsibilities might be a violation of article 5, paragraph 1 (a). Article 5, paragraph 1 (a), requires public authorities to possess and update environmental information relevant to their functions.*

The HS2 alternatives studies referred to are environmental information under the terms of the convention. The DfT have the function of assessing all the transport alternatives and make recommendations on the decision of whether to proceed with HS2 in its current form or pursue an alternative.

The international rail industry lobby

The PAC have also found and Government have accepted that :- *“The unique and complex structure of the rail industry makes it inherently cumbersome and expensive, and provides little internal challenge to its vested interest in its own growth. The Department should conduct a fundamental review of the rail industry's structure, to ensure better accountability and value for money, with the aim of reducing conflicts of interest, aligning efforts on maximising efficiency, and restraining the tendency to seek solutions through growth”.*¹⁴

The Government are aware of the vested interest lobbying in the industry but have not acted to curb its impact. The main advocates and beneficiaries of a major new UK High Speed Rail network are the international rail industry.

Senior representatives from - Alstom (France), Amey, Arup, Atkins, BAM Nuttal (Netherlands), Bechtel (USA), Bombardier (Canada), Chiltern Railways (Germany), Costain, DB Schenker (Germany), First Group, GE (USA), Halcrow (USA), Hitachi (Japan), Jacobs (USA), London First, Mott MacDonald, Siemens (Germany), Thales (France), all potential suppliers to any future UK HSR programme, were invited guests of the investment bank Nomura (Japan) to celebrate the Launch of the “Yes to HSR” campaign on the 14th June 2011

Network Rail, the rail industry press and a selected group of pro HS2 MPs and Local Government officials, property developers and a few smaller companies, mostly transport related, were also present. Canapés and drinks were provided by the Nomura corporate events team.

The event was organised by Prof. David Begg a director of the First Group, ex Chairman of Tubelines (Bechtel, Amey, Jarvis and Grupo Ferrovial joint venture responsible for London underground maintenance until taken over by TfL), editor of Transport Times and founder of “Yes

11 www.hm-treasury.gov.uk/d/minutes_3_13_reports_cpas_feb2011.pdf page 17

12 www.hm-treasury.gov.uk/d/minutes_3_13_reports_cpas_feb2011.pdf page 17

13 Aarhus Convention Guidance - United Nations www.unece.org/env/pp/acig.pdf

14 www.hm-treasury.gov.uk/d/minutes_3_13_reports_cpas_feb2011.pdf Page 16

to HSR” . Mr Jim Steer the founder of Greengauge 21 the pro HSR lobby organisation was also invited. The group were addressed by Prof. Begg, Lord Marshall the Chairman of Nomura International and Phillip Hammond the then Secretary of State for Transport.

The commercial attendees appear to have a common “vested” interest in promoting a major new HSR network to enhance their businesses, they are selling their “product” via Government and MPs to the UK tax payer. It is possible that members of this group have been funding Greengauge 21 to promote and lobby for this major Government investment since 2006. The “Yes to HSR” PR campaign funded by the rail industry and run by Westbourne Communication is reported ¹⁵ as being designed to tackle opinion formers who might undermine the project, the slogan “Their lawns or our jobs” could also have referred to “my profits”. We have not yet fully understood whether Nomura have commercial or political links with High Speed Rail.

The PAC, the TSC the Public Administration Committee, the DfT, Ministers and Government maybe concerned that the analysis work for both HS2 and its alternatives has been carried out by Atkins, Mott MacDonald and Arup. While they are clearly professional firms and they have undertaken a very detailed analysis, probably following DfT guidance, they are not independent, they have a conflict of interests, they want a particular outcome. The “independent” HS2 strategic challenge panel would, one would think, ensure a thorough identification and evaluation of the strategic alternatives, this has not happened. The panel includes Prof David Begg, and Mr Jim Steer who, under the definition of the Civil Service Code of Practice, are lobbyists. It would appear that the “rail industry”, via a few individuals, have conceived and promoted the idea of a major new UK HSR network, are carrying out the evaluation, providing the independent strategic challenge, and if it goes ahead will financially benefit from the major construction, train manufacture and financing contracts that will be placed.

If at this time of economic difficulty Government and Parliament want to invest £billions in a project that is unlikely to return it costs in public economic or social benefit that presumably is their right. However they do have an obligation to adhere to their own standards and hopefully will take the time to have a truly objective and independent assessment of their contractors analysis. Whether HS2 proceeds or not rail industry analysis and industry lobbying need further scrutiny. Hopefully a similar transparency as has been brought to phone hacking can be brought to commercial lobbying particularly the hidden influences on Government departments and Ministers.

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