



Updated Economic Case for HS2

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1 Introduction

- 1.1 The Economic Case for HS2 was published in January 2012 at the time of the Secretary of State's decision to proceed with the development of a high speed rail network and to confirm the proposed route for Phase 1 of the scheme. At the time the estimated Benefit Cost Ratio (BCR) for Phase 1 between London and the West Midlands was estimated to be 1.7 with Wider Economic Impacts (1.4 without). For the Y network, serving Leeds and Manchester, the BCR range was 1.8 - 2.5 with Wider Economic Impacts (1.6 - 1.9 without).
- 1.2 As with any major project of this kind, we continue to review and update the economic assessment as the project develops. The economic case for any scheme will evolve over time and be influenced by many factors including:
 - greater development of the design of the scheme in light of more detailed work;
 - changes in external factors such as economic or population forecasts;
 - improvement to the forecasts of HS2 demand, benefits and revenue due to enhancements to our modelling; and
 - changes to the guidance on forecasting and appraisal of transport schemes.
- 1.3 This paper sets out the results of analysis of the economic case undertaken between January and June 2012 for the London-West Midlands phase of the project and the full Y network.

2 What has changed?

- 2.1 There are four key changes to the assessment of HS2 since we last reported in January:
 - we have now refined our base case assumptions for Phase 2 costs, journey times and benefits following the submission of advice on route and station options to the Secretary of State by HS2 Ltd in March 2012. The Secretary of State is considering a range of options and the results presented in this document reflect just one of the options being considered;
 - we have further optimised service patterns for the Leeds and Manchester legs, improving both HS2 services and the use of capacity released on the existing network;
 - we have incorporated the economic forecasts published by the Office for Budgetary Responsibility in March 2012; and
 - we have refined our modelling approach in a way that improves the assessment of impacts on specific station locations and local rail trips north of Birmingham.

- 2.2 Over the past few months we have also addressed the technical issues described in *The Economic Case for High Speed 2: Next Steps and Future Updates*.

3 What has been modelled?

- 3.1 The basic scheme for the first phase of HS2 between London and the West Midlands remains unchanged from that published in January other than for minor corrections to the indicative service specification for capacity released on the existing network.
- 3.2 For Phase 2, serving Manchester and Leeds, we have presented the Secretary of State for Transport with a range of options on the design of the scheme. These options are being considered in full with a view to publishing a preferred design in the autumn. For the purposes of this update, we have modelled a base option which provides an indication of the likely strength of the BCR for the overall scheme.
- 3.3 We have not published the service specification for this option since doing so could cause unnecessary speculation about the design of the scheme, potentially causing blight in areas that ultimately may not be affected. However, we can confirm the specification is in line with that published in January 2012 except:
- additional train service capacity is provided to better address crowding issues on some high-speed trains; and
 - there have been some changes to stopping patterns – and consequently journey times – to balance capacity at intermediate stations.

4 The economic case for the Y network

- 4.1 We currently estimate the BCR for the Y network to be in line with the top of the range published in January 2012 - a BCR of around 2.5 including Wider Economic Impacts. The impact of the technical issues and revisions to economic forecasts have generally reduced the BCR, but these have largely been offset by improvements in the service specification for the potential scheme and better modelling of travel demand north of the West Midlands.
- 4.2 Overall costs are slightly lower than our previous estimates. Whilst enhanced HS2 services have increased HS2 operating costs, these are more than offset by the opportunities for efficiency improvements that have been identified on the classic rail network..

Table 1 – HS2 Y Network quantified costs and benefits (£ billions) of HS2 (2011 present value prices) and resulting BCR

1	Transport User Benefits	Business	£34.3bn
		Other	£16.7bn
2	Other Quantifiable Benefits		£1.0bn
3	Loss to Government of Indirect Taxes		-£3.8bn
4	Net Transport Benefits (PVB)		£48.2bn
5	Wider Economic Impacts (WEIs)		£15.4bn
6	Net Benefits including WEIs		£63.6bn
7	Capital Costs		£36.4bn
8	Operating Costs		£22.3bn
9	Total Costs (7+8)		£58.7bn
10	Revenues		£32.9bn
11	Net Costs to Government (PVC) = (9) – (10)		£25.7bn
12	BCR without WEIs (ratio) = (4)/(11)		1.9
13	BCR with WEIs (ratio) = (6)/(11)		2.5

Please note – table totals may not be an exact sum of components due to rounding

- 4.3 The current estimate of benefits is higher than the top of the range published in January, which was £46.9bn. This is despite the reduction in short-run economic growth forecasts and the correction of the technical issues identified in April. A significant part of this improvement is due to improvements in modelling.
- 4.4 The new version of the model makes a detailed assessment of the accessibility of new stations, using detailed spatial information on the distribution of demand and the ease of access from different areas. It also provides a better representation of passenger choices between different station options. This has had a more noticeable effect on the modelling of Phase 1 of HS2 (see paragraph 5.4), but will also have increased the BCR for the whole Y network.
- 4.5 Whilst the modelling has had a significant impact on the overall BCR, there have also been increases as a result of enhancements to the service specification, which better match demand to service levels and improve the use of released capacity. There has been a small further increase as a result of changes to the definition of the GDP Deflator (a measure of price inflation) by the Office of National Statistics, resulting in changes to estimates of past and future real GDP.

5 The economic case for HS2 London to West Midlands

- 5.1 Our current estimate of the BCR for HS2 London – West Midlands is also broadly in line with our analysis supporting the January 2012 Decision documentation.
- 5.2 We have not considered scope for refinement of services for London - West Midlands, but, despite this, the downward impact of the adjustments we reported in April 2012 have been largely offset by the introduction of the more detailed model and the impact of changes to the GDP deflator and consequent impacts on real GDP growth (see Table 2 below).

Table 2 – Quantified costs and benefits of HS2 London to West Midlands benefits (£ billions) of HS2 (2011 present value prices) and resulting BCR

1	Transport User Benefits	Business	£12.6bn
		Other	£7.2bn
2	Other Quantifiable Benefits		£0.6bn
3	Loss to Government of Indirect Taxes		-£1.6bn
4	Net Transport Benefits (PVB)		£18.8bn
5	Wider Economic Impacts (WEIs)		£4.8bn
6	Net Benefits including WEIs		£23.6bn
7	Capital Costs		£18.8bn
8	Operating Costs		£8.2bn
9	Total Costs (7+8)		£26.9bn
10	Revenues		£13.2bn
11	Net Costs to Government (PVC) = (9) – (10)		£13.8bn
12	BCR without WEIs (ratio) = (4)/(11)		1.4
13	BCR with WEIs (ratio) = (6)/(11)		1.7

Please note – table totals may not be an exact sum of components due to rounding

- 5.3 In this case the impact of model changes is much smaller than for the Y network. The previous version of the model already captured the accessibility of new stations in London and the West Midlands, using detailed geographical information on accessibility and distribution of demand. In this sense it was better able to represent accurately the design of Phase 1 in terms of the location of HS2 stations in London and the West Midlands.

- 5.4 The improved representation of the accessibility of stations and services that are north of the West Midlands affects the assessment of classic compatible services that run beyond Birmingham and has generally increased the estimated benefits for HS2 London to West Midlands.

6 Next Steps

- 6.1 HS2 Ltd and DfT will continue to enhance its analysis and update the evidence base to support the preparation of the London-West Midlands scheme for the Hybrid Bill in late 2013, and to support the wider design of the Leeds and Manchester legs. Previous analysis has shown the sensitivity of the economic case to key assumptions, including:
- the approach taken to modelling market saturation;
 - the assumptions and elasticities used to forecast future demand; and
 - the approach taken to modelling fares growth and its interaction with passenger demand
- 6.2 HS2 Ltd and DfT will consider whether these approaches can be improved upon for future decisions. Where there is uncertainty around demand forecasting parameters we will reflect this in our analysis. Whilst the results published in this paper correspond to our current best assessment of the overall Economic Case for High Speed 2, we will continue to develop our approach to risk analysis to enable us to consider the range of possible outcomes from HS2.
- 6.3 The economic case will continue to be refined in the light of updated evidence and DfT guidance, and as the design of the overall scheme is refined in the future. We expect to deposit the Hybrid Bill by the end of 2013 and are currently exploring options for bringing forward the Phase 2 consultation from 2014 to 2013. We expect to publish the next update to the Economic Case in time for consultation on the Phase 2 preferred route and consideration of the Hybrid Bill for London - West Midlands.