



High Speed Two (HS2): the debate

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HS2 is a £32 billion project to build a high speed rail line from London to Manchester and Leeds, via Birmingham to begin operation in 2026 and be completed in 2032. It was supported by the Labour Government after 2009 and has had the support of the Conservative-Liberal Democrat Coalition Government since May 2010.

This paper marshals the arguments from all sides to give a broad overview of the debate about the proposed HS2 scheme. Supporters claim that the line is urgently needed to meet projected future demand; to tackle the capacity constraints on the West Coast Main Line; and to deliver wider economic and regional benefits. Opponents maintain that these claims are over-stated and that future demand and capacity can be met via other, cheaper means.

If the government decides to go ahead with the first phase of the scheme from London to Birmingham, we can expect legislation to be introduced within the next couple of years. Based on experience of previous rail projects of this scale, it could take between two and four years for the HS2 bill to complete its legislative progress. Only once the legislation has been passed could building work commence.

Louise Butcher
Matthew Keep
Alan Rehfisch
Andrew Minnis

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Contributing Authors: Louise Butcher, Railways Policy, Business and Transport
Matthew Keep, Transport Statistics, Social and General Statistics
Alan Rehfisch, Scottish Parliament Information Centre
Andrew Minnis, National Assembly for Wales Research Service

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Summary

The railway network was always evolving, always needing to be improved as passengers became more demanding and technologies developed. The railways could, as it were, never stand still and their managers were always faced with a complex set of questions for which there was never a perfect answer.

- Christian Wolmar, *Fire & Steam* (2007), p164

Since 'High Speed 2' or HS2 rose up the political agenda during 2008-09, it has been subject to a great deal of debate and comment, presented by both supporters and opponents of the planned scheme. Before the 2010 General Election all main political parties had declared their support for some sort of high speed rail network linking London with the Midlands and North of England and Scotland. The parties had different proposals for the particular route they thought would best serve the first leg of the network, from London to Birmingham: Labour picked a route from Euston via a station at Old Oak Common through the Chilterns to the West Midlands, the Conservatives favoured a route via Heathrow that would then follow the M4 corridor. Since the election, each party has adopted the other's preferred route scheme.

Some of the debates about HS2 are 'big picture' – about the use of public money to build a 'white elephant' in the pattern of other large, expensive schemes, or about the ability of such an investment to generate economic growth, particularly in the north of England. Other debates are technical and detailed and pertain to the robustness of data and forecasting used in the government's case for HS2; some are also environmental and are centred around the potential impact of HS2 on emissions and climate change, as well as immediate impacts on homes, communities and habitats.

Broadly, the case for HS2 is as follows:

- Strategically, the UK's rail network is behind those of our European and Asian competitors who have already invested extensively in HSR; even the United States, not known for its enthusiasm for inter-urban public transport, has announced plans to invest in an HSR network;
- The UK economy is struggling to get back on its feet following the recent downturn and the government has stated that rejuvenating the economies of the English regions is critical to the recovery; evidence from abroad points to HSR being able to help with that;
- The West Coast Main Line is forecast to reach capacity within 15 years, while demand will continue to grow; without extra capacity on the WCML it could have a serious negative impact on the economy; HSR is the only option that provides enough capacity to meet this projected demand;
- The extra capacity on the HSR line will free up capacity on the conventional network, particularly the WCML, to accommodate better stopping passenger services and more freight corridors;
- HSR will shorten the journey times between London, the Midlands and the North of England and Scotland, encouraging economic development in those areas currently considered to be too far from London;
- HSR will be affordable for the taxpayer who will, in any case, make some of their money back through letting an infrastructure franchise once the project is completed;

and it will be affordable for the passenger, with a spread of fares guaranteed to accommodate all incomes;

- HS2 will be carbon neutral so it will not have any adverse climate impacts and any immediate environmental impacts will be properly mitigated; and
- Evidence from abroad suggests that HS2 could encourage modal shift from short haul aviation to rail, reducing carbon impacts and helping the UK meet its climate change targets.

The case against HS2 can be summarised as follows:

- Just because the rest of the world does something does not mean it is right for the UK with its particular geography; the lessons from abroad about the utility and impact of HSR are mixed;
- There is no evidence that HSR will deliver any economic benefits to the regions; the basis on which the government has asserted the billions of pounds of benefits is specious and unproven;
- The government's forecasts for future demand requirements on the West Coast Main Line are dubious and therefore the need to provide the vast amount of capacity that HS2 would deliver is not certain; where more capacity is needed along that corridor it can be better and more cheaply provided via improvements to the existing network;
- On the government's plans stopping services on the conventional WCML line will actually be reduced;
- There is evidence that closer proximity to a major economic centre, such as London, could adversely affect smaller economies rather than stimulate them;
- HS2 is too expensive at a time when the country's economic future is still uncertain; the money allocated to the project could be better spent elsewhere and evidence from HS1 and other projects indicates that HS2 will be a 'rich man's railway';
- HS2 will have no positive carbon impacts, and its effects on the local environment, particularly through the Chilterns, could be catastrophic; and
- Evidence that HS2 will encourage modal shift is slight – domestic aviation is already in decline and without proper links to HS1 and Heathrow the changes of reducing short haul aviation are small; significant modal shift from road to rail is unlikely.

Parties on both sides are passionate in their beliefs and have been making the case in public forums across the country during the consultation process on HS2 and before the Transport Select Committee during its recent inquiry. If the Secretary of State, Justine Greening, announces in December 2011 that HS2 will go ahead, all parties will have the chance to return to those arguments during the Hybrid Bill procedure in Parliament. There may also be a Judicial Review challenge to the consultation process.

This paper explains how the policy of successive governments towards high speed rail has developed, and it presents the debate about the building of the north-south rail line called HS2. It is not an attempt to *evaluate* high speed rail generally or HS2 in particular, rather to give a general overview of where the areas of disagreement lie and to set out the arguments of both sides. While it attempts to be as comprehensive as possible, detailed arguments

have been condensed and extensive footnotes direct the reader to further sources of information.

Developments after the publication date of this paper will be covered in House of Commons Library note [SN316](#), available on the Parliament website.

This paper is part of the series of papers published by the House of Commons Library. It also includes contributions from the specialist staff of the research services to the Scottish Parliament and the National Assembly for Wales.

1 What is 'high speed' rail?

There is no internationally agreed definition of what constitutes a high speed railway. Though policymakers have now generally fallen into line with the definition set out in the European Union's 1996 Directive dealing with high-speed rail. This defined 'high speed line' in the following way:

High-speed lines shall comprise:

- specially built high-speed lines equipped for speeds generally equal to or greater than 250 km/h [155 mph],
- specially upgraded high-speed lines equipped for speeds of the order of 200 km/h [124 mph],
- specially upgraded high-speed lines which have special features as a result of topographical, relief or town-planning constraints, on which the speed must be adapted to each case.¹

This uncertainty about 'high speed' is long-standing because of the changing technical capabilities of track and train. In his March 2010 report for the Department for Transport (DfT) on the history and prospects of high speed rail, Terry Gourvish explained the historical context in which 'high speed' sits:

'High speed' is a relative concept, of course, and has changed radically over time. Since the birth of the railway age in the 1830s, when 30mph or 50kph was considered 'fast', rail speeds have increased dramatically. As early as 1845 Britain's Great Western Railway, built to Brunel's broad track gauge (7 foot or 2140mm), introduced the fastest rail service in the world with its London to Exeter expresses, which averaged 70kph [...] In Britain the Great Western introduced the first scheduled service at c.110kph (70mph) in the late 1920s: the 'Cheltenham Spa Express' [...] Mallard's high speed run on Britain's East Coast Main Line in 1938, when a speed of 203kph (126mph) was attained [...] ²

In his 1997 book *Railwaymen, Politics and Money*, Adrian Vaughan gives a précis of the increasing speeds on the Victorian 'high speed' railway:

From 1845 until 1853 the Great Western ran the fastest trains in the world with no more effective means of stopping than the fireman's handbrake on the tender and the guard's handbrake in his van. From December 1847 until March 1852 the 9.50 a.m. Paddington-Exeter Flying Dutchman was timed to run the 53 miles to Didcot at an average of nearly 58 mph. On 11 May 1848 the train carried a group of scientific observers and ran to Didcot in 47½ mins, an average of 66 mph. ³

On its website, HS2 Ltd. outlines how top vehicle speeds have increased since 1985 – from 168 mph (270 kph) in 1985 to 217 mph (350 kph) in 2009. It goes on to state that 'experts' forecast that by 2020 the technology will exist to create a passenger train that can travel up to 248 mph (400 kph). ⁴

These changing ideas of 'high speed' were also demonstrated in 1990 when Sir Alastair Morton, then Chief Executive of Eurotunnel, ⁵ was asked during an evidence session with the

¹ [Directive 96/48/EC](#), 23 July 1996, Annex I, para 1(b)

² Gourvish for DfT, *The High Speed Rail Revolution: History and Prospects*, March 2010, pp3-4

³ Vaughan, *Railwaymen, Politics and Money: the Great Age of Railways in Britain*, 1997, p193

⁴ HS2 Ltd., *About High Speed Rail* [accessed 19 July 2011]

⁵ later chairman of the short-lived [Strategic Rail Authority](#)

Transport Select Committee about the proposed high speed rail link (what is now HS1). He said:

We have always said “reliably fast”. That does not mean high speed. We have never been heard to argue for 185 miles an hour or 160 miles an hour or 200 miles an hour, as it were, thundering along. Reliably fast: you can put your own number on it.⁶

Similarly, on the EU definition, the upgraded West Coast Main Line (WCML) in the UK, which carries 125 mph Pendolino trains, is a ‘high speed line’.⁷

However, in January 2009, when the Labour Government first announced its support for high speed rail, it published a document looking at the potential benefits of such a scheme. In that document it defined ‘high speed’ as speed above 150 mph:

The accepted definition of ‘high speed’ is trains capable of travelling at speeds over 150mph (240 kph). Such speeds are unattainable on Britain’s conventional network, even with significant additional investment. The £8.8 billion investment in the West Coast main line, together with tilting trains, makes possible speeds of up to 125mph (200 kph) but even this increase in line speed is not possible over parts of the route because of line constraints. Some high speed trains are capable of speeds up to 200mph (320 kph), as seen in Japan and parts of Europe, although it is important to note that the trains tend not to travel at maximum speed for some or even the majority of their journey.⁸

In its March 2010 White Paper on HSR the Labour Government indicated that it intended to “design High Speed Two to provide for an ultimate maximum speed of 250 miles per hour, with a view to accommodating train service speeds of 225 miles per hour, in line with current best practice”.⁹ The Conservative-Liberal Democrat Coalition Government’s February 2011 consultation paper on HSR confirmed these maximum speed parameters for HS2:

The proposed route has generally been designed for speeds up to 250 miles per hour – similar to routes currently being designed elsewhere in Europe. Line speed in built up areas would be lower reflecting environmental considerations. HS2 Ltd. has assumed a maximum train speed of 225mph at opening; speeds above 225mph would not be allowed unless impacts of operation could be demonstrated to be no worse than currently assumed for operation at 225 mph.¹⁰

In 2007 *Railway Gazette* reported that the fastest HSR route was the French TGV from Lorraine to Champagne, which travelled 173.5 mph (279.3 kph). Elsewhere, the fastest services were as follows:

- Germany – Frankfurt to Bonn, 145 mph (233.5 kph)
- International – Brussels to Valence, 152 mph (244.6 kph)
- Japan – Okayama to Hiroshima, 158.9 mph (255.7 kph)
- Spain – Madrid to Zaragoza, 141.4 mph (227.6 kph); and

⁶ Transport Committee, *Eurotunnel: Minutes of Evidence* (session 1989-90), HC 407, 16 May 1990, Q35; trains on HS1 now travel at a maximum of 186 mph (international) and 142 mph (domestic)

⁷ Alstom press notice, “[Virgin Pendolino fleet clicks up 100 million miles](#)”, 25 May 2011

⁸ DfT, *Britain’s Transport Infrastructure High Speed Two*, January 2009, para 56

⁹ DfT, *High Speed Rail*, Cm 7827, March 2010, para 8.3

¹⁰ DfT, *High Speed Rail: Investing in Britain’s Future - Consultation*, February 2011, p74

- Taiwan – Taichung to Zuoying, 152 mph (244.7 kph)¹¹

As well as the maximum speed, there are also differences in the *type* of high speed service. Gourvish lists the four main types of HSR as:

- a complete separation from other rail services (e.g. the Japanese Shinkansen);
- a mixed high-speed system, in which trains run on both high-speed and upgraded conventional infrastructure (e.g. the French TGV);
- a mixed conventional system, in which both fast and standard services run on the new lines (e.g. the Spanish AVE); and
- a fully mixed system, in which both high-speed and conventional trains can utilise the infrastructure provided (e.g. the German ICE trains, and Italy's Rome-Florence line).¹²

2 Background

2.1 The last 'step change' – the Victorian railway

Many of the proponents of HSR talk about it being the next great 'step change' in public transport. The mass production and take up of the private motor car in the early twentieth century and the arrival of low cost passenger air travel in the late twentieth century can rightly be considered major step changes in mass transportation. However, it is the advent of the Victorian railway in the mid-nineteenth century, and the infancy of the science of locomotion, that many hark back to as being the greatest public transport 'step change'. There are some parallels to be drawn between now and then.

In his 2007 book *Fire & Steam* transport writer and broadcaster Christian Wolmar set out the conditions for success of the Victorian railway. First was the simple fact that the existing transport infrastructure was ill-equipped to provide rapid mass transportation:

[There is] a fundamental question about the history of the railways: why did these iron roads (as they are called in every language other than English) evolve and spread across the United Kingdom and the rest of the world some sixty years before self-propelled vehicles, which we now call motor cars? The main reason was that the roads were awful. The well-engineered highways built by the Romans had been allowed to decline for more than 1,000 years and it was only in the early eighteenth century that any attempts at maintaining trunk roads properly began.¹³

This was only made worse by the high cost of the tolls charged for using turnpikes and the speed limits placed on 'self-propelled' road vehicles (under the 'Red Flag Act' that set a speed limit of 2 and 4 mph in towns and the countryside respectively, and required a man with a red flag to walk ahead of each vehicle as a warning to horse-riders and pedestrians).¹⁴

The second was the technological leap represented by the steam locomotive:

Britain may have been the world leader in developing [road using] steam coaches, several decades ahead of any rival, but these vehicles were simply not good enough to compete with railways. Quite simply, rails could bear a much heavier weight and

¹¹ "TGV Est lifts the record", *Railway Gazette International*, September 2007

¹² op cit., *The High Speed Rail Revolution: History and Prospects*, p4; there are also tilting trains (e.g. the Pendolinos on the WCML) and MAGLEV – the magnetic levitation system

¹³ Wolmar, *Fire & Steam*, 2007, p4

¹⁴ *ibid.*, p5; the actual legislation was the *Locomotive Act 1865*

locomotives require little springing because they travelled on a hard, smooth surface. The development of flanged wheels meant there was no need for steering and the design of the axles ensured there was no requirement for differential boxes to cope with curves. Moreover, steam locomotives on rails could pull a number of carriages and wagons, which would be impossible for a road carriage due to the sharp gradients and curves.¹⁵

And finally, there was the issue of money: the willingness of private investors to ‘take a punt’ on a new idea:

It was not only knowledge and technology that were needed to create a railway. There was the baser requirement of capital – lots of it – that would enable engineers to turn this plethora of inventions and concepts into an effective transport system. The brave investors who raised the vast amounts required to build a railway were taking a plunge in the dark by putting their money into an unknown concept and it was not really until the beginning of the nineteenth century, with the Industrial Revolution in full swing, that such funds became available.¹⁶

These arguments are not dissimilar to those put forward today by proponents of high speed rail: the road network is over-stretched and congested and the cost of running a car has increased; HSR technology – of whatever type – is quicker, quieter and more efficient than its nearest comparable mass transportation systems; and in order to make it happen it is going to require a significant investment. However, on this last point, we are for the most part talking about the taxpayer funding this ‘step change’, as opposed to private investors back in the nineteenth century.

Similarly, the public response to the early railway was in many ways like that of those on either side of the HSR argument today. In his 1978 book, *The Railway in England and Wales 1830-1914*, Jack Simmons gives the views of those who liked and disliked the railway and the reasons they gave – speed; comfort; impact on the visual environment – can be found in today’s disputes.¹⁷

2.2 The example from abroad

The world’s first ‘high speed’ line between Tokyo and Osaka, Japan opened in 1964. It was the first of what is now generally called the Japanese ‘Shinkansen’ railway (i.e. ‘new trunk line’). As Christian Wolmar notes in his 2009 book *Blood, Iron & Gold*, the Tokaido (Tokyo-Osaka) Shinkansen “established the template for future high speed line projects: there were to be dedicated tracks, no sharp curves, no level crossings, in-cab signalling ... and a very limited number of stations”.¹⁸ The French TGV followed the Japanese example in the 1970s, then Germany, Spain, China and others. Gourvish charts HSR development around the world from the 1960s to the present as follows:¹⁹

¹⁵ *ibid.*, pp5-6

¹⁶ *ibid.*, p2

¹⁷ Simmons, *The Railway in England and Wales 1830-1914: Volume I The System and its Workings*, 1978, pp21-22

¹⁸ Wolmar, *Blood, Iron & Gold: How the Railways Transformed the World*, 2009, pp314-15

¹⁹ *op cit.*, [The High Speed Rail Revolution: History and Prospects](#), p7

High Speed Rail development, 1964-autumn 2009

Kilometres

Period	Total	Countries:							
		Japan	Britain	France	Italy	Germany	Spain	China	Other
1964-73	676	676	0	0	0	0	0	0	0
1974-83	2,639	1,128	942	419	150	0	0	0	0
1984-93	1,459	31	0	412	98	447	471	0	0
1994-03	2,522	214	74	709	0	428	598	0	499
2004-09	4,754	127	684	332	496	410	530	1,194	981
Total kilometres built:									
1964-83	3,315	1,804	942	419	150	0	0	0	0
1984-2009	8,735	372	1,130	1,453	594	1,285	1,599	1,194	1,480
1964-2009	12,050	2,176	1,700	1,872	744	1,285	1,599	1,194	1,480
% of total kilometres built									
1964-83	100%	54%	28%	13%	5%	0%	0%	0%	0%
1984-2009	100%	4%	13%	17%	7%	15%	18%	14%	17%
1964-2009	100%	18%	14%	16%	6%	11%	13%	10%	12%

Between 2009 and 2012 it was estimated that approximately another 12,700 km of high speed rail infrastructure would be constructed, over 9,000 of which would be in China.²⁰

A 2010 report by the European Commission (EC) set out the approach by a number of European countries to developing their HSR networks, including across international borders:

The Belgian HSL network has plans to expand, with the 'Diabolo' line to improve rail access to Brussels National Airport, and France has plans to double the HS lines between Paris and Lyon. Spain has plans to lay some 10 000 km of HSLs between now and 2020, so as to ensure that 90 % of its inhabitants have an HST station within 50 km of their home. With its network saturated in the south of the country, Sweden plans to construct a completely new HS line between Stockholm and Gothenburg. This line, which will be restricted to passenger trains, will provide better services to numerous towns between the two principal Swedish cities. This project forms part of a global project, which is designed to improve rail capacity in Sweden by constructing new lines and renovating existing lines. This action is being taken in spite of the climate and terrain in Scandinavia, which make it very difficult to set up railway infrastructure.

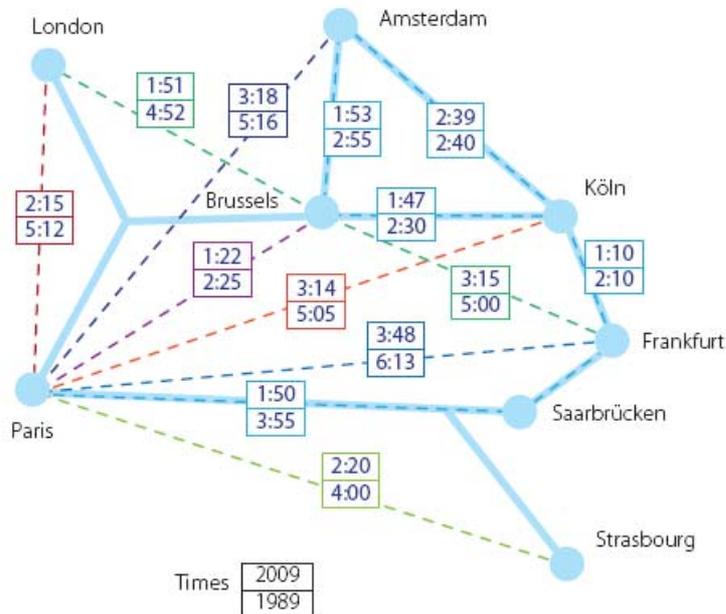
Europe aims to use the trans-European transport network (TEN-T) to link all HSLs on the continent into a proper integrated European high-speed network [...] The first trans-European HSL, between Paris, Brussels, Cologne, Amsterdam and London, is already close to completion. This network, which is used by several rail operators (Thalys, Eurostar, Deutsche Bahn, NS Highspeed) will significantly cut journey times between major German, Belgian, French, Dutch and British cities. The ERTMS will guarantee that the system is fully interoperable. In January 2008, the International Union of Railways (UIC) had registered 1,050 HS carriages in service in Europe.²¹

²⁰ *ibid.*, p7

²¹ EC, *High Speed Europe: A sustainable link between citizens*, 2010, pp5-6

The following shows the journey time reductions that HSR has made between major European cities in the 20 years from 1989 to 2009.²²

Journey times between stations 1989–2009



The success of HSR in Europe and the Far East has encouraged campaigners in the UK to argue that HS2 would see similar benefits in terms of journey time reduction and the knock on economic and environmental benefits. For example, Pierre Messulam, a director of SNCF, stated that TGV “saved the rail industry in France from collapse 30 years ago, because we were going out of business, facing airline and road competition. It helped us to get into the market again, and to have a big slice of domestic travel”.²³ Not everyone agrees that there is a uniformly positive picture from abroad. For example, in evidence to the Transport Committee, Jerry Marshall from Action Groups Against High Speed Two (AGAHST), pointed to lines “all over the continent” that are:

...close to bankruptcy because they have not stacked up and have not had the demand. The line into Amsterdam, for example, is close to bankruptcy. The line from Milan to Paris has been downgraded to standard speed. Across Europe there are lines that are in deep financial difficulty.²⁴

There are also problems with the Chinese HSR programme following an HSR collision in Wenzhou in July 2011 which killed 40. In August 2011 the Chinese government halted all new HSR construction and production of a new bullet train. Other high speed trains on the existing network faced speed restrictions of 125 mph (30 mph less than the standard running speed of 155 mph, or 250 kph).²⁵

²² *ibid.*, p6

²³ Transport Committee, *High Speed Rail* (tenth report of session 2010-12), HC 1185, 8 November 2011, Q78

²⁴ *ibid.*, Q227

²⁵ “China taking fast train to nowhere as high-speed rail ambitions falter”, *The Times*, 12 August 2011

2.3 A brief and partial history of high speed rail in the UK²⁶

As indicated in section 1, above, the concept of 'high speed' rail has changed over time, but there is evidence that previous governments were looking at the technology that would enable UK rail to travel at speeds of between 120 and 300 mph as far back as the 1960s.

The National Research Development Corporation (NRDC)²⁷ reported in 1961 on its support for work by Prof. F. C. Williams at Manchester University into variable speed motors. One of the potential applications for such technology was described as follows:

Investigation into various types of linear motor have been undertaken during the past ten years. Recent developments in multiple fixed speed rotary machines have made possible the application of linear motors to, for example, high speed rail travel. An experimental programme of work has been started in conjunction with the British Transport Commission to look into the possibility of building linear motors suitable for high speed rail travel up to 120 miles an hour. A further investigation is being undertaken concerning the possibility of applying this type of linear motor to Hover trains where speeds of up to 300 miles an hour are being considered.²⁸

A decade later the House of Commons Science and Technology Committee published a full report into what was called 'tracked hovercraft'. Tracked Hovercraft Ltd. (THL) was set up as a wholly-owned subsidiary of the NRDC in 1967 to carry out research and development on the possibilities of air cushion suspension and linear induction motor propulsion for high speed ground transportation services.²⁹ At the time, THL was "the only organisation in the world which was funding a long-term development project in high speed rail from funds that were earmarked ostensibly for commercial purposes. Everywhere else it was being funded by Governments on a pure spend basis".³⁰ The programme was shut down in 1973 for budgetary reasons, at a time when, as the Committee acknowledged, the UK was "substantially ahead in the design and development of linear motors for high speed propulsion".³¹ The Heath Government did not respond to the report before it left office. The response of the Wilson Government, in 1974, highlighted some of the limitations of the THL research programme but also mentioned that "the final stages of the company's work also saw the beginnings of research into magnetic suspension systems"; what we refer to now as MAGLEV (magnetic levitation).³²

In July 1976 the Nationalised Industries Committee took evidence on British Rail (BR). Richard Hope, the editor of *Railway Gazette International*,³³ was asked whether the UK should build high speed rail lines. He said that high speed rail lines in other countries had usually been built because of a lack of capacity and "having decided that they needed additional capacity, they built themselves a high speed line, because it was the natural thing to do, and it was found in the case of Japan that this generated a very large amount of

²⁶ this section does not look at the long-running saga over the decision as to whether or not to build a high speed rail link between London and the Channel Tunnel, which was subject to a number of policy reversals in the 1970s and 1980s before a bill was finally brought before Parliament in the early 1990s

²⁷ founded by the government in 1948 to commercialise publicly funded research; it was merged with the National Enterprise Board in the early 1980s to form the British Technology Group, and was subsequently privatised in 1992; it now operates as [BTG plc](#)

²⁸ NRDC, *National Research Development Corporation report and statement of accounts for the year 1 July 1960 to 30 June 1961*, 28, p23, item xxxvii(3)

²⁹ STC, *Tracked Hovercraft* (third report of session 1972-73), 420, July 1973, para 6

³⁰ *ibid.*, para 65

³¹ *ibid.*, para 57

³² *Government observations on Third Report of session 1972-73: Tracked Hovercraft Limited*, Cmnd. 5711, August 1974, paras 18-19

³³ founded in 1835 and still around now; for more information visit the [Railway Gazette website](#)

additional traffic".³⁴ However, he did not think that the UK, at that time, needed additional capacity.³⁵ Asked for his general view on the economics of HSR in 1976, Mr Hope offered the following perspective:

You will remember that a while ago there was a great wave of enthusiasm for levitated transport by magnet or air cushion. Everyone was going to dash around on earth's surface very fast. A number of things have happened to change this view, quite dramatically. Apart from the obvious factors of the oil crisis and the general check that has been given to the concept that we will go on getting bigger and faster forever, one is the fact that bigger jet aircraft have made the skies appear less full than they did five years ago in prospect, so the pressure on air space is not so great. The fundamental weakness of all of these proposals to go very fast-and by this I am talking of 200 to 300 miles per hour-is that the curve of energy consumption goes up extremely steeply, and there is a general consensus now that somewhere in the region of 180 miles an hour represents an absolute limit at which it would be economic to go on the earth's surface, simply because of the need to push your way through the atmosphere. It has nothing to do with whether you are on wheels, magnetic cushions or air cushions, that does not come into it. If you have to push your way through the air, it is not worth going at more than 200 miles an hour, hence the eclipse of the levitated systems.

When we look at rail systems and ask the question, should we go at 125 miles an hour, 150 miles an hour or a little higher, I think we have to be fairly open-minded about this. We know quite a lot about the effects on the track and on the rolling stock. I think the short answer very simplified is that we have sufficient technical improvements in prospects to be able to increase our speed to 125 miles an hour, possibly up to 150 miles an hour, without additional cost, simply by putting down better-designed track and, more especially, running better-designed vehicles on it. I think that horizon is as far as British Rail, certainly, needs to look at the present time.³⁶

Also in July 1976 the Science and Technology Committee published a further report on advanced ground transportation. Advanced Ground Transport (AGT) was in many ways the successor programme to tracked hovercraft and involved research into advanced levitation and propulsion systems.³⁷ The Committee summarised the view of the government of the day as regards this type of new technology for high speed, inter-city transportation as follows:

In the case of high-speed inter-city applications in the UK, the DoE [Department for the Environment's] view was that while prospects for converting existing routes to AGT were poor, "we cannot wholly close our minds to the possibility of AGT in the UK can completely new alignments in the future". [Others, however] believed that the inter-city market had "receded beyond the horizon".³⁸

It went on to report the government's view that enthusiasm for high speed applications of AGT had receded across Europe and that any UK application would have to be in a 'Europe-wide' context.³⁹ The Committee itself concluded that BR had other areas of focus at the time such as electrification and the development of the Advanced Passenger Train and that, as such, AGT was relatively low down their list of priorities. The Committee thought that the government was asking itself the wrong question and that there should be a better forward

³⁴ NIC (Sub-Committee A), *Minutes of Evidence: British Rail* (session 1975-76), 426-iv, July 1976, Q202

³⁵ *ibid.*, Q202

³⁶ *ibid.*, Q203

³⁷ STC, *Advanced Ground Transport* (second report of session 1975-76), 592, July 1976, para 20

³⁸ *ibid.*, para 80

³⁹ *ibid.*, paras 81-82

plan for AGT in the UK, to ensure that the country remained at the cutting edge in terms of research and development. The Committee's reasons for this were as follows:

What appears to be absent from the Departments' evidence is any assessment of what may be desirable, rather than essential, in the development of urban and inter-city transport in the future. We very much agree with the view put forward by Mr Fellows, the Managing Director of THL, that "some of our attitudes are coloured by asking ourselves if we need high-speed transport instead of whether we want it" [...] Because we believe that the options should be kept open, and that the concept of AGT as a desirable future alternative to conventional road, rail and air systems should be maintained, we are very unhappy about the absence of any centralised machinery for co-ordinating the Government's approach to the technology.⁴⁰

Gourvish summarises the general position by the early 1980s, including the abandonment of AGT in the 1970s/80s and the decision to opt, instead, for more conventional technology:

High Speed Rail lines have a rather chequered history in Britain. British Rail's APT project – designed to maximise speeds without introducing expensive new infrastructure - was innovative, but teething troubles resulted in its abandonment after short periods in service in 1981-82 and 1984, before the Italians made the technology work. In the event, more conventional, second-best technology was introduced. The HSTs operated at 125mph [200kph] on the Great Western Main Line (from October 1976) and the East Coast Main Line (from 1978), and were to prove the mainstay of British Rail passenger operations for over two decades. Indeed, they produced record runs for a diesel train – 180kph in 1979, 181.5kph in 1984 and 238kph in 1987 – and are still performing useful service out of Paddington.⁴¹

In his 2009 book *Blood, Iron & Gold*, Christian Wolmar argued that Britain had "lost out by not choosing to adopt high speed technology on dedicated lines" in the 1970s/80s, opting for the Advanced Passenger Train instead.⁴² That said, the world's first commercial, automated Maglev railway was built at Birmingham International Airport in 1984 – though it was hardly high speed.

By 1990, in the context of the ongoing debate about the proposed Channel Tunnel Rail Link, the British rail industry was considering what bigger role there might be for high speed rail across the country. While Sir Alastair Morton, then Chief Executive of Eurotunnel, offered varied interpretations of what constituted 'high speed' at that time (see section 1, above), he did think that high speed technology should have a place in the UK's transport mix:

[W]e believe very strongly ... that the technology of high-speed trains, coupled with environmental concerns about the consequences of congestion and noise, have created a situation where, quite unlike 10-15 years ago, high-speed rail, for certain categories of freight as well as people, air, for certain categories of freight as well as people, and road, likewise, are, in fact, alternative investments for almost anywhere in North-West Europe, certainly for this country. You ought to think, if I may say so, before considering another runway somewhere in Southern England, whether it will or not, as a matter of policy, be possible to encourage all those people onto high-speed trains, just as an example, and likewise between road and rail.⁴³

⁴⁰ *ibid.*, paras 94 & 96

⁴¹ *op cit.*, [The High Speed Rail Revolution: History and Prospects](#), p12; more information on APT can be found in section 3.3, below

⁴² Wolmar, *Blood, Iron & Gold: How the Railways Transformed the World*, 2009, p323

⁴³ *op cit.*, *Eurotunnel: Minutes of Evidence*, Q37

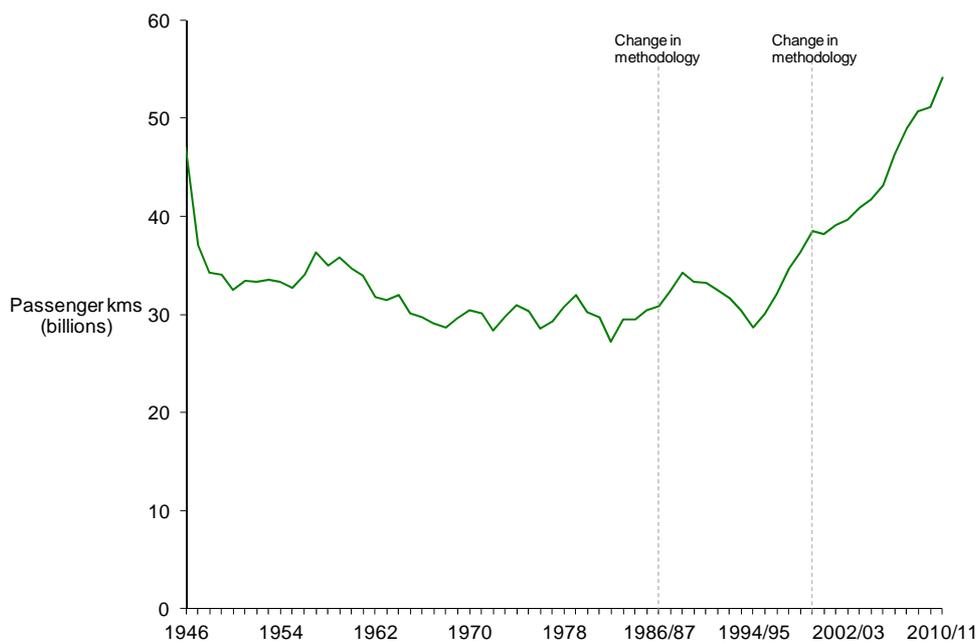
2.4 The current state of the network

Britain's rail network displays the legacies of its Victorian origins, of nationalisation in the 1940s, the Beeching cuts of the 1960s and privatisation in the 1990s. Following privatisation in 1993, British Rail was divided into two main parts: one part being the national rail infrastructure (track, signalling, bridges, tunnels, stations and depots) and the second being the operating companies whose trains run on that network. The infrastructure is owned by Network Rail (NR) which is regulated by the Office of Rail Regulation (ORR). The Department for Transport (DfT) looks after passenger- and train-related matters. Train operating companies (TOCs), both passenger and freight, run the trains. However, in many cases the actual trains are leased from a rolling stock company (ROSCO). Railway stations are owned by the network operator, most being leased to the TOC that is the main user of that station. Network Rail, however, retains the operation of the main passenger terminals.

Rail usage

In 2010/11, passenger usage (as measured in passenger kilometres) of the franchised national rail network reached 54.1 billion passenger kilometres. Passenger usage of the network has increased in all but one year since 1994/95, and the number of journeys being made in Great Britain is now at the highest level in the post Second World War period.⁴⁴

Figure 1. Passenger kilometres (billions) taken on National Rail, Great Britain, 1946 – 2010/11⁴⁵



Long-distance rail

In 2010/11, 118 million passenger journeys were taken on franchised long-distance operators, nine per cent of the total taken across the network.⁴⁶ The number of passenger journeys taken on long-distance operators has more than doubled since 1994/95, with growth above that of the industry as a whole since the early part of this century (see figure 2 overleaf).⁴⁷

⁴⁴ DfT, *Transport Statistics Great Britain, 2010 Edition*, November 2010, National and Light Rail Tables; and, ORR, *National Rail Trends 2010-11 Yearbook*, Table 1.1a

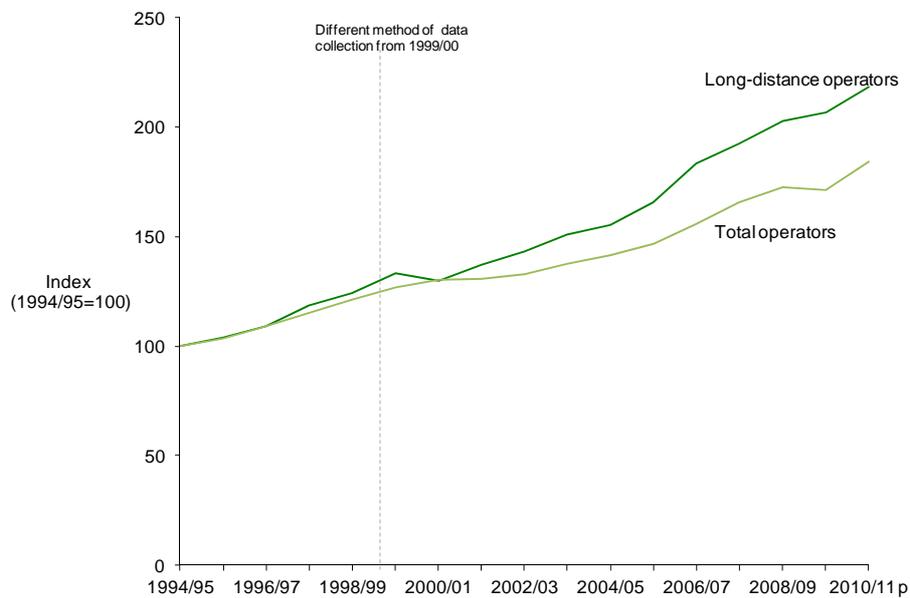
⁴⁵ *ibid.*

⁴⁶ *op cit.*, *National Rail Trends 2010-11 Yearbook*, Table 1.2b

⁴⁷ *ibid.*; and, earlier editions of *National Rail Trends* published by ORR and the Strategic Rail Authority

Passenger usage of long-distance operators has also increased since 1994/95, by over four-fifths; a slightly smaller increase than was seen across all franchised operators, where growth amongst London and South East operators nearly doubled.⁴⁸

Figure 2. Passenger journeys index, long-distance franchised operators and total franchised operators, Great Britain, 1994/95 – 2010/11⁴⁹
Index (1994/95 = 100)



Performance

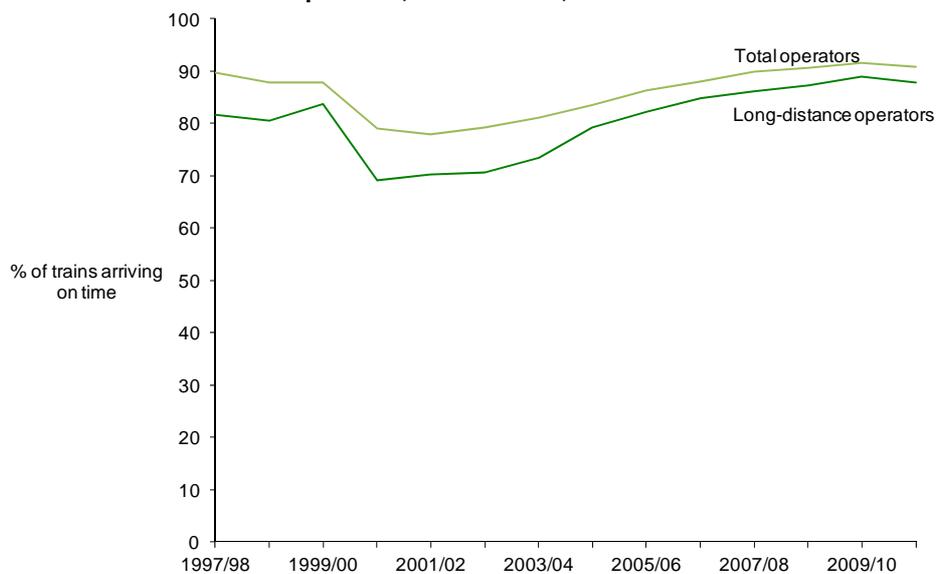
The Public Performance Measure (PPM) quantifies the performance of individual trains against their planned timetable. In 2010/11, the performance of long-distance operators decreased by 1.6 percentage points on 2009/10, although it remains higher than in the early part of this century and similar to the levels seen in the late 1990s.⁵⁰

⁴⁸ *ibid.*, Table 1.1b; and, previous editions published by ORR and the Strategic Rail Authority

⁴⁹ *ibid.*, Table 1.2b; and, previous editions published by ORR and the Strategic Rail Authority

⁵⁰ *ibid.*, Table 2.1a; and, previous editions

Figure 3. PPM: Percentage of trains arriving on time,¹ long-distance franchised operators and total franchised operators, Great Britain, 1997/98 – 2010/11⁵¹



Note: ¹ A train is defined as on time if it arrives within ten minutes (i.e. nine minutes 59 seconds or less) of the planned destination arrival time for long-distance; or five minutes (i.e. four minutes 59 seconds or less) for London and South East and regional operators.

Capacity and crowding

At the end of 2009/10 14,484 kilometres of rail route⁵² were open for passenger traffic, 3.7% less than a decade previously;⁵³ and there were 2,516 passenger stations on the national network, 0.5% more than a decade before.⁵⁴

In autumn 2010, on rail services arriving at London rail terminals during a typical AM weekday peak 19% of standard class passengers were standing at the critical point⁵⁵ and 57% of services had more standard class passengers than seats. On services departing in the peak PM 13% of standard class passengers were standing at the critical point and 43% of services had more standard class passengers than seats.⁵⁶

Standing passengers in regional cities are shown in Table 1, overleaf; these figures are not comparable with those for London as they consider passengers standing at central stations and not at the critical point.

⁵¹ *ibid.*

⁵² the length of route open for rail traffic is that managed by Network Rail

⁵³ *op cit.* *Transport Statistics Great Britain, 2010 Edition*, Table TSG0699

⁵⁴ *ibid.*

⁵⁵ the critical point is the point at which the service is at its highest load

⁵⁶ *op cit.*, *National Rail Trends 2010-11 Yearbook*, Table 2.4b

Table 1. Standing passengers at the city centre during peak arrivals and departures at regional cities on a typical weekday, Autumn 2010

City	AM peak arrivals (07:00-09:59)		PM peak departures (16:00-18:59)	
	% of standard class passengers standing ¹	% of services with standing passengers ²	% of standard class passengers standing ¹	% of services with standing passengers ²
Birmingham ^{3,4}	8.9%	29.8%	5.1%	28.0%
Leeds	14.0%	49.1%	12.1%	50.0%
Leicester	4.3%	10.5%	5.4%	24.3%
Liverpool ^{3,5}	2.8%	17.5%	5.3%	27.1%
Manchester ^{3,6}	11.1%	29.5%	11.2%	33.2%
Newcastle	2.9%	12.9%	3.6%	15.4%
Nottingham	2.1%	8.8%	1.0%	7.7%
Sheffield	7.1%	27.6%	5.8%	30.6%

Notes:

Capacity and passenger demand figures are rounded to the nearest hundred.

¹ This is based on the number of standard class seats and makes no allowance for standing.

² The percentage of services where the number of standard class passengers exceeds the number of standard class seats.

³ For cities with more than one main station services are only counted at the first station they arrive at (AM) or last station they depart from (PM).

⁴ Moor Street/Jewellery Quarter, New Street and Snow Hill.

⁵ Lime Street, Central, Moorfields and James Street.

⁶ Oxford Road, Piccadilly and Victoria.

Source: ORR. National Rail Trends 2010/11 Yearbook, Table 2.4c

Future capacity requirements on and improvements to the network are determined during a quinquennial process involving the government, Network Rail and the ORR. This is called the periodic review. The review process involves several stages:

- The ORR publishes an initial consultation;
- The industry (Network Rail, train companies etc.) responds by publishing its proposals (the “initial industry plan”);
- The Department for Transport and Transport Scotland set out what they want the industry to achieve, and how much funding is available via the ‘HLOS’ (high level output specification) and ‘SoFA’ (statement of public funding available);
- Network Rail produces its final business plan; and finally
- The ORR publishes a draft determination then a final determination setting out what NR must achieve over the following five year period and how much it should cost.

NR also produces route utilisation strategies (RUS) for individual geographic areas and lines and a national network RUS for passengers and a separate one for freight. The RUSs consider existing capacity, infrastructure capability and train operations; forecast future demand; and providing recommendations as to how this should best be accommodated. They consider the requirements of passengers, train operators, rail freight, industry funders and other stakeholders. They are based on a whole-industry approach, with interventions

considered such as timetable optimisation, rolling stock changes and running more trains. These are supported by infrastructure enhancement options where necessary.⁵⁷

The 2013 periodic review started earlier in 2011 and will determine those improvements to the network that NR will deliver over the period 2014-19.⁵⁸ The 2013 review takes place in the context of the McNulty rail value for money study, published in May 2011. Sir Roy McNulty looked at the rail industry in the UK and made a number of recommendations about how our railways could perform better and deliver value for money. He summarised the state of the industry as follows:

The Study has also taken place at a time when GB rail has the opportunity for substantial growth. Increased demand for travel, as well as the imperative to adopt more sustainable methods for the movement of passengers and freight, offer the prospect of doubling the current level of traffic by the year 2030. Few other industries have sound prospects of growth on this scale, and it offers real opportunities for everyone involved in the industry.

However, there is widespread recognition that the industry has problems in terms of efficiency and costs. Unit costs per passenger kilometre have not improved since the mid 1990s. The Study's initial "should cost" analysis, against the 2008/09 baseline used in the Study, suggested that GB rail's costs ought to be 20-30% lower. Further benchmarking has identified an efficiency gap of 40% against four European comparators. Some of that 40% gap may be systemic, and therefore cannot be eliminated fully, but I believe that the industry should be aiming to achieve a 30% reduction in unit costs (i.e. costs per passenger-km) by 2018/19. Only by doing this can the industry get to a position where it is giving a fair deal to passengers and taxpayers – at present, both groups are paying at least 30% more than their counterparts in other European countries, which not only places an unjustified burden on passengers and taxpayers, but also disadvantages UK competitiveness in the wider sense.

The causes of GB rail's excessively high costs are many and complex. The Study was asked to examine "barriers to efficiency" and we have identified that among the principal barriers are fragmentation of structures and interfaces, the ways in which the roles of Government and industry have evolved, ineffective and misaligned incentives, a franchising system that does not encourage cost reduction sufficiently, management approaches that fall short of best-practice in a number of areas that are key cost drivers, and a railway culture which is not conducive to the partnership and continuous improvement approaches required for effective cost reduction.⁵⁹

McNulty identified a number of options for improving value for money while continuing to expand network capacity as necessary. These were broadly better ways of working within the industry and between its different players; changes to deliver significant savings such as asset and project management, supply chains etc.; and driving implementation from a discrete unit in the Department for Transport. Together, McNulty believed that the recommendations in his report, if fully implemented, could achieve the target of a 30 per cent unit cost reduction by 2018/19 based on current estimates of future demand.⁶⁰

⁵⁷ all RUSs available on the [Network Rail website](#)

⁵⁸ more information can be found in HC Library note [SN2129](#); and on the [Periodic Review 2013 website](#)

⁵⁹ McNulty for DfT/ORR, *Realising the Potential of GB Rail Report of the Rail Value for Money Study: Summary Report*, May 2011, foreword

⁶⁰ *ibid.*

3 How did we get here?

3.1 Policy of the Labour Government, 1997-2010

The early years, 1997-2005

As indicated in section 1, above, 'high speed' is a relative concept. Back in its first transport White Paper in 1998, the Labour Government mentioned 'high speed' rail in the context of HS1 (what was then called the Channel Tunnel Rail Link) and the upgraded West Coast Main Line (WCML), the latter of which accommodates maximum speeds of 125 mph.⁶¹ There was no mention at all of high speed rail in the 2004 rail White Paper.⁶²

However, the now-defunct Strategic Rail Authority (SRA)⁶³ was looking at the issue of HSR in some depth during 2003-04. The SRA's 2003 Strategic Plan stated that based on work commissioned by the Authority in 2001, a new north-south HSR line was "likely to have a positive business case, and could offer a better investment than a set of incremental upgrades".⁶⁴ The Authority's 2003 strategy document on the 'wider case for rail' concluded that within 15 years (i.e. by 2018), "the principal north-south rail routes in the country will be overloaded" and that the "best approach" to tackling this would be "a new north-south High Speed Line (HSL), connected into the existing rail network". It argued:

Of course such a project carries a significant cost. But it could be developed in stages. The technology is proven, and now in use, in most major European countries.

A High Speed Line will bring significant economic benefits. It will help to overcome the north-south divide, increasing the attractiveness of investment in key northern and Scottish cities.

By carrying the longer-distance non-stop services, the HSL will allow existing lines to operate additional services. These would include more passenger services between 'intermediate' towns and cities and London, allowing the economic benefits of the South East to expand northwards, and more freight services, bringing efficiencies for import/export traffic and to distribution markets, for which the north-south axis is the dominant opportunity for rail. With the option of a direct link to Heathrow, as well as to central London, HSL will give better links to the international marketplaces for business, tourism and leisure.⁶⁵

In early 2004 the now defunct Commission for Integrated Transport (CfIT)⁶⁶ also submitted a report to government arguing that "HSR is very much an idea whose time has come in the UK", with the proviso that "the cost must be right and the private sector appropriately involved".⁶⁷

Despite all this, the government of the day was not keen. Notes from the Department for Transport from this period, published under Freedom of Information (FOI) in 2006, state:

⁶¹ DETR, *A New Deal for Transport: Better for Everyone*, Cm 3950, July 1998, para 3.214

⁶² DfT, *The Future of Rail*, Cm 6233, July 2004

⁶³ an overview of the genesis, demise and general role of the SRA can be found in HC Library standard note [SN1344](#)

⁶⁴ SRA, *The Strategic Plan 2003*, January 2003, p108

⁶⁵ SRA, *Everyone's Railway: The Wider Case For Rail*, 2003, p64

⁶⁶ set up in 1998 by John Prescott when he was Transport Secretary to "provide independent advice to Government on the implementation of integrated transport policy, to monitor developments across transport, environment, health and other sectors and to review progress towards meeting our objectives" (op cit, *A New Deal for Transport: Better for Everyone*, para 4.4); abolished by the Coalition Government in October 2010

⁶⁷ CfIT, *High Speed Rail: Advice to Government*, February 2004; this was written by Prof. David Begg, currently Director for the [Campaign for High Speed Rail](#)

High Speed Lines would be massively expensive.

Work for SRA put indicative cost of a London to Edinburgh/Glasgow line at over £30 billion. Given that, we would need to be absolutely clear that a new line was the best and most economic way to meet future demand. And that the line was financeable and deliverable. Far from clear it would be.

Priority now is for the railway to concentrate on improving its current performance on the network.

Before the industry takes on new projects it will need to demonstrate that there is proper control over existing costs and a significant improvement in performance. The railway industry needs to ensure that money is being spent in ways that really benefit passengers.⁶⁸

This was the Labour Government's generally negative view of HSR going into the 2005 General Election. Nevertheless, in its manifesto for that election it made a commitment to "look at the feasibility and affordability of a new North-South high-speed [rail] link".⁶⁹

The Eddington Transport Study and the government's response, 2006-08

It was intended that this would be conducted in the context of the *Eddington Transport Study*, published on 1 December 2006 to accompany the 2006 Pre-Budget Report.⁷⁰ Sir Rod Eddington claimed that his study addressed the issue of high speed rail objectively, by taking a step back to identify the problem that advocates of high speed rail were seeking to address:

High-speed rail is often considered as an example of a step-change measure. But, it is first important to note a distinction between possible high-speed rail options:

- those that offer the ability to run trains at high-speed using existing and tested technologies, as is the case on some inter-city lines for example; and
- those that allow trains to run at even higher speeds, relying on new, developing and often untested technologies.

For the latter option, the approach taken to the development of some very high-speed rail line options has been the opposite of the approach advocated in this study. That is, the challenge to be tackled has not been fully understood before a solution has been generated. Alternative options do not, therefore, appear to have been fully explored so it is not clear what the highest return solution to a problem would be; nor indeed is the challenge clear.⁷¹

Sir Rod argued that economic returns from high speed rail in the UK were unlikely to be as large as for investment in some alternative projects. He identified a numbers of factors that could contribute to this, including: the compact geography of the UK; an extensive national air network; potentially high and unpredictable costs of new high speed technology; and

⁶⁸ DfT, *Briefing: The Case for construction of domestic high speed lines within the UK as a means of relieving congestion on all transport modes (24/3/04)*, 11 July 2006

⁶⁹ Labour Party, *Britain Forward Not Back: The Labour Party Manifesto 2005*, April 2005, p24

⁷⁰ DfT/HMT, *Eddington Transport Study*, December 2006; in Budget 2005 it was announced that the Secretary of State for Transport and the Chancellor had asked Sir Rod Eddington, then outgoing Chief Executive of British Airways, to work with the Department for Transport and the Treasury to advise on the long-term impact of transport decisions on the UK's productivity, stability and growth (HM Treasury, *Budget 2005*, HC 372, para 3.105)

⁷¹ *ibid.*, Vol. 3, paras 4.171-4.172

significant environmental costs.⁷² He concluded that decisions on specific schemes or policies would need to be informed by detailed appraisals of specific high speed rail proposals, and of appraisals of other policy options for achieving the same objectives.⁷³ Even before the Study was published, there were concerns expressed in the press, based on what appeared to be leaked information, that the Treasury and the Department for Transport had 'interfered' with the direction of the report and any recommendation Sir Rod may have been thinking of making about high speed rail.⁷⁴ Sir Rod rejected the accusation when he gave evidence to the Transport Select Committee in April 2007.⁷⁵

In July 2007 the then Secretary of State for Transport, Ruth Kelly, announced the publication of what became Labour's final strategic rail White Paper. On high speed rail, this said:

...it would not be prudent to commit now to 'all-or-nothing' projects, such as network-wide electrification or a high-speed line, for which the longer-term benefits are currently uncertain and which could delay tackling the current strategic priorities such as capacity.⁷⁶

It went on to make a broader case against high speed rail. It stated that the debate about inter-urban rail and the role of HSR in delivering that "tends to conflate two very different issues – the need for additional capacity to accommodate demand growth, and the case for shorter journey times". Drawing on Eddington, it stated that the UK benefits from well-established transport networks and from its relatively compact geography; and drawing on information from the CBI and Passenger Focus, it asserted that "frequency and reliability of rail services matter more than journey time". It also claimed that the environmental case for HSR "does not stand up to close inspection on the basis of the present electricity generation mix" and concluded:

This significantly dilutes the carbon saving available, given the cost of infrastructure and the further carbon and wider environmental impacts of construction. It serves to raise serious questions about whether this is the most effective way to maximise environmental benefits from any available public investment.⁷⁷

The Department for Transport's official response to both the Eddington and Stern reviews,⁷⁸ was published in October 2007. It stated that it would look at the potential for a high speed link between London, Birmingham and Manchester as one of a range of options to tackle future capacity problems and congestion along that corridor.⁷⁹ However, when the then Railways Minister, Tom Harris, gave evidence to the Transport Committee in March 2008, he repeated previous concerns about the desirability of such a scheme:

... in yesterday's speech by the Secretary of State she alluded to the fact that a lot of the debate on high speed lines is basically saying, "Well, here's a solution. Now let's look for a problem to answer it," and actually what I think we should be doing and what

⁷² *ibid.*, Vol. 3, para 4.173

⁷³ *ibid.*, Vol. 3, para 4.196

⁷⁴ e.g. "Has the dead hand of civil service nobbled Eddington?", *Transport Times*, 20 October 2006

⁷⁵ Transport Committee, *Minutes of Evidence: Sir Rod Eddington* (session 2006-07), HC 458-ii, 16 April 2007, Qq19-24

⁷⁶ DfT, *Delivering a Sustainable Railway*, Cm 7176, 24 July 2007, p9

⁷⁷ *ibid.*, paras 6.11-6.16; in April 2009 the Department for Transport published a series of reports about its HSR strategy under FOI. The reports were commissioned from Booz Allen Hamilton and were used when the Labour Government was drawing up the 2007 rail White Paper., see: DfT, *New Line Capacity Study*, April 2009

⁷⁸ the Stern Review on the Economics of Climate Change was published in October 2006; a summary of the implications of the Stern Review for transport can be found in: *op cit.*, *Eddington Transport Study*, Vol. 1, p17, figure 1.8

⁷⁹ DfT, *Towards a sustainable transport system*, Cm 7226, 30 October 2007, p66-67

the DfT actually will be doing for the rest of this year is that we are going to say, "Let's identify what the challenges actually are in transport within the country, then let's look at the different options." There will be more than one option for meeting that challenge. "Then let's look at a solution." But at the moment people are saying, "Well, we've got high speed rail as a solution, now let's find the problem."

[...]

I think a number of assumptions are made about high speed and one of them is that it is environmentally friendly. Another is that it contributes to the economy. Another is that it will result in a certain amount of modal shift from planes to trains. A lot of these assumptions I am not convinced we have the empirical data to support [...] Another argument which is often put to me is that France, Germany and the Continent have these high speed lines, why can we not have them? There may be a case at some point in the future for a high speed line, but it is not going to be justified by saying, "Our neighbours have got it, therefore we should get it."⁸⁰

Supporting HSR, 2008-10

This generally sceptical approach changed in late October 2008 when the new Secretary of State for Transport, Geoff Hoon, announced the establishment of a 'National Networks Strategy Group', chaired by the then Minister of State, Lord Andrew Adonis. Lord Adonis was asked to report by early 2009 on two main issues; one roads-focused and the other "longer term solutions for the strategic corridors".⁸¹ The *Financial Times* reported this as Mr Hoon 'throwing his weight' behind high speed rail "barely 15 months after his predecessor largely ruled out both options in a white paper on the railway industry".⁸²

In January 2009 the government published its decision in principle to invite BAA to bring forward a planning application for a third runway and a sixth terminal at London Heathrow Airport.⁸³ One of the conditions for approving such a plan was that of better surface access to the airport. The DfT published a high speed rail strategy document alongside its decision document about Heathrow. This announced the government's intention to establish a new company charged with advising ministers on the potential for a high speed line connecting London and the West Midlands. It also stated that the purpose of this 'first stage' would be to assist the government with any future consideration of high speed services from London to Scotland.⁸⁴

The government published details of the objectives, remit and funding for the 'High Speed Two (HS2) Ltd.' company in January 2009, setting out HS2 Ltd.'s principal aim to advise the Secretary of State for Transport on the development and proposals for a new railway from London to the West Midlands and potentially beyond.⁸⁵ HS2 Ltd. presented its report to the then Secretary of State, Lord Adonis, at the end of December 2009. In September 2009 SERA, the Labour Environment Campaign, published 'Labour's case for high speed rail', including an introduction to the pamphlet by the then Prime Minister, Gordon Brown.⁸⁶

⁸⁰ Transport Committee, *Delivering a sustainable railway: a 30-year strategy for the railways?* (tenth report of session 2007-08), HC 219, 21 July 2008, Qq810-814

⁸¹ [HC Deb 29 October 2008, c34WS](#)

⁸² "Minister backs electric rail routes", *Financial Times*, 30 October 2008

⁸³ DfT, *Britain's Transport Infrastructure - Adding Capacity at Heathrow: Decisions Following Consultation*, January 2009; for more details on Heathrow expansion, see HC Library Research Paper [RP 09/11](#)

⁸⁴ DfT, *Britain's transport infrastructure: High Speed Two*, January 2009, para 9

⁸⁵ DfT, *The role and funding of High Speed Two Ltd.*, 14 January 2009; further details available on [HS2 Ltd.'s website](#)

⁸⁶ SERA, *Fast Forwards: Labour's case for High Speed Rail*, September 2009

In March 2010 the Labour Government published its conclusions, based on the work of HS2 Ltd., in a White Paper. While the first part of the paper made a case for a high speed network beyond Birmingham, the second part of the paper began with an explanation of why at that point, the government was only looking in detail at a route between London and Birmingham:

... it is one thing to make a strategic argument for high speed rail, and another to demonstrate that a British high speed line would be a credible and buildable project, especially given the challenges posed in identifying and constructing a London terminus and a route out of the city. For this reason, HS2 Ltd. was commissioned to develop a detailed proposal for a high speed line from London to Birmingham including potential route options, train service patterns, and costs for the development, construction and operation of the line. London to Birmingham would be the essential first stage of any British high speed rail network.⁸⁷

Lord Adonis outlined the government's proposed route, London and Birmingham stations, and interchanges with other rail schemes such as Crossrail in his statement to the House:

Subject to ... consultation, the London terminus for the high speed line would be Euston; the Birmingham City Centre station would be at Curzon Street; and there would be interchange stations with Crossrail west of Paddington and near Birmingham Airport. HS2 Ltd.'s recommended line of route between London and Birmingham is also published today; the Government endorses this route, subject to further work which I have commissioned on mitigation, and to subsequent public consultation. HS2 Ltd.'s recommended route would pass in tunnel from Euston to the Crossrail Interchange west of Paddington. It would leave London via the Ruislip area, making use of an existing rail corridor. It would then pass by Amersham in tunnel towards Aylesbury, before following the route of the A413 past Wendover.

North of the Chilterns, the recommended route would follow in part the disused Great Central rail alignment before passing Brackley and entering Warwickshire. It would then skirt to the east of Birmingham, to enter the city via a short link, alongside an existing rail line, beginning in the Water Orton area, with the main line extending north to the West Coast Main Line near Lichfield.⁸⁸

He also explained the decision not to take HS2 to Heathrow and announced that the Conservative peer and former Secretary of State for Transport, Lord Mawhinney, would take forward further work on this area:

It is important that Heathrow is connected to any high speed line. A prime purpose of the proposed Crossrail Interchange is to provide such a connection, via an 11 minute direct service to Heathrow. However, the overwhelming majority of passengers on a high speed line south of Birmingham would be going to or from London. This is the other reason why the Crossrail Interchange station is so important. Crossrail, a very high capacity line, will provide fast services direct to the West End, the City and Docklands, catering for an estimated one third of all the passengers travelling on the high speed line. Without this Interchange to Crossrail, congestion on the tube from Euston would be exacerbated, and passengers would be severely disadvantaged in getting in and through central London.

The question is whether there is a case for an additional station at the site of Heathrow itself. HS2 Ltd., after thorough analysis, advise that the business case for such an additional station appears weak, given the estimated cost of at least £2 billion for the

⁸⁷ DfT, *High Speed Rail*, Cm 7827, March 2010, paras 5.1-5.4

⁸⁸ [HL Deb 11 March 2010, cc448-9](#)

additional tunnelling required to serve the site. Furthermore, Heathrow is not a single place; it is an airport with three widely dispersed terminal centres.

However, I am conscious that, as foreshadowed in the Government's January 2009 decision on adding capacity at Heathrow, there may be a strategic case for a high speed station at Heathrow, particularly in the light of that planned expansion. I have therefore appointed Lord Mawhinney, a former Transport Secretary, to advise on the best way forward, having fully engaged with all interested parties. A complex decision of this nature should not be taken in a knee-jerk fashion, but after a full analysis of the facts and options.⁸⁹

The White Paper put the cost of designing and building a line from London to Birmingham at between £15.8 billion and £17.4 billion, at 2009 prices; extending the 'core' network to Manchester and Leeds would increase the total cost to £30 billion.⁹⁰ As to where the money would come from, the Paper indicated that it would be "a largely public sector funding approach".⁹¹ The main alternative route was drawn up by the consultants Arup and was based on a high speed line via a Heathrow 'hub'.⁹²

Had Labour won the election it intended to hold a formal public consultation on the proposed HS2 route between London and Birmingham in autumn 2010 and a further consultation on extending the route beyond Birmingham sometime after early 2012.⁹³ The Labour Party Manifesto for the 2010 General Election included a "commitment to a new high-speed rail line, linking North and South. Built in stages, the initial line will link London to Birmingham, Manchester, the East Midlands, Sheffield and Leeds, and then to the North and Scotland".⁹⁴

3.2 Policy of the Conservative-Liberal Democrat Coalition Government, 2010-

Party views prior to the 2010 election

In 2008 both the Conservatives and the Liberal Democrats committed to building a second high speed line in the UK.

The Conservative Party made HS2 the centrepiece of its transport policy at the 2008 Party Conference.⁹⁵ The decision was confirmed in the Party's 2009 rail policy document where it set out in more detail its reasons for supporting high speed rail. In summary, these were:

- The rest of Europe (and the rest of the world) is building HSR and the UK is getting left behind;
- We are facing a severe capacity constraint on the West Coast main Line corridor in the next 10 years [to 2019];
- HSR to the North of England would help to produce a 'more balanced economy'; and
- A HSR connection between Heathrow and HS1 and HS2 would help to tackle overcrowding at Heathrow and reduce short haul flights.

⁸⁹ *ibid.*, c449

⁹⁰ *op cit.*, *High Speed Rail*, paras 11.1-11.2

⁹¹ *ibid.*, paras 11.16-11.18

⁹² Arup, *Heathrow hub: the UK's global gateway*, December 2009

⁹³ *op cit.*, *High Speed Rail*, section 9

⁹⁴ Labour Party, *A Future fair for All: the Labour Party Manifesto 2010*, April 2010, p1.8

⁹⁵ *Theresa Villiers MP: speech to the Conservative Party Conference*, 29 September 2008; see also: "We need faster trains, now a third Heathrow runway", *Financial Times*, 30 October 2008; and "Why we are leading the way on high speed rail", *Transport Times* (no. 57), November 2008

The paper estimated the total cost of the proposed network (London to Birmingham, Manchester and Leeds, with a direct link to Heathrow but not including the proposed 'wider network' to Newcastle and Scotland) at around £20 billion, with over three-quarters of that being provided by the taxpayer.⁹⁶ Consequently, in their manifesto for the 2010 election, the Conservatives stated that if elected they would:

... begin work immediately to create a high speed rail line connecting London and Heathrow with Birmingham, Manchester and Leeds. This is the first step towards achieving our vision of creating a national high speed rail network to join up major cities across England, Scotland and Wales. Stage two will deliver two new lines bringing the North East, Scotland and Wales into the high speed rail network.⁹⁷

In June 2008 the Liberal Democrats published a transport policy document in which the party committed to building a high speed rail line from Heathrow, via St Pancras, to Birmingham and Manchester. It proposed that this "would be done in stages: building one section, acquiring a revenue stream, and then resuming building work". The paper claimed that the potential benefits of HSR would be: emissions savings; regeneration; economic benefits and freeing up space on the conventional network for freight and local passenger services. It also stated that following construction of the initial route, much of the high speed network stretching west and further north to Scotland, "could be part financed by developers".⁹⁸ In their 2010 manifesto, the Liberal Democrats said that they would "set up a UK Infrastructure Bank to invest in public transport like high speed rail".⁹⁹

Prior to the election, the Conservatives criticised Labour's March 2010 White Paper on HS2, particularly for not going to Heathrow, and the Bow Group¹⁰⁰ published a report calling on the Party to abandon Labour's route if it won the election and opt for a direct route via Heathrow.¹⁰¹ The Liberal Democrats sought guarantees that money would not be 'raided' from existing rail projects to pay for HSR and asked for a long-term commitment to extend the scheme to Scotland.¹⁰²

Initial decisions in government

The Conservative-Liberal Democrat Coalition Government that took power in May 2010 stated in its Coalition Agreement that it would:

... establish a high speed rail network as part of our programme of measures to fulfil our joint ambitions for creating a low carbon economy. Our vision is of a truly national high speed rail network for the whole of Britain. Given financial constraints, we will have to achieve this in phases.¹⁰³

In a statement to the House, the then Secretary of State for Transport, Philip Hammond, confirmed the government's belief that "high-speed rail has the potential to bring significant and long-lasting benefits for Britain's economy and society".¹⁰⁴ Bearing in mind the party's

⁹⁶ Conservative Party, *Conservative rail review: getting the best for passengers*, February 2009, pp10-11

⁹⁷ Conservative Party, *Invitation to join the Government of Britain: the Conservative manifesto 2010*, April 2010, p23

⁹⁸ *Fast track Britain: Building a transport system for the 21st century* (policy paper 85), June 2008, para 2.1.5; see also: "Liberal Democrat transport spokesman Norman Baker makes the case for investment in new high speed rail", *The House Magazine* (no. 162), 9 September 2008

⁹⁹ Liberal Democrats, *Liberal Democrat Manifesto 2010*, April 2010, p79

¹⁰⁰ a centre-right think tank within the Conservative Party

¹⁰¹ Bow Group, *The Right Track: delivering the Conservatives' vision for high speed rail*, January 2010

¹⁰² [HC Deb 11 March 2010, cc450-54](#)

¹⁰³ HMG, *The Coalition: Our Programme for Government*, May 2010

¹⁰⁴ [HC Deb 27 May 2010, c15WS](#)

previous criticisms of Labour's chosen route, the Conservative Transport Group¹⁰⁵ was disappointed that once in government the Conservatives did not stick with the alternative route via Heathrow and the M4 corridor, stating that: "in broadly adopting the Labour Government's proposals for HS2, the Coalition has accepted a fundamentally flawed scheme that is the result of a similarly flawed brief".¹⁰⁶

On 5 July 2010 Mr Hammond, confirmed the government's intention to consult on the London-West Midlands portion of the route early in 2011 alongside a further consultation on the overall strategy for HSR.¹⁰⁷ On 4 October Mr Hammond confirmed the government's preferred route for HS2 north of Birmingham: a 'Y' formation with separate legs from the West Midlands to each of Manchester and Leeds.¹⁰⁸

On 28 February 2011 the government published a consultation on the detailed route alignment for phase one of the project (London to Birmingham), along with a revised business case; a full appraisal of sustainability; and noise contour maps. In a statement to the House Mr Hammond claimed that the link would:

... reshape Britain's economic geography, helping bridge the north-south divide through massive improvements in journey times and better connections between cities-slashing almost an hour off the trip from London to Manchester.

... It would address Britain's future transport capacity challenge-providing a huge uplift in long-distance capacity and relieving pressure on overstretched conventional lines. It would bring around £44 billion of net monetised benefits and support the creation of thousands of new jobs, as well as delivering unquantifiable strategic benefits. And it would help us to build a sustainable economy-by encouraging millions of people out of cars and off planes onto trains. Our competitors already recognise the huge benefits of high-speed rail and are pressing ahead with ambitious plans. Britain cannot afford to be left behind.¹⁰⁹

The estimated cost of the construction of the London-Birmingham route is between £16 billion and £17.7 billion.¹¹⁰

The consultation closed in July 2011. It sought views on whether HS2 is a good idea in principle; the proposed route and the attendant benefits claimed for it.¹¹¹ There were over 55,000 responses to the consultation.¹¹² The government is expected to announce further details before the end of 2011, with a view to introducing legislation soon after (for more details see section 7, below). The Transport Select Committee held a number of evidence sessions on HS2 between June and September 2011; its report was published on 8 November.¹¹³

Full details of the government's specific proposals with regards to the route, etc. can be found in section 4, below.

¹⁰⁵ a group of Conservative Party members who seek to promote discussion between the Conservative Party Transport spokespeople and members of the Party

¹⁰⁶ CTG, *Conservative Transport Group: Response to the Government's Consultation on High Speed Rail*, 2011

¹⁰⁷ HC Deb 5 July 2010, c10W

¹⁰⁸ DfT press notice, "Proposed high speed rail network North of Birmingham confirmed", 4 October 2010

¹⁰⁹ HC Deb 28 February 2011, c16WS

¹¹⁰ DfT, *Economic Case for HS2: The Y Network and London – West Midlands*, February 2011, para 4.6.5

¹¹¹ DfT, *High Speed Rail: Investing in Britain's Future – Consultation*, February 2011, p113; all documentation related to the HS2 consultation is available on the dedicated [HS2 consultation website](#)

¹¹² HC Deb 8 November 2011, c13WS

¹¹³ full details of the Transport Committee's inquiry can be found on the [Committee website](#)

3.3 The view from Scotland¹¹⁴

Previous Attempts at Developing Anglo-Scottish High Speed Rail Services

Over the last 30 years there have been several attempts to provide a truly high speed rail service between London and Scotland. However, while several of these projects have succeeded in improving Anglo-Scottish rail services they have failed to substantially reduce journey times. These are projects are briefly outlined below.

The Advanced Passenger Train (APT)

During the 1970's and 1980's British Rail developed two high speed trains. The first was the diesel powered class 43 High Speed Train (HST) which still provides services on the East Coast Main Line, Great Western Line and Midland Mainline. This train, which has passed 30 years in passenger service, uses conventional rail technology and has a maximum speed of 125mph.

Parallel to the development of the HST, British Rail engineers began developing the Advanced Passenger Train (APT) for use on the West Coast Main Line (WCML) between London Euston and Glasgow Central, which would have a maximum speed of 155mph. The train was built to run on the classic UK rail network with minimal changes to the infrastructure and incorporated several UK rail innovations including aluminium body shells, articulated bogies, hydrokinetic brakes and hydraulic tilting mechanisms. The tilting mechanism meant that the train could traverse curves 20 percent to 40 percent quicker than conventional trains while the new braking mechanism meant it could still stop within the distances required by existing signalling systems.

To allow for speeds above 125mph the APT would use a simple in-cab signalling system. A receiver on the train would interrogate transponders placed at 1km intervals along the railway. The transponders would transmit the maximum running speed to the train's computers, which would display the information in the driver's cab.¹¹⁵

The APT was initially going to be restricted to a maximum speed of 125mph due to timetabling restrictions caused by running alongside slower local trains. The tilting mechanism would allow the APT to maintain a high running speed around the many curves on Britain's main lines and, even restricted to 125mph running, could complete the Glasgow to London journey in 4hrs 15 minutes.

Following testing of a gas-turbine powered APT-Experimental (APT-E) train in the late 1970s, three electric APT-Prototype (APT-P) trains were built and testing began in late 1981. During initial runs the APT-P experienced a series of technical problems and a raft of negative media stories. However, the technical problems were mainly ironed out by the summer of 1982. British Rail intended to roll out a fleet of 60 APT-Squadron (APT-S) trains, which were a refinement of the design of the APT-P, between 1983 and 1987. The APT-S was to have run along the West Coast Main Line between London and Glasgow, Birmingham, Manchester and Liverpool. However, the APT-S never entered service as funding for the APT programme was withdrawn in 1984. The APT tilt technology was sold to the Italian railways and further refined for use in their Pendolino project. Pendolino trains using APT based tilt technology are now used by Virgin Trains on the West Coast Mainline, although they are restricted to 125mph running. The APT held the Glasgow-London rail speed record, four hours and 14 minutes, from December 1981 until 22 September 2006 when a special non-stop Pendolino completed the journey in three hours and 55 minutes.

¹¹⁴ this section contributed by Alan Rehfisch, Transport Policy Specialist at the Scottish Parliament Information Centre

¹¹⁵ further information on APT technology is available in: British Rail, *Tomorrow's Train Today*, 1980

East Coast Mainline Electrification

The East Coast Main Line (ECML) is a 393 mile long railway linking London and Edinburgh, passing through major east coast towns and cities such as Newcastle, Durham, Darlington, York, Doncaster and Peterborough. British Rail electrified the line, rationalised track layouts, increased line speeds and improved signalling during a ten year project, which was formally inaugurated by Her Majesty the Queen on 28 June 1991.

At the same time British Rail, working with contractor GEC, developed new rolling stock to operate intercity services on the upgraded line using much of the technology developed during the APT programme. The resulting Class 91 locomotives and Mark IV coaching stock were developed with a top operating speed of 140mph (225 kmph). The trains were designed to be retro-fitted with tilt technology, hence the chamfered carriage sides. These trains were known as Intercity 225 or “Electra”.

On 26 September 1991 a special non-stop demonstration run of an Intercity 225 completed the Edinburgh-London journey time in three hours 29 minutes, which remains the rail speed record between these two cities. The electrification of the ECML cost £183 million at Q4, 1983 prices while the new traction and rolling stock cost £127 million.¹¹⁶ This equates to £469 million and £263 million at 2010/11 prices respectively.¹¹⁷

However, 140mph running was dependent on the deployment of a new type of signalling, known as five aspect signalling. This involved the use of flashing a green signal to provide a fifth aspect (the other signalling aspects being green - clear, double yellow – preliminary caution, yellow – caution and red - stop). A flashing green aspect would indicate that a train could run at an enhanced line-speed, i.e. 140mph on the ECML, to the next signal. A steady green aspect would require the driver to brake to line speed.

Some 22 miles of the ECML, between Stoke Junction south of Grantham and Werrington Junction north of Peterborough, were fitted with the new five aspect signalling, which were used during the testing of the Intercity 225. However, the then rail safety body (HMRI) decreed that trains operating above 125mph must use in-cab signalling for safety reasons and the Intercity 225 trains have been limited to operating at 125mph since introduction into operating service.

The failure to exploit the full running speed of the Intercity 225 trains meant they have never been able to regularly achieve the sub-four hour Edinburgh-London journey time they were designed to achieve. In addition, timetabling constraints and congestion at the southern end of the ECML mean reducing journey times below four hours, the current shortest journey time provided by the limited stop “Flying Scotsman” service, is no longer practical.

Regional Eurostar

Section 40 of the [Channel Tunnel Act 1987](#) obliged British Rail to prepare a plan with the aim of securing:

The provision or improvement of international through services serving various parts of the United Kingdom; and

An increase in the proportion of the passengers and goods carried between places in the United Kingdom and places outside the United Kingdom that is carried by international through services.¹¹⁸

¹¹⁶ British Rail, [Electrification of the East Coast Main Line: Completion Certificate](#), 1 March 1992

¹¹⁷ calculated using [HM Treasury GDP deflators](#), updated 28 June 2011 [accessed 19 October 2011]

¹¹⁸ this was repealed under section 274 of the [Transport Act 2000](#) in 2001

British Rail set out its plans for international through services in “International Rail Services for the United Kingdom” which it published in December 1989. This set out plans for daytime Regional Eurostar services along the West Coast Main Line (WCML) to Manchester and the East Coast Main Line (ECML) to Edinburgh; it also proposed the operation of night time Nightstar services to Edinburgh, Glasgow, Swansea and Plymouth.

Following the publication of this report, British Rail subsidiary European Passenger Services (which became the UK section of Eurostar) ordered seven Eurostar trains that were specially adapted to run on the UK domestic and international high speed lines, at a cost of £180 million. All the trains were delivered by 1996. £140 million was also invested in upgrading the ECML and WCML for the trains and providing access to them. London/Brussels/Paris Eurostar services began operating in 1994. However, despite the major capital investment to allow for regional services, no Eurostar service has ever operated north of London. A daily connecting rail service to Waterloo International for international passengers travelling from cities north of London to connect with Inter-Capital Eurostars began in May 1995, but was stopped in January 1997. A decision was also taken in 1997 not to operate Nightstar services.

The operation of regional high speed international services was the subject of a UK Government review¹¹⁹ and parliamentary inquiry¹²⁰, which concluded that direct Regional Eurostars to destinations north of London were not commercially viable. The main reasons being that journey times might be too long to attract a significant share of business travellers away from air, and that the service might be too expensive or too infrequent to compete directly with air and coach for the leisure market. In addition, concerns about mixing domestic and international passengers to add revenue to the domestic part of the train journey could pose security problems.

The Nightstar rolling stock was eventually sold on to Via-Rail in Canada and the regional Eurostar trains have been used on UK and French domestic services.

West Coast Main Line Upgrade

The West Coast Main Line (WCML) is centred on the 399 mile long line between London Euston and Glasgow Central stations. There are also branches and diverging routes serving cities and towns including Liverpool, Manchester and Edinburgh. The route differs from the relatively straight and level ECML in that it passes through several hilly areas, e.g. Cumbria, and the route has many curves due to topography and a slightly circuitous route chosen for the line during the 1800’s caused by opposition to the railway from some major landowners.

The WCML was electrified and upgraded between 1959 and 1974 but received little investment after that date and was in need of substantial renewal by the late 1980’s. Following the cancellation of the APT programme and the electrification of the ECML, British Rail announced its Intercity 250 project in November 1990, which aimed to upgrade of the WCML. This project would involve major upgrades to track layouts, power supplies, overhead line equipment, signalling and a new fleet of trains capable of running at 250kmph (155mph). However, the project was cancelled in 1992 due to the predicted £750m cost, a lack of capacity in the UK rolling stock manufacturing base and the forthcoming privatisation of British Rail.

A major project to upgrade the WCML was announced in 1998 by the two companies that had taken on responsibility for the WCML and the intercity train services that ran along it. Railtrack, which took over responsibility for the UK rail infrastructure from British Rail in April

¹¹⁹ DfT, [Review of Regional Eurostar Services](#), November 1998

¹²⁰ ETRA Committee, [Regional Eurostar Services](#) (fifth report of session 1998-99), HC 89, 20 January 1999; the report was debated in the House later in the year, see: [HC Deb 19 May 1999, cc1000-21](#)

2004 and was privatised in May 1996, and Virgin West Coast, which won the right to operate the InterCity West Coast franchise from March 1997 until March 2012, agreed to upgrade the line with funding from Railtrack's borrowings.

As part of the deal, Virgin West Coast undertook to procure new tilting trains capable of running at speeds of up to 140mph. The original aim to upgrade the infrastructure in two phases, by 2002 and 2005, using untried signalling technology, proved overly ambitious and the programme quickly ran into difficulty. Railtrack's cost estimates increased rapidly, the new signalling technology was not installed, and progress was slower than anticipated.

These factors contributed to a financial crisis for Railtrack which went into administration in October 2001. In early 2002, the then Strategic Rail Authority intervened to take the West Coast Main Line programme forward. Network Rail took over from Railtrack-in-Administration in October 2002, strengthening project management and putting in place a robust strategy to deliver the upgrade in three phases, between 2004 and 2008.

The WCML project was substantially completed for the December 2008 timetable change. This allowed for a 30% increase in services on the WCML and a reduction in journey times of up to 30%¹²¹ with a typical London-Glasgow journey time of four hours 31 minutes. However, the project had cost £9billion and, following the cancellation of the proposed new signalling system, trains were still limited to a top speed of 125mph, limiting journey time savings on Anglo-Scottish rail services on the WCML.

The Scottish Government's View on High Speed Rail

The first formal statement of the Scottish Government's support for the development of a high speed rail line between Edinburgh/Glasgow and London came with the designation of a high speed rail link as a "national development" in the [National Planning Framework for Scotland 2](#), published in June 2009.¹²²

A **national development** is a development which Scottish Ministers consider essential to the delivery of the spatial strategy set out in the National Planning Framework. National developments should contribute to the Government's objective of building a Scotland that is wealthier and fairer; greener; safer and stronger; smarter and healthier.

The Scottish Government sets out its justification for the designation of a high speed rail line as a 'national development' as follows:

The Scottish Government is strongly committed to promoting a shift to more sustainable modes of transport. There is compelling evidence that high speed rail services not only offer lower per passenger carbon emissions than aviation, but that with their shorter journey times can achieve a real shift from air to rail travel. A high speed rail link offering journey times between Central Scotland and London of less than 3 hours will help to make the train a more attractive option than short-haul flights for journeys within Britain and create the potential for direct high speed rail services to the Continent.

The most recent Scottish Ministerial statement on the Scottish Government's view on high speed rail was made by Keith Brown MSP, Scottish Minister for Transport and Housing, to the House of Common's Transport Committee at its meeting of 6 September 2011, stating:

¹²¹ Network Rail press notice, "[West Coast Main Line: rebuilt for the 21st Century](#)", 8 June 2009

¹²² Scottish Government, [National Planning Framework for Scotland 2](#), 2 July 2009

From the Scottish Government's position, we are very supportive, but we do believe that Scotland's case is central to the business case of High Speed 2. We argue that the strategic network proposed by the Department for Transport does not really go far enough at this stage and that, at this early stage, a network plan needs to be established that includes both Edinburgh and Glasgow. That is because we believe the major benefits from High Speed 2 will be realised when it goes to Scotland, because of the modal shift that can be achieved there and the business advantages.¹²³

Alex Neil MSP, Cabinet Secretary for Infrastructure and Capital Investment clearly stated his views on the UK Government's current proposals at the Infrastructure and Capital Investment Committee's meeting of 29 June 2011, stating:

It is nonsense that the high-speed rail link from London is not to come all the way to Scotland. Our economic analysis shows that the economic benefit to the UK and to Scotland of investing in the Scottish end would be greater than the economic benefit of investing in the line between London and Birmingham. I am happy to share that analysis with the committee; I believe that Keith Brown has shared it with our colleagues down south.

Our strong view is that it is discriminatory and unfair and is not sensible for the link to go just to the midlands. A commitment should be made to have in a reasonable timeframe a high-speed rail link between Scotland and London. To be frank, the UK Government's decision is absolutely crazy.¹²⁴

The Scottish Government announced the establishment of a Scotland-wide partnership to press the case for the development of a high speed rail line between London and Scotland. The partnership will include local authorities, regional transport partnerships and representatives from business and industry.¹²⁵

The Scottish Parliament and High Speed Rail

The previous Scottish Parliament Transport, Infrastructure and Climate Change (TICC) Committee held an inquiry into the potential benefits of high speed rail between May 2008 and February 2009. The remit of the inquiry was:

To identify the potential economic and environmental benefits to be gained through the development of a high-speed rail network linking Scotland with major English conurbations, London and Europe via High Speed 1

Options for ensuring that the existing rail network within Scotland can connect effectively with any high-speed network

The practicalities and costs of constructing a high-speed line and the different options for routes and train types

The potential for high-speed and improved links to achieve modal shift away from domestic aviation and long distance driving, as opposed to meeting increased overall demand

To identify any barriers to the development of improved high-speed rail links.

The inquiry Report, published on 27 February 2009, concluded that:

¹²³ op cit., *High Speed Rail: uncorrected evidence*, 6 September 2011, Q399

¹²⁴ Scottish Parliament, Infrastructure and Capital Investment Committee, [Official Report](#), 29 June 2011

¹²⁵ Transport Scotland press notice, "[Single Voice to Press Case for High Speed Rail](#)", 21 June 2011

The recent initiative by the UK Government is an important positive commitment to high-speed rail. However the Committee believes that these proposals must go further and include Scotland as an integral part of any scheme from the outset. It is vital that Scotland does not miss the chance to shape the debate on high-speed rail in the UK. The Scottish Government must develop a clear policy on high-speed rail as a matter of urgency, and must be willing to lobby hard in discussions with the UK Government to ensure that Scottish interests are fully taken into account if and when a high-speed line is developed. The Committee believes that high-speed rail could lead to significant social and economic advantages for Scotland, and has potential to deliver wider benefits elsewhere in the UK by providing the opportunity to reduce flights from London airports.

Importantly, also, the Committee believes that if the Scottish and UK Governments are serious about meeting the challenging targets for reducing greenhouse gas emissions, radical and bold new policy ideas need to be developed in the field of transport. The Committee believes that high-speed rail could play an important role in reducing domestic aviation which will help meet these climate change targets.¹²⁶

The Scottish Parliament [debated](#) the Committee's inquiry report on 22 April 2009. The conclusions of the report attracted cross-party support during the debate, although there were differing views on the detail of particular issues such as specific routes, the extent of any new line(s) within Scotland and integration with the existing network.

The TICC Committee held meetings with Lord Adonis, the UK Minister of State for Transport, and Sir David Rowlands, the chief executive of High Speed 2, at the Scottish Parliament in April 2009. At these meetings the Committee was able to express the importance of Scotland's inclusion from the outset of development of high-speed rail services. The Committee made clear its intention to continue to engage with the Scottish and UK Governments as this project progresses.

The TICC Committee also sought updates on Scottish Government involvement in the developing UK Government high speed rail proposals from the Minister for Transport, Infrastructure and Climate Change and the Cabinet Secretary for Finance and Sustainable Growth when they gave evidence on issues related to their portfolio. The TICC Committee issued two separate invitations to the UK Secretary of State for Transport in 2010 to give evidence on UK Government plans for the development of a high speed rail network, but these were declined.

Most recently, the Infrastructure and Capital Investment Committee asked Alex Neil MSP, Cabinet Secretary for Infrastructure and Capital Investment, about the Scottish Government's view on the UK Government's proposed high speed rail line during its [meeting of 29 June 2011](#), as mentioned above.

Civic Scotland's Views on High Speed Rail

Support for the development of a high speed rail link between Scotland and London has very wide support from a broad range of business, local government, transport and non-governmental organisations across Scotland, e.g. speaking prior to a conference on high speed rail the Leader of the City of Edinburgh Council, Cllr Jenny Dawe, stated:

Decisions regarding high speed rail will have serious long-term implications not just for the economies of Glasgow and Edinburgh but for Scotland as a whole.

¹²⁶ Scottish Parliament Transport, Infrastructure and Climate Change Committee, [1st Report 2009: Report on the Inquiry into the Potential Benefits of High-Speed Rail Services](#), 27 February 2009, paras 155-56

Failure to include Scotland in the network from the outset will damage not just our ability to compete internationally but also our ability to compete with those other regions of the UK that are.

We, as a nation, must do everything that we possibly can to advance the compelling case for extending the network here.¹²⁷

This view was echoed by the Scottish Chambers of Commerce, which has indicated:

The UK Government's current plans for High Speed Rail are a start but they are nowhere near ambitious enough. The UK economy does not end at Manchester and Leeds and neither should High Speed Rail. We need a truly UK-wide HSR network in order to maximise the economic and environmental benefits of a mode of transport which many of our competitor nations are already reaping the benefits of. Our message to Westminster is clear - Scotland must be on the map when it comes to High Speed Rail.¹²⁸

The business and industry representative organisation Scottish Council Development and Industry has stated:

SCDI strongly support the economic and environmental benefits of a UK High Speed rail network between London and Scotland...A route including Glasgow and Edinburgh transforms the business case generating revenue and benefits worth almost £55billion. Over 60 years, it pays for itself 1.8 times over. The benefits of the taxpayers' investment can only be maximised over the longer London-Scotland distance.¹²⁹

The sustainable transport campaign group Transform Scotland has indicated that:

We therefore support the government's current proposals for HS2 and recognise that, in the longer term, there may be a need for a dedicated high speed line to continue from the North of England to Scotland.¹³⁰

Friends of the Earth Scotland have stated:

Suggesting a high-speed rail link from London that ends in Birmingham is like swapping a horse for a donkey mid journey.

An essential component in making climate friendly choices open to all is investing in a high-speed rail link between Aberdeen and London. It makes a mockery of the government's carbon reduction targets to propose that the line ends in Birmingham.

A UK wide high-speed rail link is exactly the kind of project we should be investing in to combat the climate crisis and the economic crisis. This half-hearted effort shows a lack of ambition and is profoundly short-sighted.¹³¹

¹²⁷ City of Edinburgh Council press notice, "[Cities seek support to strengthen HSR case for Scotland](#)", 20 June 2011

¹²⁸ Scottish Chambers of Commerce press notice, "[Scottish chambers take high speed rail message to Westminster](#)", 5 September 2011

¹²⁹ Scottish Council Development and Industry, *High Speed Rail*, 12 October 2010

¹³⁰ Transform Scotland, *High Speed Rail: Investing in Britain's Future Consultation: Transform Scotland Response*, 29 July 2011

¹³¹ Friends of the Earth Scotland press notice, "[High-speed Rail Link Plans Take a Wrong Turn](#)", 11 March 2010

3.4 The view from Wales¹³²

While the majority of opinions on HSR expressed by public authorities in Wales are broadly supportive in a strategic sense, significant concerns remain. These are not simply in relation to securing access to the proposed HS2 network, but more fundamentally in terms of the effect the proposed HS2 development may have in disadvantaging Wales in the absence of a similar network linking London to south Wales via the Great Western Corridor. Recent indications by the UK Government that a direct rail link between south Wales and Heathrow is under consideration have received broad support in Wales,¹³³ and should the proposal progress it is likely to address concerns regarding connectivity to Heathrow following construction of HS2. Some comfort may also arise from the Deputy Prime Minister's inclusion of the electrification of the Great Western Main Line among the 40 infrastructure projects to be prioritised by the UK Government.¹³⁴ It remains to be seen whether a full evaluation of the impact of HS2 on Wales will be conducted; what steps may be taken to address any identified disadvantage; and to ensure that Wales as a whole is effectively integrated into the planned network.

The Welsh Rail Network

The Welsh railway network consists of approximately 680 miles of railway within Wales, and a further 234 miles of English railway whose purpose "is an integral part of serving Welsh and border counties' needs".¹³⁵

Unlike Scotland, where the *Railways Act 2005* ('the 2005 Act') gave the Scottish Government powers to specify rail franchise and infrastructure outputs, the Welsh Government, although co-signatory with Department for Transport of the Wales and Borders rail franchise, has no role in specifying infrastructure outputs. Rather, sole responsibility is reserved for the Secretary of State. However, the Welsh Government has made extensive use of the more limited powers granted under the 2005 Act to fund additional enhancements to the Welsh network.

In common with other areas in Britain, rail usage has grown dramatically since privatisation. Figure 4 illustrates the rate of growth in Welsh rail travel. Total journeys have increase by 80 per cent since 1995-96, while journeys within Wales and those to and from Wales have increased by 92 per cent and 58 per cent respectively:

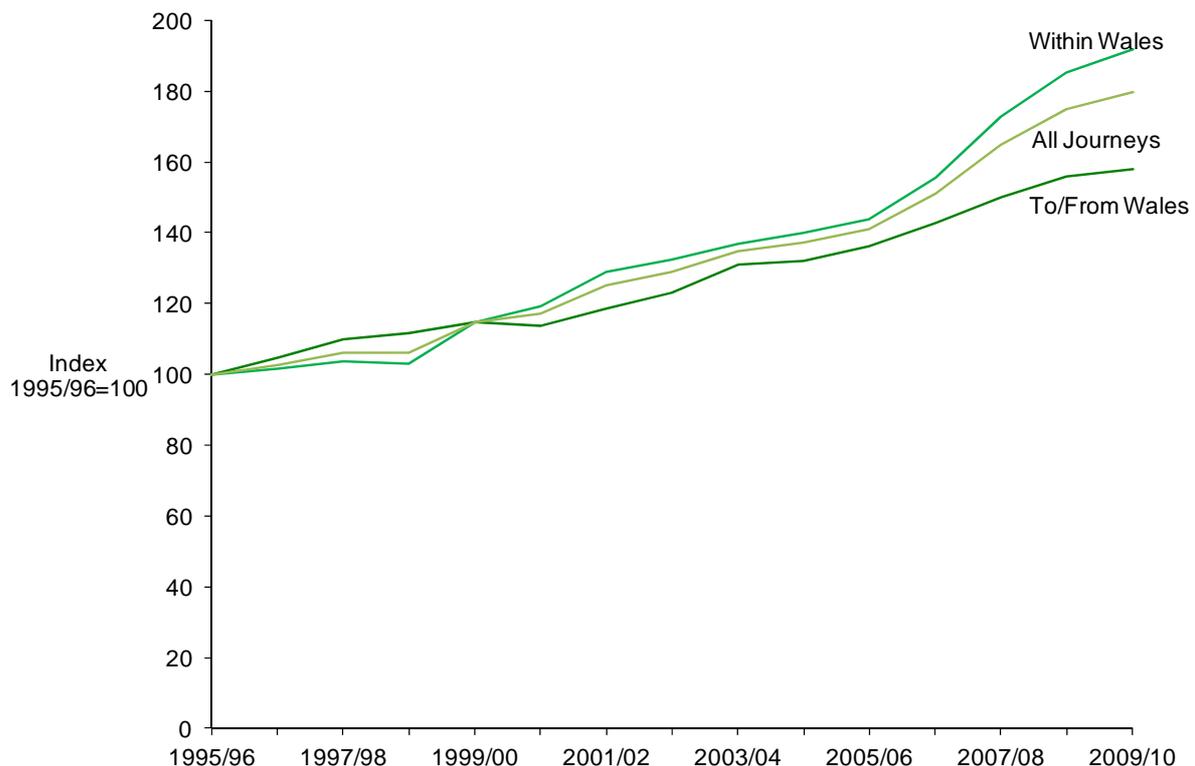
¹³² this section of the paper was contributed by Andrew Minnis, Transport Policy Specialist at the National Assembly for Wales Research Service

¹³³ "Plans unveiled for £500m rail scheme linking Wales to Heathrow", *Western Mail*, 5 September 2011

¹³⁴ "Nick Clegg: Great Western electrification is a priority", *Western Mail*, 14 September 2011

¹³⁵ Network Rail, *Wales Route Utilisation Strategy*, November 2008, p14

Figure 4 – Index of the number of rail passenger journeys in Wales 1995-96 to 2009-10¹³⁶
Index (1995/96=100)



Electrification

Although electrification is a prerequisite for HSR, and for its direct integration with the “classic rail” network, Wales currently has no electric lines despite the fact that 40 per cent of Britain’s rail network has been electrified.¹³⁷ While initial approval was given by the previous Labour Government for electrification of the Great Western Mainline (GWML) to Swansea, in March 2011 the Coalition Government announced approval for the electrification of the GWML as far as Cardiff only, indicating that this would cut 20 minutes from the journey from London to Swansea using bi-modal diesel-electric trains. He further stated his intention to work with the Welsh Government to develop a full business case to electrify some of the Valleys lines serving Cardiff.¹³⁸

While electrification to Cardiff and the commitment to consider Valleys electrification has been widely welcomed, the decision not to electrify to Swansea has been challenged extensively in Wales. The Welsh Government Minister for Local Government and Communities, whose portfolio includes responsibility for transport, provided the following perspective to the Enterprise and Business Committee of the National Assembly for Wales in July 2011:

I would like to once more stress my disappointment about the UK Government’s announcement on 1 March to electrify the Great Western Main Line only as far as Cardiff – effectively ignoring the economic benefits and the economies of scale of electrifying the line between Cardiff and Swansea at the same time.

¹³⁶ the index provided has been produced using data provided in: Office of Rail Regulation, *National Rail Trends 2010-11 Yearbook*, July 2011, Table 7.10

¹³⁷ Network Rail, *Network Route Utilisation Strategy: Electrification*, October 2009, p3

¹³⁸ HC Deb 1 March 2011, c186

The UK Government stated that there was no business case to electrify the line between Cardiff and Swansea, identifying only modest benefits based on the current frequency of train service to Swansea. The Welsh Government believes that the business case for electrification between Cardiff and Swansea is stronger than that presented by the DfT and the Welsh Government is working to present a more positive business case.¹³⁹

The question of electrification is not limited to south Wales. In January 2010 the Enterprise and Learning Committee of the Third Assembly recommended that the Welsh Government lobby for electrification, identifying the North Wales Mainline (NWML) as a priority along with lines in the south.¹⁴⁰ The recommendation was accepted by the last Welsh Government, and the current Minister for Local Government and Communities has restated this support:

The Welsh Government supports High Speed Rail, for all regions of Wales, and we will continue to press the UK Government and Network Rail on this....We believe that electrification of the existing [Welsh] infrastructure is an important precursor to High Speed Rail, and the immediate priority.¹⁴¹

Welsh Perspectives on High Speed Rail

Both the National Assembly for Wales and the Welsh Government have given their support to HSR. The Enterprise and Learning Committee of the Third Assembly considered the case for HSR in the Welsh context in its inquiry on Future Railway Infrastructure in Wales.¹⁴² In 2009 the Committee heard evidence suggesting that Wales could benefit both from HS2 were the NWML to connect directly to the proposed network, and also from the development of a high speed line from London to south Wales. The Committee heard evidence suggesting that the regenerative effects of the TGV Nord connection on the depressed mining area of Lille in Northern France, as well as the economic benefits experienced in Kent as a result of the construction of the Channel Tunnel Rail Link, could be replicated in Wales.¹⁴³

Based on this evidence the Committee recommended that, in order to ensure Wales benefits fully from HSR links to the rest of Britain and Europe:

The Welsh Government should develop a strong case and lobby jointly with other interested partners for a new High Speed Line from London to South Wales, and for the North Wales Mainline to be directly connected to the proposed High Speed 2 Line from London to North West and Scotland. We further recommend that any high speed rail provision should not detract from existing services along classic lines.¹⁴⁴

The last Welsh Government accepted this recommendation, with the then Minister for Economy and Transport stating:

The Welsh Assembly Government's firm view is that any new high speed west coast line should include connections to Chester and North Wales. I have made the case for

¹³⁹ NAW Enterprise and Business Committee, *EBC(4)-02-11 Paper 5 – Carl Sargeant Minister for Local Government and Communities re Enterprise and Business Committee meeting on 13 July*, 22 September 2011

¹⁴⁰ NAW Enterprise and Learning Committee, *Future Rail Infrastructure in Wales*, January 2010, p6

¹⁴¹ NAW Enterprise and Business Committee, *EBC(4)-01-11 Paper 2 –Evidence from the Minister for Local Government and Communities*, 13 July 2011, p13

¹⁴² op cit., *Future Rail Infrastructure in Wales*

¹⁴³ *ibid.*, p7

¹⁴⁴ *ibid.*, p9

the UK Government to invest in High Speed Rail from south Wales and north Wales to Heathrow and London in my discussions...and will continue to do so.¹⁴⁵

As indicated above, the current Welsh Government has also expressed support for the development of a Welsh HSR network.¹⁴⁶

More generally, the principle of HSR has received widespread, if not unqualified, support in Wales perhaps because the line itself will not pass through the country. Consequently, many of the environmental issues arising from construction, other than the question of disruption to existing rail services, and the issue of blight do not apply in Wales. However, one source of challenge to the principle of HSR has been from the Welsh environmental lobby and those promoting sustainable transport. The promised sustainability benefits arising from HSR, which have been identified by the UK Government, are commonly accepted by many in Wales. However, both Wales Environment Link and Sustrans Cymru have expressed concerns not just in terms of impact of HSR on biodiversity, but in relation to the significant amount of energy required to construct and power HSR, and how that energy is generated. They question the true extent of the impact of HSR on carbon reduction, and whether HSR represents the most sustainable course for future transport development.¹⁴⁷

High Speed 2 and North Wales

Given that proposals for HS2 will bring the high speed network within striking distance of the north Wales border, it is perhaps not surprising that HS2 proposals have met with the clearest support from public bodies and politicians representing that region of Wales. In July 2011 Susan Elan Jones, MP for Clwyd South, launched the North Wales for High Speed 2 campaign, seeking to unite local people and the business community in support of the HS2 programme. Although in the early stages of development, the campaign argues that HS2 will bring three core benefits to north Wales:

Journey time enhancements connecting north Wales directly and quickly to London and Europe;

Promoting investment with comparisons again drawn to the impact of the TGV on the economic development of Lille; and

Jobs and wider economic benefits resulting from construction employment and regeneration effects similar to those arising from the construction of HS1¹⁴⁸

Further, in their submission to the UK Government's HS2 consultation, the Mersey Dee Alliance (MDA)¹⁴⁹ emphasise the need to address the significant capacity issues identified on the West Coast Mainline (WCML). They emphasise that the Network Rail WCML Route Utilisation Strategy concludes that the line is "effectively at capacity".¹⁵⁰ The MDA observe:

¹⁴⁵ Welsh Government, *Response to the Enterprise and Learning Committee report: "Future Railway Infrastructure in Wales"*, 11 March 2010, p4

¹⁴⁶ op cit., *EBC(4)-01-11 Paper 2 –Evidence from the Minister for Local Government and Communities*, p13

¹⁴⁷ NAW Enterprise and Learning Committee, *EL(3)-26-09 Paper 3: Paper to note – Future railway infrastructure in Wales – Wales Environment Link*, 25 November 2009; and: *EL(3) 23-09 Paper 3: Future railway infrastructure in Wales – Sustrans Cymru*, 11 November 2009

¹⁴⁸ *North Wales for High Speed 2 Website* [accessed 20 September 2011]

¹⁴⁹ the Mersey Dee Alliance is a partnership that supports strategic economic activity spanning the border between north Wales and north west England with a focus on north east Wales, west Cheshire and Wirral

¹⁵⁰ Network Rail, *West Coast Mainline Route Utilisation Strategy*, July 2011, p131

The modernised WCML is effectively full already, with very little if any spare capacity and significant gaps in service provision, and such spare capacity as exists will be fully utilised by 2016.¹⁵¹

While the importance of the WCML for the national and international connectivity of north Wales means that support for HS2 is not surprising, it is not unqualified. In particular, concerns regarding the connectivity of the existing rail network to the proposed HS2 network are emphasised by the MDA, Taith (the North Wales Regional Transport Consortium) and Susan Elan Jones MP in their submissions to the national consultation. All three emphasise the need to continue to develop the existing “classic rail” network, not least by ensuring that appropriate hubs are in place to allow the existing network to connect to the high speed network in order to distribute the benefits of HS2 to north Wales and ensure the region’s competitiveness is not disadvantaged by the network.

Allied to these connectivity issues is the concern that if the NWML is not electrified the region will remain a ‘backwater’ unable to benefit fully from the new network. The Welsh Government has recognised the importance of electrification of the line:

We believe that electrification of the existing infrastructure is an important precursor to High Speed Rail, and the immediate priority.....When the High Speed rail route is finalised by the UK Government, we believe that direct access to the railway across north Wales will be vital.¹⁵²

High Speed 2 and South Wales

A “Partial Network”?

The Great Western Partnership (GWP) was formed in early 2010 as a HSR action group for the regions of south Wales and south west England.¹⁵³ Although early attention has focused on the electrification of the GWML to Swansea, its purpose is to lobby for the development of a “state of the art” HSR line from London to south Wales and south west England operating at a specification of at least 320kph (198 mph).

The GWP highlight the significant time savings possible on the GWML from such a HSR network, both in comparison to the current network and the proposed electrified network. A comparison of journey times between London and Cardiff is provided in Table 2.

Table 2: Comparison of Journey Times: Cardiff to London Paddington (Source Greengauge21)¹⁵⁴

Distance (miles)	Existing Service		Post Electrification		High Speed Rail	
	Journey Time (minutes)	Average Speed (mph)	Journey Time (minutes)	Average Speed (mph)	Journey Time (minutes)	Average Speed (mph)
144	120	72	105	82	74	116

¹⁵¹ Mersey Dee Alliance, *High Speed Rail Consultation Response*, July 2011

¹⁵² op cit., *EBC(4)-01-11 Paper 2 –Evidence from the Minister for Local Government and Communities*, p13

¹⁵³ the Great Western Partnership comprises Bristol City Council, Cardiff Council, Swindon Borough Council, South East Wales Economic Forum, South West Regional Development Agency, the West of England Partnership, South West Wales Economic Forum, South East Wales Transport Alliance and South West Wales Integrated Transport Consortium

¹⁵⁴ Great Western Partnership, *Strategic Positioning Statement, Great Western Corridor: The Case for High Speed Rail*, April 2011 pp5&9

The GWP is fully supportive of the need for investment in the UK's rail network, and specifically the need for national High Speed Rail connections.¹⁵⁵ The GWP recognises the importance of transport as an enabler of economic prosperity. In common with the UK Government's view, the group acknowledge a number of key benefits from HSR in the form of improved sustainability, the potential for national and regional economic growth as well as enhanced connectivity and competitiveness.¹⁵⁶ However, the UK Government's HS2 consultation document indicates that the focus of planning beyond HS2 is explicitly north rather than west:

While work was underway on designing and constructing the two phases of the Y network, the Government would expect to work with the Scottish Government and others to identify and evaluate options for developing the network and reducing journey times further, as set out in the National Infrastructure Plan.¹⁵⁷

Both the National Infrastructure Plan and the consultation document focus on travel north without reference to the development of an HSR network on the Great Western Corridor serving south Wales. In its strategy for the development of a competitive transport economy the National Infrastructure Plan proposes to:

Continue development of the high-speed rail network and rail connections between the North and South of the country to further reduce journey times to Glasgow and Edinburgh.¹⁵⁸

As a result of this intention, the GWP characterise current proposals for HS2 as a "partial network":

The HSR network proposed is only a partial national network. Whilst providing HSR connections to most of the major cities and conurbations in the English Midlands, the north of England and Scotland, it would exclude the whole of South West England and South Wales...[which]... would be left with a second class rail service...even after electrification.¹⁵⁹

The Case Against New Lines To South Wales

The case against the development of a new high speed network to south Wales can be found in work undertaken by Network Rail and Greengauge 21.¹⁶⁰ In 2009 Greengauge21 published proposals for an HSR network based on connections to Scotland via the north east and north west of England operating at speeds of up to 320kmh, with links to south Wales and south west England operating at 200 km/h, speeds achievable following electrification of the GWML.¹⁶¹

Greengauge21 concluded that electrification of the GWML would allow through-services from other HSR lines to operate, creating journey time savings of 20 minutes, or around 10 per cent, between London and Cardiff compared to the faster HSR services which, they indicate, would typically offer savings of 30-45 per cent.¹⁶² While they acknowledge that a time will come when HSR lines on this corridor "could bring significant wider benefits" they conclude that:

¹⁵⁵ Great Western Partnership, *Response to Department for Transport Consultation*, July 2011

¹⁵⁶ op cit., *Strategic Positioning Statement, Great Western Corridor: The case for High Speed Rail*, pp3-4

¹⁵⁷ op cit., *High Speed Rail: Investing in Britain's Future – Consultation*, p64

¹⁵⁸ HM Treasury, *National Infrastructure Plan*, October 2010, p30

¹⁵⁹ op cit., *Response to Department for Transport Consultation*

¹⁶⁰ a Public Interest Group comprising English and Scottish public bodies, rail industry and passenger transport authorities formed to promote the benefits of HSR for Britain

¹⁶¹ Greengauge 21, *Fast Forward: A high-speed rail strategy for Britain*, 2009, pp25-42

¹⁶² *ibid.*,p27

The case for HSR development [in excess of 200km/h] in this corridor is likely to be a lower priority because of the shorter distances and higher performance of the existing railway.¹⁶³

Network Rail's *New Lines Programme: Option Development Report* considered these issues in further detail. The report evaluated four options for new line construction, the third of which (London – West & Wales) included four trains per hour between London and Cardiff covering 145 miles in 58 minutes. Network Rail acknowledged that “a wholly new line would be relatively simple to plan and operate, and should achieve excellent performance and reliability”.¹⁶⁴ However, a number of issues were identified that reduced the attractiveness of the West & Wales option:

- A new line would require a new Severn crossing, increasing cost and project complexity. Further, if trains were diverted onto the classic line at Bristol the current Severn tunnel cannot accommodate UIC (International Union of Railways) gauge train sets;
- Entry to London from the west would require substantial tunnelling;
- Network Rail identified little need to enhance capacity on the GWML stating “the demand-capability gap analysis found no significant demand-capability gap on the GWML in 2020”,¹⁶⁵ and
- Forecast revenue for the London to West option was found to be lower than estimated operating costs at a ratio of 0.6:1.¹⁶⁶

As a result, Network Rail concluded that:

The London-North West & Scotland option was the best performing option in terms of lifetime operating ratio....with London-West & Wales performing worst of the four.¹⁶⁷

Challenging the Case

The GWP challenge the view that HSR is not required on the Great Western Corridor. They argue that passenger growth, network congestion and lack of capacity on both the rail network and the M4 corridor are an increasing problem for the region.¹⁶⁸

Support for this analysis can be found elsewhere. Network Rail estimate that the GWML will continue to experience significant growth in passenger numbers. They forecast growth in trips between London and Cardiff by 2036 of between 48 and 115 per cent, with all day passenger demand in this market predicted to grow by over 30 per cent between 2008 and 2019 and the greatest growth expected between Bristol and South Wales at 35 per cent.¹⁶⁹ Additionally, the GWP points to research conducted on behalf of the South West Region which indicates that the London to south Wales (via Bristol) corridor will have exceeded capacity by 2026.¹⁷⁰

¹⁶³ *ibid.*, p31

¹⁶⁴ Network Rail, *New Lines Programme: Option Development Report*, 2009, p40

¹⁶⁵ *ibid.*, p41

¹⁶⁶ *ibid.*, pp40-41

¹⁶⁷ *ibid.*, p44

¹⁶⁸ *op cit.*, *Strategic Positioning Statement, Great Western Corridor: The case for High Speed Rail*, pp7-10

¹⁶⁹ Network Rail, *Great Western Route Utilisation Strategy*, March 2010, pp129-130

¹⁷⁰ *op cit.*, *Strategic Positioning Statement, Great Western Corridor: The case for High Speed Rail*, p8

The limitations of the M4 motorway have also been widely recognised. In 2009 the Welsh Government Ministerial Advisory Group Report on Transport highlighted traffic flows on the M4 around Cardiff and Newport already well in excess of design thresholds, emphasising that the fabric of the motorway is now 40 years old.¹⁷¹ In this context, the South East Wales Transport Alliance (Sewta) has estimated that traffic congestion in the region costs the local economy £600 million per annum.¹⁷²

Aside from questions of network capacity, the GWP expresses concerns about the implications of the Greengauge 21 and Network Rail analysis on Welsh economic development. In their submission to the UK Government's consultation GWP pointed out that the Greengauge 21 analysis indicated that there would be a total net loss of approximately 70,000 jobs in **both** Wales **and** the South West of England by 2040.¹⁷³

This assessment of the potential effect on Wales as a *whole* of a HSR programme which excludes the Great Western Corridor is based on analysis by Greengauge 21 of the impacts of HSR on employment and economic growth.¹⁷⁴ Their report considered forecast development of wage income, considered as a proxy for Gross Value Added (GVA), and employment levels, both in individual British regions/devolved nations and in Britain as a whole, with and without HSR. The figures produced for Wales and Britain are provided at Figure 2.

This analysis suggests that, in comparison to a base case without HSR, the development of the high speed network advocated by Greengauge 21, which is likely to be similar in effect to that proposed by the UK Government, would lead to a net loss of jobs in Wales of 21,000 and in GVA/wage income of £600 million by 2040. This compares to an overall increase in both measures for Britain as a whole, and in the individual regions most closely served by the HSR proposal outlined. Similar reductions were noted in the east, east Midlands, south east, south west and London.

In explaining this phenomenon in Wales, Greengauge 21 suggested that an HSR network focusing the fastest services on the north of England and Scotland will deflect growth in income and employment to those areas. They conclude that:

Business and employment growth is abstracted somewhat to the most significantly affected areas in the north and Midlands of England slowing overall employment growth rates [in Wales].¹⁷⁵

Table 3: Forecast employment growth rates and changes in wage income (Source: Greengauge 21)¹⁷⁶

Forecast Employment Growth Rates					
	Base Employment (2007)	Base case with no HSR, 2040		Greengauge HSR Scenario, 2040	
		Employment, 2040	Annual growth rate 2007 to 2040	Employment, 2040	Annual Growth Rate 2007 to 2040

¹⁷¹ Ministerial Advisory Group, *Phase 2 Report on Transport*, 2009, p33

¹⁷² Sewta, *Regional Transport Plan*, December 2009, p12

¹⁷³ op cit., *Response to Department for Transport Consultation*

¹⁷⁴ Greengauge 21, *High Speed rail In Britain: Consequences for Employment and Economic Growth*, February 2010

¹⁷⁵ *ibid.*, p27

¹⁷⁶ *ibid.*, pp25-26

			(%)		(%)
Wales	1,170,000	1,260,000	0.22	1,239,000	0.17
Britain	26,580,000	32,771,000	0.636	32,797,000	0.638
Forecast Regional Changes in Wage income used as a proxy for Gross Value Added (£million)					
	Base Wage Income (2007)	Base case with no HSR, 2040		Greengauge HSR Scenario, 2040	
		Wage Income, 2040	Annual growth rate 2007 to 2040 (%)	Wage Income, 2040	Annual Growth Rate 2007 to 2040 (%)
Wales	24,800	46,000	1.83	45,400	1.79
Britain	662,700	1,427,000	2.28	1,443,800	2.32

In his evidence to the Transport Select Committee on 13 September 2011 Sir Brian Briscoe, Chair of High Speed 2 Ltd., acknowledged that no evaluation of any potential negative impact of HS2 on Wales had been conducted. However, he accepted the principle that a negative impact on Wales could be the consequence of the construction of the network as proposed:

My own personal view is that it is unlikely that 60,000 people would move from Wales. What they are saying is there would be a relative benefit to places that are served by high speed rail compared with a relative downside for those areas that are not. That is really just a reflection of the obverse of what I have just said. Places that are served by high speed rail seem to be able to capitalise and create development.¹⁷⁷

It is helpful to consider such data in the context of the condition of the Welsh economy relative to that of other regions and devolved nations in the UK. GVA figures released by the Office for National Statistics in December 2010 indicate that GVA per head in Wales in 2009 was £14,842 or 74.3 per cent of the UK average. Wales has the lowest GVA per head of all the devolved nations and English regions and it has been the lowest since 1998 when it fell below Northern Ireland and the North East.¹⁷⁸

4 What's on the table?

4.1 Overview of the current proposal

Details related to the government's proposal, put out to consultation in February 2011, can be found on the dedicated [HS2 consultation website](#). Background and other technical reports are available on the [HS2 Ltd. website](#) and on the [Department for Transport's archived website](#).

As indicated in section 3.2, above, on 28 February 2011 the Coalition Government published a consultation on the detailed route alignment for phase one of their proposed high speed rail project, called HS2. Phase one covers the route from London to Birmingham.

¹⁷⁷ op cit., *High Speed Rail: uncorrected evidence*, 13 September 2011, Q486

¹⁷⁸ ONS, *Regional Economic Activity (GVA) – Regional GVA*, December 2010

As outlined above, much of the preparatory work for HS2 was carried out by [HS2 Ltd.](#), a company set up by the Labour Government specifically for the purpose of considering the case for new high speed rail services between London and Scotland. The February 2011 consultation document provided an overview of the approach taken by HS2 Ltd. to drawing up the case for the scheme. The ‘fundamental guiding principles’ established by HS2 Ltd. to form the basis of high speed rail in the UK (beginning with London to Birmingham) were, in summary: exploiting maximum benefit from high speed capacity; long distance, city-to-city journeys; high speed trains only; integration with the classic network; greater segregation from the classic network over time; and integration with other transport networks.¹⁷⁹

A more detailed project specification was developed “consistent with these guiding principles”. It set out that HS2 would: provide a safe and secure network (for passengers, employees etc.); ensure compliance with relevant EU law; provide ‘internationally recognised levels’ of availability, reliability and speed; ensure that some high speed trains can run on the classic network; and apply ‘the principles of sustainable development’.¹⁸⁰

The ‘key aspects’ for designing the proposed scheme are as follows:

Speed

Maintaining high speed would reduce journey times. The proposed route has generally been designed for speeds up to 250 miles per hour – similar to routes currently being designed elsewhere in Europe. Line speed in built up areas would be lower reflecting environmental considerations. HS2 Ltd. has assumed a maximum train speed of 225mph at opening; speeds above 225mph would not be allowed unless impacts of operation could be demonstrated to be no worse than currently assumed for operation at 225 mph.

Capacity

High capacity would maximise the benefits of the investment in a new high-speed line. That means long trains and maximising the number of trains that can be run per hour: at opening up to 14 trains per hour could run in each direction; future technological developments are expected to see that increased to 18 trains per hour on a wider high speed network. Trains would run throughout the day and evening, seven days a week, although no HS2 trains would run between midnight and 05.00 hours (08.00 hours on a Sunday), allowing time to be available for maintenance of the line.

HS2 trains would be up to 400 metres long – similar to the length of Eurostar trains – with up to 1,100 seats. This means stations would need to cope with high volumes of people and provide high quality links for their onward journeys. Shorter “classic compatible” trains, also capable of high speed running, would serve cities off the high-speed network.

Minimising impacts on the environment

High speed rail should avoid, as far as practicable, impacts on communities and the natural and built environment. To that end HS2 Ltd. developed a set of sustainable design aims – a set of principles of good practice for HS2 Ltd.’s design teams ... In developing its proposals, HS2 Ltd. sought, where practicable, to follow existing rail or road transport corridors, with the track placed at or just below ground level. Bridges and viaducts have been proposed where the line would cross other transport corridors or where forced to do so because of topography or environmental features, for

¹⁷⁹ op cit., *High Speed Rail: Investing in Britain’s Future – Consultation*, p73

¹⁸⁰ *ibid.*, p74

example rivers. Tunnels have been proposed where there would be no option for a route above ground due to population density or in some cases to mitigate environmental impacts.

Controlling Costs

In specifying the route, HS2 Ltd. sought to achieve a balance between costs and design aims.¹⁸¹

These claims and associated issues are examined in more detail in sections 5 and 6, below.

4.2 London to Birmingham: the route

In its March 2010 report to government, HS2 Ltd. outlined how it came to recommend the London-Birmingham route for HS2. This process is not without some controversy, with some campaigners alleging that HS2 Ltd. did not properly consider alternative paths for the route, particularly those that would have taken it more closely along the M4 corridor, thereby reducing environmental impacts on the Chilterns and surrounding areas.

The process used was outlined as follows:

To produce our short list of station and route options we reviewed:

- **Strategic fit.** This was used to capture whether an option met the remit sufficiently.
- **Costs.** At this early stage of option sifting broad costs were estimated sufficiently to show significant relative differences between options rather than taken as absolute.
- **Construction and operational feasibility and impacts.** This also included a description of whether new infrastructure or services would be required and whether existing services would be impacted. For stations, this included a review of passenger dispersal to and from the station, covering road, rail and public transport (including the London Underground).
- **Environment, social and spatial planning considerations.** This involved using a “simplified” sustainability appraisal framework which considered principally features of international or national significance and those which required a more refined level detail to distinguish options in sustainability terms. As with cost comparisons, much of this work was relative rather than absolute.
- **Demand.** Any relevant considerations of likely relative passenger numbers and journey times [...]

For the final stage of choosing our preferred options the level of appraisal and design intensified further. We gathered detailed evidence covering the same topics as before:

- **Construction and operational feasibility and impacts.** For the comparisons between options, we estimated costs in greater detail to give a relative assessment. The costs in this chapter exclude risk and are for comparative purposes only. For line for route the estimates were primarily derived by identifying the types of line within each route section (open route, corridor

¹⁸¹ *ibid.*, pp74-75

widening or tunnel) and then multiplying the length of each type of line by its generic unit rate.

- **A full appraisal of sustainability.** Using the four sustainability priorities we applied a full Appraisal of Sustainability Framework which focused on 18 specific issues and used a range of objectives and evaluation criteria to appraise each of these issues.
- **Economic analysis.** Focussed mainly on journey time comparisons.¹⁸²

As well as the individual components described above, HS2 Ltd. also considered the cases for an intermediate station; an interchange station in the West Midlands; and international rail connections. The company also developed a freight policy for HS2, a train service specification, and maintenance and stabling requirements.¹⁸³

Section 3.5 of the March 2010 report sets out how HS2 Ltd. narrowed down the route options. Some of the particular concerns raised by objectors to the scheme derive from the decisions taken by HS2 Ltd. during this process. When challenged, for example, on the contention that opting for 250 mph/400 kph as a maximum speed limited the choice of route, Prof. Andrew McNaughton, Chief Engineer at HS2 Ltd., stated that routes aligned with motorways “were ruled out on the balance of longer journey time, higher cost and being no better on sustainability”.¹⁸⁴

Following the change in government in May 2010, HS2 Ltd. was asked to provide additional advice to the new government on the proposed route, including options for environmental mitigation. This resulted in the following changes:

Since recommending the route to Government in December 2009, HS2 Ltd. has identified refinements to around half its recommended route, including more than a mile and a half of “green-tunnels” to maintain local access and minimise noise and visual impacts, lowering large sections of the proposed line and reducing the number of viaducts, while some changes to the alignment have moved it further away from settlements and important heritage sites.¹⁸⁵

In its February 2011 consultation document, the Coalition Government set out its preferred route as follows:

HS2’s London terminus would be a redeveloped Euston station serving both high-speed and conventional lines. The station would need to be extended to the south and the west and the platforms would be built two metres below the current level, allowing new development above them and the opening up of east-west routes across the site, which is largely occupied currently by a Royal Mail shed.

Leaving Euston, the route would descend into tunnel for about four and a half miles, surfacing at a new interchange station at Old Oak Common in west London. Passengers would be able to interchange here with Crossrail, the Heathrow Express, the Great Western Main Line and other local public transport. A direct link to HS1 would also run from the main high speed line at Old Oak Common.

¹⁸² HS2 Ltd., *High Speed Rail London to the West Midlands and Beyond: A Report to Government by High Speed Two Limited*, 11 March 2010, paras 3.16-3.17

¹⁸³ *ibid.*, paras 3.1.8-3.1.9

¹⁸⁴ *op cit.*, *High Speed Rail*, Q438

¹⁸⁵ *op cit.*, *High Speed Rail: Investing in Britain’s Future – Consultation*, p22

From Old Oak Common towards the M25, the route would run along the Chiltern Line corridor to West Ruislip and then cross the Colne Valley on a two-mile long viaduct. Junctions for a future connection to Heathrow would be provided in this section.

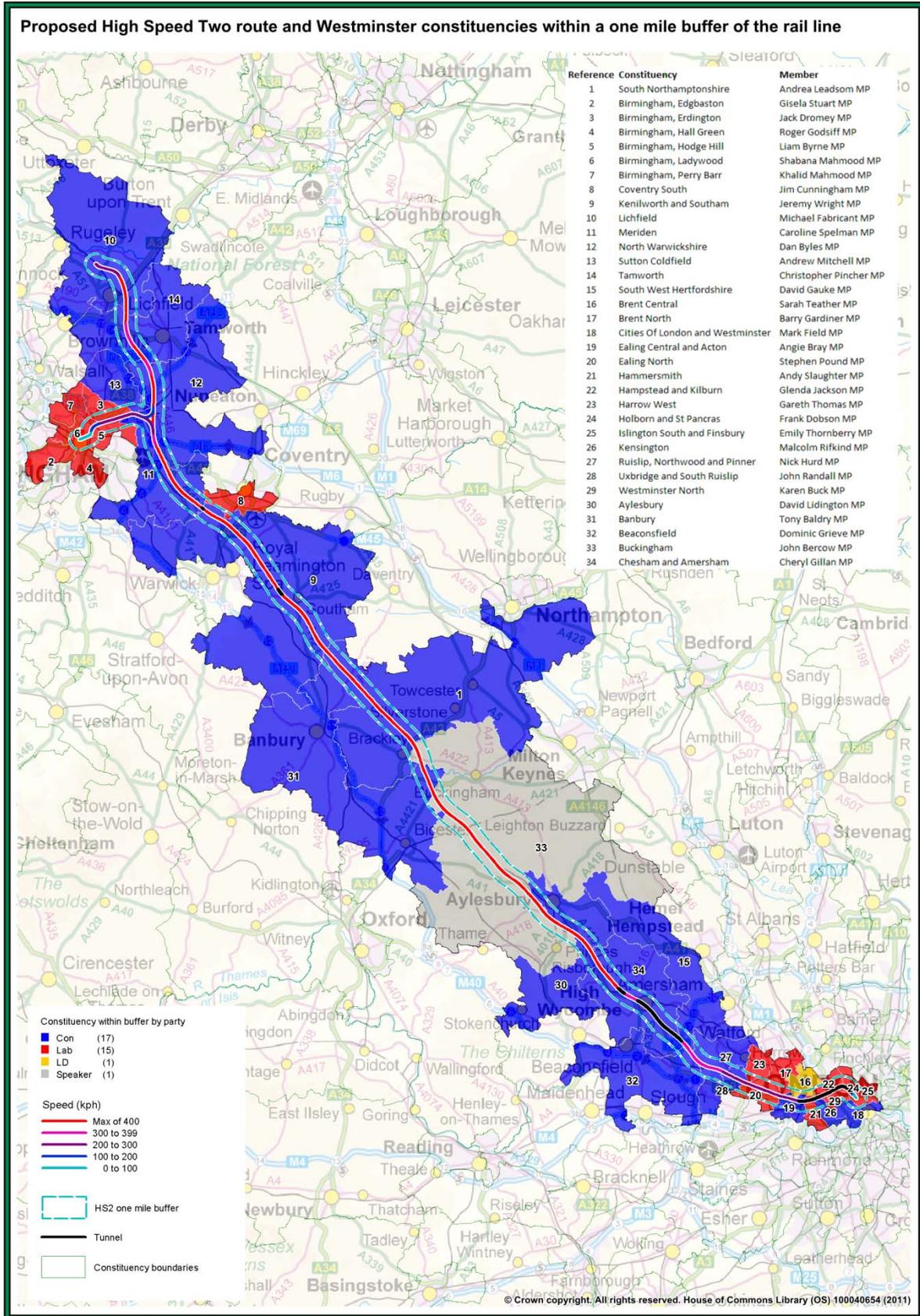
Immediately before the M25, the line would enter a six-mile long tunnel, emerging just north of Amersham. It would continue towards Aylesbury, largely in tunnel or cutting, along the A413 corridor. Beyond Aylesbury it would broadly follow the disused Great Central Line corridor to Calvert, and pass to the east of Brackley.

The line would head north-west towards the gap between Kenilworth and Coventry, before curving north to Coleshill. A new interchange station would be constructed where the line of route passes the National Exhibition Centre (NEC) and Birmingham Airport.

North of the interchange station the route would pass west of Tamworth to Lichfield, where it would join the West Coast Main Line for services to Manchester, Liverpool and Scotland. A junction at Water Orton would provide a link into Birmingham city centre, which would follow the existing rail corridor and terminate at a new high speed station at Curzon Street.¹⁸⁶

A map showing the proposed route, including constituencies that are within 1 mile of the line is provided overleaf.

¹⁸⁶ *ibid.*, pp21-22



4.3 Termini

Birmingham

HS2 Ltd.'s March 2010 report to government explained the process of whittling down the options for a station in the West Midlands as follows:

In specifying a region, rather than city, our remit also left open the question of in which part of the West Midlands a principal station should be located. An initial long list of station options considered station locations in the wider West Midlands area, including Wolverhampton, Walsall, Birmingham International and Heartlands. However, early analysis of demand figures demonstrated clearly the importance of serving Birmingham city centre in order to capture significant passenger flows. With the endorsement of our West Midlands working group, sites outside central Birmingham were therefore ruled out as potential locations for a principal West Midlands station. These locations were retained, however, for consideration as part of the work to identify a possible interchange station, which is described in more detail in the following section.

Having established that a principal station was required in Birmingham city centre, the decision between locating that station on a line through Birmingham, or on a spur into Birmingham, was driven by the feasibility of construction, as well as a range of business case criteria, including the differential costs, journey times and sustainability impacts.¹⁸⁷

The various possible configurations for the Birmingham station are shown in the map below:¹⁸⁸



HS2 Ltd. ultimately opted to route HS2 around Birmingham to the west, rather than going under the city, this in turn ruled out Curzon Street and Moor Street for station terminals. This

¹⁸⁷ op cit., *High Speed Rail London to the West Midlands and Beyond: A Report to Government by High Speed Two Limited*, paras 3.6.2-3.6.3

¹⁸⁸ *ibid.*, p108

resulted in a recommendation that the Birmingham station be located at Fazeley Street immediately to the north of the existing WCML into New Street station. The station would be an elevated structure, with a concourse at the western end in the city centre, adjacent to the existing Moor Street station, with which the concourse could be connected.¹⁸⁹ This is now generally called the Curzon Street station. The February 2011 consultation document summarised the benefits of this site as follows:

The proposed scheme includes a station in central Birmingham at Curzon Street, approached along the Water Orton corridor. The Government considers this the best way of serving central Birmingham because:

- The Curzon Street site would have a lesser impact on local conservation areas and would require fewer demolitions than the main alternative considered at Warwick Wharf.
- Although it would require revision of the current masterplan for Eastside, it offers great potential in the longer-term for regeneration of this area.
- The approach along the Water Orton corridor performs better in terms of sustainability than the main alternative using the Coventry corridor.

A junction on the initial London – West Midlands HS2 line to the north of the Birmingham Interchange would provide the link into Birmingham City Centre along the existing Water Orton rail corridor into the new High Speed station at Curzon Street. The station would have six platforms at a high level above Park Street and would feed onto Moor Street Queensway.¹⁹⁰

There will also be an interchange station near Birmingham International Airport, with an automated people mover linking the HS2 station with the airport, the National Exhibition Centre (NEC) and the existing rail station.¹⁹¹

London Euston

HS2 Ltd.'s March 2010 report to government explained the process of whittling down the options for a station in London as follows:

Initially, we developed a long list of 27 possible sites in London [...]The creation of the long list of options was informed by our assumptions about the required size of London terminal, both under a Day One scenario, and in the longer term, as the root of a wider high speed network. In the future ten platforms could serve a possible 18 trains per hour, assuming greater network reliability and allowing for appropriately reduced turn around times. On Day One, without the benefit of such future improvements, ten platforms would be required to serve the 14 train paths per hour which represent the initial line capacity. This would require some optimisation of the timetable and turnaround times at the London end during peak hours and would provide some flexibility in platform operation during off-peak periods.

The list included central as well as outer London locations and for each station option we considered a surface, deep underground, or cut and cover solution as appropriate. Vacant space in and around existing stations is limited, as large areas of former

¹⁸⁹ *ibid.*, para 3.6.30

¹⁹⁰ *op cit.*, *High Speed Rail: Investing in Britain's Future – Consultation*, p97

¹⁹¹ *ibid.*, p96

operational railway land in London have been sold for commercial building developments progressively over the last 50 years.¹⁹²

Possible station locations were looked at in all areas of the capital – from Liverpool Street, Canary Wharf, and Stratford in the east, to Kensington and Battersea in the West; from Watford, Kings Cross and Paddington in the north, to Clapham, Victoria and Waterloo in the south. There were also other, undefined, options such as ‘beneath a Royal Park’ or ‘beneath the Thames’. One option that was rejected quite early on was reusing the old Eurostar platforms at Waterloo. There were a number of reasons why:

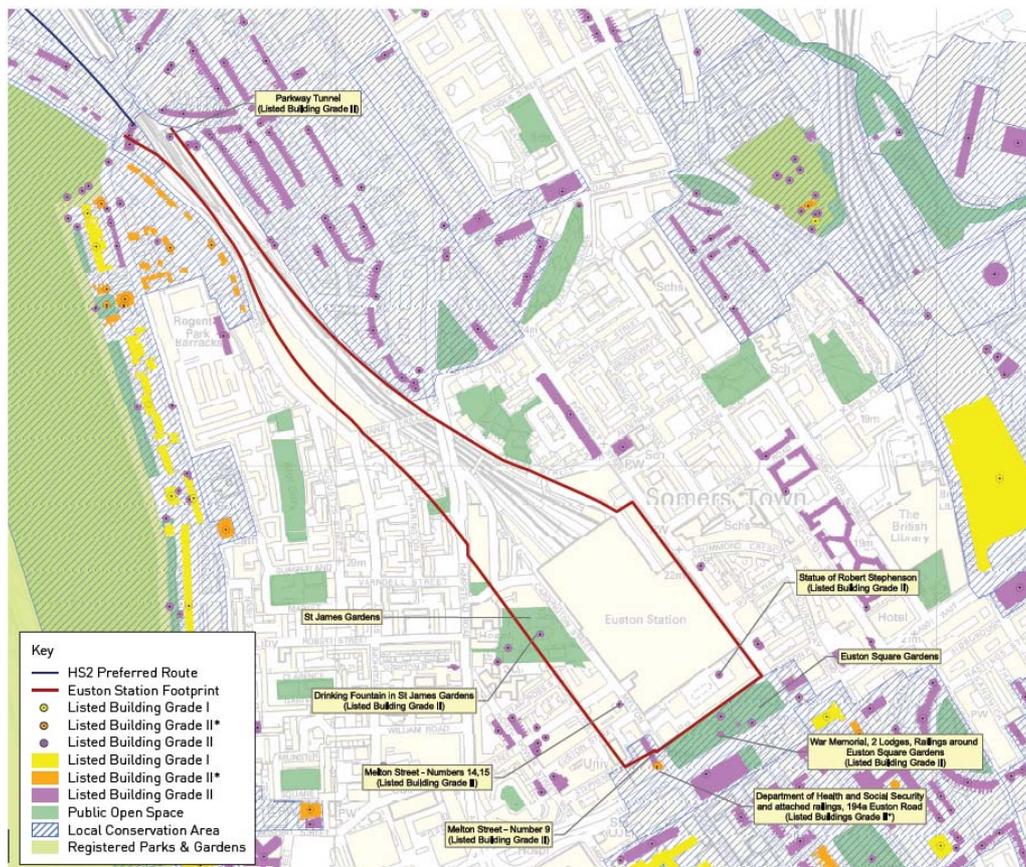
- The current ‘high speed’ lines serving these platforms point south west and access for high-speed trains from the north would require either a newly tunnelled route under the Thames, the parallel construction of lines alongside the existing West London Line, or the extensive gauge clearance of (and removal of existing capacity from) the West London Line to accommodate the larger trains. The latter would also be a low-speed option;
- Both approaches would be highly expensive, and a surface route would require significant land take;
- An additional five platforms would also be required either at Waterloo or elsewhere to meet the needs of a ten platform station;
- The platforms are currently earmarked for integration with the rest of Waterloo providing necessary additional capacity on the South West Main Line suburban network. Were HS2 services to take over these platforms, alternative platforms would be required elsewhere to accommodate rising demand; and
- Waterloo is a constrained site and both it and its approaches are on viaducts. There is limited scope for building additional platforms alongside or above the station.¹⁹³

HS2 Ltd. ultimately opted for a single-level station at Euston, as shown in the map overleaf:¹⁹⁴

¹⁹² op cit., *High Speed Rail London to the West Midlands and Beyond: A Report to Government by High Speed Two Limited*, paras 3.2.2-3.2.4

¹⁹³ *ibid.*, p56

¹⁹⁴ *ibid.*, p60



The plan for Euston would involve extending the current station 'footprint' to the west to accommodate 10 HS2 platforms, with 14 classic platforms to the east; and a southwards extension to meet, but not affect, Euston Gardens. HS2 Ltd. estimated that its proposed redevelopment of Euston would take between 6 and 7 years and cost in the region of £1 billion.¹⁹⁵ In its February 2011 consultation the government acknowledged the difficulties inherent in this part of the scheme:

The redevelopment would have a significant impact on the Regents' Park Estate, where a number of demolitions would be required, and therefore one area of focus would be working with LB Camden and the local community to ensure local residents are rehoused and demolished properties replaced with new, high quality social housing with access to local amenities. Another area of focus would be St James Gardens, part of which would need to be taken for the redevelopment.

There would also be some disruption during the construction period, but contractors would be expected to adhere strictly to best construction practice as part of a wider environmental management system [...]

Euston station would be one of the most complicated areas of HS2 to construct. It would be undertaken over a number of years in several stages. The first stage would be to construct new platforms on the western side to provide initially temporary platforms for existing 'classic' services during subsequent construction stages. This would require closure of areas of the current station to allow construction of the new building and platforms. Upon completion of each stage, the new platforms would be bought into service immediately. It is likely that during these early stages alternative

¹⁹⁵ *ibid.*, paras 3.2.14-3.2.15

accommodation would be constructed in advance of the start of demolition work to ensure residents could be relocated.¹⁹⁶

Two tube lines are already integrated into the station, with access to three others at nearby Euston Square. HS2 Ltd. envisages a possible new connection from the eastern end of Euston Square station platforms to the south west corner of the Euston station site. In addition, a short Advanced People Mover could connect Euston to St Pancras, providing access to First Capital Connect (Thameslink and Great Northern services), East Midlands Trains, South Eastern (domestic high speed services), Eurostar and East Coast core services.¹⁹⁷

The station at Euston would have considerable impacts on the London Underground network: HS2 Ltd. forecasts that the impact of HS2 would be to add up to 50,000 long distance and 15,000-20,000 short distance passengers per day to and from Euston. Assuming that half of these passengers go on to use the Underground, that could mean around 32,000 additional passengers at Euston and Euston Square Underground station per day.¹⁹⁸ However, this could be almost halved with the addition of an outer London interchange station. The preferred location for this is Old Oak Common in west London (see next section).

As to the interchange with HS1, which terminates at neighbouring St Pancras, a September 2010 supplementary report by HS2 Ltd. concluded that a single track link to HS1 is likely to be sufficient to meet the demand for international and domestic services from HS2 to Kent and the Continent. The estimated cost would be around £890 million including risk and optimism bias. As stated above, there was also talk of the possibility of installing a people mover between Euston and St Pancras. HS2 Ltd. concluded that while this was an option, “engineering and environmental factors ... restrict options for a people mover alignment to an elevated solution which would have significant impacts on local communities and businesses”.¹⁹⁹

London Old Oak Common and Heathrow

In its March 2010 paper to government, HS2 Ltd. also set out the options for a London interchange station to provide direct access to Heathrow, Crossrail²⁰⁰ and the Great Western Main Line (to Wales). The objectives for the interchange were to provide good access for HS2 passengers to London, whilst relieving pressure at Euston; and to provide access to Heathrow airport for HS2 passengers.²⁰¹

HS2 Ltd. calculated that 80 per cent of the passengers coming into London would want to go into the city rather than to Heathrow. This would mean enormous pressure on Euston, which could be alleviated by a direct link to Crossrail:

... an interchange with Crossrail would provide an opportunity for quicker access to parts of the West End, the City and Canary Wharf than changing at Euston. Furthermore, without an interchange, the addition of the HS2 services to Euston

¹⁹⁶ op cit., *High Speed Rail: Investing in Britain's Future – Consultation*, p82

¹⁹⁷ op cit., *High Speed Rail London to the West Midlands and Beyond: A Report to Government by High Speed Two Limited*, paras 3.2.11 & 3.2.16

¹⁹⁸ ibid., para 3.2.17

¹⁹⁹ HS2 Ltd. for the DfT, *High Speed Rail London to the West Midlands and Beyond Supplementary Report, September 2010*, paras 2.6.1 & 2.6.4; further information in: Arup for HS2 Ltd., *Automated People Mover (APM) Euston Station to St Pancras International: Further Investigation Final Report*, December 2010

²⁰⁰ Crossrail is the ten-year, £14.5 billion project linking Canary Wharf in the east, via tunnels under central London, to Heathrow; full details can be found in HC Library note SN876

²⁰¹ op cit., *High Speed Rail London to the West Midlands and Beyond: A Report to Government by High Speed Two Limited*, para 3.3.2

station, together with additional services using released capacity on the WCML, would increase the number of passengers using this station by 60,000-70,000 per day, compared with the number who would otherwise be using the station in 2033. Half of these passengers would use the already heavily used London Underground for their onward travel.

The closer the interchange is to London, the more people would be likely to use it for onward travel into London, especially if there were frequent trains to interchange with and an opportunity to secure a seat. Options further to the west would be far less attractive for passengers travelling to London as the journey time on Crossrail would be greater and they would have a far less frequent service to central London.²⁰²

HS2 Ltd. looked at providing a direct link to Heathrow via a number of 'spur' and 'loop' options, which were costed at between £2.5 billion and £6 billion (excluding risk).²⁰³ Ultimately, it opted for a 'loop' arrangement via an interchange station. A number of locations were considered including Willesden, Acton, Ealing Broadway, Southall, Hayes, Iver and Heathrow itself, including beneath a hypothetical new Terminal 6. It came down to a straight decision between [Old Oak Common](#) (north of Wormwood Scrubs, between North Acton and Kensal Green) and a 'hub' station at Heathrow. The main argument against a Heathrow station was time penalties:

A Heathrow station is less attractive for the more than 80% of HS2 passengers travelling to and from London, who would have a journey time penalty of some 4 minutes by virtue of the longer route via Heathrow. This would extend to 7 minutes for trains stopping at Heathrow. If served by a loop from the preferred main line route (which we have noted would overall be the best option) the penalty for the third of stopping trains becomes 9 minutes. Few, if any, London-bound passengers would interchange onto Crossrail at Heathrow, since it is too distant from London and the frequency would not be attractive; so an interchange at Heathrow would not help with dispersal of London passengers.²⁰⁴

HS2 Ltd. decided on Old Oak Common. The relative merits of the two proposals were as follows:²⁰⁵

²⁰² *ibid.*, paras 3.3.5-3.3.6

²⁰³ *ibid.*, para 3.3.18; HS2 Ltd. looked again at these options in a supplementary report for the Coalition Government and came to the same conclusions on cost and time penalties, see: *op cit.*, [High Speed Rail London to the West Midlands and Beyond Supplementary Report](#)

²⁰⁴ *ibid.*, 3.3.33

²⁰⁵ *ibid.*, p82

	Heathrow (loop) A third of trains stopping	Old Oak Common All trains stopping
Passengers to Euston	Two thirds have no time penalty. One third have a time penalty of 9 minutes.	All have a four minute time penalty.
London passengers changing at interchange onto Crossrail	Interchange not attractive.	Around 20% of passengers would change to get shorter journey times to parts of London
GWML passengers (interchanging to HS2)	Journey time up to 20 minutes quicker than via Old Oak Common, but lower HS2 frequency means an average interchange penalty of 24 minutes on the assumption of 1 train per hour to each of Birmingham and Manchester.	Journey time slower than via Heathrow, but higher HS2 frequency means an average 8 minutes interchange penalty.
Heathrow access	Better journey times, for those using the terminal served by HS2 (if T5 or T6) though with a time penalty for those using other terminals.	Up to 14 minutes longer journey time.
Parkway	Benefits for modal shift to rail for long distance journey; but possibly outweighed by local impacts.	No opportunities

As set out in section 3.1, above, after HS2 Ltd. made its initial report to the Labour Government in March 2010, the then Secretary of State, Lord Adonis, commissioned the former Conservative Transport Secretary, Lord Brian Mawhinney, to look further into the issue of HS2 access to Heathrow. After the General Election, Philip Hammond modified Lord Mawhinney's remit, to exclude development of a third runway at Heathrow from his considerations. Lord Mawhinney published his report on HSR access to Heathrow in July 2010.

Amongst other things, the report concurred with HS2 Ltd. that Old Oak Common provided a good interchange for Heathrow from HS2. He stated that there was no 'compelling case' for a direct high speed rail link to Heathrow, and that a London-Old Oak Common interchange could provide "an appropriate, good quality terminus and connection point to the airport". Therefore, changing the route of the main high speed line to run via Heathrow, at an additional cost of £2 billion to £4 billion, would connect Heathrow to HS2 at a point in time when "this connection is not likely to represent value for money to the taxpayer or the train operator. In any event, such a route is not supported by the evidence of benefits". However, the report did state that as the high speed network is extended beyond Birmingham, the case for a more direct high speed rail link to Heathrow becomes more persuasive and that in light of that fact, when the high speed line from London-Old Oak Common to Birmingham is built, appropriate junction engineering works should be included to make it possible for a high speed loop through Heathrow to be built at a later date.²⁰⁶

Lord Mawhinney, however, went further. He recommended that serious consideration should be given to making Old Oak Common the initial London terminal for the high speed line (rather than Euston). The reasons given for this were as follows:

²⁰⁶ DfT, *High Speed Rail Access to Heathrow: A Report to the Secretary of State for Transport by Rt Hon the Lord Mawhinney Kt*, July 2010, summary of recommendations, pp2-3

My recommendations, coupled with the views of Ross et al, suggest that it should be possible to reduce, perhaps considerably, the initial cost to the public purse of the high speed line – not least by questioning the immediate need for the expensive and time-consuming tasks of tunnelling between Old Oak Common and Euston and of rebuilding Euston station. This would be of great advantage in public expenditure terms. I am concerned that adhering to the proposal that Euston should be the terminus from the outset could make the cost prohibitive and therefore threaten the whole project [...] Passengers wishing to make a journey to Heathrow via the high speed line would be able to interchange at Old Oak Common for Crossrail and Heathrow Express trains.²⁰⁷

In December 2010 the then Transport Secretary, Philip Hammond, rejected these conclusions and instead announced that the government's preferred option remained a terminus at Euston and an interchange station at Old Oak Common. The link to Heathrow would be a spur, rather than a loop, to be constructed alongside phase 2 of the project (i.e. when HS2 is extended north of Birmingham).²⁰⁸

Intermediate stations

As part of its March 2010 paper to government, HS2 Ltd. looked at the potential for intermediate stations on the London-Birmingham route for HS2. While acknowledging that “an intermediate station on the line of route can extend the benefits of high speed rail by broadening the overall market it serves”, HS2 found that in general, other high speed lines had shied away from intermediate stations due to their negative impacts on journey times and capacity.²⁰⁹ HS2 Ltd. looked at demand in a number of locations on the London-Birmingham route, concluding that there was highest scope for an intermediate station at either: Aylesbury, Milton Keynes or Bicester (serving Oxford). It found that a station in any of these locations “could generate significant benefits to users of the station”, but that “even with wider economic benefits, including any from regeneration, an intermediate station would be detrimental to the HS2 business case unless a loss of other services on the line could be avoided. This would not be achievable”. HS2 Ltd. recommended that on this basis, an intermediate station not be included in the HS2 scheme.²¹⁰

4.4 Exceptional hardship scheme

One of the key concerns for those living alongside or near to the proposed HS2 route is that of blight and compensation. There is existing law surrounding statutory blight as part of the planning process, leading to compulsory purchase; and statutory compensation is also available for those who suffer loss of value on their property due to the construction of the new line. However, with any large infrastructure scheme such as this there is a broader question about what is called ‘generalised blight’, this is a term used to describe “the impact on the property market in a certain area as a result of the perceived impacts of a proposed or planned new development”.²¹¹ The government set out the various options it is considering in this regard in Annex A of the February 2011 consultation on HS2.

The only discretionary scheme that is currently in operation is the Exceptional Hardship Scheme (EHS). The Labour Government launched a consultation on the EHS in March 2010;

²⁰⁷ *ibid.*, paras 30-31

²⁰⁸ [HC Deb 20 December 2010, cc1201-03WS](#)

²⁰⁹ *op cit.*, [High Speed Rail London to the West Midlands and Beyond: A Report to Government by High Speed Two Limited](#), paras 3.4.2-3.4.3

²¹⁰ *ibid.*, paras 3.4.15-3.4.17

²¹¹ *op cit.*, [High Speed Rail: Investing in Britain's Future – Consultation](#), p116

this period was extended by the Coalition Government in May 2010 until mid-June.²¹² On 26 July the then Secretary of State announced that the EHS would begin on 20 August 2010.²¹³ This is intended as a temporary measure until longer-term arrangements can be put in place. Its main features are as follows:

The EHS is available to eligible property owners who can demonstrate that they have an urgent need to sell but have been unable to do so, other than at a substantially reduced price, as a direct result of the announcement of the high speed rail proposals. Those property owners who apply to the EHS and meet the eligibility criteria can then have their property purchased by the Government at its unaffected realistic open market value (that is, what the value of the property would have been without any adverse effect arising from the high speed rail proposals).

The Exceptional Hardship Scheme was designed as a temporary measure to suit the particular set of circumstances following announcement of the route recommendation, but prior to final decisions on any route being made.

Whichever option for a new scheme is chosen, it is anticipated that the current EHS would close to new applications at the same time as any replacement scheme opened (expected to be around summer 2012).

This would also align with the anticipated timing for the issuing of any safeguarding directions, which would make available the statutory blight provisions to property owners within the safeguarded zone.²¹⁴

Details of scheme eligibility and how to apply are given on the [HS2 website](#). In June 2011 the first tranche of homes were purchased at a cost of almost £20 million – this was for 34 properties at an average of £586,000 each.²¹⁵

4.5 Beyond Birmingham

The intention of successive governments has been for the line between London and Birmingham to be merely phase 1 of a wider HSR network. In its March 2010 report to government, HS2 Ltd. looked at extending HS2 to other English conurbations such as Greater Manchester, West Yorkshire, South Yorkshire, the North East, the East Midlands and to Scotland. To that end, HS2 Ltd. developed three network options:

- An ‘inverse A’ configuration going north from Birmingham along the west coast to Edinburgh and Glasgow, via Manchester and along the east coast to Newcastle via Leeds, with an east-west link between Manchester and Leeds;
- A ‘reverse S’ configuration going north from Birmingham to Manchester, crossing the Pennines to Leeds then progressing to Edinburgh and Glasgow via Newcastle; and
- A ‘reverse E’ configuration going north from Birmingham along the east coast to Leeds, Newcastle, Edinburgh and Glasgow, with a ‘loop’ across the Pennines from a South Yorkshire interchange to Manchester (and Liverpool) and back to Leeds.²¹⁶

²¹² [HC Deb 11 March 2010, c449](#), and: [HC Deb 27 May 2010, c16WS](#); all the relevant consultation documents can be found at: DfT, [High Speed Two - Exceptional Hardship Scheme Consultation](#), 11 March 2010; an [alternative scheme](#) was proposed by a group of local residents in the constituency of Conservative MP David Lidington, this is available to view on his website, published 19 April 2010

²¹³ [HC Deb 26 July 2010, cc73-75WS](#)

²¹⁴ op cit., [High Speed Rail: Investing in Britain's Future – Consultation](#), pp120-21

²¹⁵ “A £20m payout for 34 owners before railway has clear signal”, [The Times](#), 17 June 2011

These three configurations were envisaged as follows:

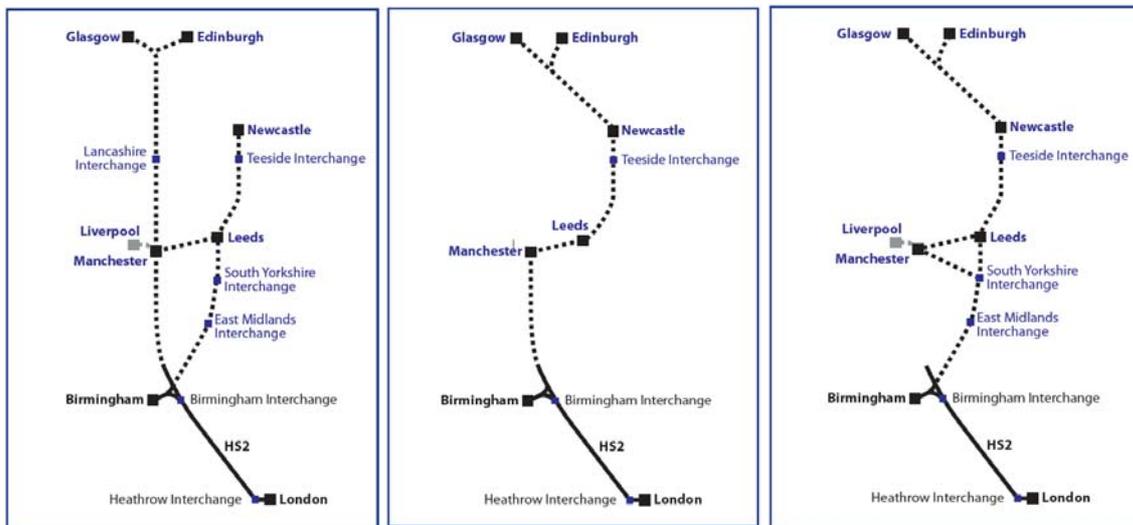


Figure 6.1c Possible configuration – Inverse A

Figure 6.1d Possible configuration – Reverse S

Figure 6.1e Possible configuration – Reverse E

After examining these three options, HS2 Ltd. concluded as follows:

There is a good case for going on to develop high speed lines beyond the West Midlands.

The Inverse A network performs best; it provides the highest levels of demand and benefits, because of its wide coverage, and the fact that it delivers better journey times.

The Reverse E does not serve the North West well, delivering journey times no better than those which would be delivered by HS2.

Journey times north beyond Manchester with the Reverse S are significantly slower than with the Inverse A or Reverse E.

We therefore recommend that the longer term network has branches from the West Midlands to both sides of the Pennines.

In the first case these branches should be developed from the HS2 trunk. This would not preclude provision of a second leg into London at a later date if further demand justifies what would be a substantial additional cost.²¹⁷

On 4 October 2010 the then Secretary of State for Transport, Philip Hammond, announced that the government's preferred route for HS2 north of Birmingham would be a 'Y' formation with separate legs from the West Midlands to each of Manchester and Leeds.²¹⁸ Essentially, it is the 'inverse A' option described above, but truncated at Manchester and Leeds, and with no trans-Pennine link:²¹⁹

²¹⁶ op cit., *High Speed Rail London to the West Midlands and Beyond: A Report to Government by High Speed Two Limited*, pp220-22

²¹⁷ *ibid.*, para 6.1.17

²¹⁸ DfT press notice, "[Proposed high speed rail network North of Birmingham confirmed](#)", 4 October 2010; a further report by HS2 Ltd. on the 'Reverse S' versus the 'Y' network was published at the same time, see: HS2 Ltd. for the DfT, *High level Assessment of the wider network options*, October 2010

²¹⁹ op cit., *High Speed Rail: Investing in Britain's Future – Consultation*, p8



5 The economic case

5.1 The business case presented by the government and HS2 Ltd.

The government's case for HS2 is contained in the economic proposal it published in February 2011, alongside the consultation document and the supplement to that document, published in April.²²⁰ The business case is based on the costs of HS2 compared with the reference case – not the pure cost of HS2. The government and HS2 Ltd. have supplied supplementary economic analysis to the Transport Select Committee during the course of its inquiry into high speed rail.

5.2 What does the government claim?

The government's economic case is summarised in the Benefit Cost Ratio (BCR) for HS2 (London – West Midlands) and the Y network. The BCR shows the extent to which benefits of the scheme are greater than net costs to the government. HS2 has a BCR without wider economic impacts (WEIs) of 1.6: for every net²²¹ £1 spent by the government, it estimates that £1.60 of benefits will be generated.²²² The BCR for the Y Network is 2.2 (see figure 5 overleaf). If WEIs are included, the BCR for both phases increase (WEIs are discussed on p59).

Cost-benefit analysis (CBA) is used to calculate BCRs. In this analysis a monetary value is assigned to each benefit and cost attributable to the project, over the lifetime of the scheme. These are then discounted over time to give a present value. The sum of the present value of benefits and costs have been compared to produce a BCR

Section 5.3 considers arguments about the use of CBA in assessing the case for HS2. In addition to these arguments it is important to bear in mind that this approach does not take into account the costs and benefits that could be achieved through investing in other forms of infrastructure; it does not consider the 'opportunity cost' of the investment. This is one of the

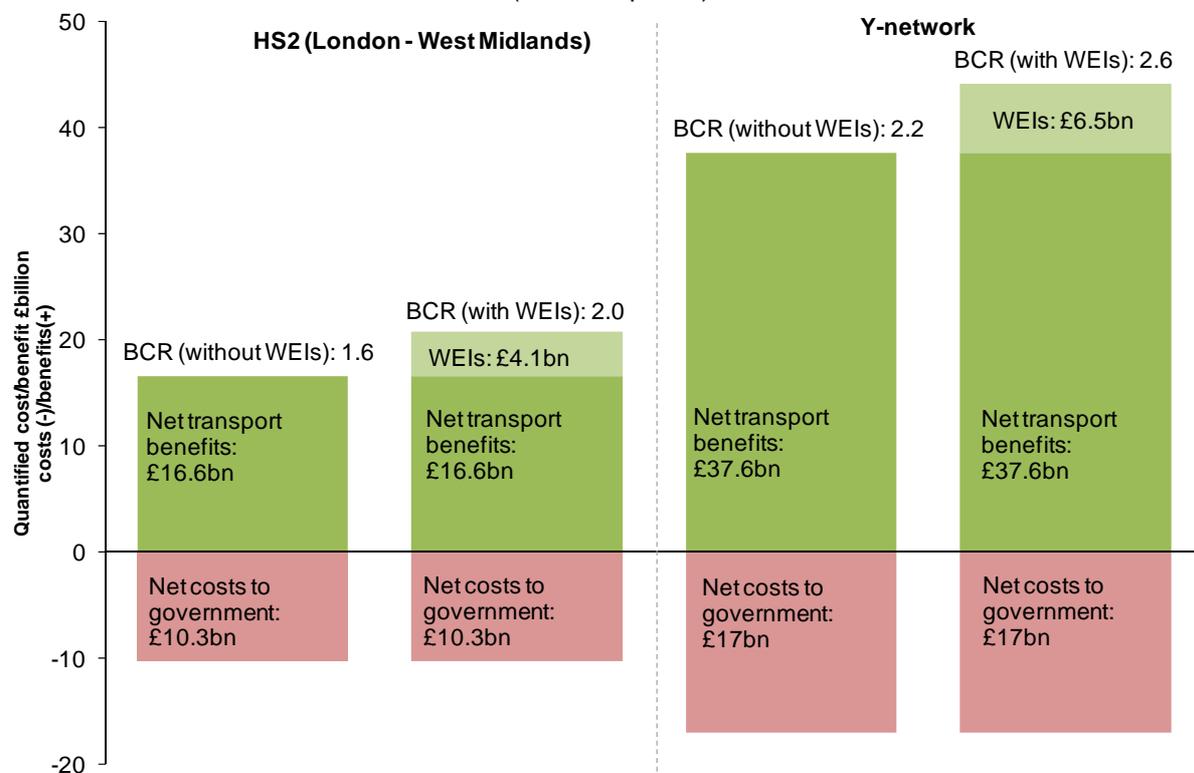
²²⁰ DfT, *Economic Case for HS2: The Y Network and London – West Midlands*, February 2011; and: *A Summary of Changes to the HS2 Economic Case*, April 2011

²²¹ the BCR is the ratio of net costs to government and net transport benefits; the net cost to government is equal to the total costs to government minus revenues

²²² op cit., *Economic Case for HS2. The Y Network and London – West Midlands*, p43

concerns expressed by opponents of the scheme, particularly those who have developed alternative proposals (see section 6.6, below).

Figure 5. Quantified Benefits and Costs of the HS2 (London-West Midlands) and the Y network and the resulting BCR²²³ (2009 PV/prices)



Benefits

As discussed above benefits are assigned a monetary value; items that are not often thought of in financial terms are assigned a monetary value based on individual's willingness to pay for the benefit:

People's willingness to pay is assessed by observing the choices individuals make in real life and hypothetical situations. These choices involve a 'trade-off' where the individual makes some form of sacrifice (such as paying a higher fare) to get some form of benefit (such as a faster journey).²²⁴

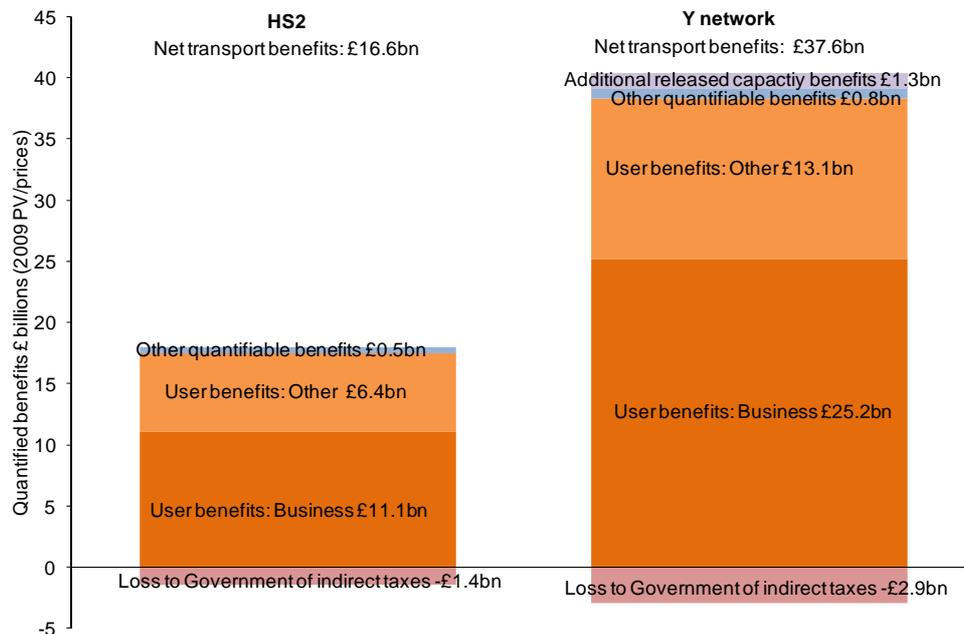
The net transport benefits of phase 1 of HS2 are estimated to be in the region of £16.6 billion, excluding WEIs, with the majority of benefits going to users and in particular business users (see figure 6, overleaf). Estimated net transport benefits of the Y network, excluding WEIs, are £37.6 billion.

The value that users place on saving time is central to the calculation of benefits. DfT methodology assumes that business users place a significantly higher value on time savings than other users, and therefore it follows that such users receive the greatest benefits. This is based on the assumption that all time spent on a train is unproductive: an assumption that has been challenged and is discussed further on pp72-74, below.

²²³ op cit., *Economic Case for HS2: The Y Network and London – West Midlands*, Table 2 and Table 10

²²⁴ op cit., *Valuing the Benefits of HS2 (London – West Midlands)*, para 3.1; impacts have been valued using the DfT transports appraisal guidance [WebTAG](#)

Figure 6. Quantified Benefits (£ billions) of HS2 (London-West Midlands) and the Y network ²²⁵
(2009 PV/prices)



Wider Economic Impacts

As well as bringing benefits to transport users, the government believes that high speed rail will bring benefits to the wider economy. Such benefits are to be achieved through: improved linkages between businesses (agglomeration impacts);²²⁶ benefits to consumers of higher output (imperfect competition);²²⁷ and to a much lesser extent, benefits to commuters (labour market impacts).²²⁸ Most of the HS2 WEIs come from an enlarged labour market and greater commuting capacity.

The government has calculated that HS2 will bring WEIs of £4.1 billion with a further £2.4 billion estimated to come once the Y-network is established. WEIs for HS2 are broken down as follows:²²⁹ agglomeration impacts (£3 billion); imperfect competition (£1 billion); and, labour market impacts (£20 million).²³⁰ The level to which HS2 will bring WEIs has been widely debated (see section 5.4).

WEIs increase the net benefits of phase 1 to £20.7 billion and £44.1 billion for the Y Network. Including WEIs increases BCRs for phase 1 and the Y network to 2.0 and 2.6 respectively.²³¹

²²⁵ op cit., *Economic Case for HS2: The Y Network and London – West Midlands*, Table 2 and Table 10

²²⁶ the government believe that HS2 will bring agglomeration impacts by shortening the journey time between cities, effectively bringing firms and markets closer together. This should enable firms to derive benefits from being closer together such as: enhanced knowledge sharing; staff specialisation; and enhanced competition between suppliers. The benefits to such firms support the wider economy of the area.

²²⁷ where firms are located in markets of imperfect competition they retain some control over the price they charge. In such markets the value placed on additional production (the price) exceeds production costs. If better transport means that firms increase production, both the firm and consumer will be better off.

²²⁸ transport improvements can lower the cost and time associated with travelling to work. This can increase a person's willingness to work in a similar way to an increase in wage might. In addition to this some benefit is captured in the moving of jobs to more productive areas.

²²⁹ A wider discussion of these are provided in HS2 Ltd. *Valuing the Benefits of HS2 (London – West Midlands)* (April 2011), p14.

²³⁰ The methodology for estimating these impacts is based on draft guidance from *WebTAG Unit 2.8, Wider Impacts and Regeneration, September 2009*.

²³¹ op cit., *Economic Case for HS2: The Y Network and London – West Midlands*, Table 2 and Table 10

Costs and revenues

As mentioned previously, the total infrastructure capital cost of the Y network has been estimated at around £32 billion at Q3 2009 prices, including risk allowances and optimism bias. In making the economic case for HS2, the government has generally provided costs across the lifetime of the project, in 2009 present values (PV).

High level costs for HS2 in present value terms are set out in Table 4. The central estimate of total costs for the Y network is £44.3 billion, within a range of £47.4 billion - £41.3 billion. Capital costs make up nearly three-quarters of the total cost of phase 1 and just under seven-tenths of the total cost of the Y network.

Operating costs for the Y network have been estimated at £1.1 billion per year, of which £0.4 billion is accounted for by phase 1.²³² HS2 is expected to produce a net revenue surplus, so it would cover its operating costs but not the interest on the capital.

Table 4. Quantified costs and revenues (£ billions) of HS2 (London – West Midlands) and the Y network (2009 PV/prices)

	HS2	Y network
Total costs <i>of which:</i>	24.0	44.3
Capital costs	17.8	30.4
Operating costs	6.2	17.0
Estimate of additional classic line cost savings facilitated by the Y network	0	-3.1
Revenues	13.7	27.3
Net costs to Government	10.3	17.0

Source:

DfT, *Economic Case for HS2: The Y Network and London – West Midlands*, February 2011

Sensitivity analysis

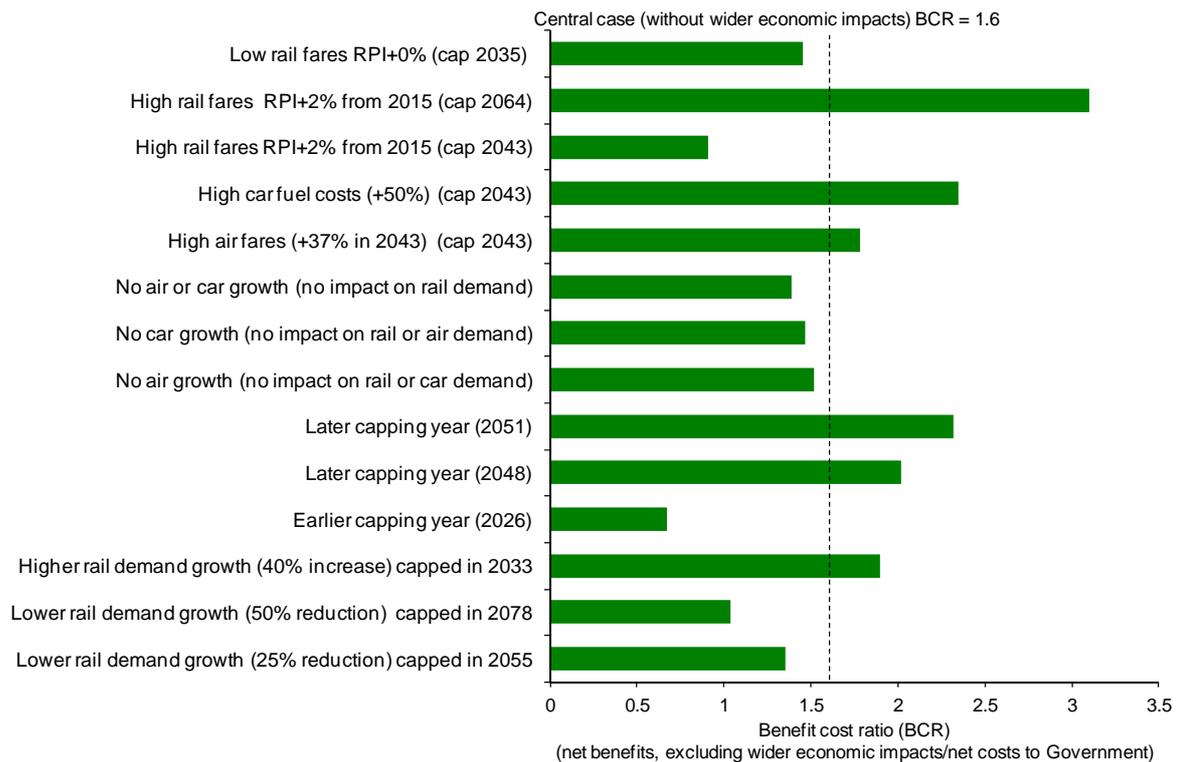
The government has tested how sensitive BCRs are to the assumptions made in their models and different levels of forecasted demand. These sensitivity tests change assumptions made in the model and report how these changes affect the BCR. Figure 7 overleaf summarises some of these.²³³

Points of note are:

- Some changed assumptions lead to BCRs of less than 1: in such cases estimated costs are greater than estimated benefits;
- BCRs are sensitive to growth of rail demand: for instance higher rail demand due to higher car and air costs lead to BCRs 2.4 and 1.8 respectively; and
- Other things being equal, the year in which demand is capped has a significant effect on BCRs. For instance if higher rail fares are assumed from 2015, the BCR falls to 0.9 if demand continues to capped in 2043, but increases to 3.1 if demand is allowed to grow until 2064.

²³² op cit. *Economic Case for HS2: The Y Network and London – West Midlands*, p. 12

²³³ further testing of assumptions are included section 7 of the *Economic Case for HS2: The Y Network and London – West Midlands*

Figure 7. HS2 sensitivity tests: Estimated BCRs under different assumptions.²³⁴

Views on the economic case

The broad case for HSR lines from London to the north is supported by other reports. For example, in March 2008 Atkins produced a report on high speed rail stating that a new high speed rail network could deliver over £60 billion worth of benefits to the UK. High speed routes on the east and west coasts could cost £31 billion to build, but deliver more than twice that in economic benefit in the first 60 years.²³⁵ In June 2008 Network Rail (NR) announced its intention to commission a feasibility study as to new rail lines, including a high speed line, from independent consultants Steer Davies Gleave.²³⁶ This was billed as a 'strategic review', looking at the feasibility of creating high speed routes on five existing sections of the railway. NR published the report in August 2009, which concluded that a line from London to Glasgow and Edinburgh, via Birmingham and Manchester, could deliver net revenue of £23.4 billion and £31.4 billion worth of benefits (over 60 years).²³⁷

In September 2009 Greengauge 21, a not-for-profit organisation dedicated to campaigning for a high speed line, published its high speed rail strategy for Britain. It recommended a comprehensive network of routes linking all Britain's major cities. The cost of the full network was estimated to be £69 billion and would be developed through a phased construction programme. Jim Steer summarised the business case as: "for every £1 spent on the high-speed rail network in Britain, our economy gets £3.50 back".²³⁸ In November 2009 the British

²³⁴ MVA Consulting/Mott MacDonald, *HS2 London – West Midlands Consultation: Demand and Appraisal Report*, July 2011

²³⁵ Atkins press notice, "A high speed route to regeneration?", 10 March 2008; the report, *Because transport matters: high speed rail*, is available on the website

²³⁶ NR press notice, "Meeting the capacity challenge: Network Rail looks at the case for new rail lines", 23 June 2008

²³⁷ Steer Davies Gleave for NR, *Meeting the capacity challenge: The case for new lines – summary report*, August 2009, p4; the full report and supporting documents are available on the NR website

²³⁸ Greengauge 21, "A high speed rail strategy for Britain", 16 September 2009; the full report is available on the organisation's website

Chambers of Commerce (BCC) published a report setting out the business case for high speed rail. The report, which was supported by NR and Greengauge 21, argued that the business and environmental case for an HSR network had clearly been made – offering revenues and benefits to the economy worth almost £55 billion.²³⁹

Other reports have cast doubts on the overall business case. For example, in October 2009 the RAC Foundation published a report which raised some questions about the projected BCR for an HS2 scheme.²⁴⁰ In June 2010 the HS2 Action Alliance published a report questioning some of the key assumptions of the HS2 business case. The key conclusions were that projected increases in rail demand are not realistic, based on the recent historical record; HS2 will not deliver the environmental or wider economic benefits that many claim; additional capacity could be gained more cost-effectively from other schemes such as new rolling stock; and high speed rail is possible without the ‘super fast’ speeds proposed in HS2 and the attendant requirement to build a new line.²⁴¹

In September 2010 the Wendover Action Against HS2 group produced a report criticising the business case for HS2. It stated that, amongst other things, HS2 Ltd. had underestimated construction and renewal costs; substantially overestimated passenger demand forecasts; and inflated non-cash indirect benefits.²⁴² The TaxPayers’ Alliance (TPA) has published a number of reports. Its report in February 2011 stated that the overall financial and economic case for HS2 is unproven. In particular, the line between London and Birmingham will cost over £500 million per minute saved; the evidence for ‘agglomeration benefits’ is weak; HS2 will never produce a financial return; and forecasts for growth in demand for HS2 are overstated and do not take existing evidence or past experience into account.²⁴³

Sections 5.3 and 5.4, below, set out those arguments that have been made by supporters and opponents of the scheme as to the benefits or otherwise of the HS2 scheme, as proposed, including wider economic impacts (WEIs); and to the robustness of the economic case itself.

5.3 Do the figures matter?

Much of the arguments about High Speed 2 have been focused on the merits or otherwise of the business case, and in particular how the project has been appraised. There is a view that when planning ‘mega projects’ such as this, there are intrinsic uncertainties about long-term projections. The question is to what extent one takes account of these uncertainties and the amount that one relies on ‘the numbers’ when making a case. Clearly any scheme to be funded by taxpayers has to show that it delivers value for money, but the methodology for coming to that assessment has been subject of some debate. The economic benefits of the scheme are measured by a system designed to rank projects and satisfy the Treasury, rather than to assess the impact of the project on the real economy. Proponents of HS2 claim significant GVA (gross value added) benefits and job creation, but the government appraisal method does not accept this.

Cost-Benefit Analysis: fit for purpose?

The methodology of transport appraisal, always complex, was changed by the Coalition Government after taking office. HS2 is the first test of the new approach to appraisal. The June 2011 report by Oxera for the Transport Select Committee sets out the recent reforms to appraisal and how it applies here:

²³⁹ BCC press notice, “[BCC warns parties: Action not talk is needed on high-speed rail](#)”, 16 November 2009; the full report is available on the [BCC website](#)

²⁴⁰ RAC Foundation, *The Case for High Speed Rail: A review of recent evidence*, 30 October 2009

²⁴¹ HS2 Action Alliance, *A case for alternatives to HS2*, June 2010 [revised July 2010]

²⁴² Wendover HS2, *Financial analysis of HS2*, September 2010

²⁴³ TPA, *High Speed Rail* (Research Note 82), 4 February 2011

The DfT's approach to appraisal and prioritisation of transport schemes was reformed in April 2011. Following the reform the guidance recommends that the assessment of a transport scheme comprises several distinct elements—the Strategic Case, Economic Case, Commercial Case, Financial Case, Management Case. These different components of the overall business case all play a role in informing the ultimate decision. This means that the pure BCR [benefit cost ratio] of monetised benefits and costs is only one of the factors that decision-makers must consider. The Consultation document has been clear that the BCR of the High Speed Rail programme is only one component of the Government's case for high-speed rail.

The approach to appraisal is still supported by the DfT's WebTAG, which gives guidance on the technicalities of conducting appraisal. A few changes were made to this guidance following the reform, including to the treatment of indirect tax and the value of greenhouse gases.

One part of appraisal is the Appraisal Summary Table which should include all qualitative, quantitative and monetised impacts. The monetised costs and benefits should be included in the BCR—as calculated in the Economic Case. In the published documentation for high speed rail the various components of the appraisal are described separately, for instance the Economic Case and the AoS [Appraisal of Sustainability]. Each of these contains aspects of the Appraisal Summary Table. For instance, the Economic Case contains the monetised construction costs, the AoS contains an assessment of biodiversity and both contain assessments of noise (Economic Case as a monetised assessment, AoS as a qualitative assessment). The approach taken by HS2 Ltd. is in line with the current guidance, although notably there are some factors that could be monetised (such as number of jobs created or building developments), but which are not.²⁴⁴

The way that CBA, or transport appraisal methods, have been applied by the government in the case for HS2 has come in for some criticism.²⁴⁵ One of the inescapable factors surrounding appraisal is its complexity, particularly to the lay person. Transport commentator and author Christian Wolmar summed it up as follows:

There is quite a strong basis for saying it is really mumbo-jumbo. If you alter factors early on in the equation, by year 10 or something you can be 25% to 50% different from the result that you have given. When they give these precise figures for benefits and say there is a 2.6 benefit-cost ratio, it really is nothing more than studied guesswork. Cost-benefit analysis methodology was initially developed to compare projects with one another, not to develop absolute values for them. The other point about it is that the benefits accrue to private individuals, whereas the costs accrue to the taxpayer. That is also why I am deeply sceptical of it.²⁴⁶

Professor Chris Nash of the University of Leeds defended the overall method but questioned its efficacy when looking to the long term:

... the methodology used in this study is based on decades of research. The demand forecasts are based on modelled relationships. There is a clear scientific basis for it. None of that changes the fact that there are big uncertainties when you are looking 10

²⁴⁴ Oxera for the Transport Committee, *Review of the Government's case for a High Speed Rail programme*, June 2011, paras A2.1-A2.3; [WebTAG](#) is available to view in full on the DfT website [accessed 20 September 2011]; see also the reformed system of appraisal: DfT, *Transport Business Case*, 27 April 2011

²⁴⁵ for a more general overview of CBA criticism, see: UCL Bartlett School of Planning, *Incorporating principles of sustainable development within the design and delivery of major projects: final report*, November 2010

²⁴⁶ Christian Wolmar, op cit., *High Speed Rail*, Q13

or 20 years ahead. Relationships which held in the past may break down. Events may take a course totally different from what you put in your variables in the forecasts.²⁴⁷

On the specific question of how this applies to HS2 he took the view that, on balance, the project “on the central forecast ... looks a very good project. At worst, it is probably still a reasonable one”.²⁴⁸

There was a second view that because of the inherent issues associated with traditional cost-benefit analysis, rail schemes – including HS2 – are not as cost effective as road schemes. Professor David Begg, Director of the Yes to High Speed Rail Campaign made this point:

The big challenge here is that, if you stick rigidly to cost-benefit analysis, which looks at welfare economics and puts all of the weight on journey time savings, then that does discriminate against railway schemes per se [...] If you go back historically and look at any big railway scheme, whether it is Crossrail or really successful schemes like the Jubilee Line, they have all had very flimsy cost-benefit analysis cases. That is because we focused on time savings. That focus on time savings means, invariably, you will find that, if you look at the large number of motorists who will benefit from improvement to a road, using that traditional welfare approach to economics, road schemes, traditionally, always come out much better than rail schemes. That might help to explain, if you look back over 50 to 60 years, why road always benefited much more than railways did.²⁴⁹

One of the main bones of contention about the appraisal of the project has been the value given to different ‘benefits’, with various people arguing either that the weighting for some benefits is incorrect, that some benefits are included that shouldn’t be or that others are wrongly excluded. Among those areas highlighted are:

- oil price variations;
- future developments in the use of communications technology/the ‘value of time’;
- robustness against uncertainties and changes in the future (e.g. “economic meltdown, massive expansion in road capacity and a price of motoring significantly lower than today”);
- using large multiplications of very small time savings;
- job creation; and
- tax generation.²⁵⁰

Jim Steer, Director of Greengauge 21, perhaps got to the nub of the issue about these disagreements when he made the point that the CBA and the business case more generally is not primarily designed to make a case to the public but to the Treasury, which is why it has been criticised for various omissions, exaggerations and deficiencies:

²⁴⁷ Prof. Chris Nash, University of Leeds, op cit., *High Speed Rail*, Q14; based on: *Enhancing the Cost Benefit Analysis of high speed rail*, a paper given at the symposium on the environmental and other co-benefits of developing a high speed rail network in Berkeley California, December 2010

²⁴⁸ *ibid.*

²⁴⁹ David Begg, Yes to High Speed Rail Campaign, op cit., *High Speed Rail*, Qq99 & 105

²⁵⁰ see, e.g. Christian Wolmar; Stephen Joseph, Campaign for Better Transport; Michael Roberts, ATOC; Richard Eccles, Network Rail, op cit., *High Speed Rail*, Qq4, 7, 14, 33 & 70

When you see the business case that we are looking at which opponents criticise and so on, saying it is not strong enough, it is a business case that the Department and Ministers are directing towards the Treasury. They set the rules for how these are done and it is a public exposure of a spending Department versus Treasury debate. Just to remind ourselves, even though it has all those cautious elements ... it is a good business case and, as far as we can see, it is based on suitably cautious assumptions. I do not think it should be criticised for doing that; it has to do that. The Government has to back this, where it matters, with funding.²⁵¹

Robustness of forecasting/uncertainty

Many of those engaged in the debate over HS2 have raised the issue of uncertainty and the extent to which the business case for the line rests on future projections about demand and capacity that are fundamentally unknowable: "All transport modelling appears to be a bit of a black art when it boils down to it and there are a tremendous number of assumptions built in."²⁵² This is especially critical for rail because of the lifetime of the assets involved, as the UK's rail infrastructure manager Network Rail put it: "A signalling system will last 45 years, and many of our tunnels and bridges have lasted since Brunel built them. You have to take a long term plan to deal with the railway and deliver rail services efficiently at an optimum whole-life cost".²⁵³

Some have raised the issue of the inability of government to forecast accurately for big infrastructure investment projects. Several examples have been batted back and forth throughout the debate, including HS1 (the Channel Tunnel Rail Link) in the UK and other high speed rail projects abroad.²⁵⁴ Oxera summed up the lessons from other projects as follows:

Overall, a number of lessons can be drawn from ex post assessments of other high-speed rail and rail schemes. Planning and taking account of the environmental, economic, and social factors seem to be integral to the success of the scheme. Furthermore, a consideration of the main uncertainties or risks surrounding the costs and revenues can lead to more robust estimates. At the same time, in almost all schemes considered, unforeseen circumstances have arisen and contributed to higher costs or lower revenues than expected, although some schemes have still delivered good VfM. The optimism bias adjustments applied to the appraisal of the High Speed Rail programme are designed to mitigate some of these risks at this stage of the process.²⁵⁵

Jerry Marshall, Chairman of Action Groups Against High Speed Two (AGAHST), claimed that "one of the consistent factors about rail project forecasts is that nine out of 10 rail projects overestimate the number of passengers. They forecast too high by an average of 106 per cent".²⁵⁶

Former Secretary of State for Transport, Philip Hammond has acknowledged that "of course it is a forecast and all forecasting depends on assumptions", but that the assumptions used are conservative, 'standard industry assumptions'. His concern is that "we may be, if

²⁵¹ Jim Steer, Greengauge 21, op cit., *High Speed Rail*, Q112

²⁵² Anthony Smith, Passenger Focus, op cit., *High Speed Rail*, Q30

²⁵³ Richard Eccles, Network Rail, op cit., *High Speed Rail*, Q29

²⁵⁴ see, e.g. Stephen Joseph, Campaign for Better Transport, and Pierre Messulam, SNCF, op cit., *High Speed Rail*, Qq14&78

²⁵⁵ op cit., *Review of the Government's case for a High Speed Rail programme*, para 4.4

²⁵⁶ Jerry Marshall, AGAHST, op cit., *High Speed Rail*, Q226

anything, underestimating the passenger demand for long distance rail in the future. It is very unlikely that we are overestimating at 2% per annum".²⁵⁷

5.4 Debates on the economic case

One claim from some opponents of the scheme is that there is essentially no real case for HSR in the UK and that there never has been. In the 1970s BR concluded that there was not a financial case for constructing new HSR lines, as was currently being done in France, Germany and Japan. Nock explains:

British Railways carried out a study to determine whether a similar investment [to that being made abroad in brand new HSR lines] would be justified to connect London with any other of the major industrial centres. In a country such as ours, which is compact, highly developed and densely populated, it was concluded that no case could be made, within the strict financial criteria applied to any new investment, for the construction of such a line or new lines.²⁵⁸

On the other hand, those who believe that HS2 will benefit the economy as a whole have argued that the scheme "is needed to support a growing and more diverse economy ... and to do so in a way that is a more environmentally sustainable approach than any other that has been looked at".²⁵⁹ There are other 'softer' impacts to consider as well, highlighted by the now defunct Sustainable Development Commission in a March 2011 report: "Ultimately, the fairness impacts of a high speed rail network will depend on the detail of implementation plans, how it is integrated into the existing transport network and what complementary transport policies are included".²⁶⁰

Supporters have pointed to the economic benefits of HS1 and argue that HS2 could deliver on a similar order of magnitude. David Frost of the British Chambers of Commerce (BCC) stated that: "the initial view was that the creation of HS1 would unlock about £500 million worth of investment. When the survey work was done in 2008, the figure they came up with was £20 billion - 40 times greater than that".²⁶¹ The report on HS1 by Colin Buchanan actually shows that HS1 had a BCR of 0.96, which increased to 1.76 when wider economic benefits were included. These wider benefits were, however, dependent on Waterloo International being remodelled to be put into use for domestic services (which has not yet happened). It estimated that HS1 will bring £10bn of regeneration benefits as a present value over 60 years.²⁶²

Regional impacts

Generally

One of the most passionately debated areas of disagreement about the economic impacts of HS2 is whether it will have a positive or negative effect (or any effect at all) on regional economies. Phases 1 and 2 of HS2 will link four significant regional economies: London, the West Midlands, the North West around Manchester and the North East around Leeds. Former Transport Secretary Philip Hammond put the government's case as follows:

HS2 would enable the cities of the Midlands and the North to benefit more directly from the economic strength of London, the South East and the world beyond. It would allow businesses to exploit new markets, access new customers and attract investment. It

²⁵⁷ op cit., *High Speed Rail*, Q522

²⁵⁸ op cit., *150 Years of Mainline Railways*, p172

²⁵⁹ Jim Steer, Greengauge 21, in: op cit., *High Speed Rail*, Q96

²⁶⁰ SDC, *Fairness in a Car-dependent Society*, 21 March 2011, Appendix 4

²⁶¹ op cit., *High Speed Rail*, Q100

²⁶² Colin Buchanan/Volterra, *Economic Impact of High Speed 1, Final Report*, January 2009, pp24-25

would opportunities for millions of people with improved access to jobs and services. By plugging our regions more strongly into the national economy – and therefore the global marketplace – HS2 would close the widening north–south divide in economic growth rates.²⁶³

As indicated above, the government has made bold claims for the potential benefits of HS2 to regional economies, but particularly those in the north. These WEIs have proved controversial. Even supporters of the scheme have raised words of caution about WEIs, arguing that ultimately these benefits will have to be delivered by the private sector, “to get the benefits you also need a response from business. Obviously, it is not within the gift of those developing the transport project to provide that”.²⁶⁴ HS2 is a catalyst, rather than a ‘magic bullet’. Albalade has stated that these benefits generally do not materialise:

HSR projects seem to make most sense when they seek to solve capacity restrictions, lightening congestion in certain corridors, and when facilitating industrial connections by enhancing accessibility for freight transportation. The linking up with other corridors to promote regional equity or to foster regional development only seems to result in the economic failure of the project [...]

In fact, for regions and cities whose economic conditions compare unfavourably with those of their neighbours. A connection to the HST lines may even result in economic activities being drained away and an overall negative impact ... Medium size cities may well be the ones to suffer most from the economic attraction of the more dynamic, bigger cities ... growth is sometimes at the expense of other centres of concentration. Several reports describe the centralization of activities in big nodes, especially in the services sector. Finally, the reports reviewed also show that HSTs had only marginal impacts on population and housing growth.²⁶⁵

In their 2010 paper on the wider assessment of WEIs for HS2 Daniel Graham and Patricia Melo of Imperial College, London concluded that “while urban economic theory does not preclude the existence of agglomeration benefits across inter-regional distances, the empirical evidence suggests that these may be very small indeed”.²⁶⁶ In his 2001 paper on European regional policies, Diego Puga of the University of Toronto made a number of observations about the regional impacts of HSR. His main conclusions were:

- HSR lines are generally not suitable for the transport of goods, and are thus unlikely to have much effect on the location of industry.
- HSR may have larger effects on the location of business services and headquarters, causing concentration in a few large urban centres. This would raise costs in those centres and drive away production establishments, specially to smaller cities and towns. As a result, there might be a shift in the main dimension along which cities specialise, from a specialisation by sector to a specialisation by function.
- Only cities that are nodes of the HSR network gain accessibility, while the areas in between nodes and those not on the network or at its edges do not.

²⁶³ “A fast-track solution to bridging the North–South divide”, *The Daily Telegraph*, 19 July 2011

²⁶⁴ Jim Steer, Greengauge 21, in: op cit., *High Speed Rail*, Q100

²⁶⁵ Albalade & Bel for GiM-IREA, University of Barcelona, *High-speed rail: lessons for policy-makers from abroad* (working paper 2010/3), 2010, pp20-21 & 24-25

²⁶⁶ Graham & Melo, Imperial College, *Advice on the Assessment of Wider Economic Impacts: a report for HS2*, February 2010, p37

- Transport technologies that exhibit increasing returns to scale, as is the case with HSR, are unlikely to promote new centres of production even on nodes of the network.²⁶⁷

Prof. Chris Nash echoed these findings when he questioned whether HS2 would be “just moving development from one location to another as opposed to generating wholly new activity. Clearly, moving development from one location to another can be helpful if it helps depressed regions. But, again, I am not convinced that is a strong argument”.²⁶⁸ Geoffrey Piper of the North West Business Leadership Forum explained that, “for example, if high speed rail went as far as Manchester and Leeds and never beyond, one can imagine Newcastle missing out and losing out”.²⁶⁹

Others have suggested that there are better ways of regenerating northern economies than building HS2. For example, in a March 2011 article, Simon Heffer wrote:

If the Government wants to do something cheap, effective and considerably more immediate to help the North ... It can create enterprise zones in south Lancashire and the West Riding, around Liverpool, Manchester, Leeds and Bradford, around Newcastle and even in depressed parts of Birmingham, to encourage businesses to set up there and to employ people. It can adjust the corporation tax, VAT, National Insurance and business rate regimes to make it more desirable to set up in those parts and create jobs there. The cost of this would be far less than the alleged £32 billion over 21 years – indeed, it would probably increase revenue.²⁷⁰

However, in their 2009 paper on the impacts of high-speed trains on British economic geography, Chia-Lin Chen and Peter Hall of University College London were more optimistic. They concluded that:

Undoubtedly, the new lines will in their turn have major spatial-economic impacts, just as the lower-speed version of HST has had over the thirty years since its introduction. Our conclusion suggests that it is not speed in itself that will prove important, but the effect of speed in shrinking critical time-distances. The new network will bring cities like Birmingham, Manchester and Leeds within one hour of London, folding them potentially into London’s commuter belt. Equally, they will bring more distant cities like Newcastle, Edinburgh and Glasgow within a 2-hour range of London, potentially conveying the same kinds of economic benefits as have been seen in places like Manchester and Leeds during the last thirty years.²⁷¹

Based on the available research, many on both sides of the HS2 debate have concluded that although HS2 could deliver some benefits to the regions, what would really help regeneration and development is improving the intra- and inter-regional transport systems as well.²⁷² That would mean that schemes such as Rail Package 2 (see section 6.6, below), the Northern Hub and even new Tube lines in London would be needed to realise the full benefits of HS2. Whether there is sufficient money to deliver these additional schemes is another question.

²⁶⁷ Puga, *University of Toronto, European regional policies in light of recent location theories*, December 2001, pp23-27

²⁶⁸ op cit., *High Speed Rail*, Q8

²⁶⁹ *ibid.*, Q146

²⁷⁰ “There’s no light at the end of the tunnel for this high-speed folly”, *The Daily Telegraph*, 1 March 2011

²⁷¹ Chen & Hall, University College London, *The Impacts of High-Speed Trains on British Economic Geography: A Study of the UK’s IC125/225 and its Effects*, 2009, p34

²⁷² see, e.g.: Prof. John Tomaney, Newcastle University and Cllr. Martin Tett, 51m Alliance, in: op cit., *High Speed Rail*, Qq279 & 286

The lessons from abroad are mixed. HSR has been widely credited with regenerating a number of cities including Marseilles in France and Seville in Spain. The University of Valladolid near Madrid has been “transformed”, while growing cities such as Istanbul, Shanghai and Barcelona are considering HSR as “a natural part of their development”.²⁷³ Pierre Messalun from SNCF has explained how Albalade, Puga and Graham and Melo’s conclusions (see above) have been born out in France, for example, with the migration of big business from Lyon to Paris, and then the growth of new, smaller businesses in Lyon itself:

Take Lyon 30 years ago ... in the first stage, big companies moved from Lyon to Paris because they no longer needed to have big headquarters in Lyon. But then in the second stage smaller companies grew up in Lyon because they could do business because development was cheaper there, the work force were cheaper and it was no longer a problem to commute from Lyon to Paris to visit customers. It is a balance...²⁷⁴

Both M. Messalun and Nicolas Petrovic of Eurostar emphasised the point about HSR not just ‘delivering growth’ but, rather, acting as a catalyst for growth delivered by the private sector and local government. M. Petrovic pointed to the example of Lille:

High speed rail in itself does not create everything. Lille is a good example. It used to be a region with a lot of difficulties. They had to close down their mines and their heavy industry, and the unemployment rate was 40%. When you go there now, it is much better. They have used the high speed line and the station to create wealth ... We have grown our markets consistently over the past eight years with a very strong catalyst. It does not create everything on its own, but if it is accompanied by other things it is very powerful.²⁷⁵

More broadly, Prof. Tomaney issued a word of caution about regional growth displacement:

[In] the Nord-Pas de Calais region around Lille, for instance-there is quite a bit of evidence in that case and in other cases, in Spain and so on, that some of the gains which Lille has made in terms of economic development have been at the expense of surrounding cities. I think that is pretty clear. The evidence for that is quite strong. It is probably also true of some of the Spanish cities that have made relative gains. The gains that they are making are not relative to their capital city; they are relative to the towns around them in several cases.²⁷⁶

London

Some of the views cited above give the impression that contrary to the government’s aspiration of ‘rebalancing the UK economy’ via HS2, many of the benefits of the scheme will accrue to London: former Secretary of State, Philip Hammond, has stated as much.²⁷⁷ However, in the House on 2 November 2011 the Railways Minister, Theresa Villiers, stated that those who “claim that better, faster transport between north and south will pull economic activity into London and suck it out of regional cities” are “defeatist and thoroughly misguided”.²⁷⁸

Bruce Weston of the HS2 Action Alliance has observed that while it is often ‘taken as read’ that HS2 would benefit the north and the midlands as opposed to London, the evidence points to “the principal benefits going to London, on the basis that, if you have a dominant capital city and you improve the transportation to that city, the economic benefit tends to go

²⁷³ “Can trams and trains bring express relief?”, *Financial Times*, 19 May 2010

²⁷⁴ op cit., [High Speed Rail](#), Q90

²⁷⁵ op cit., [High Speed Rail](#), Q91

²⁷⁶ *ibid.*, Qq277-78, and Q309 [more on Lille]

²⁷⁷ *ibid.*, Q530

²⁷⁸ [HC Deb 2 November 2011, c318WH](#)

to that dominant capital city”.²⁷⁹ Geoffrey Piper of the North West Business Leadership Team agrees that “we would not expect this investment, when it comes fully on stream, to be anything other than good for London”.²⁸⁰ London First agrees, with two main caveats:

- HSR must be an “and”, not an “or”, and must be in addition to other vital work needed to upgrade parts of the existing transport network. Continued investment in London’s transport infrastructure must be integral to any HSR strategy if London is to cope with the increased numbers of passengers expected to arrive on HSR; and
- the delivery of HSR “cannot be a substitute for an aviation policy that underpins south east England’s economic growth”.²⁸¹

However, the Mayor of London, Boris Johnson, has indicated that although he supports high speed rail in principle, he does not support the HS2 scheme put forward by the government, due to its potential negative impacts on London. His main concerns are:

- there is insufficient capacity at Euston to deal with HS2-related demand and additional capacity will be required. The level of capacity required to accommodate the full HS2 network cannot be provided through upgrades or enhancements of existing lines alone.
- the proposals for a station at Old Oak Common have to be integrated with the rest of London’s transport network for this station to be accessible. This requires further investment in road and rail connections.
- the proposed connection between HS2 and HS1 is unacceptable and alternative options should be identified that do not adversely impact on London’s rail services.
- the environmental and other indirect impacts, particularly along the route in west London must be addressed with appropriate mitigation measures.²⁸²

The London Assembly Transport Committee has raised similar concerns, particularly about the need for a new Tube line at Euston; the plans for Euston station that would increase its size by up to a third, with the loss of valuable green space, residential areas and businesses; concerns about plans to run trains above ground through large parts of Hillingdon; the ‘unacceptably adverse’ effect on London Overground passengers and freight traffic from the planned HS2-HS1 link on the North London Line; and a lack of detail about how the interchange at Old Oak Common would work.²⁸³

West Midlands

A KPMG report for Centro, published in June 2010, sets out the anticipated benefits of HS2 to the West Midlands, with some caveats:

The introduction of HSR has been found to have a significant economic benefit for the West Midlands Metropolitan areas amounting to around 22,000 workplace jobs and £1.5billion per annum of additional economic output in 2026 (measured in 2006 prices).

²⁷⁹ op cit., *High Speed Rail*, Q204

²⁸⁰ *ibid.*, Q138

²⁸¹ *ibid.*, HSR 117

²⁸² *Mayor of London Response to High Speed 2 (HS2) Proposals*, July 2011 [available of the [Mayor of London’s website](#) once the DfT publishes the HS2 consultation responses]

²⁸³ London Assembly Transport Committee, *Response to proposals for High Speed 2*, 29 July 2011

However, given the data available, it has been difficult to separate the impacts of HSR from other related changes to the rail network and local service changes. It appears that the local service enhancements modelled help to spread the benefits of High Speed Rail outside of the core urban area, although Birmingham remains the major beneficiary of accelerated economic growth [...]

The benefits are sensitive to the generalised journey time for business trips between the West Midlands and London. The impact of HSR declines quickly as connections to the HSR gateway worsen. This implies that high quality interchange and connections from the HSR station are essential.

High Speed Rail provides a substantial journey time benefit from central Birmingham, and Birmingham Airport to central London. Through connections, particularly in central Birmingham, this journey time benefit is spread to other areas of the conurbation.²⁸⁴

Birmingham City Council claims that the UK's second largest city will benefit from freeing up capacity on the WCML; the generation of 10,000 to 22,000 extra jobs in the West Midlands conurbation and an increase in economic output of between £600 million to £1.5 billion; and improved transport links across the wider region.²⁸⁵ Geoff Inskip of Centro claims that the main benefit of the scheme will be the potential to make the region and Birmingham in particular "not [just] competitive vis-à-vis London ... but ... competitive vis-à-vis our European counterparts".²⁸⁶

Others disagree. For example, Malcolm Griffiths of Bluespace Thinking has set out the potential detrimental impacts to the West Midlands as follows:

HS2 Ltd. assume that about 75% of the West Midlands population travelling to London will travel to Birmingham to join HS2. HS2 trains will go from a new station at Curzon street or a new parkway station, those that want to join HS2 by train will need to change station with a 10-15 min walk or bus transfer. If the 3.6 million people who live outside of the Birmingham catchment travel by car to the HS2 stations this will add to the road congestion that already exists in Birmingham. Given that people will be substituting a 1 hour 40 mins train journey, where they can read, relax or work, for a combination of rail, car, bus, walking and waiting time, it is doubtful it will be more productive, even if it is marginally faster. The details of the HS2 analysis released 13th April 2011 show that for commuters, journey time will actually increase.

Apart from those directly impacted by the HS2 route the West Midlands maybe the region with that will suffer most from HS2.²⁸⁷

There is also some concern about possible 'London drag'. For example, Cllr Karl Macnaughton of Chelmsley Wood in Solihull has said: "Solihull will still suffer more than it will gain and no-one wants our borough to be a northern suburb of London".²⁸⁸

North of England

Arguments in favour of an HSR line to the north date back a number of years. One early report, published in August 2007 by the Northern Way, a group of regional development agencies in the North of England, concluded, generally that north-south links, particularly to

²⁸⁴ KPMG for Centro, *High Speed Rail and supporting investments in the West Midlands: Consequences for employment and economic growth*, June 2010, p39

²⁸⁵ op cit., *High Speed Rail*, HSR 67

²⁸⁶ op cit., *High Speed Rail*, Q133

²⁸⁷ ibid., HSR 15

²⁸⁸ "MPs' backing for HS2", *Solihull News*, 11 November 2011

London, will become more, not less, important over time in economic terms.²⁸⁹ Views as to the potential benefits of the proposed HS2 line to the north are particularly diverse, partly because the lines to Leeds and Manchester are so far in the future (more than twenty years away), and therefore it is difficult to say with any certainty what the potential impacts might be. Prof. Tomaney explained the difficulties:

Intuitively, it makes sense. If you improve the transport system between a small place like the north-east and a large market like London and the south-east it will benefit, but when you look carefully at the evidence it is very difficult to substantiate.²⁹⁰

Lord Wolfson broadly agreed. He has stated that a greater benefit to the regions could be accrued by improving 'everyday life', i.e. making it easier to commute into work from outside the big cities.²⁹¹

In the North East, it is estimated that HSR could result in a £3.1 billion productivity increase.²⁹² Local Government Yorkshire and Humber set out the anticipated benefits as follows:

This proposed eastern leg of the "Y" would help to create, in effect, a single economic zone encompassing the East Midlands and the Leeds and Sheffield City Regions, which would have a combined population of 6.7 million people and three million jobs.

Research undertaken by the Leeds and Sheffield City Regions has demonstrated that the proposed "Y" network would generate significantly more economic benefits than the previous alternative route of the "Reverse S". This showed that the "Y" would generate wider economic impacts of £2.3 billion, whilst the "S" would generate only £0.4 billion. In the long-term, high speed rail would provide the best solution for enhancing rail capacity and performance between Yorkshire and Humber and London.²⁹³

The Leeds and North Yorkshire Chamber of Commerce believe the main arguments for high speed rail are the economic benefits that will result from faster rail journey times and the additional rail capacity that will be created. It cites research by Arup-Volterra that shows that the total wider economic impacts of the eastern route of the proposed national high speed rail network are estimated to be £4.2 billion over a 60-year appraisal period.²⁹⁴ However, there is a concern in the Leeds City Region that it will not start to see any benefits at all from HS2 until perhaps seven years after its completion.²⁹⁵

In the North West, there is widespread support for the scheme. The Greater Manchester Combined Authority supports HS2 because it will "increase both capacity and inter-urban connectivity between Manchester and the other cities on the line as well as releasing capacity on the existing Greater Manchester rail network".²⁹⁶ There is a keenness to ensure that HS2 is delivered in addition to the Northern Hub, a region-wide package of rail improvements designed to improve the economies in the north.²⁹⁷ Manchester Airports Group has made the point that: "It is no good having high speed connections in and out of major

²⁸⁹ Steer Davies Gleave for the Northern Way, *North South Connections*, August 2007, p29

²⁹⁰ op cit., *High Speed Rail*, Q287

²⁹¹ ibid., Qq204-05

²⁹² Association of North East Councils, in: op cit., *High Speed Rail*, HSR 121

²⁹³ op cit., *High Speed Rail*, HSR 129

²⁹⁴ ibid., HSR 113

²⁹⁵ Kieran Preston, WYPTA, in: ibid., Q145

²⁹⁶ ibid., HSR 114

²⁹⁷ details can be found on the Network Rail [Northern Hub project page](#)

cities, if travellers are then faced with a congested and inefficient network at the local level".²⁹⁸

Jobs and employment figures

There has been some discussion about the jobs numbers included in the government's economic case. Alison Munro of HS2 Ltd. summarised them as follows:

... for the London to west midlands phase ... we estimated 9,500 jobs for construction, about 1,500 permanent jobs in terms of operating the railway, and then there are about 30,000 jobs we estimated that will be supported around the stations. That is just for that first phase. That is really only in the immediate vicinity of the station. It was not ... intending to represent the full picture of what might be generated over the wider region. For example, Accenture have indicated that they think that the high speed railway could generate 22,000 jobs in the west midlands region. Our numbers are, as I say, not intended to capture everything.²⁹⁹

Opponents (e.g. the TaxPayers' Alliance) argue that these figures are overstated. A March 2011 TPA report calculated that HS2 will cost four jobs for every one created, on the basis that "at a cost of £17 billion, the London to Birmingham portion of HS2 will cost well over £400,000 for each of the 40,000 jobs created. That investment would create over 170,000 jobs – more than the working population of Coventry – if it achieved the same cost per job as in the wider economy".³⁰⁰ Prof. Roger Vickerman of the University of Kent concurs that most of the jobs claims are 'unsubstantiated'. He argues that:

Obviously, if you feel that something is going to do good for you, you big it up ... There is something psychological about that which is very important, and so you will get that. The danger is that you finish up with everybody running after the same jobs ... That is why we need to make sure, if there is a displacement of jobs going on, where those jobs are coming from. They are not all going to be net new jobs. Some of them are going to be displaced jobs. It is very important we look at the net jobs effect, but also at where those jobs are going to be. That becomes a strategic decision for the Government as to whether they are going to be prepared to lose jobs in one area in order to see jobs gained in another area.³⁰¹

In contrast, KPMG's work for Greengauge 21 found that the HSR network (i.e. not just London-Birmingham) could contribute between 25,000 and 42,000 additional jobs in Britain, "as more productive businesses offer higher wages and attract people into the labour market". This in turn could increase annual tax receipts by between £6 and £10 billion in 2040 (2010 prices), with a present value of the future tax income stream generated of between around £90 and £150 billion.³⁰²

Journey time savings

If HS2 (London to the West Midlands and the Y Network) is completed to the proposed specifications, it will result in an estimated one hour time saving on a rail journey from London to Glasgow or Edinburgh, reducing the current time by around one fifth. However, the greatest proportional time savings will be achieved in journeys between stations on the high speed network. For instance the journey time between London and: Birmingham;

²⁹⁸ op cit., *High Speed Rail*, HSR 68

²⁹⁹ ibid., Q484

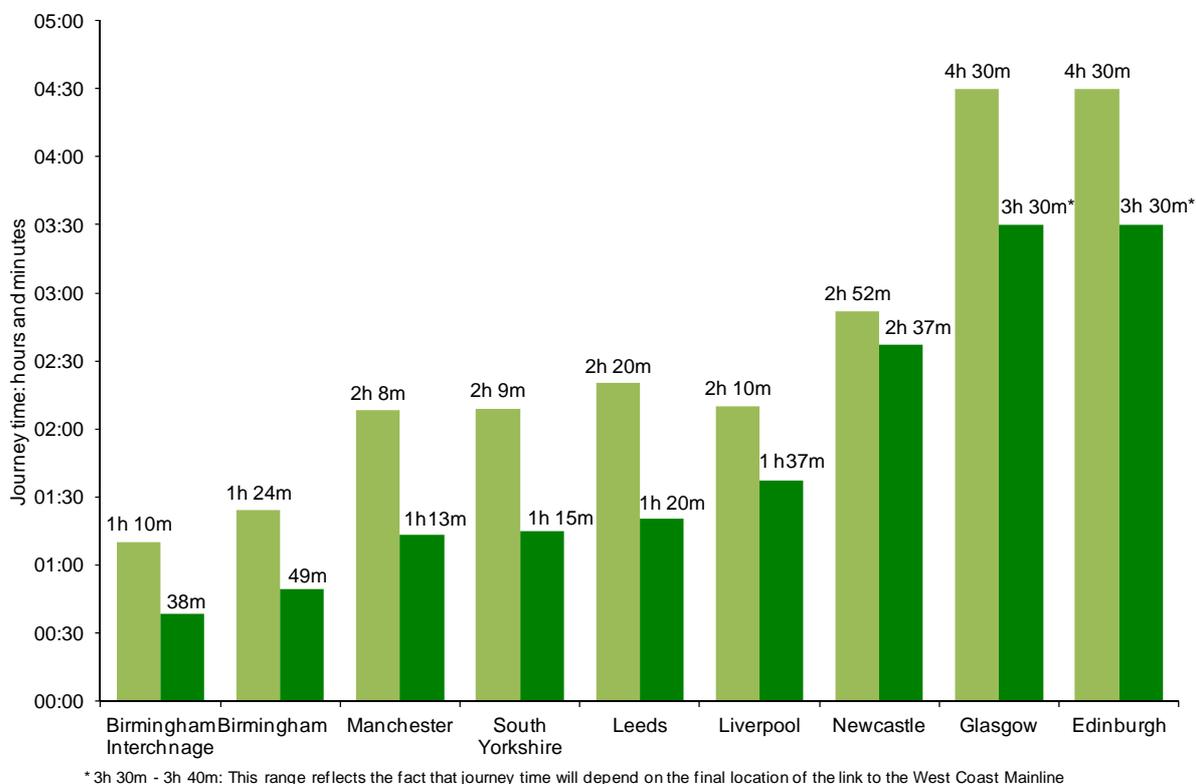
³⁰⁰ TPA, *Will HS2 create jobs?* (Research Note 85), 2 March 2011

³⁰¹ op cit., *High Speed Rail*, Q359

³⁰² KPMG for Greengauge 21, *High speed rail in Britain: Consequences for employment and economic growth*, February 2010, executive summary

Manchester; South Yorkshire; and, Leeds will decrease by approximately two-fifths respectively (see figure 8):

Figure 8. Journey times to and from London by train, current and after HS2³⁰³
(hours and minutes)



Savings to journey times contribute substantially to the benefits of HS2. For phase 1 they contribute two-fifths of the benefits to transport users, and over half of the benefits to business users.³⁰⁴

Journey time savings are given a monetary value according to type of user. The monetary value for non-business users is calculated by reference to their perceived willingness to pay for the time saving.³⁰⁵ For business users, the value of time savings is based on the cost to the employer of the time spent travelling; as such journey time savings to business users are given a substantially higher value than of other users.³⁰⁶

³⁰³ op cit., *High Speed Rail: Investing in Britain's Future – Consultation*, p20; and: op cit., *Economic Case for HS2: The Y Network and London – West Midlands*, p10

³⁰⁴ op cit., *Valuing the Benefits of HS2 (London – West Midlands)*, p10

³⁰⁵ the recommended value of time for commuters published by DfT is £6.52 an hour and for other such as leisure passengers, it is £5.77 an hour (2009 prices and value of time); see: op cit. *Valuing the Benefits of HS2 (London – West Midlands)*, p4

³⁰⁶ the recommended national average value of working time for rail passengers is £48.64; see: *ibid.*

Controversy over working time

When calculating the benefit of time savings, the government assumes that all time spent on trains is unproductive. The assumption has been fairly widely disputed.³⁰⁷ In oral evidence to the Transport Select Committee Jerry Marshall of AGAHST said:

The problem is that people have misunderstandings about major issues like the value of time, which I am sure you have looked at; but 40% of the benefits come from the value of time. Given that people do work productively on trains, that is erroneous.³⁰⁸

Assuming that time on a train is spent unproductively means that journey time savings are given a greater value than would otherwise be the case. The government acknowledge that users can be productive onboard trains; however they say that if this were assumed to be the case, a reassessment of other benefits would be required.³⁰⁹ For example, reductions in crowding would be valued more highly as less crowding would mean more opportunity to work productively; and, benefits to users who switch from car and air to rail would need to be increased, as they would be able to work productively.

The government has carried out a sensitivity test of changing the business value of time:

If we halved the business value of time and adjusted crowding impacts to reflect the loss of value experienced by business passengers travelling in crowded conditions (instead of using commuter values for business passengers) the BCR would increase slightly.³¹⁰

6 A rundown of the issues

In addition to the robustness or otherwise of the economic case presented by successive governments and HS2 Ltd. there are a number of other issues raised by both supporters and opponents of HS2 that factor into the wider debate about the project. The main issues are outlined in the following section, they are: wider transport strategy; capacity requirements and demand forecasts; financial issues such as cost and fares; speed and service patterns; environmental impacts; and alternative proposals.

6.1 A question of strategy

HS2 as an idea

There are many substantive areas of debate about HS2 –its cost and benefits; whether it will deal in the best way with coming capacity demands; environmental credentials etc. These are examined more fully in the rest of this section. However, there is perhaps a more fundamental question put by both proponents and opponents of the scheme: what is the point of HS2; what is it for?

In his 2009 book on the early railway, *Blood, Iron & Gold*, transport writer and broadcaster Christian Wolmar states that the early railway was “the answer to the long-established problem of how to transport heavy loads of coal and other minerals to rivers or the sea, and later to canals, where they could be transported for far greater distances”.³¹¹ One might therefore ask, what problem is HS2 the answer to? When asked this question by the

³⁰⁷ see: HS2 Action Alliance *Review of the February 2011 consultation business case for HS2. Review prepared by HS2 Action Alliance*, June 2011, p3; op cit., *Review of the Government's case for a High Speed Rail programme. Prepared for the Transport Select Committee*, p7; and: 51m, *HS2 response: Appendix 2 – Review of the Economic Case*, July 2011, p15.

³⁰⁸ op cit., *High Speed Rail*, Q208, and HSR 553

³⁰⁹ op cit., *Valuing the Benefits of HS2 (London – West Midlands)*, p6; and: op cit., *Economic Case for HS2. The Y Network and London – West Midlands*, p51

³¹⁰ op cit., *Economic Case for HS2. The Y Network and London – West Midlands*, para 7.3.4

³¹¹ Wolmar, *Blood, Iron & Gold*, 2009, p4

Transport Select Committee, almost all their witnesses – from both sides of the debate – said that a future lack of capacity on the London-Birmingham corridor is the fundamental problem that HS2 seeks to address (see below). Others also cited regeneration and other economic benefits in those areas with termini. But these alone do not answer the question: extra capacity could be achieved by other improvements to the conventional network; there are cheaper ways to regenerate the Midlands and the North. Perhaps there is a lesson from history.

The phrase ‘there’s nothing new under the sun’ could be said to apply to the railways; in particular the arguments surrounding the possible construction of HS2 have been rehearsed before. Section 2.1 explains the similarities between what is happening now and debates during the formative years of the early railway in the mid-nineteenth century. For example, in 1845 the Railway Department of the Board of Trade published a report on schemes for extending railway communication between London and York. It reflects a general view about the intangible benefits of linking the capital to the north that is echoed today in the debates about HS2:

[We] consider it obviously desirable, for national as well as for commercial purposes, that the whole Railway communications of the Metropolis with the Northern portions of the kingdom should not depend upon a single trunk line; and that consequently the opportunity should be embraced now which presents itself of obtaining a good second trunk line to the North, by a combination which at the same time provides for the local and lateral communications of the Eastern counties.³¹²

More recently, in the mid-twentieth century, British Rail (BR) was considering the upgrade of new inter-city services. As O.S. Nock explained in his 1980 book *150 Years of Mainline Railways*, the questions facing the government today about HS2 are very similar to those faced by BR half a century ago:

It was the matter of Inter-City travel that posed the more difficult questions, such as, what was the market likely to be in 10 to 20 years’ time; how would competitive forms of transport have developed, and what would technology have to offer by then? It is important to appreciate that in facing the problem British Railways management had to be thinking some ten years in advance of the time when replacements would become necessary. In any considerations towards the future development of Inter-City service five major points constantly had to be borne in mind:

1. Journey time: the need for high average speed;
2. Frequency: to match as near as possible the convenience of a private car;
Safety: in the search for higher speed, there could be no reduction in safety standards;
3. Reliability: the standards of reliability must be maintained, or even enhanced;
4. Amenities: seating comfort, a good ride, minimum noise, attractive catering.³¹³

As in the past there is a feeling, particularly amongst scheme proponents, that this is an idea ‘whose time has come’. As Mr Wolmar says about the Victorians, they: “built their railways on guesswork, saying, ‘The wind is blowing that way. Let’s build a railway’. To some extent, that is what they are doing here”.³¹⁴ Some look at the example from abroad (see section 2.2,

³¹² *Report of the Railway Department of the Board of Trade, on the schemes for extending railway communication between London and York, &c.*, 153, 20 March 1845, p3

³¹³ Nock, *150 Years of Mainline Railways*, 1980, pp170-71

³¹⁴ op cit., [High Speed Rail](#), Q6

above) and see the scheme as a test of the UK's fitness for the modern world, as Prof. Begg said:

My big concern is what signal this would send out to everyone in this country and the rest of the world if we say we are not doing this. Everyone else is doing it. Why is Britain not doing it? Do we lack confidence in this country? Do we not think we are capable of delivering a big project like this? Are we not prosperous enough as a nation to have a level of technology that our international rivals take for granted? It would just be such a slap in the face to this country.³¹⁵

Opponents question whether this is a good enough reason to spend £32 billion on the HS2 scheme. As businessman Lord Simon Wolfson put it:

This whole issue is not about whether high speed rail is a good idea. It is about whether it is a good investment for this country at this time, given the fact that we have limited resources.³¹⁶

Others see the comparison with the Victorian railways as a warning, not an example:

This race to keep up with the over-indebted has induced in the government a kind of Railway Mania, but unlike the original Mania of 1835-37 it is public capital not private, and we should recall the lessons of that bubble; yes some men made great fortunes - primarily the promoters and engineers such as George Hudson, who later went bankrupt - but many investors lost great fortunes, and such a share of the nation's wealth was consumed that there was a drought of investment across the entire economy for near seven years thereafter.³¹⁷

HS2 in a wider strategic context

For decades now, the Holy Grail of transport policy has been an 'integrated transport system'. There is not, however, any single interpretation of what such a system would look like or how it would be achieved. Broadly, one might consider that it involves a certain amount of, if not planning, at least coordination from central government. During its thirteen years in government the Labour Party published, at least once a Parliament, transport strategy documents, looking ahead two or three decades.³¹⁸ The Coalition Government has resisted this. Their 'transport strategy' is a series of statements and commitments set out in the departmental business plan, the aim of which is to: "[set] out the Department's vision for a transport system that is an engine for economic growth but one that is also greener and safer and improves quality of life in our communities".³¹⁹

Many of those commenting on the government's plans for HS2 have criticised the lack of a wider strategic framework in which the proposal sits. For example, Clark, Doyle & Ward in their October 2011 report state:

The unmanaged debate that is currently taking place is seen by most as counter-productive on both sides. Many respondents feel the Government has not explained how its high speed rail proposals fit within wider transport or economic strategies. Without overt clarification of the strategic objective raising investment money from

³¹⁵ *ibid.*, Q111

³¹⁶ *ibid.*, Q234

³¹⁷ "David T Breaker: Future technologies provide the biggest argument against HS2", *Conservative Home*, 19 July 2011

³¹⁸ DETR, *A new deal for transport: better for everyone*, Cm 3950, July 1998; and: DfT, *Delivering a Sustainable Railway*, Cm 7176, 24 July 2007

³¹⁹ DfT, *Business Plan 2011-2015*, 13 May 2011

business will be almost impossible and the taxpayer will be left footing the total upfront cost if the line is approved by Parliament.³²⁰

Stephen Joseph of the Campaign for Better Transport concurs:

The weakest argument is that HS2 is currently being considered in a silo and is not being joined up with wider transport policy. It is unclear how it fits with, say, plans for road and air, airport investment and road capacity, etcetera, particularly interurban, and also how it links with local transport investment in the cities and areas that it is planning to serve.³²¹

This observation has led many on both sides of the argument to put the view that a wider transport strategy is vital if the benefits claimed for HS2 are to be realised.³²² The Transport Select Committee concluded that: "The absence of a transport strategy makes it hard to assess how HS2 relates to other major transport infrastructure schemes, regional planning and wider objectives, such as bridging the north-south divide".³²³

There are a number of levels of 'strategy' that people have called for, from a broader HSR strategy covering the whole of Great Britain; to a wider rail strategy; to a government-wide strategy for transport infrastructure in the round.³²⁴ Others have commented that placing HSR into a wider, long-term strategy requires 'imagination' despite the fact that "sometimes, with these big transport changes, you cannot imagine quite what is going to come at the end of it".³²⁵ Ralph Smyth of the Campaign to Protect Rural England lamented the apparent lack of strategy and has claimed that this has hindered sensible consideration of the HS2 project:

The difficulty for many people here is that there is no strategy-no context-against which to judge HS2. If you are supposed to try and work out what the national interest is and whether it trumps the local interest, you need some strategy-some national planning-to help guide that. The difficulty people face is that the first they knew of high speed rail was simply, "Here is the route," drawn along a map, possibly going through your back yard or possibly, in the case of some people in London, underneath it. People were not involved.³²⁶

Some have stressed the importance of placing rail 'in context' and have claimed that a wider strategy is essential to understand the relative importance of rail to the transport network. For example, David Bayliss of the RAC Foundation has said:

We need a national transport strategy and a regional development strategy within which the relative roles of road and rail can be properly judged. At the moment we have this proposition to spend £30 billion or so of money on rail. National rail carries 7% of the passenger market in this country and 9% of the freight market. Of that 7%, only about a third is long distance rail. Here we are, at a time when we have barely sufficient funds to keep the existing system going, committing huge amounts of money to try and solve the problems on a tiny part of the travel market. It seems to me that in the absence of a proper thought-through national transport strategy that is foolhardy.³²⁷

³²⁰ Clark, Doyle & Ward, *High Speed Rail: Is everyone on board?*, October 2011, p3

³²¹ op cit., *High Speed Rail*, Q3

³²² if included, WEIs increase the total benefits of HS2 by roughly one-quarter and the benefits of the Y network by approximately one-fifth

³²³ op cit., *High Speed Rail*, para 20

³²⁴ see, e.g. Michael Roberts, ATOC; Anthony Smith, Passenger Focus; Jim Steer, Greengauge 21; David Frost, BCC; David Begg, Yes to High Speed Rail, in: op cit., *High Speed Rail*, Qq28, 48, 96, 104 & 114-115

³²⁵ Stephen Clark, English Core Cities Group, *ibid.*, Q154

³²⁶ op cit., *High Speed Rail*, Qq325

³²⁷ *ibid.*, Q202

HS2 Ltd. denies that there is a lack of strategic context to the project. Sir Brian Briscoe, Chairman of the company, has said that those who make that case are “probably wrong [...] high speed rail works best when you get off a high speed train and you continue your journey quickly; otherwise you lose the time-saving benefits from high speed rail. So it is important that high speed rail is integrated with local transport networks and that has been a part of our planning”.³²⁸

Project delivery: can Britain build HS2?

The UK’s record of delivering big infrastructure projects on time and to budget is somewhat mixed. A 2007 report for the Institute of Economic Affairs highlighted problems with six government projects from the 1920s through to the 1990s, including the building of the Channel Tunnel and the subsequent rail link (now HS1). It identified a series of common problems with public sector projects, not perhaps exclusive to the UK. These include:

Government officials and ministers usually mean well when they promote and manage quasi-commercial projects in the public sector, which however often turn out to be financial disasters. Any technological advances come at huge expense.

A recurring rationale for grandiose projects, from the groundnut scheme to the Millennium Dome, has been to boost ‘national prestige’, but this concept has little real value.

The costs of ventures dependent on new, untried technology ... are extremely uncertain, so taxpayers have to underwrite their high risks. Initial financial estimates may often be purposely too low.

Partly due to changes in specifications, many of the projects incurred time and cost overruns of more than 100 per cent. The high speed Channel Tunnel Rail Link [was] still not ready more than thirteen years after the Tunnel itself opened [...]

State projects are always liable to short-term political interference, which may increase costs ... or risks ...

The government’s opaque accounting practices often disguise the true level of state spending on large projects, as with the Channel Tunnel Rail Link.

Governments do not understand markets, and on some projects, such as Concorde, made little effort to research likely customer demand.

In the market system investors bear the costs of ventures that fail, but in the political system taxpayers have to do so. As a result, governments often choose to continue projects ... even after it has become clear they are not commercially viable.

Many of the failures [of past projects] were down to politicians: installing inadequate or over-complex organisations, appointing incompetent managers, or insisting on excessive secrecy.³²⁹

In his February 2010 report *High Speed Rail: How to Get Started*, David Ross³³⁰ pointed to similar general concerns about the delivery of large-scale rail projects. He highlighted the following areas where the HS2 project could come unstuck:

³²⁸ *ibid.*, Qq442-3

³²⁹ D.R. Myddelton for the IEA, *They Meant Well, Government Project Disasters*, September 2007, pp15-16

³³⁰ founder of the Carphone Warehouse, he has also worked on the successful 2012 Olympic Bid and the unsuccessful 2018 World Cup bid

- The cost of procuring railway infrastructure in Britain is as much as three times higher than comparable projects in continental Europe;
- There are various reasons for our comparatively higher costs including non-standard technical specifications, different operating standards and safety requirements, “tortuous” planning requirements and complex budgetary and procurement processes;
- The UK’s railway specifications mean that many products need to be custom built. There would be substantial cost savings if a new high speed network adopted continental European specifications, seeking out universal technical solutions, reducing complexity through standardisation, making use of tried technology and hardware, and building on existing HSR design, engineering and management experience;
- In the UK, major infrastructure and construction projects are subject to ever more onerous requirements and regulations at the planning stage, with analytic processes looking far ahead to long term cost and benefit;
- Large public sector projects in the UK are notably prone to time and cost overruns. The Treasury Green Book specifically requires an ‘optimism bias’ of 50 per cent to be added to projected cost; and
- Very large programmes generate an understandable desire to get it perfectly right. The aim should be to identify initial development which delivers the maximum value for that spend and is safe, but simple and direct in design and execution. “An overambitious programme could be the enemy of what is good and achievable”.³³¹

There is some support for these views. Both sides of the debate concur that HS2 needs to be properly planned and managed and that lessons must be learned from previous failures. For example, David Frost of the British Chambers of Commerce has stated that “we have an inability in this country, I believe, to deliver major infrastructure projects. We are fantastic at talking about it, but when it comes to delivery it takes an inordinate amount of time, if we ever get there”.³³² Similarly, Lord Wolfson has highlighted how poorly the UK’s record compares to international rivals:

It is ridiculous that in China they built 1,300 km in four years, 85% of which is elevated. In the UK, it is going to take us four times as long to build something that does not hit anything like the 1,000 km mark. If you build it faster and more effectively, you do not have to start spending the money now. That means the time value of the money increases, which means that you get a much better return on the investment. There are all sorts of things that can make this project viable if we look at it, but basically it comes down to two things. First of all, reduce or mitigate the cost through being innovative and clever about it. Secondly, increase the speed at which you build it because that reduces the dead time you have between the beginning and end of construction.³³³

Others have argued that the UK can and does do ‘big projects’ well. Writing in *The Observer*, Matthew Taylor³³⁴ cites the Olympics, HS1, the renovation of St Pancras and the Jubilee Line

³³¹ David Ross, *High Speed Rail: How to Get Started*, February 2010, pp5-6

³³² op cit., *High Speed Rail*, Q96

³³³ op cit., *High Speed Rail*, Q265

³³⁴ former Assistant General Secretary for the Labour Party, Director of the Institute for Public Policy Research and currently Chief Executive of the [RSA](#)

extension as examples of successful big projects delivered by government.³³⁵ Similarly, Jim Steer of Greengauge 21 is a bit more optimistic. He has stated that it is simply a case of the UK being “a bit brighter and a bit better at getting different organisations working together towards a shared goal”.³³⁶

6.2 Capacity and demand

HS2 on its own does not provide enough capacity to meet the projected demand increases over the next few decades. Although the ‘strongest arguments’ for HS2 rest on the additional capacity it will deliver, the bulk of this comes from freeing up paths on the West Coast Main Line (WCML). Christian Wolmar has said that capacity “is both the strongest part of the argument in favour and the weakest ... because that capacity could quite easily be met by more conventional means”.³³⁷

Capacity is at the heart of the case for HS2 and is therefore one of the most contentious aspects of the scheme. All those who have taken an interest in HS2 – whether for or against – acknowledge that we need more rail capacity on the WCML corridor. Where their views diverge is how much is needed and whether a new high speed line is the best way of delivering it. Alternative proposals are dealt with in section 6.6, below.

Further questions have been raised about the extent of the capacity needed to meet future demand on the WCML corridor, which comes down to the question of whether the WCML is ‘full’ and what is meant by that term. These issues are all tied together, as the former Secretary of State for Transport, Philip Hammond, put it: “I start with capacity”:

If the compelling case for additional capacity on the London to Birmingham section, in particular also the London to Manchester section, was not there, then a large part of the case for high speed rail would be undermined. Clearly, we build from the capacity-driven case to the benefits that high speed delivers once you get beyond Birmingham. But I fully accept that, if the railway was only going to Birmingham, the case for high speed would be very much less compelling than with a railway that connects to Manchester, Leeds and allows onward running to Scotland.³³⁸

Railways Minister Theresa Villiers has also recently said: “The case for high-speed rail rests on the pressing need to prevent big problems that would otherwise be heading down the track towards us. The demand for inter-city transport capacity is growing strongly. If we sit back and fail to deal with the capacity time bomb set to explode within the next 10 to 20 years, we will do lasting damage to our economy”.³³⁹

Demand forecasts

The government has strenuously defended its demand forecasting against questions as to its methodology and what opponents have termed ‘heroic’ assumptions. Theresa Villiers, set out the basic assumptions in the House on October 2011:

The consultation document forecasts that passenger demand will roughly double for long-distance services on the west coast main line ... That projection is over 30 years and is based on modest growth rates of about 2% a year. If anything, those numbers are cautious when one takes into account the fact that demand between London and

³³⁵ “If we can organise the Olympics, why can’t we get the basics right?”, *The Observer*, 31 July 2011

³³⁶ op cit., *High Speed Rail*, Q120

³³⁷ ibid., Q4

³³⁸ ibid., Q512

³³⁹ [HC Deb 2 November 2011, c319WH](#)

Manchester rose by almost 60% over the four years to 2008 and that overall long-distance demand has grown every year since 1997 at an average of 5% a year.³⁴⁰

Future demand for rail plays a key role in determining the costs and benefits of HS2; for instance the greater the number of future users the greater the total level of user benefits and the greater the amount of revenues generated. Sensitivity tests have been carried out on different levels of growth in rail demand (see Figure 7 on p61). When higher growth in rail demand (an increase of 40%) was tested, the demand cap was reached in 2033 and the BCR rose to 1.9. Testing 25% lower growth in rail demand resulted in a BCR of 1.35, with the demand cap reached in 2055.

The government has forecast demand for HS2 using a model which incorporates the following three steps:

- demand for the conventional rail network is forecast from now until 2021 and 2043;
- the rate of demand growth for HS2 is estimated; and
- a cap is applied (in 2043) over which demand cannot grow reflecting saturation of rail demand.

Rail demand without HS2

Forecasts of future demand for rail are based on past trends in demand for long distance trips and long distance rail trips. Trends are analysed relating growth in local areas to local and national drivers of demand including: economic growth; employment; population growth; transport prices; and, quality of service.³⁴¹ These relationships and future estimates of key drivers are used to forecast demand.

The government has forecast an increase in long distance rail trips³⁴² in Great Britain of 1.9 per cent per year on average between 2008 and 2043: a total increase of 95% across the period.³⁴³ Annual forecast growth is lower than that realised between 1995 and 2008, where the number of long distance rail trips grew by 5% per year on average.³⁴⁴

Travel to and from London is forecast to grow more rapidly. The number of long distance rail trips between London and the West Midlands is forecast to increase by 142%.³⁴⁵ The number of long distance passengers on the WCML is forecast to increase by 127%;³⁴⁶ and significant crowding is predicted on the WCML if such growth is realised.³⁴⁷

³⁴⁰ [HC Deb 13 October 2011, c593](#)

³⁴¹ HS2 Ltd., [Demand for Long Distance Travel](#), April 2011, p6

³⁴² rail trips over 100 miles (long distance GB rail trips are approximated by trips on long distance rail operations, e.g. Cross-Country, Midland Main Line, Great Western, East Coast Main Line and WCML)

³⁴³ op cit., [Demand for Long Distance Travel](#), p7

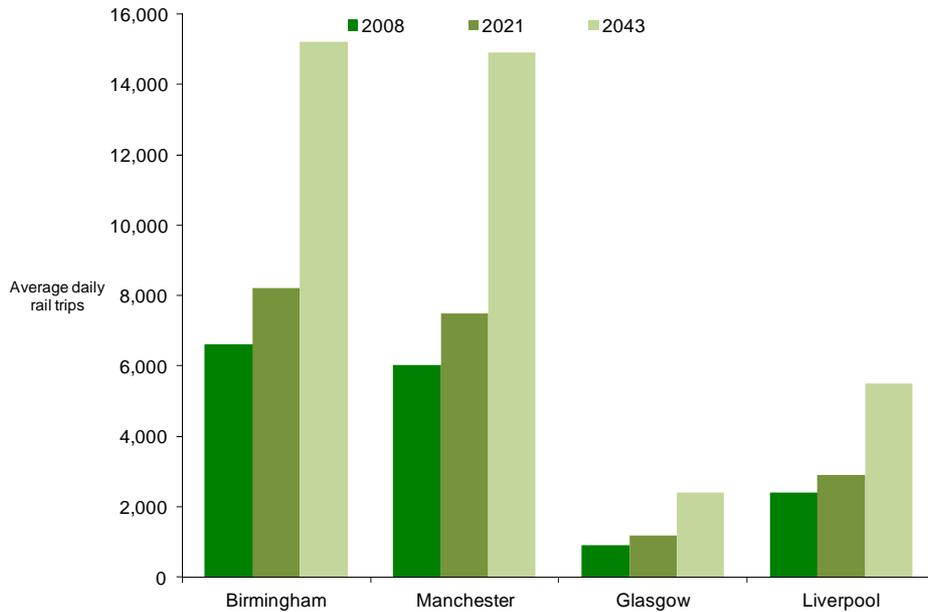
³⁴⁴ op cit. [Economic Case for HS2: The Y Network and London – West Midlands](#), p14

³⁴⁵ op cit, [Demand for Long Distance Travel](#), p11

³⁴⁶ *ibid*, p9

³⁴⁷ the average number of seats occupied on WCML is forecast to increase from 56% in 2008 to 76% in 2043, see: op cit., [Demand for Long Distance Travel](#), para 5.3

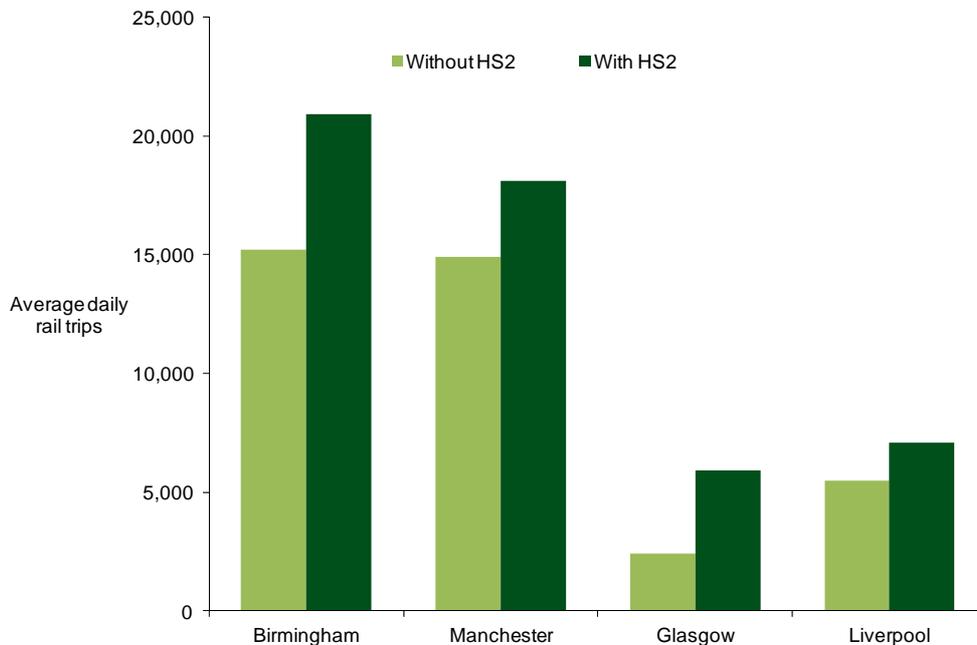
Figure 9. Average daily rail trips (without HS2) between London and city council areas, 2008, 2021 and 2043³⁴⁸



Demand with HS2

Demand for HS2 is forecast using a model that predicts the effect of changes to the transport network, on the number of trips made by different modes of transport. The model looks at how the introduction of HS2 changes the journey experience and predicts the choices transport users are likely to make as a result.³⁴⁹

Figure 10. Average daily rail demand, between London and city council areas, with HS2 and without HS2, 2043³⁵⁰



³⁴⁸ op cit. *HS2 London – West Midlands Consultation: Demand and Appraisal Report*, table 3.1

³⁴⁹ op cit., *Demand for Long Distance Travel*, p12

³⁵⁰ ibid, table 4.

Network demand

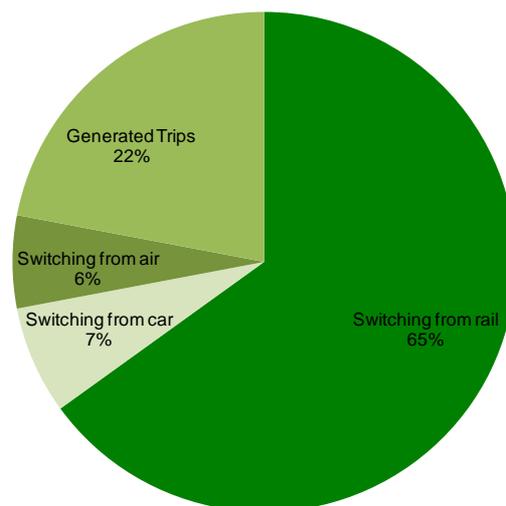
Phase 1 of HS2 between London and Birmingham is expected to generate additional rail demand thanks to reduced journey times and improved quality of service, increasing the number of long distance rail trips in 2043 across Great Britain by an additional 20% on the natural growth in demand.³⁵¹ In areas directly connected by HS2 the government believes that growth is likely to be greater.

The government forecasts that average daily rail demand between London and Birmingham will be over one-third greater in 2043 with HS2 than it would otherwise have been (see figure 10 on the previous page) and demand between Glasgow and Central London is forecast to be more than twice as great.

Demand for HS2

The government forecasts that in 2043, approximately 136,000 passengers will travel on HS2 each day between Birmingham Interchange and Old Oak Common. Across the whole year 42.6 million passengers are forecast to use this section of the network.³⁵² Approximately two-thirds of users of HS2 will have switched from other rail services, whilst over two-fifths will be 'generated trips', i.e. new trips including trips being made more often (see figure 11).

Figure 11. HS2 trips in 2043: source of trip³⁵³



HS2 Ltd. states that in modelling its business case it has “not modelled the impact of Evergreen 3 [i.e. the improvements to the Chiltern Line]”, but despite this “it is our view that the implications of including this scheme are likely to be small. Even with the upgrade, journey times on the Chiltern route will still be longer than the WCML and onward access options from Marylebone more limited than at Euston. More importantly, the Chiltern route is only a viable alternative for those passengers travelling between London and Birmingham whereas HS2 is serving a much wider market”.³⁵⁴

³⁵¹ *ibid.*, p11

³⁵² *ibid.*, p11

³⁵³ *ibid.*, p13

³⁵⁴ *op cit.*, *High Speed Rail*, HSR 169A

Is the WCML 'full'?

Michael Roberts of the Association of Train Operating Companies (ATOC) defines 'full' as when a path "would exceed the conventional load factors at peak time that the industry uses at the moment to trigger the case for additional infrastructure, and that classically is at about 70% load factors in the peak".³⁵⁵ Network Rail defines 'full' as being unable to "path another train when any of the operators want it" and that "the rolling stock that has been used on the route is exploiting the full capability of the route; it is at its longest and its internal configuration is the most appropriate for the market". However, Richard Eccles of NR has admitted that the notion is a complex one: "'Full' is a difficult concept, because if you cannot buy a ticket on the train you want to travel on then that is full".³⁵⁶ He also makes the point that past 2018, Network Rail have no planned 'interventions' on the WCML path that could increase capacity: "I do not have confidence that we can develop any further interventions that will demonstrate a good business case to justify investment and that will attract funding in the context that we will be in [in 2018]".³⁵⁷

Others, such as Christian Wolmar and Chris Stokes, have challenged these definitions. Both have pointed to the difference between one or two peak time commuter services being standing room only and the line, per se, being 'full'. Christian Wolmar has stated:

There are an awful lot of empty trains that go up between London and Birmingham and London and Manchester. One has to be slightly sceptical just because it is full at 7 o'clock on Friday evenings at Euston. That is about a pricing policy and not about capacity. In their RUS-route utilisation strategy-on the West Coast, Network Rail say that something like 12% or 13% of trains within five years will have people standing on them. They mean by that that the line will be full. I am not sure I accept that definition of "full".³⁵⁸

Chris Stokes concurred that "We should not run away with the idea that all the peak trains are full. The trains that are full are the ones at 19:00 where there is this complete cliff and suddenly very cheap fares are available".³⁵⁹ He suggested that "overcrowding is absolutely a standard-class issue" and that reconfiguring and lengthening trains could address the problem.³⁶⁰ Jerry Marshall of Action Groups Against HS2 has argued that other schemes, such as speed increases and time reductions on the Chiltern Line will alleviate capacity constraints on the WCML corridor in any case and that therefore the capacity requirements may not be as great as anticipated.³⁶¹

The extent to which rail services coming into London at the peak are 'full', or at least 'crowded', is set out in section 2.4, above.

Freeing up the conventional network

Even those generally opposed to HS2 concede that "if HS2 has any case at all, it is because it is going to free up capacity on the West Coast Main Line for both passenger and freight".³⁶²

From the passengers' point of view, Anthony Smith from Passenger Focus concurred that the strongest points in favour of HS2 are "the capacity of the rail network and the ability of the new high speed line to release both new capacity for high speed services and also, just

³⁵⁵ op cit., *High Speed Rail*, Q52

³⁵⁶ *ibid.*, Q52

³⁵⁷ *ibid.*, Q56

³⁵⁸ op cit., *High Speed Rail*, Q17

³⁵⁹ *ibid.*, Q298

³⁶⁰ *ibid.*, Q295

³⁶¹ *ibid.*, Q228

³⁶² Stephen Joseph, Campaign for Better Transport, in: *ibid.*, Q9

as important, released capacity in terms of places like Milton Keynes at the moment where, arguably, there should be a much better rail service than there is".³⁶³ Michael Roberts of ATOC summarised the potential passenger benefits of building HS2 for the conventional network around and to the south of the West Midlands:

That additional capacity which will be provided by HS2 would not only benefit long-distance travel - and it is worth remembering that long-distance travel has been the fastest growing sector within the railways since privatisation; it has doubled as a sector - but, also, that additional capacity can be put on [...] to relieve the pressure [of] serving commuter traffic in the southern sector of the West Coast Main Line [...]

[T]here is the prospect that the released capacity on the existing line made possible by HS2 could, for example, double the frequency of services to London from towns like Milton Keynes and Northampton in the peak time as well as other times. It could also shorten journey times. The Northampton journey time could be shortened from nearly an hour, which it is at the moment, to something of the order of 43 to 46 minutes. But, also, it could improve the frequency of services within the west midlands region, for example, Coventry, serving potentially a new station at Kenilworth and others.³⁶⁴

However, some reports have questioned whether the extra overall capacity will be worth the projected loss of capacity on stopping services on the conventional network. A March 2011 *Daily Telegraph* report stated:

... up to 750 trains every day to places not on the new high-speed line are likely to be slowed down, or scrapped, according to HS2 documents [...] The annexes to the HS2 prospectus, published last year, state that the current 120 fast trains a day between London and Birmingham on the existing line (60 in each direction) will be reduced to about 40. Passengers to Birmingham will at least have a high-speed alternative, albeit at premium fares. But travellers to other destinations on the current line will not.

Coventry, for instance, will lose two-thirds of its fast trains to London and those that remain will be slowed down by 10 minutes. The existing Manchester and Liverpool services will be cut too, by about 50 trains. Stoke-on-Trent will lose half its London service, which will also be slower. Wolverhampton, Tamworth, Nuneaton and several other places will suffer a similar fate [...]

The second group of passengers affected will be in the London area. Here, the prospectus says, the local stopping service to Watford could be "removed" or diverted to help free up platform space at Euston for high-speed rail [...] The largest group affected, however, is in a completely different part of the country. According to the HS2 prospectus, trains coming into Paddington will be slowed down to stop at a new HS2 interchange at Old Oak Common, just west of London. The idea is to improve the connectivity of the new route – but this alone will slow down the London-bound rail services of around a fifth of the country, including the whole of the Thames Valley, western England and South Wales. About 500 trains a day currently run in and out of Paddington, carrying more than 29 million passengers a year.³⁶⁵

Others have emphasised the potential benefits in terms of freight capacity, particularly once phase 2 of the project, taking the high speed line to Manchester and Leeds, is built.³⁶⁶

³⁶³ *ibid.*, Q27

³⁶⁴ *ibid.*, Qq28 & 63

³⁶⁵ "High-speed rail: running rapidly right off the rails", *The Daily Telegraph*, 6 March 2011; the TPA has also done work on this and reached similar conclusions, see: TPA, *HS2 Capacity Analysis* (Research Note 86), 30 March 2011

³⁶⁶ e.g. Stephen Clark, English Core Cities Group, in: *op cit.*, *High Speed Rail*, Q161

However, others were concerned firstly that the need for freight capacity had been overstated³⁶⁷ and, secondly, that until phase 2 is built there will be a 'freight crunch' from 2026 north of Birmingham. Lord Berkley, Chairman of the Rail Freight Group, explained:

In 2026 the high speed line will be built to Lichfield and Birmingham, and I trust that freight will be allocated a number of extra paths in the southern bit of the West Coast Main Line with the released capacity. However, north of Lichfield, all the high speed trains on the HS1 southern bit will go on the existing line. That is maybe three, four, five or six trains an hour, depending on where they are going, plus all the additional freight trains that have been kindly allocated space on the southern half of the existing West Coast Main Line. There is going to be a right traffic jam there going north from Lichfield for a period of about 10 years.³⁶⁸

HS2 Ltd. disagrees and has stated that: "We do not foresee any significant capacity problems on WCML north of Lichfield, subject to the completion of Network Rail schemes".³⁶⁹

Chris Stokes argued that even after 2033, with the HSR line extended to Manchester and Newcastle, there would be a capacity problem further north for both passenger and freight services: "The problem that you face going further north, say, from Crewe to Glasgow, or with the full Y from York to Newcastle, is that you have two-track sections of railway with mixed InterCity passenger and freight trains that are full now and HS2 does nothing for them, so they remain full after 2033".³⁷⁰

Others have emphasised the importance of improving capacity on the parts of the network that will connect to HS2, particularly in the conurbations served by HS2 stations. Stephen Clark stated that: "the investment in the local transport systems that distributes people from the high speed rail to surrounding towns and cities is absolutely an essential part of what needs to be done".³⁷¹ John Dickie of London First emphasised the danger of potential knock-on congestion in London:

People will not thank any Government if they can get from Birmingham to Euston in half an hour, but it takes them half an hour to get off a holding pen at Euston on to a congested Victoria Line. So we do need to make sure we have the capacity to move people on when they arrive in London.³⁷²

Chris Nash issued another word of caution about HS2 displacing so much traffic off the conventional network that it would make parts of it financial untenable:

It will be impossible to find such profitable traffic to replace the lost inter city traffic on the classic network; it is the increased subsidy necessary for the classic network rather than the difference between revenue and costs on the high speed line itself which make up a large part of the requirement for government finance.³⁷³

³⁶⁷ e.g. Jerry Marshall, AGAHST, in: *ibid.*, Q228

³⁶⁸ *ibid.*, Q64

³⁶⁹ *ibid.*, HSR 169A

³⁷⁰ *ibid.*, Q295

³⁷¹ *op cit.*, *High Speed Rail*, Q145

³⁷² *ibid.*, Q165

³⁷³ *ibid.*, HSR 27

6.3 Financial matters

Cost to the public purse

Phase 1 of the HS2 scheme, between London and Birmingham, is projected to cost between £16 and £18 billion; when one includes the ‘Y’ network to Manchester and Leeds that rises to an estimated £32 billion.³⁷⁴ There are a number of questions surrounding these figures:

- Does this amount of spend constitute value for money?
- Is it necessary to spend this amount of money to secure the benefits HS2’s proponents say it will deliver?
- Is the cost estimate accurate?
- What additional costs will be incurred because of knock-on effects from HS2?
- What else could it be spent on – the ‘opportunity cost’?

The answers to all of these questions are subjective; some of the reasons for this are dealt with in section 5.3, above, which looks at forecasting.

Some of those who are sceptical of the project have queried the Treasury’s commitment to funding the scheme. One must assume from the often-voiced commitment of the former Transport Secretary and the Prime Minister to build HS2³⁷⁵ that they would not have made these statements without being certain that the Treasury would find the money for the scheme. Indeed, Philip Hammond, has stated that in effect the government would be taking the £2 billion per annum that currently goes to Crossrail and shift it across to HS2, once the one scheme winds up and the other begins.³⁷⁶ The Transport Select Committee sought clarification on this point: “the Government decides to go ahead with HS2, it should, in announcing that decision, publish a summary of the financial case including the assumptions which persuade Ministers that the scheme will be affordable alongside sustained investment in the classic network”.³⁷⁷

Treasury commitment to the project is further enforced by the fact that successive governments have already spent just over £190 million on the preparatory work for the project to the end of financial year 2011/12, with a total anticipated spend to 2014/15 of approximately £800 million.³⁷⁸ Jim Steer of Greengauge 21 found this fact reassuring, a kind of ‘down payment’: “the Transport Secretary had to find the £750 million just to do this planning work [...] we can say here is a Government that has put its hand in the Treasury pocket, the taxpayers’ pocket, to make the first stage of this project possible and has not cut back on the classic network”.³⁷⁹

However, given that the government has admitted that almost all of the up-front construction costs will have to be borne by the public sector,³⁸⁰ sceptics still question whether this would be ‘new money’ or whether it would mean taking money from other projects or budgets. For

³⁷⁴ op cit., *High Speed Rail: Investing in Britain’s Future – Consultation*, pp13; and: op cit., *Economic Case for HS2: The Y Network and London – West Midlands*, p36

³⁷⁵ see, for example, Philip Hammond and David Cameron [speeches to Conservative Party Conference](#), 3-5 October 2011

³⁷⁶ op cit., *High Speed Rail*, Q526

³⁷⁷ op cit., *High Speed Rail*, para 27

³⁷⁸ [HC Deb 6 September 2011, c441W](#); this will pay for the design engineering stages of the project and the costs involved in the statutory process (i.e. taking the Hybrid Bill through Parliament)

³⁷⁹ op cit., *High Speed Rail*, Q104

³⁸⁰ op cit., *High Speed Rail: Investing in Britain’s Future – Consultation*, p70

example, Christian Wolmar has said: “It has been presented as separate money - new money - that is just going to arrive and be churned out by the Department for Transport, with the happy agreement of the Treasury. That is totally fanciful”.³⁸¹ Even proponents of the scheme have admitted that if money for the project “comes at the expense of other very important transport projects - railway projects - then I think that is a potential argument against it”.³⁸²

This remains a particularly salient question while the economy still sputters towards recovery, with external threats to the future health of the nation’s finances. Some have pointed towards the government’s plans to drive down costs in the rail industry, as outlined by Sir Roy McNulty in his May 2011 report to government,³⁸³ which could free up money for extra investment and would enable further schemes to be built more cheaply.³⁸⁴ Others are less optimistic and have claimed that it would be “reckless to gamble £32 billion at a time when, quite frankly, in four years’ time I am not convinced we are going to be out of the economic wilderness and I think we are still going to be deeply mired in debt”.³⁸⁵ Mr Hammond has stated that once you decide that the project is a strategic priority, you have to be prepared to put up the necessary funds:

I do not think we should shy away from or seek to conceal the fact that it is probable there will be an amount of trapped public capital in a high speed railway that has been invested there because we believe there is a strategic economic benefit to the UK that cannot be captured by a private concessionaire or a private train operator in the form of fare box and profits.³⁸⁶

Others have questioned whether some of the costings for the scheme have held up to the scrutiny of the debate over the past year or so. For example, a September 2011 report from the TaxPayers’ Alliance states that taking into account considerations such as benefits from reduction in conventional services, environmental mitigation, the need for new infrastructure in London and lower projected revenues, “the cost to taxpayers alone will rise from £17.1 billion to a massive £45.5 billion”.³⁸⁷

One of the reasons opponents of the scheme have given for their various alternatives is the reduced cost. For example, a report led by David Ross (founder of Carphone Warehouse) and Sir Andrew Foster (former head of the Audit Commission), argued that by eliminating the most expensive part of the project (the line into Euston) and terminating at Old Oak Common instead; and cutting out city centres entirely by having the route north go via Birmingham and Manchester airports instead, would save billions, putting the total cost at around £6 billion.³⁸⁸ The arguments against this route alignment, in terms of capacity and demand, are outlined by HS2 Ltd. and scheme supporters elsewhere.

There is a further question of whether the route, once operational, will actually be profitable. The notion of selling a concession to operate services on the high speed line, and therefore recouping money for the taxpayer is discussed below, but some question whether the line would ever be able to operate without public subsidy. The Institute for Economic Affairs (IEA) said in a July 2011 report:

³⁸¹ op cit., *High Speed Rail*, Q9

³⁸² David Begg, Yes to High Speed Rail, in: *ibid.*, Q96

³⁸³ DfT, *Realising the Potential of GB Rail*, May 2011

³⁸⁴ e.g. Geoff Inskip, Centro, in: op cit., *High Speed Rail*, Q148

³⁸⁵ Martin Tett, 51m Group, in: *ibid.*, Q295

³⁸⁶ *ibid.*, Q547

³⁸⁷ TPA, *The hidden costs of HS2* (Research Note 92), 16 September 2011

³⁸⁸ Ross, et al., *High Speed Rail: How To Get Started*, February 2010, p7

The eventual costs to the taxpayer are heavily dependent in this scheme on the magnitude of the revenue stream starting in 2026 (i.e. taxpayers will provide a subsidy to cover losses and the level of subsidy will be higher if revenue forecasts / passenger demand is less than that forecast). Projections of future revenues do not deliver anything even close to a positive return on investment payback. Furthermore, the use of a non-commercial discount rate (3.5 / 3%) which clearly does not adequately reflect future risk over such a long-term planning horizon, serves to substantially inflate the value of the stream of future revenues in the business case.³⁸⁹

Christian Wolmar agrees that: “the extra capacity [on the conventional rail network] will have to be paid for. It is very unlikely that those services will be profitable; so they will require extra subsidy. HS2, in its early years, will also require subsidy. There will be a very big demand on the rail revenue account which I doubt we will be in an economic position to meet”.³⁹⁰

Relative cost of infrastructure construction in the UK

As noted in section 6.1, above, concerns have been expressed about the ability of the UK to deliver infrastructure projects on budget and with a reasonable cost-benefit. Particular concerns about the cost of constructing HS2 have been raised, particularly the relative cost per mile or kilometre of constructing rail track in the UK as opposed to elsewhere.

Prof. Chris Nash has said that: “The estimated costs per kilometre of this line are well in excess of the costs of building any other line elsewhere in the world, reflecting both the difficult terrain and high population density in England and the relative high unit costs of British construction”.³⁹¹ Jerry Marshall of AGAHST quoted the “cost per mile on the route to Birmingham is £160 million. In France, it is between £11 million and £16 million per mile”,³⁹² and Chris Stokes, a consultant for 51m, has said that: “The cost per mile of HS2 varies between twice and up to about eight times the cost of equivalent high-speed lines elsewhere in the world”.³⁹³ David Ross et al, have stated that at a construction cost of more than £56 million per kilometre, HS1 “is the world’s most expensive HSR link”.³⁹⁴

Does HS2 represent value for money?

Because of the way this type of project is evaluated (see discussion on cost-benefit analysis and forecasting in section 5.3, above), both sides of the HS2 debate contend that ‘the figures’ support their case as to whether the scheme is good value for money (VFM) or not. Whether in absolute terms or compared to other proposed alternatives, those who favour the scheme state that HS2 represents ‘good’ VFM. Those opposed to the scheme claim that it does not represent good VFM compared to potential alternative schemes or even in absolute terms.

There is a secondary difficulty in that it is possible to evaluate the two stages of the project – phase 1 to Birmingham and phase 2 beyond – separately or together. Each has different BCRs and the figures have changed over the past eighteen months (see Table 5 overleaf):

³⁸⁹ IEA, *High Speed 2: the next government project disaster?* (IEA Discussion Paper No. 36), July 2011, p39

³⁹⁰ op cit., *High Speed Rail*, Q11

³⁹¹ ibid., HSR 27

³⁹² ibid., Q233

³⁹³ ibid., Q284

³⁹⁴ op cit., *High Speed Rail: How To Get Started*, p5

Table 5. BCRs for HS2 (London – West Midlands) and the Y Network, as estimated in March 2010 and February 2011.

	March 2010 ¹	February 2011 ²	
	London-West Midlands	London-West Midlands	Y Network
BCR without WEI	2.4	1.6	2.2
BCR with WEI	2.7	2.0	2.6

Notes:

¹ As detailed in the March 2010 High Speed Rail command paper 7827.

² As detailed in the Economic Case for HS2 The Y Network and London – West Midlands, March 2011

BCR was not calculated for the Y Network in March 2010

Sources:

DfT, *Economic Case for HS2: The Y Network and London – West Midlands*

DfT, *High Speed Rail, Cm 7827, March 2010,*

The economic case presented by HS2 declined between March 2010 and February 2011. The BCR without WEIs for phase 1 between London and the West Midlands has decreased from 2.4 to 1.6.

Between the publication of the two documents changes were made to the model used. Notably changes were made that affected forecasts of future demand including: revised economic forecasts; changes to fares; and network changes. Additionally other errors were amended and improvements made to the model.³⁹⁵

Revised economic forecasts³⁹⁶ and increases in regulated fares for three years starting in 2012, have contributed to slowing the rate of forecast rail demand growth. At March 2010 long-distance rail demand was forecast to increase by 3.4% per year on average until 2033;³⁹⁷ as discussed in section 6.2 long-distance rail demand is forecast to increase by 1.9% per year on average until 2043 in the February 2011 document.

In light of changes to forecast demand the government changed the year at which demand forecasts are capped. The cap was changed from 2033 to 2043, the year in which the demand level previously forecast for 2033 would be reached. Sensitivity analysis in figure 7 on p61 considers different levels of rail demand and years of capping demand.

When challenged on VFM, Alison Munro, Chief Executive of HS2 Ltd., has stated that under certain circumstances the BCR for the scheme could slip below 1: “We tested, as a sensitivity test, what would happen if we capped demand in 2026 and there was no further growth. On that basis we estimated that the business case, excluding wider economic impacts for the London to west midlands line, would have a benefit-cost ratio of 0.7 [...] but that is quite an extreme view”.³⁹⁸

³⁹⁵ HS2 Ltd., *A summary of changes to the HS2 Economic Case*, April 2011; and: Atkins, *Modelling and Appraisal Updates and their impact on the HS2 Business Case A Report for HS2 Ltd.*, April 2011

³⁹⁶ forecasts of economic growth from the Office of Budgetary Responsibility (OBR) predicted a slower recovery from the recession than in previous forecasts up to 2015, and, in agreement with DfT, WebTAG growth rates have been assumed for the medium to long term, see: MVA Consulting/Mott MacDonald, *HS2 London – West Midlands Consultation: Demand and Appraisal Report*, July 2011

³⁹⁷ op cit. *High Speed Rail*, Cm 7827, pp91

³⁹⁸ op cit., *High Speed Rail*, Qq469-70

The opponents of the scheme have called it “in absolute terms ... a turkey”, that “If you do the sums properly, you get less money back in terms of economic and social benefits than you put in in terms of subsidy. It has a benefit-cost ratio of about half”.³⁹⁹ In its July 2011 report the IEA came to a similar conclusion, citing a “lack of a commercial attitude to cost” on the part of HS2 Ltd. and the Department for Transport. The IEA states that the net benefits ratio (NBR) for Phase 1 is only 1.6 and therefore marginal and that when “incorrect assumptions about the value of time” are factored in to consideration of the full Y network, the NBR falls to less than 1.5.⁴⁰⁰

More broadly, this is supported by evidence from Puga who points to the Spanish example:

Since the Madrid-Sevilla line started its operations in 1992, it has taken a large fraction of passenger transport away from both car and air transport. Yet de Rus and Inglada’s (1997) careful cost-benefit analysis arrives at a negative net present value of the project of at least €2,300 million (at 1993 prices) for an infrastructure investment of roughly the same amount.⁴⁰¹

Going back to the arguments about HS2 needing to be put into a wider strategic context (see section 6.1, above), Lord Wolfson argued that there was an element of unreality about the current debate:

If you want to say that we have an infinite amount of capital to spend, then yes, any investment, no matter how low the return, as long as it is marginally above the cost of interest; but we do not have an infinite amount of capital ... If you look at competing rail investments it is not in any way the best return on capital. My question is, why are we prioritising rail over road when more than 90% of our passenger miles are done by road? ... I have spent the last 20 years building a retail portfolio and I can see the immensely transformative effect that new road networks have on local economies. It amazes me that we do not want to invest in roads. The love affair that we have with railways amazes me.⁴⁰²

In his 2008 paper, *The Economic Effects of High Speed Rail Investment*, Gines de Rus of the University of Las Palmas made a similar point that: “even in the case of particularly favourable conditions, the net present value of HSR investment has to be compared with other ‘do something’ alternatives such as road or airport pricing and/or investment, upgrading of conventional trains, etc.”.⁴⁰³

Lord Wolfson went on to make a detailed argument to the Transport Select Committee explaining that relative to road – or in fact other rail investments – HS2 does not represent the best value for money for the taxpayer. He emphasised that this was important to consider when looking at the spend on HS2: “There are two things you have to consider. One is the absolute level of return and the other is the level of return on an investment relative to what you could be spending that money on elsewhere ... Even on the basis of the arguments put forward for HS2, it is not a terribly compelling return on the investment that we are getting relative to what we could be doing with that money”.⁴⁰⁴ Wolfson stated that the country should prioritise the highest return investments first and pointed to examples in the 2006

³⁹⁹ Bruce Weston, HS2 Action Alliance, in: *ibid.*, Q235

⁴⁰⁰ *op cit.*, *High Speed 2: the next government project disaster?*, p38

⁴⁰¹ Puga, *University of Toronto, European regional policies in light of recent location theories*, December 2001, p23

⁴⁰² *op cit.*, *High Speed Rail*, Qq195-200

⁴⁰³ De Rus for the OECD/ITF, *The Economic Effects of High Speed Rail Investment* (Discussion paper 2008-16), October 2008, p27

⁴⁰⁴ *op cit.*, *High Speed Rail*, Q193

Eddington Report⁴⁰⁵ where “the average benefit-cost ratio of the road schemes he looked at, it was around 3.7. That compares to 2.6 for HS2. It is quite clear that there are many other projects that should be taking priority over this one and are not”.⁴⁰⁶

Other potential sources of funding

As with the Crossrail project, it is likely that the government will try and secure some third party (local government and private sector) investment. The February 2011 consultation document states:

Third party funding. 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.

Property development. The Government intends to work closely with property developers to ensure that the very significant development opportunities created by the proposed stations are maximised. Experience from other high speed schemes in this country and internationally shows this can provide a significant contribution to the overall funding of any new high speed lines.⁴⁰⁷

The former Secretary of State, Philip Hammond, has said: “There may also be possibilities of bringing some private capital into the provision of stations, depots and similar ancillary infrastructure, reducing the outlay of public capital required at the outset. But we will explore all of those models and we will look for the one that delivers the best value for money within the constraint of available public sector capital cash spend”.⁴⁰⁸ Specific examples he gave of where private capital might be used include the upgrade of Euston and the two Birmingham stations which together would come to “well in excess of a billion”.⁴⁰⁹

Others have urged the government to be more radical. For example, Ross et al. urged the adoption of a ‘rail agency model’ instead of a straight public sector project. This would be like a public private partnership (PPP) with the public and private sectors sharing risk.⁴¹⁰ In a 2007 report PricewaterhouseCoopers (PwC) cited an example of a successful HSR PPP in the Netherlands and the possibility of Portugal adopting PPP for its proposed HSR lines.⁴¹¹

One possible source of outside funding is the European Investment Bank, which recently gave €1.2 billion to the French Government to build the Tours-Bordeaux line.⁴¹² It is also possible – though it has not been widely discussed – that those regions that are expected to benefit economically from HS2 might be able to raise money to contribute to the scheme, or if not to the line itself, to the other improvements that will be needed to local transport infrastructure in those areas.⁴¹³ There is a question about how much more will need to be spent to secure the wider benefits that form such a key part of the case for HS2. Two such examples that have been raised are:

⁴⁰⁵ op cit., [Eddington Transport Study](#)

⁴⁰⁶ op cit., [High Speed Rail](#), Q194

⁴⁰⁷ op cit., [High Speed Rail: Investing in Britain’s Future – Consultation](#), p70

⁴⁰⁸ op cit., [High Speed Rail](#), Q546

⁴⁰⁹ “Government ready to see HS2 to recoup taxpayers’ investment”, *Financial Times*, 25 June 2011

⁴¹⁰ full details in: op cit., [High Speed Rail: How To Get Started](#), pp10-11

⁴¹¹ PwC, [Delivering the PPP promise: A review of PPP issues and activity](#), April 2007, pp21 & 38

⁴¹² “Record EIB financing for high-speed rail line”, *Europolitics*, July 2011

⁴¹³ e.g. Tax Increment Financing, for more information, see: House of Commons Library note [SN5797](#)

- In the **West Midlands**, the area needs “round about £300 million to £400 million” on local rail enhancements between now and 2025,⁴¹⁴ and
- In **London** TfL would need “between £6 billion and £9 billion” for a new tube line to deal with overcrowding at Euston.⁴¹⁵

Recouping costs via let of a concession

In a 2009 report the US Congressional Research Service stated that “of the many high speed routes in the world, it is thought that only two have earned enough revenue to cover both their infrastructure and operating costs”.⁴¹⁶ This is one of the reasons why it becomes particularly important to have the private sector, rather than the public sector, pay the operating costs of the HS2 line via a concession.

Proponents of HS2 have been keen to emphasise that the construction cost of HS2 to the taxpayer might be recouped via the let of a concession to operate the route, similar to that which was let for HS1 in November 2010.⁴¹⁷ To be clear, the state still owns the infrastructure of the railway and the freehold to the associated land. The concessionaire (HS1 in this case) has “the rights under the Concession to sell access to track and stations on a commercial basis. It will have to preserve the nature and capacity of High Speed 1 as a high-speed railway and to maintain and renew it to modern standards”.⁴¹⁸ There is nothing stopping the government of the day letting another contract in 30 years time, once this concession expires.

Greengauge 21 published a paper in July 2011 setting out how the government could recoup construction costs from a similar concession for HS2. It estimated that “services could generate significant Operator Net Revenue resulting in proceeds upon a sale of an infrastructure concession of between £6billion - £7billion”.⁴¹⁹ In a June 2011 interview Mr Hammond confirmed that the concession option was one the government would pursue:

[Once built, the track] will be swiftly leased on a 30-year concession to infrastructure funds to raise many billions of pounds more, as long as this represented “best value for money for the taxpayer”. That process is likely to begin within a year of the line's completion, Mr Hammond predicts.⁴²⁰

Fares

Perhaps the most controversial statement the former Secretary of State Philip Hammond made about HS2 is that it will be a ‘rich man’s railway’:

Uncomfortable fact perhaps No. 1 is that the railway is already relatively a rich man’s toy-the whole railway. People who use the railway, on average, have significantly higher incomes than the population as a whole. That is a simple fact.⁴²¹

The debate about fare levels, for a service which will not begin operating for another fifteen years, may seem slightly unreal, but it matters for a number of reasons, particularly to secure

⁴¹⁴ Geoff Inskip, Centro, in: op cit., *High Speed Rail*, Q149

⁴¹⁵ Daniel Moylan, Transport for London, in: ibid., Q177

⁴¹⁶ CRS, *High Speed Rail (HSR) in the United States*, December 2009, p19; the two lines are Japan’s Tokyo-Osaka route and France’s Paris-Lyon route

⁴¹⁷ DfT press notice, “UK Government sells right to operate its first High Speed Railway for £2.1billion”, 5 November 2010

⁴¹⁸ ibid.

⁴¹⁹ PwC for Greengauge 21, *Selling HS2: Delivering a return on Government’s investment*, July 2011, p9

⁴²⁰ op cit., “Government ready to see HS2 to recoup taxpayers’ investment”

⁴²¹ op cit., *High Speed Rail*, Q553

public buy-in for the scheme; and because it affects the economic case for the scheme – particularly in terms of securing wider economic impacts.

On the first point, Prof. John Tomaney of Newcastle University said that the argument about HS2 is one “between affluent people”:

The prejudiced businessmen you listen to are affluent people. They are in favour of it. The people who are against are affluent people. One of the points about high-speed rail is that it is for and about affluent people. The highest income quintile group are the group which are most likely to use high-speed rail. This is not a policy proposal that is inherently about meeting the needs of the poor.⁴²²

Anthony Smith from Passenger Focus emphasised how this perception could negatively impact public buy-in if it were not resolved quickly:

It would be a disaster, in public relations terms from the passengers’ point of view, if the new line is ultimately perceived as a rich man’s railway which only a certain sector of the population can use. Of course it is very difficult to predict at the moment the pricing and the way that it is ultimately sold, but it is very important to try and get an understanding of that as quickly as possible.⁴²³

Others have stated that premium pricing is inevitable given the financial burdens on the scheme and they point to the premium pricing on Eurostar and South East Trains as opposed to the conventional network in the south east as well as the long-term aspiration of the present and previous government to shift the cost-burden of the railways away from the taxpayer and onto the passenger.⁴²⁴ Chris Nash pointed to how other high speed networks, such as the TGV in France, practise yield management to offer a variety of prices; while Stephen Joseph of the Campaign for Better Transport stated that pricing was sensitive to relative external factors such as the cost of travelling by plane or car.⁴²⁵

HS2 Ltd. has undertaken limited work on fare levels, and in particular premium pricing. This found that: “the impacts of premium fares are many and complex, however it is certainly not the case that a single percentage premium is applicable or desirable across all markets and routes. Instead there would need to be careful management of revenue strategies – similar to those already seen on long distance services – to maximise use of capacity”.⁴²⁶ However, in modelling the business case, HS2 Ltd. state that they made an assumption that fares would remain the same on the HSR network and on the conventional network and that the business case is, in effect, “independent of the price paid for the fare”.⁴²⁷ The Institute for Economic Affairs (IEA) has stated that HS2 Ltd.’s business model “has a prediction for a trebling in customer demand over 35 years sitting alongside a plan to increase ticket prices by nearly 50% in real terms”.⁴²⁸

Before Mr Hammond conceded that HS2 would in fact be a ‘rich man’s railway’ some of those in favour of the scheme rejected the notion. For example, in September 2010 Greengauge 21 published a report calculating that HSR would be ‘affordable for all’:

⁴²² op cit., *High Speed Rail*, Q307

⁴²³ ibid., Q34

⁴²⁴ e.g. Christian Wolmar, in: ibid., Q23; this was stated by the Labour Government in its 2007 White Paper and by the Coalition Government will carry out a review of fares in 2012 following the recommendation in the May 2011 McNulty rail value for money study

⁴²⁵ op cit., *High Speed Rail*, Q24

⁴²⁶ ibid., HSR 169A

⁴²⁷ ibid., Qq450-2

⁴²⁸ op cit., *High Speed 2: the next government project disaster?*, p38

In today's prices, the average fare paid for a single journey could be £40-45. This is the average fare paid today for the journeys that will be typically on offer in future on high-speed rail. Unsurprisingly, few of today's rail passengers actually choose to pay the highest fares on offer, any more than is the case with today's air passengers.

As with all competitive transport systems, much lower fares, perhaps £20-25 one-way, will be available on high-speed rail for those willing to forgo some flexibility on travel times or able to take advantage of discounts such as from railcards. This is the basis – reasonably-priced fares with no high-speed premium – on which all of our business case work on high-speed rail has been conducted to date.

[...] rail usage is not restricted to people with higher incomes, as some have argued. Even those on lowest incomes still make a significant number of rail journeys, with little difference between the lowest 20% and the next two income groups. With fares for high-speed rail expected to be (on average) at the same level as those on the existing rail network, we can expect the same broad level of usage, right across the social spectrum and across all income levels.⁴²⁹

6.4 Speed and service patterns

A need for speed?

When this type of new infrastructure is considered, time and again one of the arguments made is that if you are going to build a high speed line, make it as fast as possible, and to the best available technical standards. This is not a new idea. Indeed, back in the late 1980s, during the ongoing debates about the Channel Tunnel Rail Link, the Chairman of British Rail, Sir Robert Reid, told the Transport Select Committee: "We shall ... build [HS1] to the most modern standards because it will be there for 100 years and therefore it would be foolish for us not to build it with a high speed link and all that goes into that".⁴³⁰

The government and proponents of HS2 have put forward similar arguments for having the highest speed possible on HS2. Prof. Andrew McNaughton, Chief Engineer at HS2 Ltd., summed it up thus:

We took it a little bit further on to the 400 kph or 250 mph for two reasons. One is because we learned very strongly from people that we respect, like Guillaume Pepy in France, that they had wished that they had not designed to the limit of the day because the technology continues to advance. They warned us very clearly not to design to the limit and always leave something in hand either for future generations or simply because engineering systems work better when they are not running on the limit. There are examples around the world where people have run things on the limit and they go poorly in the end.⁴³¹

Geoff Inskip of Centro concurs: "Once you start thinking about building a new line, it has to be current technology, it has to be good technology and you might as well make it high speed".⁴³² Others have pointed to the importance for regional cities of bringing them closer in terms of journey time to London, not least because this is one of the contributing factors to the regional growth they expect to see as a consequence of HS2, as Michael Roberts of ATOC explained:

What is important to underline in that respect is the opportunity for shorter journey times ... between our four major conurbations: London, west midlands, Manchester

⁴²⁹ Greengauge 21, *High speed rail: fair and affordable*, September 2010, p1

⁴³⁰ Transport Committee, *British Rail: minutes of evidence* (session 1988-89), 212, 15 February 1989, Ev 23, Q71

⁴³¹ op cit., *High Speed Rail*, Q437

⁴³² ibid., Q134

and west Yorkshire. It is the opportunity to shorten those journey times in terms of unlocking wider economic benefits. The case that is being put forward in terms of the economic benefits of HS2 identifies something of the order of £6 billion over the lifetime of the project in wider economic benefits. Those would not materialise without the higher speeds.⁴³³

Geoffrey Piper, Chief Executive of the North West Business Leadership Team, explained the psychological difference to business of having journey times between London and the north cut dramatically, the 'step change':

We think that removal of one of the major obstacles which we have in terms of distance and time from London can make a very big difference. ... It is a percentage drop. Going from two hours five minutes to one hour 55 minutes might be psychological for some people, but I do not think it is a tipping point. When you start getting it down to one hour five minutes or one hour 10 minutes, or whatever it is, bringing Manchester as close to London as Birmingham is currently, that is what I call a step change; we have moved a northern city to being one which almost sees itself as a satellite of London. That will be transformational.⁴³⁴

Philip Hammond stated that the key point for him was that the lower the speed, the less robust the business case:

The problem is that as you move down the speed curve, as it were, the cost of building a new railway diminishes only moderately. I believe the engineering estimate is that a brand new railway built to run at conventional speed, 125 mph, would be about 10% to 15% cheaper than a railway built to run at high speed, 250 mph, yet the benefits it would deliver would be reduced by about a third. The cost-benefit ratio and the value for public money would be very significantly diminished if you chose a combination of new railway and low speed.⁴³⁵

Others are not convinced. Jerry Marshall of AGHAST pointed to the fact that the vast majority of UK rail passengers are 'very satisfied' with their journey times – higher than France and Germany and second overall across the EU; Anthony Smith of Passenger Focus concurred that speed was not as important as extra capacity: "The title "high speed rail" is a bit of a misnomer in our eyes because it seems to be better called something like Big Rail or New Rail, and the high speed bit is a bit of an add-on".⁴³⁶ A Populus survey for the AA in August 2011 found that amongst almost 17,000 AA members (i.e. motorists) the main factor which would incentivise their use of an HSR line would be cost (62 per cent), with proximity to a station coming second (18 per cent). AA President, Edmund King, said:

It appears that perhaps the main *raison d'être* of HSR - speed - seems pretty irrelevant to most drivers. Two thirds of members are concerned about costs of using rail and therefore we believe that rail enhancements that are cheaper, based more on reliability and increased capacity, rather than speed, would be much more effective in convincing some drivers to let the train take the strain.⁴³⁷

The government's decision to opt for a maximum speed of 250 mph/400 kph has caused some concern. As indicated in section 4.2, above, opponents of the scheme claim that the decision to opt for this speed limited the route that HS2 could take, with attendant

⁴³³ op cit., *High Speed Rail*, Q46

⁴³⁴ *ibid.*, Qq154-55

⁴³⁵ *ibid.*, Qq518

⁴³⁶ *ibid.*, Qq 45 & 232

⁴³⁷ "Motorists doubt purpose of high-speed rail", *London Evening Standard*, 4 August 2011

environmental concerns.⁴³⁸ In its November 2011 report, the Transport Committee broadly agreed with this assessment:

It is possible however, that very high speed (250 mph) may have been given an undue emphasis as a result of the particular appraisal method used as part of the economic case. It may be that a high-speed line operating at less than 250 mph may offer greater opportunities for noise and environmental impact mitigation, as well as an opportunity to follow existing transport corridors. We are concerned that the decision to build a 250 mph line has prematurely ruled out other route options such as building HS2 alongside an existing motorway corridor such as the M40 or M1/M6.⁴³⁹

Even those who are broadly in favour of HSR query why a decision was taken to construct a line beyond the maximum speed prevalent on the Continent.⁴⁴⁰

Level of service: how many trains per hour?

Tied to the speed at which trains will travel on the new line is the question of how many trains per hour the network will be able to sustain – the faster you go, the fewer stops there are, the more trains you can run. The government has indicated that it would like to see 18 train pathways per hour on the London-Birmingham route. This number is not currently operated on any other HSR line anywhere in the world. Eurostar operates two to three trains per hour and can go up to four or five in the peak; in Japan they run 12 pathways per hour; SNCF in France is considering whether to run 13 trains per hour next year. Pierre Messulam of SNCF has stated that with the new electronic signalling system being rolled out across Europe it might be possible to achieve 15 to 16 trains per hour in the future, but that that is the ‘practical technological limit’ at present.⁴⁴¹

HS2 Ltd. maintains that 18 TPH is possible, for the following reasons:

We calculate that an 18tph service can be offered reliably on HS2 on a ‘clock face’ regular interval timetable. This is based on using the European Train Control System (ETCS), the most up-to-date available design for the reference train, our proposed configuration of infrastructure for stations and junctions, and our proposed service pattern. We do not consider it requires technology development to achieve this at 225mph and we believe that only limited, foreseeable, development would be necessary for the ultimate potential route maximum speed.⁴⁴²

According to HS2 Ltd., this has been confirmed by independent reports: “Bombardier Transportation ... have reported to us that they have come to the same conclusion and ... Systra, the French railway consultancy, have also reported to us that they have come to the same conclusion”.⁴⁴³ Details of how HS2 Ltd. reached their conclusions are given in supplementary evidence to the Transport Committee, after scheme opponents told the Committee that having pushed HS2 Ltd. for details, none had been forthcoming. Bruce Weston, Director of the HS2 Action Alliance, maintains that:

Although HS2 Ltd. have put in their documentation that they expect [that the technology to enable 18 TPH] will become deliverable, last summer they are on record

⁴³⁸ e.g. Stephen Joseph, Campaign for Better Transport, in: op cit., *High Speed Rail*, Q7; and Railfuture in: ibid., HSR 13

⁴³⁹ ibid., para 68

⁴⁴⁰ e.g. Lord Berkeley, in: ibid., Q46

⁴⁴¹ ibid., Qq82-83

⁴⁴² ibid., *High Speed Rail: written evidence*, HSR 169A

⁴⁴³ Prof. Andrew McNaughton, HS2 Ltd., in: ibid., Q439; a list of these reports is given in: ibid., HSR 169B

basically accepting that it was not; that the maximum they would be able to deliver on a Y configuration would be 14 to 15 trains an hour.⁴⁴⁴

Stopping and stations: who gets a station?

Whatever one's views about the proposed HS2 line, there seems to be a degree of consensus amongst local authorities and businesses that if it is going to be built, then it would be better to either have the line stop in one's near proximity or to have good links to the line. As Geoff Inskip from Centro stated: "This whole debate about high speed rail fascinates me because everybody wants a station ... They want a high speed rail station in every single city, every single town, and then they will all be happy".⁴⁴⁵

However, the question of where exactly HS2 will stop has been one fraught with disagreement: some cities located along the line but not earmarked for a station are concerned that they will suffer by comparison with those that do have a station; and those that do have a station are concerned about local environmental impacts and associated problems regarding network connections off the HSR line. Others have argued that there is not actually much of a case for new stations at all and that HS2 should serve existing infrastructure.

One of the self-evident facts about high speed rail is that in order to be 'high speed' it should have as few stops as possible – to stop once on a 300kph route loses seven minutes. A number of locations have been mentioned as possible intermediate stops on the London-Birmingham route, particularly Milton Keynes and Aylesbury. These have all been dismissed because of the impact on journey times. For example, Martin Tett of the 51m Group said: "by the time you have ramped up the speed coming out of London and reached a high speed, you have to jam on the brakes to stop at Aylesbury. Then you accelerate again, and lo and behold you are in Birmingham. You lose the speed argument completely".⁴⁴⁶

This was the approach the French took when constructing the TGV network, highlighted by Anthony Smith of Passenger Focus: "I remember the Chairman of SNCF ... said the thing that they had learned about the TGV network is to put as few stations as possible on it; don't stop. Don't have terminal stations if you can avoid it; go through places to other places".⁴⁴⁷ Pierre Messulam of SNCF explained his country's approach to intermediate stations in the following terms:

A high speed line should have few stops but should have connections, so that when you leave the high speed line and go on to the pre-existing network you can offer connections to people further down the road. The idea was to say that, when you are running at high speed, you should run at high speed. If you stop, you lose a lot of time. Just to stop once on a 300 kph route loses seven minutes. When you consider that your investment is 150 km long, giving you 30 minutes' gain, seven minutes is a huge loss of competitiveness compared to your investment. The less you stop on a high speed line the better.⁴⁴⁸

He also described how SNCF dealt with a number of medium-sized cities relatively close together when developing the TGV line in eastern France:

In eastern France you have a batch of medium-sized cities between, 100,000 and 300,000 people, quite close, around 80 km away one from the other. That was

⁴⁴⁴ *ibid.*, Q234

⁴⁴⁵ *op cit.*, *High Speed Rail*, Q159

⁴⁴⁶ *ibid.*, Q313; see also: Chris Stokes, in *ibid.*, Q315

⁴⁴⁷ *ibid.*, Q55

⁴⁴⁸ *ibid.*, Q79

completely new for us. How should we address the market? One option was to say a big station, but 80 km is quite far away, or build up stations in every medium-sized city. The question is: is the market big enough to sustain the business? Yes, but that means that some trains go from Paris to Zurich, and stop in Belfort, for example, but not in Besançon or Dijon, the two other small cities, and some international trains from Paris to Germany stop in Dijon but not in Belfort. We have to find a balance.⁴⁴⁹

London

Of particular concern is the site of stations in London, at Euston and Old Oak Common, and the decision not to take the line either directly to Heathrow (or any other airport) or to link it direct with HS1 from St Pancras through the Channel Tunnel.

Some have questioned whether London needs two stations (Old Oak Common and Euston) at all. For example, Lord Berkeley has said: "I do not think the argument for a new station at Euston is made because the passenger transfer at Old Oak Common on to Crossrail, which is very short of passengers when you get west of Paddington is something that should be looked at".⁴⁵⁰ There are other concerns about the plans for Euston, particularly about the impact on the local environment, both during the build and, in effect, in perpetuity afterwards, centred around the required demolition of the Regent's Park Estate in Camden. Councillor Sue Vincent highlights the issue: "In Regent's Park Estate, the potential demolition is of 190 to 260 homes, and that is just within the impact zone. With homes outside the impact zone, the figure goes up to about 450. They are a very different community. They are in an economically deprived area".⁴⁵¹

The other London terminus at Old Oak Common in North West London is supported by the relevant local authority which sees it as having the potential to be both the "Clapham Junction of the north" and "a new city for London, bigger than Canary Wharf, to unlock thousands of jobs and 11,000 homes".⁴⁵² Old Oak Common would be the interchange station for Heathrow. Transport for London (TfL) has expressed concerns about the plan, particularly how Old Oak Common will serve Heathrow, once the link or 'loop' is constructed in the second stage (i.e. alongside the links to Manchester and Birmingham):

...there is an issue at the moment, which is where, at Heathrow, this loop is going to stop, because Heathrow has dispersed terminals: three major terminals-one in the centre, terminal 5 and terminal 4. As this train, this loop, comes down and through Old Oak Common, which terminal is it going to serve, because it is not straightforward or apparent to me that the whole airport can be served by one stop on this line? Then the next question is: how many trains does the Government envisage using this loop? As I understand it, they will come down from Birmingham. Most trains will continue to Old Oak Common directly; others will take a loop through Heathrow and come back to Old Oak Common that way. That is as I understand what is proposed, but I understand the number of trains doing that is likely to be quite small.⁴⁵³

Greengauge 21, one of the most enthusiastic supporters of HS2, has recently stated that the government should cancel plans to build the Old Oak Common inter change and take HS2 to Stratford in East London instead where it could directly link to with HS1.⁴⁵⁴

⁴⁴⁹ op cit., *High Speed Rail*, Q89

⁴⁵⁰ *ibid.*, Q27

⁴⁵¹ *ibid.*, Q305

⁴⁵² Cllr Stephen Greenhalgh, Leader of Hammersmith and Fulham Council, in: *ibid.*, Qq163 & 167

⁴⁵³ *ibid.*, Q182

⁴⁵⁴ "Scrap Old Oak HS2 interchange and serve Stratford instead, DfT urged", *Local Transport Today*, 28 September 2011

Gatwick Airport has proposed that there should also be a direct link from Old Oak Common to the airport, though this would not be part of the high speed network. They propose that this could be achieved for as little as £15 million by upgrading lines and lengthening platforms.⁴⁵⁵ There is also speculation about a direct Heathrow-Gatwick line ('Heathwick'), which would inevitably have some knock-on impacts for the termination of the HS2 line.⁴⁵⁶ Near Paris, the TGV Roissy Charles de Gaulle station has proved successful because of its connectivity, and is used by those living outside the capital to avoid the city itself.⁴⁵⁷

As outlined in section 5.4, above, the Mayor of London, Boris Johnson, has withdrawn his support for HS2.

Birmingham

In Birmingham, there are two stations proposed as part of HS2: an interchange station at Birmingham International Airport, and a new city centre station at Curzon/Moor Street. There seems to be general agreement that the BIA interchange is a good idea and "will create greater choice ... for people taking short haul trips".⁴⁵⁸ Though some have questioned whether it is in the right location. For example, Litchfield Council observed: "it isn't at International, it is a mile away. So the time saved in getting to the high speed station is going to be wasted in getting to the airport, NEC or other final destination".⁴⁵⁹

Much as in London, there are similar debates occurring in and around Birmingham about the proposed new Curzon Street station. Geoff Inskip of Centro has said that the Integrated Transport Authority (ITA) supports the site of the proposed station and that they are looking to achieve connectivity between it and New Street, Birmingham's main rail terminal, via a new tram.⁴⁶⁰ Litchfield Council point to the lack of connectivity between the HSR terminal and other connections. They argue that this reduces the benefits of the HSR line, due to knock on delays making onward connections:

The plans for Birmingham's high speed railway station appear to show only one way out – this would be highly inconvenient and time consuming for travellers. On leaving the station there seems to be a very long walk ... There appears to be no pedestrian link to Moor Street or New Street stations, no taxi ranks, no car park, not even a bus stop. All the time saved getting to Birmingham Curzon Street will then be spent getting to the final destination ... Another disadvantage with Curzon Street is that there is no railway connection with the rest of the network. Trains cannot run on to serve Wolverhampton or the Black Country or anywhere except Curzon Street ... HS2 in Birmingham is surely a waste of money unless it gets to New Street. And once there, it could continue northwards to Manchester.⁴⁶¹

North of Birmingham

Detailed plans for the route and the termini north of Birmingham are yet at a very early stage and no detailed plans have been drawn up. We know that it will go to both Manchester and Leeds, but whether there will be an intermediate stop or where those two termini will be located remains unknown. There is a general idea, however, that in Manchester and Leeds "the station for HS2 should be a city centre station so that we can get connectivity with the rest of the rail network and we can create a catchment area for HS2".⁴⁶² There also appears

⁴⁵⁵ op cit., *High Speed Rail*, HSR 40

⁴⁵⁶ "Heathwick airport hub on agenda", *Financial Times*, 7 October 2011

⁴⁵⁷ Pierre Messulam, SNCF, in: op cit., *High Speed Rail*, Q86

⁴⁵⁸ John Dickie, London First, in: *ibid.*, Q174

⁴⁵⁹ *ibid.*, HSR 30

⁴⁶⁰ *ibid.*, Q159

⁴⁶¹ *ibid.*, HSR 30

⁴⁶² Richard Eccles, Network Rail, in: *ibid.*, Q39

to be discussion of whether there should be a spur between Manchester and Liverpool to connect with the port there.⁴⁶³

6.5 Environmental issues

Appraisal of Sustainability

Alongside the February 2011 consultation document, the government published an Appraisal of Sustainability (AoS). This describes the extent to which HS2 supports objectives for sustainable development. It defines 'sustainability' as including "considerations of economic development and job opportunities, and effects on communities, as well as environmental considerations such as landscape, natural environment and climate change".⁴⁶⁴

There have been some concerns expressed about the AoS. A number of environmental and transport bodies, although supportive of high speed rail in principle, are concerned about how the government is going about the HS2 project. They have formed an alliance, led by the Council for the Protection of Rural England (CPRE) setting out a [Charter for High Speed Rail](#) which outlines the key principles that an HSR project should follow.⁴⁶⁵ Some of the bodies involved include: Greenpeace, Friends of the Earth, The Woodland Trust, RSPB, Campaign for Better Transport and the Environmental Law Foundation. Concerns include the limited weight given to impacts that are difficult to put in monetary terms e.g. such as on landscapes, heritage and habitats, and the lack of flexibility over speed specifications. The alliance believes that the government's current approach to high speed rail currently falls "well short" of the Charter's principles and it intends to use the Charter as a way to change the government's thinking.⁴⁶⁶

Steve Rodrick of the Chilterns Conservation Board has also expressed 'grave misgivings', in part because "the impacts on the Chilterns, as an AONB, as a nationally protected area, should have been specifically identified ... The AoS did not include a Chilterns-specific section. We were lumped in with West Ruislip and Aylesbury. Lovely places though they might be, they are not the Chilterns".⁴⁶⁷ Ralph Smyth of CPRE was concerned that the AoS:

... did not really deal with alternatives. If you have a highlevel appraisal you would expect it to compare different route alternatives. CPRE and other NGOs were very concerned that these tradeoffs were not transparent on why the route went where it did, rather than using other options that might have lesser impacts on the natural environment and heritage. That information simply was not there.⁴⁶⁸

Carbon impacts

Generally, HSR has a good track record of delivering carbon benefits. In its 2009 study on the environmental impacts of convention and high speed rail, Network Rail concluded that overall there was:

... [a] significant net benefit of high-speed rail services over equivalent conventional services in terms of energy consumption and GHG [greenhouse gas] emissions per passenger-km in the context of proposed new line development. Factoring in the net effects of modal shift and journey creation adds to this advantage. Also highlighted is the overriding significance of the GHG emissions due to new rail infrastructure in the anticipated future where the electricity system is highly decarbonised. This in turn puts

⁴⁶³ Geoffrey Piper, North West Business Leadership Team, in: op cit., [High Speed Rail](#), Q139

⁴⁶⁴ Booz & co., Temple for HS2 Ltd., [HS2 London to the West Midlands: Appraisal of Sustainability Main Report Volume 1](#), February 2011, p1

⁴⁶⁵ [Along the right lines: A charter for high speed rail](#), April 2011

⁴⁶⁶ CPRE website, [A charter for High Speed Rail page](#) [on 2 November 2011]

⁴⁶⁷ op cit., [High Speed Rail](#), Q331

⁴⁶⁸ *ibid.*, Q332

significant emphasis on the importance of minimising emissions from the construction of any new rail infrastructure, focussing on sourcing lower carbon materials and on the recyclability of end of life components.⁴⁶⁹

As indicated above, one of the reasons why the Conservatives and others began supporting HS2 was to deliver modal shift from aviation and roads to rail, with the attendant carbon benefits. However, many, even supporters of the scheme, have been disappointed by the limited carbon impacts of the proposed HS2 route. The AoS assesses the carbon impacts as follows:

Taking all of these into account, HS2 could result in either an increase or a decrease in CO₂. At worst, over 60 years HS2 could result in an overall increase in CO₂ emissions of 24 million tonnes; at best it could result in an overall decrease of 27 million tonnes. Whichever scenario takes shape, the contribution of HS2 would be insignificant when compared to other transport, especially conventional road vehicle emissions in the UK.⁴⁷⁰

The Transport Committee was ‘unconvinced’ by the carbon case: “At best, HS2 has the potential to make a small contribution to the Government’s carbon-reduction targets. Given the scale of the expenditure and the official assessment, HS2 should not be promoted as a carbon-reduction scheme”.⁴⁷¹ As indicated in the NR report above, in the long run, as we decarbonise electricity, that case for HSR becomes stronger, however as Prof. Chris Nash has observed: “...when you look at other ways of saving carbon, if that were the only benefit of building high speed rail, it would be a very expensive way of saving carbon”.⁴⁷² CPRE agreed that: “The carbon case is very weak”.⁴⁷³

One of the main reasons why there are limited carbon benefits from HS2 is that in order for it to be economically viable, it must increase overall journeys, not just accommodate modal shift: it “relies on increasing travel”. This increases overall levels of carbon production.⁴⁷⁴ There is also a question about whether the very high speed that the government has chosen is relatively beneficial to the environment compared to other high speed systems where the maximum speed is lower than the proposed 250 mph. The Chiltern Society explains:

Even HS2L seem to accept that its project proposals will be no more than carbon neutral. This is particularly because of its fixation on a business model based on an exclusive 400kph VHSR, dedicated track network. Slower HSR speeds would reduce carbon emissions substantially. They would also reduce energy consumption. Slower speeds permit greater track curvatures and reduced tunnelling and associated costs, as well as significantly reduced embedded carbon impacts. They also make it, in stark contrast to the HS2 proposals, far more feasible to align any new HSR track within the environmental envelope of existing major transport corridors. The latter seems to be accepted good practice in the most densely developed European countries.⁴⁷⁵

Others have questioned whether, on a reappraisal of the figures, HS2 might end up having negative carbon impacts:

⁴⁶⁹ Network Rail, *Comparing environmental impact of conventional and high-speed rail*, 2009, piv

⁴⁷⁰ Booz & co., Temple for HS2 Ltd., *HS2 London to the West Midlands: Appraisal of Sustainability Non – Technical Summary*, February 2011, p95

⁴⁷¹ op cit., *High Speed Rail*, para 77

⁴⁷² ibid., Q8

⁴⁷³ ibid., Q332

⁴⁷⁴ see, e.g.: Christian Wolmar; John Dickie, London First; Martin Tett, 51m Group, in: ibid., Qq6, 165 & 274

⁴⁷⁵ ibid., HSR 81; see also: CPRE, *Getting Back on Track: Why new thinking is needed about High Speed Rail*, February 2011

Paul Davies, head of policy at the Institution of Engineering and Technology, said: "We believe we have uncovered a number of flaws in the proposals, some of which question the claim that HS2, as proposed, will reduce carbon emissions." The engineers said the energy consumption of trains doubles when the speed rises from 200kph to 300kph. HS2 services will travel at up to 360kph when phase one opens, and the track will be designed to handle up to 400kph. This would lead to an increase in emissions, as well as a rise in the amount of power required for each journey [...]

HS2 said under the best-case scenario, overall emissions would fall by 28 tonnes over 60 years as a result of the London to Birmingham line. But, under its "pessimistic scenario"—no drop in flights and no improvements in the carbon efficiency of electricity generation—there would be a 24m tonne rise in emissions over 60 years.⁴⁷⁶

Modal shift

Passengers

The potential extent of modal shift onto HS2, as modelled by the government, is illustrated in figure 11, p84, above. This shows that the majority of those expected to use HS2 will migrate from conventional rail rather than any other mode of transport.

In his 2011 paper for the University of Las Palmas Gines de Rus states that modal shift should not be considered as one of the prime benefits of HSR:

...the case for HSR investment can rarely be justified by the benefits provided by the deviation of traffic from air transport. It seems apparent that higher benefits could be harvested deviating traffic from road transport, but this is more difficult in the range of distances considered. The benefits of deviating traffic from road and air exceed the direct benefits discussed above, as other indirect benefits could be obtained in the other transport modes where their traffic volumes diminish *with* the project.⁴⁷⁷

Opponents and sceptics of the scheme tend to concur with this view: that the benefits have been over-stated and that the domestic air market in the UK is already in decline. The Chiltern Society states that with the domestic market in decline already, the key will be reducing short haul across Europe, and that this is unlikely to happen for the follow reason:

International transfer traffic to/from Manchester and Scottish airports would be far more likely to transfer to connecting flights to/from Continental hubs, enabling them still to check in their baggage at their originating airport, rather than carrying it onto an HSR train and then via additional modal interchanges to reach their departure terminal at Heathrow.⁴⁷⁸

Jerry Marshall of AGAHST states that modal shift is likely to be 'relatively slight', even when HSR goes to Scotland:

When it eventually goes to Scotland there will no doubt be some people shifting from aviation. HS2 say 6%. We think that is overstated for all kinds of reasons. The routes from London to Scotland are already declining and much of it is already taken by train.⁴⁷⁹

There is a 'tipping point' where HSR can attract passengers from aviation. In his 2010 paper for the University of Barcelona, Daniel Albalade states that "investment in HSR is difficult to

⁴⁷⁶ "Carbon may derail fast trains", *The Sunday Times*, 7 August 2011

⁴⁷⁷ De Rus, "The BCA of HSR: Should the Government Invest in High Speed Rail Infrastructure?", *Journal of Cost-Benefit Analysis*, Vol II, issue 1, 2011, p19

⁴⁷⁸ op cit., *High Speed Rail*, HSR 81

⁴⁷⁹ *ibid.*, Q209

justify when the expected first-year demand is below 8-10 million passengers for a line of 312.5 miles, a distance at which HSR's competitive advantage over road and air transport is clear".⁴⁸⁰ He explains that following the introduction of HSR in France (between Paris and Lyon, 264 miles) and in Spain (between Madrid and Seville, 292 miles), road's share of traffic increased by about a third, while aviation's share decreased by about a quarter.⁴⁸¹ In its written evidence to the Transport Select Committee for its 1995-96 inquiry into UK airport capacity, the Aviation Environmental Federation also acknowledged the point at which high speed rail assumes an advantage over short-haul flights to be for journeys below approximately three hours:

To become attractive to consumer interests, high-speed rail (HSR) can only be considered as a realistic alternative to air travel if it is able to compete in terms of price and travel time. [A 1991 report for the European Commission] concluded that "the impact of the high-speed train is very great on short distances where the journey time by high speed train is less than 3 hours: this is equivalent to distances of 500 km as the crow flies. For journeys with rail travel times of less than 2 hours, the train attracts virtually all potential rail and air traffic." This analysis is broadly consistent with views within sections of the aviation industry.⁴⁸²

Proponents of HS2 maintain that modal shift can and will happen. As to the principle, in its 1994 report on transport and the environment, the Royal Commission on Environmental Pollution, despite all its reservations about the 'energy penalties' of high speed rail (see above), concluded that:

...government policy should be based on transferring as much traffic as possible from air to rail. This will require fast rail links not only between cities, but also directly to airports to connect with intercontinental flights. We recommend that policy on air services should be based on discouraging air travel for domestic and near-European journeys for which rail is competitive.⁴⁸³

Key to achieving modal shift is the building of a direct link to Heathrow. Jim Steer of Greengauge 21 explained why:

... the link to Heathrow ought to be developed rapidly in our view ... partly because domestic flights to Heathrow are disappearing rapidly across to European hubs and the battle is going to be a rather different battle from the one that other countries have experienced between short haul domestic airlines and high speed rail. The short haul airlines will have gone by the time high speed rail is here. They will have gone from being domestic to international travel, which is even worse in environmental terms. That link to Heathrow opens up the prospect of reconnecting Britain to its major international hub.⁴⁸⁴

Heathrow Airport Limited concurs that "it is clear that a direct and effective connection is a pre-requisite for achieving air/rail substitution. The proposed link from Old Oak Common will not achieve the mode shift Government is looking for".⁴⁸⁵ Allan Gregory from Heathrow explained that the potential for modal shift to and from Heathrow would be limited internally to the Heathrow-Manchester route (there are no Heathrow-Leeds or –Birmingham routes), to

⁴⁸⁰ Albalade & Bel for GiM-IREA, University of Barcelona, *High-speed rail: lessons for policy-makers from abroad* (working paper 2010/3), 2010, p22

⁴⁸¹ *ibid.*, p23

⁴⁸² Transport Committee, *UK Airport Capacity: minutes of evidence* (session 1995-96), HC 67-i, 27 November 1995, Ev 342

⁴⁸³ *op cit.*, *Transport and the environment*, para 12.50

⁴⁸⁴ *op cit.*, *High Speed Rail*, Q122

⁴⁸⁵ *ibid.*, HSR 131

the tune of approximately 9,000 flights, which is two per cent of all Heathrow flights. He states that the real benefit would come from HSR replacing the 35,000 to 48,000 flights from the north of England that bypass Heathrow and go straight to one of the European hubs such as Paris CDG, Frankfurt or Schiphol.⁴⁸⁶

Others agree that the HS2-HS1 link is vital to shift passengers away from short haul European flights because it will allow through-trains from Scotland, via Manchester and London to the Continent, providing “a good alternative for short haul aviation ... which currently is not the case”.⁴⁸⁷

But modal shift is not simply about aviation, it is about encouraging a switch from road to rail for both passengers and freight. In terms of passengers, Jerry Marshall from AGAHST admitted that there had been a “very significant” modal shift from both cars and coaches to rail over the previous 15 years “because it has been possible to work on trains, and there is the internet and airline-style pricing”. However, he states that: “the overall background of a long distance domestic travel passenger has not changed. There has not been a growth in that. That is going up in line with population”. This raises questions about the limits of modal shift from road to rail along the HS2 route.⁴⁸⁸ However, one potentially significant road to rail switch could come from surface access to airports. Jonathan Young from Manchester Airports Group stated: “the increased connectivity of High Speed 2... would, we hope, start modal shift in people accessing the airport. 60% of our emissions are from people accessing the airport”.⁴⁸⁹

Freight

The majority of freight within the UK is moved by road. In 2009, 65% of total goods moved in Great Britain were moved by road, 9% were moved by rail.⁴⁹⁰ When the Channel Tunnel was built there was an expectation that freight traffic between the UK and the continent would treble, and that there would be 1,000 fewer heavy lorries a day on UK roads as a result.⁴⁹¹

When the legislation for HS1 was going through the House, there was talk of it facilitating a ‘massive’ switch from road to rail: one figure mentioned was of 400,000 trailers being diverted across the country from the Channel Tunnel to Glasgow with links to the Irish seaports via Holyhead, Merseyside, Heysham and Stranraer.⁴⁹² However, the Secretary of State at the time, Sir George Young, was clear that HS1 was “primarily intended for passenger traffic into St. Pancras”.⁴⁹³ This proved to be the case and in 2007 it was stated that there was only one freight service per day going through the Channel Tunnel,⁴⁹⁴ in 2009 the then Minister confirmed that no significant freight had been moved on HS1 since 2007.⁴⁹⁵

Similarly with HS2, the former Secretary of State confirmed in 2011 that there are “no plans to use the proposed connecting line between High Speed 1 and the proposed High Speed 2 for continental sized freight trains”.⁴⁹⁶ This means that the potential to shift road freight onto rail will rely primarily on increasing freight capacity on the traditional network north of London, particularly the West and East Coast main lines. For example, freight operator DB Schenker

⁴⁸⁶ *ibid.*, Q363

⁴⁸⁷ Stephen Joseph, Campaign for Better Transport, in: *ibid.*, Q22

⁴⁸⁸ *op cit.*, *High Speed Rail*, Q261

⁴⁸⁹ *ibid.*, Q369

⁴⁹⁰ DfT. *Transport Statistics Great Britain: 2010*, Table 4.3

⁴⁹¹ *HC Deb 2 February 1987*, c673

⁴⁹² *HL Deb 21 May 1996*, c819

⁴⁹³ *HC Deb 12 February 1996*, c639

⁴⁹⁴ *HL Deb 17 October 2007*, c696

⁴⁹⁵ *HC Deb 19 January 2009*, cc1056-57W

⁴⁹⁶ *HC Deb 28 February 2011*, c184W

Rail has indicated that without significant additional capacity on the WCML, the industry's plans for modal shift "will be severely constrained. Each intermodal freight train on the WCML replaces up to 112 lorry journeys - the equivalent of up to 30,000 lorry journeys per annum for each train".⁴⁹⁷ Lord Berkeley of the Rail Freight Group has outlined the extent of the task:

Assuming that the logistics industry continues as it is, developing worldwide and Europe-wide, then one has to think about how the long-distance freight is going to be carried, because rail freight takes about 12% at the moment on a tonne-km. The only way to do it long distance is by water or rail, which could be more carbon-free than the present diesel engines. That is going to involve, on the Commission's estimates, about three times the existing volume of rail freight. I think it is nearer five times, but it is probably academic being 40 years away.⁴⁹⁸

Lord Wolfson drew on his own experience as a haulier, explaining that there are practical limits to the use of rail for transporting freight:

All the freight we get in by ship we take by rail to a hub to put into our warehouses. To get it from the warehouse to the stores and customers - we deliver next day to most of our mail order customers - rail is just not an option because it cannot do it in the time. The idea that rail could service shops or consumers in their homes in a timely fashion, for example, is not really feasible.⁴⁹⁹

However, the practical reliance of the freight sector on the roads has led others to conclude that money allocated for HS2 would be better spent improving the road network:

...a huge amount of potential money is spent on meeting the needs of a small part of the transport market at the expense of the majority. Most travel goes by road, and road is more important to commerce and industry. You have had evidence on the importance of rail to commerce and industry, but all the literature shows that road is regarded by commerce and industry as more important. The problems on the road are more debilitating than problems on the railways.⁵⁰⁰

Blight

Perhaps the main concern of those living close to the proposed HSR line is the impact on their immediate environment. Scheme proponents have labelled them 'NIMBYs' ('Not In My Backyard');⁵⁰¹ while they themselves claim to be concerned about the natural environment, and in particular the impact of HS2 on woodlands and the environment more generally, particularly in the Chilterns. For example, the National Trust has said that HS2 would have "unacceptable impacts on important natural and historic designated landscapes", largely because the high operating speed has reduced the flexibility in designing the route to that "the line cannot be finessed sufficiently to minimise local environmental impacts".⁵⁰²

The Ramblers and the Woodland Trust have pointed to specific impacts on rights of way and woodland. For example, the Ramblers claims that 150 paths will be crossed by the proposed route, the majority of which were not considered as part of the Appraisal of Sustainability published with the government's consultation.⁵⁰³ The Woodland Trust has calculated that approximately 136 hectares of ancient woodland will be directly affected by HS2, with little

⁴⁹⁷ op cit., *High Speed Rail*, HSR 75

⁴⁹⁸ op cit., *High Speed Rail*, Q30

⁴⁹⁹ ibid., Q240

⁵⁰⁰ David Bayliss, RAC Foundation, in: ibid., Qq210-11

⁵⁰¹ this behaviour was criticised by the Transport Committee for lowering the tone of the debate, see: op cit., *High Speed Rail*, para 89

⁵⁰² ibid., HSR 32

⁵⁰³ ibid., HSR 37

explanation so far of mitigation measures to address this.⁵⁰⁴ Dame Fiona Reynolds of the National Trust has raised concerns about [Hartwell House](#), one of its stately homes, just outside Aylesbury, from which the HS2 proposal would take ‘inalienable land’ from the Trust.⁵⁰⁵

In addition to the question of blight and environmental impact in absolute terms, there is the question of its relative impact compared to, for example, air travel. The question of modal shift from road and air to rail is discussed in more detail above. However, in 1994 the Royal Commission on Environmental Pollution published a report on transport and the environment. It found that a major factor in competition between air and rail is the speed of trains,⁵⁰⁶ but it also concluded that an ‘energy penalty’ came with increasing the speed of a train. The report concluded:

While very high-speed trains may have environmental advantages over aircraft, they might cause more damage to the environment than fuel-efficient cars, especially if a new track has to be constructed. As well as passengers who would otherwise have travelled by air, they would carry large numbers of people who would otherwise have travelled by slower, less damaging, rail services. It is therefore possible that their net impact on the environment will be unfavourable. In view of this we recommend that no proposal be taken forward in the UK for trains running at more than 300 kph unless a comprehensive assessment has shown that the environmental benefits from transferred air traffic will outweigh the environmental costs of landtake, construction work noise and the additional energy required to propel trains at this speed.⁵⁰⁷

The aviation industry also argued that HSR was not an ‘environmentally’ friendly’ alternative to air travel. In the course of a 1995-96 inquiry into UK airport capacity, the Transport Select Committee took evidence from airport operators who argued that “high speed rail links may cause more damage to the environment, by way of land take, ecological impact and noise along the trackside, than expansion of airports”.⁵⁰⁸ The Airport Operators’ Association (AOA) argued that:

... construction of new high-speed rail lines would be highly damaging to the environment. The intrusion into the countryside would be far more damaging than the construction of a number of additional; runways, say 200 miles from London to Manchester, compared to four miles of construction for two new runways. The severance of communities along the length of any new line would be substantial.⁵⁰⁹

Noise and mitigation

The Royal Commission on Environmental Pollution’s 1994 report stated that: “although noise from railways causes much less annoyance overall, high-speed trains produce high noise levels (which have been a particular cause of complaint and opposition in Japan)”. It recommended that “safeguards should be as effective as for noise from roads”.⁵¹⁰ The French found that ‘earth hills’ were an efficient, green solution to noise from HSR.⁵¹¹ Steve

⁵⁰⁴ *ibid.*, HSR 69

⁵⁰⁵ *ibid.*, Q318; further information on planned mitigation for this area can be found in: HS2 Ltd. for DfT, [High Speed Rail London to the West Midlands and Beyond Line of Route Mitigation: Supplementary Report](#), November 2010

⁵⁰⁶ *op cit.*, [Transport and the environment](#), para 12.43

⁵⁰⁷ *ibid.*, para 12.49

⁵⁰⁸ Transport Committee, *UK Airport Capacity: minutes of evidence* (session 1995-96), HC 40-v, 10 January 1996, Ev 172 [Manchester Airport]

⁵⁰⁹ *ibid.*, Ev 210 [AOA]

⁵¹⁰ *op cit.*, [Transport and the environment](#), para 4.15

⁵¹¹ *op cit.*, [High Speed Rail](#), Q93

Rodrick of the Chilterns Conservation Board has queried how this might work in an Area of Outstanding Natural Beauty (AONB):

Deeper cuttings certainly help but have the downside of creating more spoil to get rid of. If you cannot see it, you cannot hear it, and you do not know it is there, then that is a better railway from our point of view. We are concerned about some of the noise barriers and bunds that are talked about. These are not attractive features, and in an AONB you do not expect to have ugly features. There has to be a different way of dealing with it.⁵¹²

HS2 Ltd. has stated that the overwhelming majority of the spoil generated by the project would be used to landscape and provide mitigation, along the French model and that utilised by HS1: “High Speed 1 used 95% of that spoil to landscape locally, to mitigate, to hide the railway and to provide in places false cuttings and green tunnels. We have every expectation that we would follow a similar line and hopefully with a similar proportion, which means that a very limited amount of spoil would need to be taken away to landfill remote from the project”.⁵¹³

Mr Rodrick has expressed concerns that the concept of noise impacts are difficult to express to the general public because the way they are measured is very technical, and that the consultation did not help: “what we have been disappointed with is the paucity of information provided. You would expect something like a noise contour map. We have not had that. We have only had the average noise figures published, and it is very easy to mask the peaks and troughs if you do that”.⁵¹⁴

David Rayney has raised a further question about the ‘sonic boom vibration effect’ of HS2. In his written submission to the Transport Select Committee explaining the scientific principles behind the theory, Rayney explains:

The HS2 trains will not go through the same sound barrier (the speed of sound in air), But, the heavy train running on rails at speeds approaching the speed that the vibration waves travel through the track, infrastructure and ground, will set up pressure & vibration waves which are analogous to an sonic boom. The dynamics of such vibrations are such that the anticipated speed for HS2 compared to established high speed railways elsewhere can be expected to be disproportionately detrimental in this regard.

Concerns about these severe vibrations are not simply restricted to their effect on the local living environment. Rather these waves will have a substantial destructive and fatiguing effect on nearby buildings, on the infrastructure of the line – the rails, the bridges, the tunnel supports – and on the trains themselves.⁵¹⁵

6.6 Alternative proposals: does it have to be HSR?

Generally

Opponents of HS2 are invariably challenged by proponents of the scheme to provide an alternative means of providing for the additional capacity that will be required on the WCML route after 2018. Some of those opponents have argued for specific proposals, others have pointed to other technology or changes to current services that could provide extra capacity or demand management. The Railways Minister, Theresa Villiers, dismissed the various alternative proposals in the House in October 2011 as follows:

⁵¹² *ibid.*, Q352

⁵¹³ *op cit.*, [High Speed Rail](#), Q462

⁵¹⁴ *ibid.*, Q335

⁵¹⁵ *ibid.*, HSR 53

... the alternatives are simply sticking-plaster solutions. Of the alternatives formally considered, only one had a positive benefit-to-cost ratio ... tinkering with first and second class is simply not credible; nor are the 51m proposals, which have not been adequately costed, do not take into account the massive cost of signalling remodelling and cannot deal with a peak-time crisis. Furthermore, trying to defuse the capacity time bomb with any kind of work on the existing line would involve extensive disruption.⁵¹⁶

The Transport Committee broadly agreed that: "Whilst the alternatives proposed by groups such as 51m offer substantial additional passenger capacity, they are not of the same scale as HS2. The rapid growth in passenger numbers over the past 15 years shows the need to plan on a larger scale and for the long term".⁵¹⁷

Opponents contend that alternatives would meet the government's demand forecasts, but that the government then 'moves the goals posts' and states that the alternatives would not provide *as much* capacity as HS2. There then arises the question of whether you need as much capacity as HS2 provides, the answer to which relies on one's agreement or otherwise with the government's demand forecasting (see section 6.2, above).

In the past, where there has been discussion about HSR, some have pointed to alternative technologies such as Maglev as the way forward, though this technology has only been proven workable to date over short distances (the longest track covers 30km or so in Shanghai). Christian Wolmar summarises the debate about Maglev in his 2007 book *Fire & Steam*:

Maglev trains, a kind of monorail propelled by powerful magnetic forces that lift the train a few centimetres above the tracks, have been in development for many years and have been successfully tested at speeds of over 400 mph. There have been suggestions for a network of maglev trains linking the major British cities, but the advantage over conventional trains in terms of speed is more than negated by the disadvantages, such as the unproven nature of the technology, the impossibility of connecting them with the existing rail network, and doubts about safety, heightened by an accident on a test track in Germany in September 2006 which killed twenty-three people. In any case, conventional high-speed trains are getting quicker, with speeds of 320 kph (200 mph) on the new TGV Est in France, and even 350 kph (220 mph) being mooted, which, given the difficulty of building Maglev stations in city centres, will weigh in favour of the conventional technology.⁵¹⁸

UK Ultraspeed is one such scheme, based on Transrapid maglev, that could deliver HSR at a speed of 311 mph (500 kph). Its backers have proposed an Ultraspeed network linking directly to HS1 and Heathrow in London, going north via Birmingham to Manchester, Liverpool and Leeds and linking the northern cities via a trans-Pennine maglev line and then continuing up the east coast via Newcastle to Edinburgh and across to Glasgow.⁵¹⁹ Ultraspeed claims that maglev would have two significant advantages over conventional rail:

... two *specific* advantages apply to Transrapid maglev projects and their application in the UK context.

Firstly, thanks to the holistic nature of the technology and its largely modular and/or prefabricated nature, the quantum, layout and cost of the entire system can be defined with far greater precision at this stage of upstream study than, say, a comparably-scoped rail or road project.

⁵¹⁶ [HC Deb 13 October 2011, c594](#)

⁵¹⁷ op cit., [High Speed Rail](#), para 44

⁵¹⁸ op cit., [Fire & Steam](#), p317

⁵¹⁹ map available at: UK Ultraspeed, [UK Ultraspeed: Faster, Better, Cheaper & Greener](#), 2010, pp16-17

Secondly, and delivering a **significant reduction to up-front capital costs**, an estimated **62.9% of route** has guideway of elevated construction and higher than 6m above contour (illustrated overleaf). This is treated under a **wayleave rental** structure.⁵²⁰

The most common argument amongst the scheme's opponents is that the country doesn't need HS2 because capacity can be met by other means. For example, Prof. Tomaney proposes that the £30 billion or so cost of the scheme could be better spent, if the intention is to improve regional development:

We have good evidence that what matters for regional development is investment in skills, knowledge and technology. Transport is important, but as I have said, the evidence is much stronger on investment at the metropolitan level. Connecting metropolitan economies seems to be much stronger. Rail can be part of that, but so can buses and improving the ability of pedestrians to move around cities. These seem to me to be part of an opportunity cost.⁵²¹

Prof. John Whitelegg has put the case that demand – particularly amongst business passengers and commuters – could be reduced by improving our use of technology:

Videoconferencing and other forms of electronic substitution for physical travel have grown rapidly in the last 10 years. The technology is now very high quality and both private and public sector organisations are aware of the benefits of using these communication media as an alternative to physical travel ... It would be foolish to embark on a very expensive increase in capacity on rail routes to London at a time when high quality and tested alternatives exist. The 2004 DfT study "Smarter Choices" reported a case study of BT which showed that in one year BT avoided over 900,000 journeys though the use of video and teleconferencing. A case study of Hannover Housing Association which manages property in 175 local authority areas showed that the organisation "saved" 72 working days in a 3 month period by using videoconferencing as an alternative to physical travel.⁵²²

Jerry Marshall of AGAHST has argued that switching first class carriages to standard class could alleviate some capacity constraints on the WCML:

The load factor is only 20% on the first-class carriages so I do not think there is any great difficulty in going down from four to three carriages because they are grossly underused at the moment ... It is the average load factor.⁵²³

Martin Tett from the 51m Alliance has claimed that demand could be better met incrementally over the next 30 years, such as via "improvements on the commuter services down from Northampton and Milton Keynes much more quickly than HS2 would do". He claimed this would be a better approach rather than spending a considerable amount of money upfront for a scheme that might not be suitable for a world "in 30 to 40 years' time [that] will be radically different from the one in which predict and provide today is being judged".⁵²⁴

However, Richard Eccles from Network Rail has stated that these options have been examined and that what can be done in the intermediate term to increase capacity is being done. This includes: extending the Pendolinos to 11 cars; and grade-separating a junction at

⁵²⁰ UK Ultraspeed, *London, Birmingham, Manchester, Leeds & Liverpool Maglev: High Level Business Case*, July 2008, p2 [emphasis in original]

⁵²¹ op cit., *High Speed Rail*, Q286

⁵²² op cit., *High Speed Rail*, HSR 34

⁵²³ ibid., Qq223-24

⁵²⁴ ibid., Q295

Stafford to give an increment in capacity that might allow another off peak path for long-distance high speed services to London. NR conducted a new lines study in 2009 which concluded that, despite these small scale interventions, a new line is required to meet demand:

... what we cannot get is a strategic intervention that would be value for money on the existing network that would provide the kind of step change in capacity that we know we will require in the future. That is why we looked to see if building a new line would be the best value for money answer for that step change in capacity, and we found that it was the best value for money answer. Then we looked at the secondary issue: did you get a better business case if it was a high speed line? We believe that you do get a better business case.⁵²⁵

Others have proposed completely different high speed schemes which they claim would be a better use of money than the proposed London-Birmingham route. For example, Prof. John Tomaney of Newcastle University has said that we should think about developing high speed rail connecting northern cities as “in terms of what we know from economics, evidence and actual empirical examples, it might be a better way of thinking about tackling the problem”.⁵²⁶ Chris Worker has suggested an alternative route, extending HS1 into the north and bypassing London via Stratford:

Rail journey times to mainland Europe from regional centres beyond London are so poor that rail is little used for such journeys. The challenge of getting across London (and the congestion zone around it) is probably a far more significant factor than line-speed. The emphasis for HSR should therefore be on direct travel between the regional centres of Britain and mainland Europe **passing London**. This is what air travel does, and is a significant part of its attraction. The socio-economic benefits of such a concept to the regions of the UK beyond London should be fully examined before HSR is ruled out. A similar analysis should also be undertaken in respect of direct freight provision. By offering a new set of routes, such an approach would increase the market share taken by rail while reducing transport’s overall carbon footprint. Capacity issues in and approaching London are a separate matter, but would be eased by diverting through traffic past the capital’s ‘congestion zone’.

The optimum continuation from HS1 would be north from Stratford up the Lea Valley, passing north of Hertford and across the East Coast Main Line (ECML) to a junction just west of Stevenage.⁵²⁷

Rail Package 2 (RP2)

The most commonly cited viable alternative to HS2 is what has become known as ‘Rail Package 2’ or RP2. RP2 was originally set out in Atkins’ March 2010 report to the previous government; this was costed at £3.7 billion.⁵²⁸ RP2 was then folded into Scenario B, in Atkins’ follow-up report, published in February 2011. This puts the cost of Scenario B at just over £13 billion. It includes the following schemes:

West Coast Main Line/Chiltern Line

Infrastructure enhancements on the West Coast Main Line include:

– Stafford area by-pass;

⁵²⁵ *ibid.*, Q38

⁵²⁶ *ibid.*, Q281

⁵²⁷ *op cit.*, *High Speed Rail*, HSR 20 [emphasis in the original]

⁵²⁸ Atkins, *High Speed 2 Strategic Alternatives Study: Rail Interventions Report*, March 2010

- Grade-separation between Cheddington and Leighton Buzzard;
- 3 new platforms at Euston Station;
- 3 extra platforms at Manchester Piccadilly (with grade-separation at Ardwick);
- 4-tracking Attleborough – Brinklow (including freight capacity works at Nuneaton) – Northampton area speed improvements; and
- 4-tracking Beechwood Tunnel to Stechford.

Midland Main Line

Infrastructure enhancements on the Midland Main Line include:

- Electrification from Bedford to Sheffield;
- Freight loop facility between London and Bedford;
- Re-instatement of 4-tracks between Bedford and Kettering;
- Re-instatement of 2-tracks between Kettering and Corby;
- Station area re-modelling at Corby;
- Re-modelling and 4-tracking in the Leicester area; and,
- Electrification and increased stabling capacity at depots.

East Coast Main Line

Infrastructure enhancements on the East Coast Main Line include:

- Kings Cross: Throat re-modelling. Re-instatement of a third tunnel and 6-track approach;
- 4-tracking Digswell – Woolmer Green;
- 4-tracking Huntingdon – Peterborough – Peterborough area works: Werrington Flyover;
- 4-tracking Stoke Junction – Doncaster;
- Newark – provide flyover for Nottingham to Lincoln route;
- Retford – works to address low speed turnouts and restrictive signalling;
- Electrify and upgrade Retford – Sheffield;
- Re-modelling and extra platforms at Doncaster;
- Electrification of Hambleton Junction to Leeds.⁵²⁹

This has been much debated by opponents of the proposed HS2 scheme who make various claims about the scheme's ability to deliver 'more for less' in terms of benefits and cost. However, Network Rail, HS2 Ltd., and the government maintain that this is not a viable alternative. The main concern amongst those in favour of HS2 is that RP2 would only get you

⁵²⁹ Atkins, *High Speed Rail Strategic Alternatives Study: Strategic Alternatives to the Proposed 'Y' Network*, February 2011, pp14-15

'so far' For example, Stephen Clark of the English Core Cities Group states: "it is not quite clear where the Rail Package 2 will get you. After 20 years, would you want to do the same thing again? Are we looking back now on the West Coast upgrade that was authored in 1990 and saying perhaps we should have done that differently? I think we are".⁵³⁰ Similarly, Geoff Inskip of Centro has said that while RP2 "enhances some of the intercity network by, say, three train paths an hour or something like that", "it is not going to solve the long-term problem we have [in the West Midlands]. The long-term problem is, as has been mentioned before, that in December 2008 we were squeezed on our local rail services".⁵³¹

Those who have spoken in favour of RP2 claim that the case for the project has been misleadingly represented by HS2 Ltd. and both the previous and present governments. Bruce Weston of the HS2 Action Alliance explains:

Could I try and clarify this a little because the way that the Rail Package 2 numbers are presented is frequently quite misleading? ... If you do it on a like-for-like basis, instead of getting a 54% increase with RP2, which is what it delivers against the do-minimum basis, if you do it on the same basis as the demand, you get an increase of 151% ... The way to do the sums is not against a do-minimum that is fairly near the conclusion but to start it back from the level at which you are taking the demand, and that is the 2007-2008 base, not where you get to after you have had all the timetable changes and you have lengthened most of the Pendolino fleet.⁵³²

Martin Tett has raised further concerns about the methodology by which RP2 and HS2 have been compared, for example he states that a lot of the costs for developing the network are included in the evaluation of their examination of RP2 but they are not included in the examination of HS2; and the wider economic impact is put into HS2 but not into the RP2 analysis.⁵³³

Mr Tett, like many of the other groups opposed to HS2, supports a scheme generally called 'Rail Package 2 plus' (RP2+), which, its supporters claim, can be delivered at a substantially reduced cost (£2-£3 billion), much more quickly and incrementally in line with demand.⁵³⁴ It is outlined in some detail in part 2 of *A Better Railway For Britain*, published in September 2011 by an alliance of groups opposed to HS2. This states that increased main line capacity to the north could be delivered by a suite of solutions:

... there is a clear need to prioritise the provision of greater capacity, and to ensure that solutions are ranked in order of cost effectiveness:

- Rolling stock reconfiguration, for example conversion of some first class vehicles to standard class. – which is virtually costless where first class loadings are low
- More effective demand management, to get better capacity utilisation, for example with pricing to encourage the spread of peak demand, including use when appropriate of obligatory reservations to manage 'high peak' InterCity demand.
- Operation of longer trains, to the extent that this is possible without major infrastructure expenditure.

⁵³⁰ op cit., *High Speed Rail*, Q154

⁵³¹ ibid., Q134

⁵³² op cit., *High Speed Rail*, Q218

⁵³³ ibid., Q311

⁵³⁴ ibid., Q311

- Better timetables to run more trains
- Targeted infrastructure investment to clear selected bottlenecks to enable the operation of longer trains and/or increased frequency.
- Construction of new infrastructure.⁵³⁵

Annex 2 of the Transport Committee's November 2011 report on HSR largely endorses 51m's capacity increase claims. The government and HS2 Ltd. admit that they have not assessed this alternative proposed by 51m.⁵³⁶

7 Where do we go from here?

7.1 Timetable towards the Hybrid Bill

The government's current timetable for proceeding with HS2 is as follows:

- December 2011 – Announcement on decision whether to go ahead with HS2; publication of details on route beyond Birmingham
- 2012 – consultation on safeguarding directions for land along the proposed route; consultation on route beyond Birmingham
- 2013 – publication of Hybrid Bill for route between London and Birmingham
- 2015-20 – publication of Hybrid Bill for route between Birmingham and the North of England; discussions on a business case for a route to Scotland
- 2018 – putative date for beginning of construction of London-Birmingham route

There are some questions about whether this is realistic. One thing that may upset this timetable is any judicial review application by councils, campaign groups and residents about the consultation process.⁵³⁷ For example, the leader of Hillingdon Council, Ray Puddifoot, has said that: "You have to let the consultation end and the decision be made before we can bring a judicial review, but we have got legal advisors looking at grounds for it and we are confident that the business case is flawed";⁵³⁸ and the Stop HS2 Campaign launched a judicial review fund in late 2010.⁵³⁹

However, generally, concerns about the timing centre around the complexity of the Hybrid Bill procedure, the amount of time past major rail infrastructure projects have taken to pass through Parliament, and the wide and passionate interest the issue has provoked. The two previous significant rail schemes that involved use of the Hybrid Bill procedure were the Channel Tunnel Rail Link (2 years, 1 month in 1994-96) and Crossrail (3 years, 5 months in 2005-08). One might expect the timetable for the HS2 Hybrid Bill to be closer to that for Crossrail than that for HS1. Assuming the Bill is introduced on or after 3 May 2013, that will only leave two years before the date of the next General Election. It should be noted that Crossrail was carried over from the 2001-05 Parliament into the 2005-10 Parliament.

⁵³⁵ [Various], *A Better Railway For Britain*, September 2011, p20

⁵³⁶ op cit., *High Speed Rail*, HSR 167A

⁵³⁷ *Judicial Review* is a type of court proceeding in which a judge reviews the lawfulness of a decision or action made by a public body

⁵³⁸ "HS2 fight 'more winnable than third runway' says council chief", *Uxbridge Gazette*, 13 April 2011

⁵³⁹ Stop HS2 press notice, "Judicial review funding appeal launched as campaigners take their argument to Westminster", 1 November 2010

Hybrid Bills take longer to pass through Parliament than other bills because of the special procedure involved in their scrutiny. In addition to the traditional stages of any government bill (debates in both Houses and committal to a committee), there is an additional stage whereby members of the public with an interest in the scheme proposed in the bill may submit a petition to a specially constituted select committee. This stage occurs in both Houses. The select committees hold public hearings on the petitions they receive, questioning petitioners or their representatives, and calling witnesses. This is the lengthiest stage of any Hybrid Bill process.⁵⁴⁰ By way of illustration, 457 petitions were deposited against the *Crossrail Bill* (358 against the Bill and a further 99 against the additional provisions). The Committee heard from many, but not all, of the petitioners during its hearings. All hearings took place in public and were transcribed and web-cast.⁵⁴¹

Once the Bill has achieved Royal Assent (i.e. officially becomes an Act of Parliament), one also has to factor in the practical period required before construction can begin. For example, for Crossrail that was ten months (Royal Assent in July 2008, first construction work beginning May 2009).

7.2 Maintaining an all-party consensus

Large infrastructure projects, that span the course of more than one Parliament – and possibly more than one government – require all-party consensus if they are to be legislated for, and delivered efficiently, promptly and to budget.

As outlined in section 3, above, at the time of the 2010 General Election the leadership of all three main parties supported HS2. There were some differences of opinion about the details of the route – particularly regarding the role of and access to Heathrow – but all were broadly in agreement. Since then, the Labour Party has hinted that the high speed project needs to be re-evaluated and the Shadow Transport Secretary, Maria Eagle has said she has “an open mind” about it.⁵⁴² The Leader of the Labour Party, Ed Miliband, has indicated that the party still supports the idea of a high speed rail network in the UK.⁵⁴³ At the 2011 Labour Conference, Ms Eagle highlighted Labour’s differences with the Coalition over their HS2 scheme:

... it was Labour that set out plans for a new high speed line. Not just from London to Birmingham, but on to Manchester, Sheffield and Leeds. Cutting journey times across the UK, benefitting Glasgow and Edinburgh. And, yes, bringing Liverpool under 100 minutes from London.

But the Tory-led Government is only planning to take powers to construct the line as far as Birmingham which casts real doubt on their long term commitment to delivering high speed rail in the north. They should think again and ensure the whole route is included in the forthcoming legislation.⁵⁴⁴

There were further reports in October 2011 that Labour had changed its mind about the planned route for HS2. For example, *The Sunday Times* reported that the party now favours “a route running past Heathrow and then parallel to the M40 and the existing Chiltern railway line that skirts Bicester and Banbury”.⁵⁴⁵ In a speech to the Air Operators’ Association (AOA)

⁵⁴⁰ Hybrid Bill procedure is explained in more detail in House of Commons Information Office factsheet L5, *Hybrid Bills*, August 2010

⁵⁴¹ Crossrail Bill Committee, *Crossrail Bill: First Special Report of Session 2006–07*, HC 235, 23 October 2007, paras 11-12

⁵⁴² “After 100 days of sniping it’s time to rally round Ed, says ally”, *The Independent*, 1 January 2011

⁵⁴³ “We still support high-speed rail link to Yorkshire, insists Miliband”, *Yorkshire Post*, 28 February 2011

⁵⁴⁴ *Maria Eagle’s Speech to Labour Party Conference*, 26 September 2011

⁵⁴⁵ “Labour courts Tory voters with new high-speed route”, *The Sunday Times*, 30 October 2011

on 31 October 2011 Ms Eagle said that it would be “a huge mistake not to connect direct to Heathrow from the start”.⁵⁴⁶ As some have remarked, this is almost a reversal in the Labour and Conservative views from before the 2010 election, when the Conservatives favoured the direct line to Heathrow and Labour did not.⁵⁴⁷ One reason why the party in government, irrespective of political hue, might not look favourably on the direct Heathrow link is the additional cost (see section 4.3, above).

The question of the Labour Party’s support is vital. If the Hybrid Bill is laid before Parliament in 2013, it is likely to extend beyond the course of the current Parliament and into the 2015-20 Parliament. If there is a change of government in 2015 Labour may be faced with a decision as to whether to continue with the Bill before the House, withdraw it and replace it with a different Bill, or withdraw it completely and cancel the scheme.

One reason a new government might consider withdrawing any Coalition Bill is if it only covers the building of the route from London to Birmingham and the attendant termini. A new government might wish to put through a single bill for the whole route – from London to Leeds and Manchester or further north, via Birmingham. This might take longer initially, but it would allow construction to start on the route north of Birmingham more quickly than if a second Hybrid Bill had to go through Parliament at a later date. It might also allay fears that once a route reached Birmingham there would be no money/impetus to begin the second half of the route – though much of the anticipated economic benefits come with the construction of the second phase. In its November 2011 report on HS2, the Transport Select Committee suggested a neat solution to this question: that the government should include a ‘purpose clause’ in the Bill to provide “statutory force to its commitment to continue the high-speed rail network at least as far as Manchester and Leeds”.⁵⁴⁸ Mr Hammond has stated that “in the first Bill we will make a clear commitment placing obligations on the Secretary of State to bring forward the necessary steps in the future process within a time scale [to introduce a second Bill to build phase 2 of the project]”.⁵⁴⁹

However, there might be one very compelling reason to proceed with whatever the Coalition’s bill ends up as, even if one were not entirely happy with its scope or the general route: cost. By the anticipated date of the next election, the government is projecting that the taxpayer will have already spent almost £800 million on the scheme (just over £200 million in capital spending and the rest resource).⁵⁵⁰ A withdrawal or a change to any existing bill would likely add to that figure. In her speech to the AOA in October 2011 Ms Eagle stated that Labour would “do nothing to put at risk or delay this vital project”.⁵⁵¹

The Conservatives have their own internal critics. The proposed route for the London-Birmingham leg of HS2 runs through a number of constituencies with Conservative MPs. There have been a number of reports indicating that backbenchers and ministers are unhappy with the plans.⁵⁵² However, their numbers would not be anywhere near sufficient to stop the legislation required, as long as the Opposition remains in favour.

⁵⁴⁶ [Full text of Maria Eagle's speech, on Labour's ideas on future aviation policy](#), 31 October 2011

⁵⁴⁷ see, e.g.: “Tony Lodge: Labour is now supporting the original Conservative route for HS2 - so why is the Coalition supporting the old (and wrong) Labour route?”, *Conservative Home*, 1 November 2011

⁵⁴⁸ op cit., *High Speed Rail*, para 122

⁵⁴⁹ *ibid.*, Q533

⁵⁵⁰ [HC Deb 6 September 2011, c441W](#)

⁵⁵¹ op cit., [Full text of Maria Eagle's speech, on Labour's ideas on future aviation policy](#)

⁵⁵² see, e.g.: “Tory grassroots rebel against HS2 plans”, *The Daily Telegraph*, 25 September 2011; and: “Tory MPs and grassroots rebels pile the pressure on £32billion high-speed rail link”, *The Observer*, 18 September 2011

